# Improving SMTEs' Business Performance through Strategic Use of Information Communication Technology. ICT and Tourism Challenges and Opportunities

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**Abstract**    *Information communication technologies (ICTs) prevail in all functions of strategic and operational management. As information is the lifeblood of tourism, ICTs provide both opportunities and challenges for the industry. Unless the current tourism industry improves its competitiveness, by utilizing the emerging ITs and innovative management methods, there is a danger for exogenous players to enter the marketplace, jeopardizing the position of the existing ones. Only creative and innovative suppliers will be able to survive the competition in the new millennium. Small and medium-sized tourist enterprises' (SMTEs) utilization of the Internet and their perception of online learning systems demonstrate that training is imperative and that ICTs can enable them to improve their inventory management and develop their internal business processes. Previous researches demonstrate that SMTEs are not utilizing information technology in their businesses to its full potential. They primarily see the ICTs as a mechanism for promoting their hotel rather than for training, inter or intraorganizational and e-commerce purposes. Using a wide variety of sources, mainly in the tourism literature, this paper comprehensively reviews and analyses prior studies in the context of ICT applications to tourism and provides a framework for the utilization of technology in tourism by adopting a strategic perspective. The paper also projects future developments in ICT-related opportunities and demonstrates critical changes that will influence the tourism industry structure.*

**Key words**    SMTE, Business Performance, Information Communication Technology (ICT), Tourism

## 1. Introduction

Tourism is currently one of the fastest gowning industries across the world. It is primarily a service industry as it does not produce goods but renders services to various classes of people. It is a combination of various interrelated industries and trade like food industry, transport industry etc. It is a complicated business because it involves multiple socio-economic activities like attracting people to a destination, transporting them, housing, feeding and entertaining etc. In the process it brings about tremendous infrastructural improvements and helps in the development of the region. Perhaps tourism is one such rare industry, which earns foreign exchange without exporting national wealth. Tourism, like other economic activities flourishes best when it fits into the context of general economic policies and programs designed to lead to the optimum growth of the economy of a country as a whole (Gupta and Bansal, 2001). Tourism is a major component of the European economy, With 99 per cent of businesses classified as small and medium-sized tourist enterprises (SMTEs) in Europe, SMTEs when grouped together collectively have a considerable influence on

both national and European economies, and particularly within the tourism and hospitality industry. Hence, greater consideration should be given to SMTEs to help them be innovative and adopt systems that will allow them to explore their potential. In order to achieve this, SMTEs need to maintain and understand the importance of utilizing new ICTs dynamically (European Commission, 2006a).

The revolution in ICTs has profound implications for economic and social development. It has pervaded every aspect of human life whether it is health, education, economics, governance, entertainment etc. The most important benefit associated with the access to the new technologies is the increase in the supply of information. Information is shared and disseminated to larger audience. Secondly it reduces the cost of production. Knowledge is produced, transmitted, accessed and shared at the minimum cost. With the reduction in the transactional costs, there is also a reduction in the degree of inefficiencies and uncertainty. Thirdly it has overcome the constraints of distance and geography. ICTs have cut across the geographic boundaries of the nation states. Buyers and sellers are able to share information, specifications, production process etc. across the national borders. Fourthly it has led to more transparency. Networking and information sharing definitely leads to demands for greater openness and transparency (Sigala *et al.,* 2001).

Much attention has been given over the years to the successful adoption and use of information and communication technologies (ICT) by organizations. It is commonly accepted that ICT provides many potential benefit to organizations so as to make them more efficient, effective and competitive. However, unlike extensive research into ICT practices in large organization, the small and medium-sized enterprise (SME) sector has been under-researched (Main, 2002). In particular, SMTEs need to realize that ICTs can be used not only for operational purposes, but also for tactical and strategic management. This can help to empower SMTEs to communicate directly and more efficiently with prospective customers and suppliers as well as to achieve economies of scale. Therefore ICT training in the hospitality industry is considered essential if SMTEs are to increase their organizational efficiency. Therefore it should become a priority for SMTE managers to incorporate training into their overall strategy. Online learning systems can help to deliver ICT training to SMTEs, giving them the opportunity to gain the core skills and competencies that are critical for SMTEs to remain or to become more competitive in the e-marketplace. Not only ICTs empower consumers to identify, customize and purchase tourism products but they also support the globalization of the industry by providing effective tools for suppliers to develop, manage, and distribute their offerings worldwide (Buhalis, 2003).

Information and communication technology (ICT) has profound implications for the tourism industry and is being used extensively in a great variety of functions. Contemporary ICTs have radically altered the way in which information is conveyed throughout the industry (B-to-B) and to customers (B-to-C) with the effect of bridging the distance between all those involved in this market. The uses of ICTs are driven by the interaction between users' demand requests, and the rapid expansion and sophistication of new products and services (both hardware and software) offer new ways of delivering old products and services (Buhalis, 2003).

Among the modern ICTs, the Internet has become, in less than two decades, the most significant development in communications since the invention of the printing press. The Net, as it is called, has revolutionized deeply the way in which we communicate, conduct business or research, and study; in a word, the way we live. The Internet is an important cross-cultural promotional tool for tourism that can be used to weave together text and graphics to globally market individual tourism businesses and destinations. The Internet is an extremely cost-effective marketing medium, which has the potential to level the playing-field for small tourism businesses. However, in order to stand out from the Internet crowd, it is important that small and medium-sized tourism enterprises (tourism SMEs) can demonstrate an appreciation of cross-cultural issues, e.g. language, color and the significance of images, in the development of their websites. Visitor images of destinations are important drivers of consumer choice and, therefore, how destinations integrate text and images to communicate information to potential visitors is critically important to image formation (Odlyzko, 2000). In today's tourism world, using ICTs and the Internet is no longer a distinctive characteristic by itself, and only effective and efficient use of it can help in obtaining a competitive advantage. But when the right technologies are available and are correctly applied, organizational benefits and growth become quite visible. A great deal of study, research and analysis has been carried out in recent years on the Internet, IT usage and importance in different fields and for tourism in particular (Sigala *et al.*, 2001).

## 2. Literature Review

### 2.1. Tourism and business functions

The strategic and operational dimensions of ICTs for tourism strategy are emerging in the literature. Law and Jogaratnam (2005) advocated that technologies can become part of the strategic planning process of a business only when managers make full use of it. Furthermore, effective ICT applications require the knowledge of managers and operating staff. ICTs should be used for both operational and strategic management. ICT developments have direct impacts on the competitiveness of enterprises, they determine the two fundamental roots to competitive advantage, i.e. differentiation and cost advantage (Porter, 2001). Moreover, it is crucial for tourism practitioners to proactively incorporate ICTs into their efforts to improve service quality as ICTs enable organizations to dynamically differentiate and specialize their products and services. This almost leads to the market segment of one, where consumers can build their tourism experience by bundling their products dynamically (Buhalis and Main, 1998).

The emergence of the Internet affected all Five Forces in Porter's model (1979, 1980), as it changed the conditions of competition in the marketplace. The Internet is changing the industry structure by altering barriers to entry, minimizing switching costs, revolutionizing distribution channels, facilitating price transparency and competition, while enhancing production efficiency. Porter (2001) demonstrates how the Internet has changed industry forces. The Internet has also enhanced the bargaining power of suppliers as it enabled them to monitor competitors and offer tailored and differentiated products. By being able to adjust to changes in demand and by being efficient, suppliers gain important cost savings. Overall, suppliers of travel products enhanced their position within the industry due to the increased possibility of interconnectivity and interactivity with consumers and partners. From a customer perspective, the Internet affected the bargaining power of buyers. Buyers gained bargaining power as they now have instant access to information, understand market offers and conditions better and are constantly exposed to special offers (Kim *et al.*, 2004). By using the Web and the Internet as marketing tools, tourism organizations also gained some distinct advantages in cost reduction, revenue growth, marketing research and database development, and customer retention. The Internet has assisted tourism organizations to use a wide range of promotional activities to supplement, if not replace, offline promotions. This change is important as the Internet is generally considered as a multi-promotion tool and distribution channel. Web marketing is therefore gradually becoming mainstream. The flexibility of the Internet and the ability to address different target markets support tourism organizations to develop a marketing proposition for each target market and to create themes or routes through the destination to address the needs of each market (O'Connor and Frew, 2004).

ICTs also transformed the distribution function to an electronic marketplace, where access to information and ubiquity is achieved, while interactivity between principals and consumers provides major opportunities. The Internet promotes the mass-customization of tourism products as it supports the industry to target niche markets of significant size in different geographical locations. Hence, the Internet propels the re-engineering of the entire process of producing and delivering tourism products, as well as it boosts interactivity between partners that can design specialized products and promotion in order to maximize the value-added provided to individual consumers. Ultimately, ICT tools reinvent the packaging of tourism to a much more individual-focused activity, offering great opportunities for principals and intermediaries and enhancing the total quality of the final product. Electronic tourism distribution channels dictate the choice of product as the difference between products becomes secondary to the easiness of getting an entire transaction completed. Therefore, ICTs gradually change the function of distribution from facilitation of information exchange and reservations to a much more sophisticated mechanism of adding value and providing service (Buhalis and Licata, 2002).

In the pre-Internet era tourism suppliers had no other choice but to use intermediaries, such as travel agents and tour operators, for their distribution functions. CRS and GDSs facilitated the intermediation process. Both intermediaries and end-consumers are dependent on comprehensive, accurate, and timely information to aid in their travel choice as a result of the intangible nature of the tourism products (Poon, 1993). These changes force all tourism players to rethink their business models and to take drastic actions in re-developing their value chains. Tourism organizations aim to disintermediate all intermediaries that add cost to their production and distribution. For example, tour operators aim to sell their packages direct, bypassing travel agencies. They also disbanded their packages and sell individual components (Buhalis, 1998).

On the other hand, travel agencies dynamically package tour products and support the development of customized packages, disintermediating tour operators. The web therefore introduced utter transparency in the marketplace (Buhalis, 2003). This trend commoditized the tourism product and challenged differentiation strategies and branding. Consumers who search the Internet for accommodation or airlines for example would be offered listing of products based on price or commercial arrangements with intermediaries, rather than product attributes or brands. This had great implications, especially for branded products and services that could observe their customers switching products or channel if another product was cheaper by few dollars (Fesenmaier *et al.*, 2003).

Tourism educators around the world use Virtual Learning Environments (VLEs) to support their class teaching distribute notes and link to resources; stimulate discussion and facilitating marking and course administration. The Internet and computer simulations have also been used to simulate classroom discussions in order to enhance students' understanding and retention of taught theories (Fawcett and Lockwood, 2000). However, Sigala *et al.* (2001) found that most educators mainly exploit the Internet in order to automate rather than to transform their instructions and foster pedagogical innovation. Naturally the educators' perceptions and abilities towards technology were found to significantly affect the type and degree of Internet use. Sigala (2002) explores Internet learning environments by reviewing and evaluating the evolution of practices in Internet pedagogy in order to identify effective e-learning models for tourism and hospitality education. Her three era model of eLearning includes: automation era models that use the Internet for publishing and disseminating learning materials as a depository center. She concludes that e-learning model should aim at the personalization of online instructions that simultaneously aim at exploiting the benefits of collaborative and constructivism practices (Morrison *et al.,* 1999).

### 2.2. SMEs and ICT use

The topic of small business computing has received attention since the 1980s when the emergence of the minicomputer and personal computer provided these firms with the opportunity to introduce low cost systems. However, their system management is different to large organizations who can afford to hire specialists and managers to maximize the use of their information system resources. As Cragg and King (1993) observed in the early 1990s, there was "a picture of growth and stagnation in small-firm computing. While many firms had experienced growth in the number and type of IT applications, there had been little change with respect to the management of IT in small firms". The 1990s saw attention being given to ICT in small business by researchers who focused on determining the factors that encouraged the adoption and usage of ICT in small firms. They did this by carrying out applied research, namely, identifying factors from statistical analysis of data captured via questionnaires or interviews. Among the objectives of such studies was the desire to establish key factors that would guide the small business to be more successful in IT adoption and use of ICT. For example, the UK Government's Department of Trade and Industry used earlier findings to develop an adoption ladder for small firms (Martin and Matlay, 2001). But these attempts at generalization were criticized for a number of reasons. First, for their oversimplification of complex issues and circumstances. Second, research underpinning attempts at generalization may have been too deeply rooted in local circumstances (Martin and Matlay, 2001).

Levy *et al.* (2003) applied the game-theoretic approach to establish the role of information systems in SME's knowledge sharing. This includes two dimensions, namely synergy, "the extent to which cooperation yields additional value beyond the sum of parties' individual knowledge" and leverage, "the potential of the "knowledge receiver" to increase IT value by exploiting the shared knowledge" (Levy *et al*., 2003). Synergy and leverage were found to be important in making SMEs "receptive to exchange knowledge, and flexible and responsive enough to gain competitive advantage". Caldeira and Ward (2003) applied resource-based theory which focuses on the internal context of an organization to the use of IT/IS in manufacturing SMEs. This comprises financial resources, human resources, management perspectives and attitudes, IS/IT competences, organizational structure, power relationships, and user attitudes. Caldeira and Ward concluded that "the key differentiators for long-term successful IS/IT deployment reside within the internal context of an organization, based on organizational competences".

E-Learning is also widely utilized as an essential feature of training delivery, but the levels of IT adoption in companies differ. E-Learning has been accepted as a means of increasing skills and knowledge, and is being

integrated into their training strategy along with other methods of delivering training. E-Learning is particularly important for smaller companies that do not have sufficient resources to send their employees to expensive courses and those that require flexibility in working arrangements (Collins, Buhalis, and Peters, 2003). The time constraints and workload of managers of SMTEs frequently prevent them from attending training sessions during their working hours. Therefore, the prospect of flexible-location, cost-effective and time-independent learning environments may encourage them to participate more in training sessions via online learning systems. However, Braun (2002) suggests that SMTEs are still not committed to online training because they do not consider it a priority at present.

## 3. Theoretical Framework and Concepts

### Tourism industry and IT Role in Inventing the World

Tourism industry is currently an extremely sensitive hybrid industry and incorporates distinct features of information society. Although the core product in the industry is physical service, which is produced and consumed in the physical world, it is dominated and achieved though information services. The perfect integration of information and physical services is the challenge for the contemporary tourism industry across the globe. Hence it is largely an information product. Since, tourism services are consumed the very time they are produced; it is largely based social interaction between the supplier and the consumer. The quality of the service or product is mainly defined by the interaction. To be more elaborate, consumer has access to only an abstract model of the product at the time of decision-making and contractual agreement. Hence decision making and consumption are separated in time and space. Such gaps can be overcome by the information about the product, which is available in advance to the consumer. Thus tourism services and product are based on confidence, information and communication. The mechanism leads to the establishment of specific product distribution and long information and value adding chains (Werthner and Klein 1999).

Destination images are informed by non-tourist information, such as history, architecture, art, film, literature, religion, news coverage and, last but by no means least, by friends and colleagues who have actually been there. Notwithstanding this, some parts of image formation are controllable and the responsibility of tourism marketing departments all over the world. DMOs have more opportunities to influence image formation through marketing for less familiar and accessible 'other' destinations. There is almost no country in the world where the government does not see tourism as an important business sector and where the people do not see travelling for pleasure as a desirable, even if not yet affordable, pastime (Sharpley, 2002). Tourism is 'one of the most obvious forms of globalization'. Hence, for the first time, tourism will become a two-way highway between the Occidental and the Oriental world. According to WTO predictions, not only will China become the number one tourist destination worldwide, but it will also become the fourth biggest source market for tourists. For European cities, regions and companies, it will be the decisive factor in their quest for growth if Asian travelers perceive them as coveted tourist destinations (Meethan, 2001).

### 3.1. Tourism and the Internet

It seems difficult to believe that the Internet has been in existence for less than a decade, having become an indispensable daily tool for about 12% of the world population, which is well above the approximate 4% of all global citizens who engage in international travelling. Roughly one-third each of the approximate 700 million users is located in the USA, Asia and rest of the world, respectively. Likewise in three almost equal parts, the user community is divided into having English, another European or an Asian language as their mother tongue. Chinese, Japanese and Korean speakers comprise more than one-quarter of all Internet users (Globalreach, 2004). Travel and tourism is a major field of Internet usage. In terms of sales, tourism products, such as air tickets, hotel rooms and last-minute holiday packages, are the most common products sold via the Internet, apart from books. This demonstrates that the Internet is functioning as a booking machine. In 2002 online travel sales reached US$27 billion in the North American market and 7.6 billion Euros in the European market, capturing 14% and 5% of the total market, respectively. The situation is different for incoming tourism, as travel decision making requires qualified information and confidence. In this situation, the Internet is primarily an image-building tool, important to the decision of going (or not) to a specific destination or to use the services of a company at the destination. Incoming tourists are less

spontaneous. Asian travelers tend to travel in groups and are less likely to determine the details of their itinerary themselves. Therefore, perceived images will play an important role in their decision to join a tour group which offers certain destinations or services (Marcussen, 2003).

Whereas established markets can be reached by active communication via direct marketing, trade exhibitions, traditional public relations (PR) and advertisements, new incoming tourists are not easy to target. In using the Internet as a marketing channel, it is important to understand that customers find the business more than the business finds the customer – potential new visitors use the Internet to independently locate a website. Despite this, the Internet is undoubtedly the cheapest, most convenient and efficient way to address these potential new customers in distant countries (Arlt, 2003).
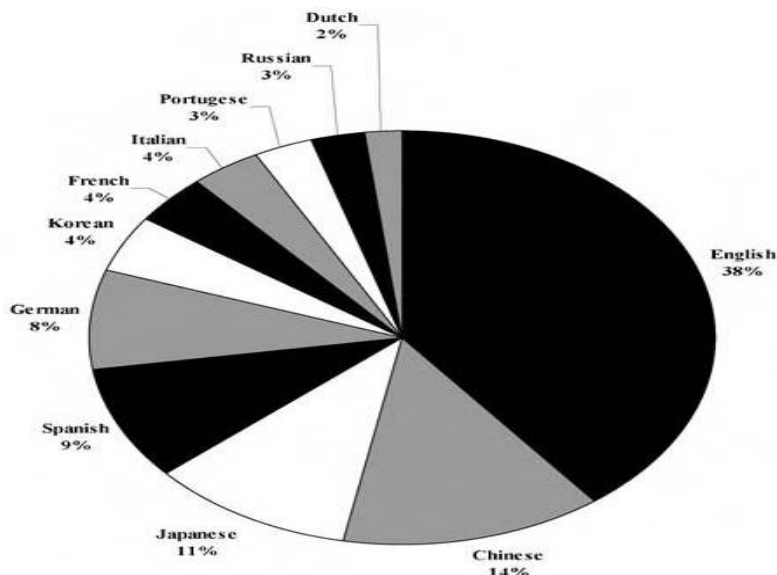


*Figure 1.* Online language populations: total 680 million (from www.glreach.com, September 2003)

## 4. Tourism. From Information to Knowledge industry

The dynamics of Information exchange among the tourism industry players has drastically changed in the recent years. The industry is now more complicated as there has been considerable changes in the distribution and sales. Distribution cooperation is expanding. While transport companies now provide opportunity to book accommodation, destination management organizations are developing internet portal to distribute information. It is essential for the tourism professional to understand the Tourism Value Net. They also need to know the main players in the industry. Statistical database should be developed and research should be undertaken (Luo, Feng, and Cai, 2004). Educational institutions should have access to such knowledge. Educational institute should promote ICT based courses. It should be supported with technical training as well as field based training and practical experience in the industry. Educational institute specialized on Tourism education, IT educational institutions and tourism industry players like travel agencies, tour operators, hotels, technology providers etc. should have a network and have constant interaction in order to develop a skill base for successful tourism industry and a successful navigation. The industry is generating excessive information and indeed information is the strategic and important resources for the industry. ICT tools are providing new means for analyzing the information for the industry. Emphasis should be upon converting this valuable information to knowledge system. There should be gradual transition from data system to profound knowledge system for the benefit of future generations (Mills and Law, 2004).

### 4.1. Consumers and demand dimensions

Increasingly, ICTs enable travelers to access reliable and accurate information as well as to undertake reservations in a fraction of time, cost and inconvenience required by conventional methods. ICTs can assist in the improvement of the service quality and contribute to higher guest/traveler satisfaction. ICTs place users in the middle of IT functionality and product delivery. Every tourist is different, carrying a unique blend of

experiences, motivations, and desires. To an extent the new sophisticated traveler has emerged as a result of experience. Tourists from the major generating regions of the world have become frequent travelers, are linguistically and technologically skilled and can function in multicultural and demanding environments overseas. Travel and holidays are one of the most expensive items purchased regularly by households around the world, and it represents a significant proportion of individual's annual budget. The Internet has changed tourism consumer behavior dramatically. Prospective travelers have direct access to a much greater wealth of information provided by tourism organizations, private enterprises and increasingly by other users/consumers. From information search, to destination/product consumption and post experience engagement, ICTs offer a range of tools to facilitate and improve the process (O'Connor, 1999).

The development of ICTs and particularly the Internet empowered the "new" tourist who is becoming knowledgeable and is seeking exceptional value for money and time. They are less interested in following the crowds in packaged tours and much more keen to pursue their own preferences and schedules. Increasingly, package tours are losing market share in favor of independently organized tourism facilitated by dynamic packaging. The contemporary/connected consumer is far less willing to wait or put up with delays, to the point where patience is a disappearing virtue. The key to success lies in the quick identification of consumer needs and in reaching potential clients with comprehensive, personalized and up-to-date products and services that satisfy those needs. Gradually new, experienced, sophisticated, and demanding travelers require interacting with suppliers to satisfy their own specific needs and wishes. Living in a hectic life, consumers in the developed world often have short periods of time to relax their batteries and also to engage in their favorite activities. Leisure time will increasingly be used for "edutainment", i.e. the exploration of personal interests for both their personal and professional development (Morrison *et al.*, 2001).

Customers search for travel-related information, make online air-ticket bookings, online room reservations, and other online purchases themselves instead of relying on travel agencies to undertake this process for them. Due to the popularity of Internet applications, most tourism organizations such as hotels, airlines, and travel agencies have embraced Internet technologies as part of their marketing and communication strategies. Information Search is a significant part of the purchase decision process and was revolutionized as a result of the Internet. ICTs not only reduce uncertainty and perceived risks but also enhance the quality of trips. The more research undertaken on a trip and the more information found, the better customer needs can be met and served. A well-informed consumer is able to interact better with local resources and cultures, to find products and services that meet his/her requirements and to take advantage of special offers and reduced prices (Fodness and Murray, 1997). Moreover, Jang (2004) proposed that future research should explore potential travelers' concerns and difficulties when planning and purchasing trips online, which can be achieved through in-depth analysis of relationships regarding information search and cross-cultural impacts on tourists' online information search behaviors.

The Internet is one of the most influential technologies that have changed travelers' behavior. Previous research showed that tourists who searched on the Internet tended to spend more at their destinations as compared to those who consult other information source. The Internet enabled consumers to engage directly with suppliers and challenging the role of intermediaries. It also allowed consumers to interact dynamically with suppliers and destinations and often make requests that will enable them to customize their products. At present, there is a large increase in the number of customers who make reservations directly from hotel websites (Jeong, Oh and Gregoire, 2003). According to Wolfe, Hsu, and Kang's (2004) research, the reasons of consumers not purchasing travel products online are the lack of personal service, security issues, lack of experience, and time consuming. The Internet is already influencing the consumer behaviour in developing countries such as China enabling consumers to have much more choice. Although plenty of choices are available on the Internet for customers to choose from, psychological barriers often prevent consumers from completing transactions online, resulting to "lookers" purchasing products off-line. With less time spent on waiting and planning, and more time on enjoyment, consumers would surely like to make reservations and received tickets at home via travel websites. Moreover, e-shopping provides a large geographic coverage which consumers can choose from a great product assortment when they shop at home (Main, 2002).

### *4.2. Information technologies as a business tool*

Developments in IT revolutionize both economies and enterprises. IT are defined as the 'collective term given to the most recent developments in the mode (electronic) and the mechanisms computers and communication technologies) used for the acquisition, processing analysis, storage, retrieval, dissemination and application of information'.' At the macroeconomic level, IT becomes instrumental in the development and prosperity of regions, as they determine their competitiveness in the global marketplace. At the microeconomic level, IT permeates all functions of strategic and operational management and impels the competitiveness of enterprises. The enhancements in IT processing power in the last decade have revolutionized their capabilities as they constantly increase computing speed; decrease equipment size; reduce hardware and software costs; and improve the reliability, compatibility and interconnectivity of numerous terminals and applications. A great degree of innovation is incorporated in hardware, software and network developments, whilst intellect becomes a critical asset in IT management. Paradoxically, the more powerful and complicated IT becomes, the more user-friendly and inexpensive they are, enabling more people and organizations to take advantage (Bauernfeind and Zins, 2006).

Inevitably the tourism industry is also affected by the technological revolution. Both tourism destinations and enterprises increasingly need to adopt innovative methods and to enhance their competitiveness. On the demand side, the new, sophisticated, knowledgeable and demanding consumer increasingly becomes familiar with the emergent IT and requires flexible, specialized, accessible, interactive products and communication with principals. Hence, new best management practices emerge, taking advantage of the IT revolution and re-engineering the entire business processes of the industry. The fusion of IT provides unprecedented tools, which facilitate the creation of new industries, restructure existing industries and radically change the way firms and regions compete. IT reshapes the nature of competition in most economic activities, whilst they link consumers and suppliers, adding value to organizations' products. Hence, IT changes the competitive game for almost all organizations, regardless of the industry they operate in, their location or size? In particular, technology affects competitive advantage as it determines the relative cost position or differentiation of organizations (Clemons, Hann, and Hitt, 2002). Table 1 illustrates the results of the latest annual Manufacturing Attitudes Survey. Manufacturers not only regard investment in IT as crucial in enabling them to outperform competitors, but also their expectations from IT systems go far beyond their operational management and focus primarily on the strategic management of enterprises.

As information is a source of power in negotiations with partners, the adoption of IT often redefines the power balance between partners, and changes their bargaining relationships. Perhaps, small and medium sized enterprises can gain more advantages by using IT, as bargaining power is gradually relocated from institutional buyers and wholesalers to suppliers, due to the more effective and interactive communication they can achieve with their target markets. Hence, IT offer new management and business opportunities and can be applied strategically in at least four different ways: gain a competitive advantage; improve productivity and performance; facilitate new ways of managing and organizing; and develop new businesses. Ultimately, firms investing in IT attempt to gain a competitive advantage by lowering their cost or by improving customers' perception of the quality of their products and services, and hence differentiating their offering. Using IT as a stand-alone initiative is inappropriate. Their usage has to be coupled with the re-engineering of all business processes as well as with a redesign of organizational structures and control systems. Perhaps the greatest challenge is to identify and train managers who will be effective and innovative users of IT and would lead technology-based decision making towards quantifiable gains and advantages. Intellect, therefore, becomes one of the major assets of organizations, while continuous education and training are the only methods to develop and maintain this asset (Chen, 2006).

*Table 1.* Impact of information technologies on businesses (Source: Conspectus, August 1996, p.42)

| | |
|---|---|
| Significantly enhance competitive edge | 79% |
| Improves information | 77% |
| Better external communications | 65% |
| Manage computers expectations better | 63% |
| Improve decision making process | 61% |

### 4.3. Tourism and information technologies

Tourism is inevitably influenced by the business process re-engineering experienced due to the technological revolution. As information is the lifeblood of the travel industry, effective use of IT is pivotal. Hence, 'a whole system of IT is being rapidly diffused throughout the tourism industry and no player will escape IT impacts'. Unlike durable goods, intangible tourism services cannot be physically displayed or inspected at the point of sale before purchasing. They are bought before the time of their use and away from the place of consumption. Hence they depend exclusively upon representations and descriptions, provided by the travel trade, (e.g. information in brochures), for their ability to attract consumers. Timely and accurate information, relevant to consumers' needs, is often the key to satisfaction of tourist demand. Therefore, IT provides the information backbone that facilitates tourism.  The revolution of IT has profound implications for the management of the tourism industry, mainly by enabling efficient co-operation within the industry and by offering tools for globalization. In few other economic activities are the generation, gathering, processing, application and communication of information as important for day-to-day operations (Li and Buhalis, 2005).

Increasingly, new, experienced, sophisticated, demanding travelers seek information about more exotic destinations and authentic experiences, as well as the requirement to interact with suppliers in order to satisfy their specific needs and wishes. The contemporary/connected consumer is far less willing to wait or put up with delays, to the point where patience is a disappearing virtue. In order to satisfy tourism demand and survive in the long term there is no choice but to incorporate technology and enhance the interactivity with the marketplace. Increasingly, IT enable travelers to access reliable and accurate information as well as to undertake reservations in a fraction of the time, cost and inconvenience required by conventional methods. IT improves the service quality and contributes to higher guest/traveler satisfaction. Customer satisfaction depends highly on the accuracy and comprehensiveness of specific information on destinations' accessibility, facilities, attractions and activities, this is because the gap between consumers' expectations and perceived experiences is smaller and thus, unpleasant surprises from the destination or principals are minimized (O'Connor and Frew, 2001).

### 4.4. A multi-dimensional strategic framework for IT in tourism

A conceptual synthesis of the usage of IT in business strategy, and in tourism demand and supply in particular, yields a strategic IT framework. This framework attempts to systematize our understanding of the use of IT in tourism and to illustrate all strategic implications for the industry. Figure 2 demonstrates the multi-dimensional character of the framework, as well as the technologies it utilizes in order to perform IT business functions. The ability of principals and destinations to use this framework effectively will increasingly determine their future competitiveness. The framework incorporates the paradigm shift and which effectively reshape the tourism industry. IT propels changes in several directions between the three main axes. The combinations originated illustrate how strategic marketing and management can be utilized in order to achieve mutual benefit for all stakeholders in a tourism value-added production chain. An IT-led integration of industry members is therefore inevitable and is expected to dominate the industry in the near future.

Intra-organizational functions IT enhance a number of intra-organizational processes, by supporting a certain level of integration between various functions within organizations; typically the 'front' and 'back' office. The aim is to increase efficiency and productivity, as well as to enhance the strategic and operational management of the enterprise. Examples from the tourism industry include property management systems or information systems in hotels; integrated points of sales systems; management and strategic information systems; accounting and payroll systems; production technology; inventory control for tour operators, transportation companies and other principals. Networking supports the communication and facilitates interconnectivity between individual organizations. Hence a number of systems and applications emerge to assist communications between tourism enterprises. Computer Reservations Systems and Global Distribution Systems are also applications which empower communication between travel agencies and principals such as airlines, hotels and car rental firms. In addition, Destination Management Systems and Destination Integrated Computer Information Reservation Management Systems attempt to integrate the management and marketing of independent tourism enterprises at the destination area and thus facilitate interconnectivity. In particular, small and medium sized tourism enterprises will benefit from IT-supported networking as they will be able to pool their resources and compete with their larger counterparts (Anderson and Srinivansan, 2003).

Tourism organizations can enhance their performance by empowering their strategic marketing and management efforts through undertaking all their functions by advanced IT. The following examples demonstrate the benefits generated by advanced integration of all management and marketing efforts for organizations. A number of useful applications are available in the tourism industry, supporting both inter- and intraorganizational functions. These often empower joint marketing efforts as well as horizontal, vertical or diagonal integration. Tourism enterprises can exchange customer information either to facilitate the formulation of total tourism product or to undertake joint marketing campaigns. For example airlines co-operate with hotel chains and car rental companies in issuing frequent flyer miles or providing rewards and privileges to consumers. Airlines also formulate alliances (e.g. Star Alliance) in order to enhance their globalization and to take advantage of code-sharing agreements. This enables the provision of seamless products and the development of comprehensive marketing campaigns (Li and Buhalis, 2005).

Enterprises utilize IT for addressing individual needs and wants of their consumers. Partnership or relationship marketing attempt to maximize customer loyalty by building bonds between consumer and organizations. Mutual benefit can be achieved in this way, as consumers gain extra benefits, special treatment or discounts, while enterprises increase the satisfaction and loyalty of their regular consumers. They also gain a wealth of marketing information about their needs and spending habit, without commissioning expensive marketing research. Direct and database marketing, frequent flyer programs and guest histories are often utilized in this sense. Experienced consumers may also have access to some electronic facilities, which enable them to achieve a higher flexibility and interactivity with the organization. Eventually the development of 'one-to-one' marketing, where tourism bundles will be packaged for the individual needs of consumers can only be facilitated by IT (Bauernfeind and Zins, 2006). The multi-dimensional strategic framework for IT in tourism not only demonstrates the dependence of both demand and supply on IT, but it also illustrates that networking and interactivity will increasingly dominate the production and consumption functions. Players who fail to participate in the electronic marketplace therefore, will face severe competitive disadvantages in the long term and will probably lose considerable market share.
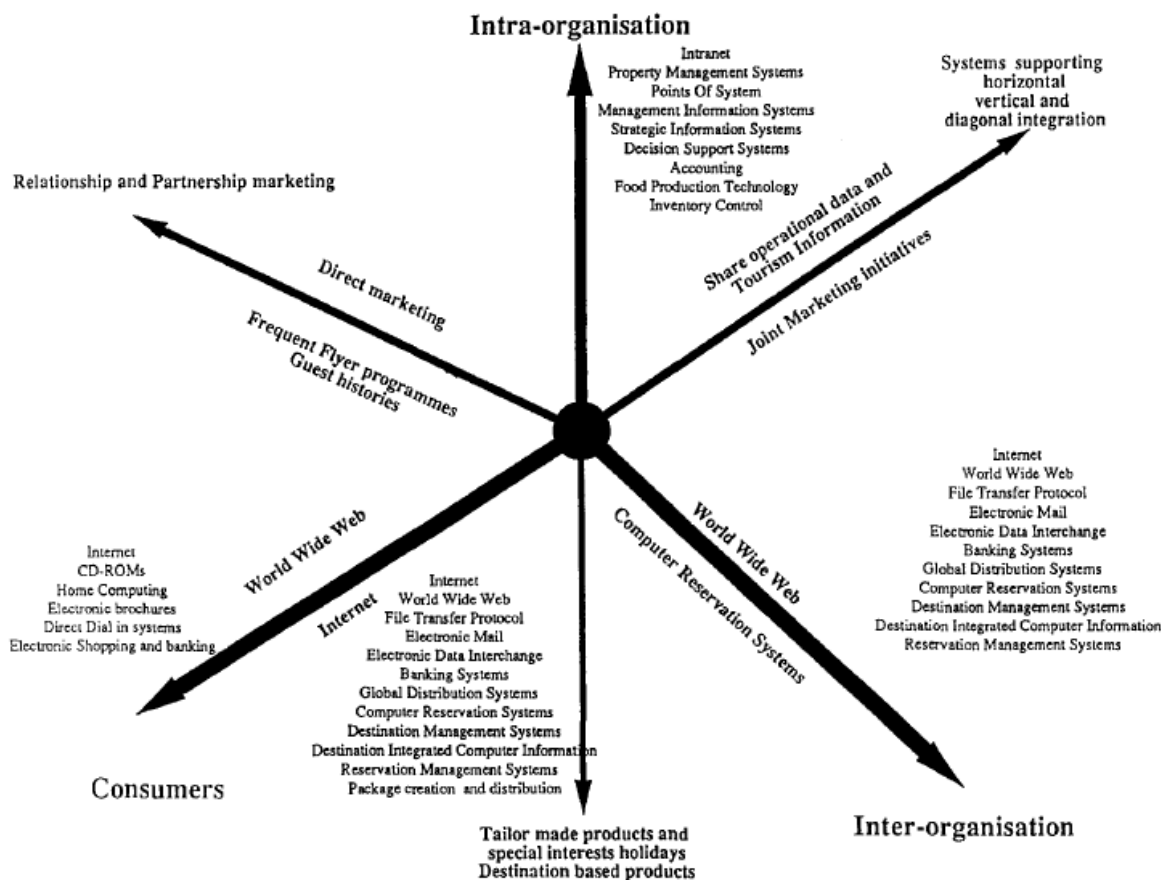


*Figure 2.* Tourism and information technologies strategic framework

### 5. ICT and Tourism

Contemporary information society has made tourism a highly information-intensive industry as ICT has a potential impact on tourism business. The role of ICT in tourism industry cannot be underestimated and it is crucial driving force in the current information driven society. It has provided new tools and enabled new distribution channels, thus creating a new business environment. ICT tools have facilitated business transaction in the industry by networking with trading partners, distribution of product services and providing information to consumers across the globe. On the other hand consumers are also using online to obtain information and plan their trip and travel. Information is the key element in the tourism industry. ICT pervades almost all aspects of tourism and related industry. The use of Geospatial Information Technologies in the recent years across the globe for varied purposes is popularly known and Tourism industry has not been an exception in availing IT advantages. It can be used by tourist professionals to define the boundaries of the proposed tourist site as well IT surrounding areas and the communities living in it. It can also get information on roads linking to the sites and availability of other utilities like water, power, market etc. Such technologies are also useful for site management and monitoring. The role of ICT tools in the industry for marketing, operation, and management of customer is widely known. Marketing techniques can be more innovative through ICT tools. The table below reveals the potential use of ICT tools in the industry (Morrison *et al*., 2001).

*Table 2.* Potential use of ICT tools in Tourism industry

| Different aspects of industry | Application |
|---|---|
| Site development | GIS used for identification of Tourist site and destinations |
| Marketing | Advertisement, promotion |
| Operations | Buying and management of supplies and services |
| Customer services | Management of customer relationships through booking travel lodges etc. |
| Monitoring | GIS and GPS are also used for managing and monitoring tourist sites |

### *Key factors for applying ICT in tourism*
- *IT education and training for policy makers, managers and other players in the industry;*
- *Integration of various sectors like transport, lodge etc.;*
- *Technical Infrastructure;*
- *Human Infrastructure, which includes skilled people, vision and management;*
- *Legal Infrastructure:*
- *Regulation of telecommunication providers;*
- *Subsides for Internet service providers;*
- *Legal framework for online advertisement or official endorsement for online marketing.*
  - *ICT culture:*
- *Create and sustain ICT environment;*
- *Maintenance and updating of websites;*
- *ICT training for all level of workers;*
- *Establish electronic linkages between all related sectors.*

### *5.1 Nexus between ICT and Tourism*

Recent Studies on ICT and tourism has revealed the transition in the industry as a result of ICT impact and have explored IT possibility and potential. Poon (1993) analyses some of the major challenges facing tourism industry and outlines the nexus between tourism and ICT. He traces the rapid shift-taking place between 'traditional tourism sector' and 'new tourism industry'. Technology has a strategic role in reshaping the value chain in the industry and in the process, consumers are gradually adapting to the new values, lifestyles and new tourism products, which has re-engineered by the new technologies. Although some of the technologies described are now obsolete, the implicit message is relevant and gives an overall review of the changing face of the tourism industry. Inkpen (1998) and Sheldon (1997) have examined the main characteristics of the industry structure and the operation of the new technologies in it. ICT applications in

different sectors like airlines, hotels, tour operators, road and rail transport etc. is dealt in detail with informative case studies.

Werthner (1999) provides a more detailed and logical understating of the industry's structure by focusing on the concepts, definitions, consumer behavior, economic aspect, market transactions, etc. Information Technology (hardware & software developments), information management, intelligent applications and system integration etc. are examined carefully. Additional information on business strategy exploring the relationship between ICT, strategy and organization is also articulated. Buhalis (2003) also stressed on strategic management in his book providing a comprehensive overview of both operational and strategic management. Buhalis and Laws (2001) deals with the theory practice and issues related to tourism distribution. The distribution strategies and approaches from a destination point of view is explored and discusses the possible future research in tourism distribution channels. It needs to be noted that the distributional structures are mainly from Europe, UK and other western nations and hence may or may not be useful for developing country's strategies. However, most of the experiences are based on the western developed world, which could possibly a limitation while trying to understand the nexus of ICT and Tourism in an Indian context. Jennifer et al (2003) have examined the way ICT and Internet have gradually changed the tourism industry in China. They have used the existing theoretical framework on ICT and e-tourism developments in other parts of the world namely Europe and America to examine their impact of ICT application in the tourism industry contemporary China. There have been tremendous developments at the destinations levels in the recent years.

### 5.2. Transition in Tourism Industry

Technological progress in the recent decades has made tourism enterprises across the globe more innovative than even before. The three important innovations, which have redefined the organizational structure of world truism industry, are the following: 1. Development of the Computer Reservation System (CRS); 2. Development of the Global Distribution System (GDS); 3. The Internet. GDS refers to the network connection integrating the automated booking systems of different organizations which enables the user to access it through the intermediation of a travel agency. The supply of services is presently concentrated with four global suppliers owned by airline companies namely Sabre, Amadeus, Galileo International and Worldspsan.

However IT non-visibility does pose constraints, as it cannot be the successfully exploited by the end user's market. GDS technology has also broadened the gap between large and medium or small suppliers of tourist services as the former are more benefited. (European e-business market Watch, 2003). The advantages and evolution of CRS and Internet are well known. Internet strategy has provided all players in the industry an easy access to the end user. Exploitation of opportunities through Internet depends upon marketing strategy, communication strategy, pricing strategy etc. Direct communication with the clients, which is facilitated by the Internet, has made the industry more effective and efficient. For instance, following figures demonstrates the transformation in the industry. Figure 3 presents the traditional values of chains while figure 4 represents the Internet based value chains. They represent the changing face of tourism in recent years.

The overall structure of the industry has been transformed ever since Internet has been the essential communication tool for the industry. Several new developments can be noted: 1. direct selling to the customer has increased; 2. Increase in new intermediaries such as Internet portals specialized in selling tourism products; 3. Customers have access to the distribution channels traditionally used by tour operators through Internet; 4. Companies can regularly alter products and services based on the needs and expectations of clients through regular interaction through Internet; 5. Increase in the transparency and the efficient relationship between customer and management; 6. Change in the consumer behavior. Consumers are now asking better services. They are more specific with regard to content and the details of the arrangement. They are more cost conscious and often tend to make comparisons between two products. There has been a paradigm shift in the management of contemporary organizations related to tourism industry as a result of the more established relationships between business and technology. Information and communication tools are indispensable to the tourism industry as the ICT system is being rapidly diffused throughout the industry allowing none of the players to break free from IT impacts (Werthner and Klein, 1999).
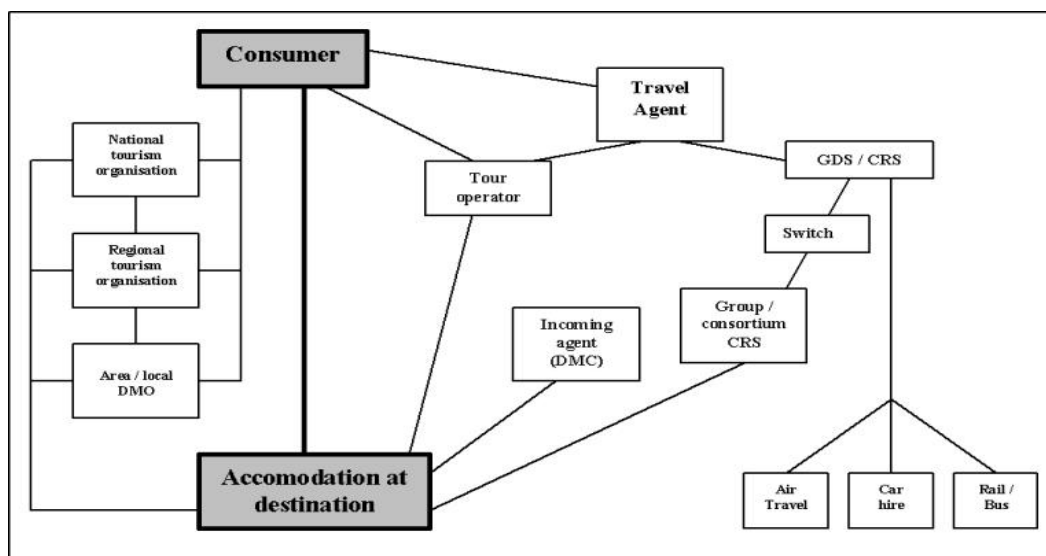
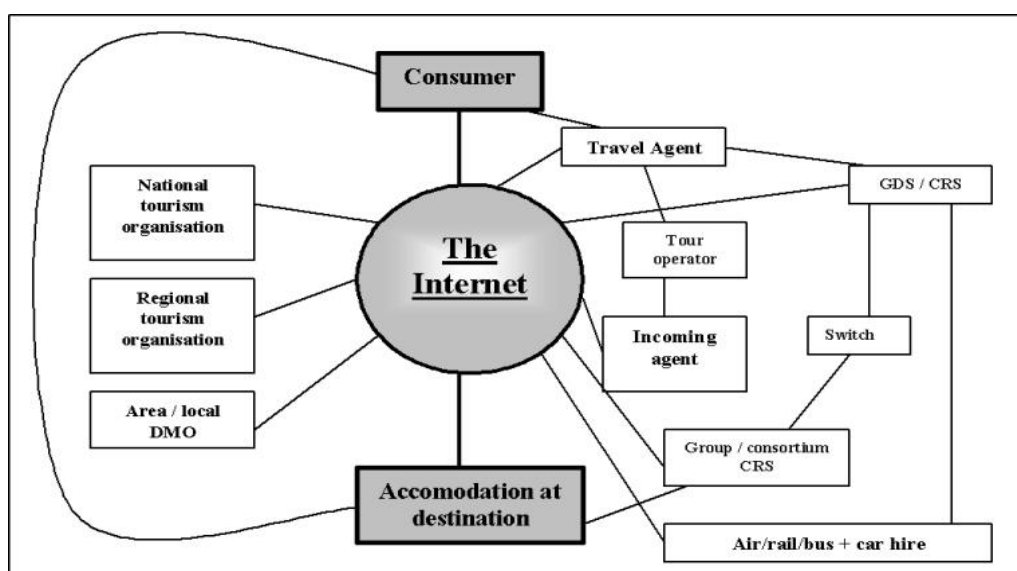*Figure 3.* The traditional values of chains (Source: Werthner and Klein (1999)



*Figure 4.* The Internet based value chains (Source: Werthner and Klein (1999)
*(GDS: Global distribution system; CRS: Central reservation system; DMC: Destination Management Company;*
*DMO: Destination Marketing Organization)*

However, the increase in the distribution channels is been a serious challenge for the industry. It demands critical cooperation across different sectors with in tourism industry. While tourism destination management organizations develop internet portals to distribute information and products, transportation companies offer services for transport. Communication and network skills are essential in the industry as volumes of information need to be analyzed and exchanged every day between clients and companies. Industry needs professionals who are technically trained to deal with ICT tools, systems and information sources. Tourism professionals also need profound knowledge in areas of marketing, finance, management, statistics, distribution trend etc. since it also involves rigorous revenue management. Successful navigation is possible only if professionals have the skill to identify efficient combination of distribution channels and opportunities for cross promotion and cross selling. While such skills get sharpened during work, education on tourism and related areas can be a platform for training the professionals. The role of ICT is crucial both in theory, practice and praxis. It must be understood in the context of IT application as a part of marketing, customer service, revenue management etc. (Sabado 2005).

### 5.3. ICT and the hospitality business

Although ICT has been promoted as a panacea by some authors, it can be problematic. Milne et al. (2005) demonstrate that the international literature has generally shown that in the past small tourism firms have been less likely to implement ICT than their larger counterparts. The study of ICT is also considered difficult because of the speed of change and growth of the technologies themselves, thus presenting a challenge of significant complexity and uncertainty. For example, ICT and computing has been characterized as "Stand Alone" or "Networked" or by functions. Moreover, there are seen to be many barriers to IT effective use; as well as time, size and limited resources, factors such as an over-reliance on intermediaries for product marketing, on-line booking and procurement have been noted (Reynolds, 2000). Other barriers may include the lifestyle choice of the proprietor that could dictate a negative attitude towards e-commerce. There are negative factors that may limit the use of ICT, including the issue of de-personalizing service, the introduction of price transparency, which might benefit the consumer, but reduces the flexibility of management. Most small tourist hotels have long booking horizons and guest stay for longer and are less likely to need the immediacy of ICT. Nonetheless there is strong evidence that ICT has great benefit for the hospitality industry. Buhalis and Main (1998) summarize thus, "the internet is gaining commercial viability and is particularly suited to small businesses, where it enables them to keep doors open 24 hours a day, at a minimal cost to customers (and providers) all over the world" (Baggio, 2005).

The literature suggests that it is useful to model the use of ICT at different levels of development that reflects their interest and the technology available. Models have been developed for both the supply side and demand side of ICT application. Chaffey (2003) proposed the following model for the supply side of the business process. This model defines five levels of ICT application: (1) No use of the web for sourcing and no electronic integration with suppliers; (2) Review and selection from competing suppliers using; intermediary web sites, B2B exchanges and supplier web sites. Orders placed by conventional means; (3) Orders placed electronically through "EDI" via intermediary sites, exchanges or supplier sites. No integration between organization and supplier systems. Re-keying of orders necessary into procurement or accounting systems; (4) Orders electronically with integration of company's procurement systems; (5) Orders placed electronically with full integration of company's procurement, manufacturing requirements planning and stock control systems. For the demand side, the marketing element of service led enterprises, Ditto and Pille (1998) identified three different levels of development–informational, transactional and relational: (1) The informational basic level with web-site providing the same information available through traditional marketing, by a one way process; (2) The transactional level enables communication with the customer who identifies with the options such as the "virtual tour". There is two ways communication carried out by email, telephone or post; (3) the relational level involves interactivity with the customer enabling the development of a continuous relationship from the original transaction through the internet. At this stage, the internet is a key factor in the management of the enterprise (Milne *et al.*, 2005).

### 5.4. E-learning

The digital revolution has placed great emphasis on innovation, new business models, and new ways of organizing work as well as having a significant impact on the learning industry. E-learning, or online learning, is defined as the creation and distribution of organizational knowledge through the online delivery of information, communication, education, and training which opens the door to a learning revolution that could help to create unprecedented opportunities within SMTEs. One of the key reasons for the growth in the online learning is due to the fact it is far cheaper than sending employees away from the workplace to a professional training course (Sigala, 2002). Electronic learning, or e-learning as it is commonly called, is defined as learning that takes place anytime someone uses electronic means for gathering information that is acquired without another live person present. However, e-learning is not just about using Web-based technologies or distance learning, but it is a way in which individuals or organizations exchange information and gain knowledge. It can include a wide range of learning strategies and technologies from courses available online, CD-ROMs, DVDs to videoconferencing. E-learning can be synchronous or live, as in the case of Internet conferences, in which geographically separated teachers and students can gather in an online classroom. For the purpose of this paper, e-learning is technology-enabled learning designed to be run over the Internet (Zhang and Nunamaker, 2003).

The advantages and disadvantages of e-learning are illustrated in Table 3. It is also valuable to the hotel industry because of the high employee turnover rates associated with the industry. Therefore, ongoing training (via online learning systems) is critical for managers, supervisors and front of house employees of small hotels. SMTEs can participate in online learning environments, which are designed as tutorial systems over the Internet. This can enhance learning, thus allowing managers and employees the ability to apply knowledge and skills that otherwise they would have been unable to do in an offline environment, because of the costs involved (Murphy, 2001). The time constraints and workload of managers of SMTEs frequently prevents them from attending training sessions during their working hours. Therefore the prospect of flexible location, cost-effective and time independent learning environments may encourage them to participate more in training sessions via online learning systems. Enabling SMTEs to acquire new ways in which to manage knowledge and information can assist them to achieve competitive advantage due to their skills, competencies and knowledge SMTEs can gain through this virtual learning process. Hence e-learning enhances intellectual capital of SMTEs and prepares them to compete in today's dynamically shifting market. SMTEs that are not represented in the electronic marketplace will fail to reach new customers and suffer competitive disadvantages (Buhalis and Main, 1998).

SMTEs also consider training to be a cost rather than an investment, so little attention is given to any type of training. However, if SMTEs realize that training can influence the skill, enhance the local economy and reduce high staff turnover rates, then they might take it more seriously and be willing to invest in training (Bradley and Taylor, 1996). This may explain why, in Europe, the provision of training to SMTEs has become a central issue of economic policy and why over the last decade the provision of training and support to SMTEs to participate in training has increased considerably (Jameson, 2000). However, despite the benefits associated with e-learning, some industry experts and e-learning providers do not see e-learning as a viable platform for training for all skills or as a replacement for traditional training. Hence, Cheng and Piccoli (2002) have also suggested that on-the-job and face-to-face training are important, particularly in teaching "soft skills" such as management or technical skills, where e-learning is not suitable. Moreover, Braun (2002) has identified that SMTEs are still not committed to online training and integrating new technologies to add value and competitive advantage because they do not consider it a priority at present.

*Table 3.* Advantages and disadvantages of E-learning

| Advantages | Disadvantages |
|---|---|
| The technology offers the opportunity to integrate learning with work | Initial set up and running costs or purchasing access to commercial systems can be high |
| Enhances employee performance in a dynamic, interactive and measurable way | An infrastructure needs to be in place for employees to use the system |
| Provides information instantaneously | Bandwidth limitations–high-speed Internet access is required. Many SMTEs may not have access or connection to high speed Internet access |
| Can increase efficiency | Lack of a robust Internet connection to take advantage of the graphic rich courses designed for e-learning |
| It is a less expensive method of training as it eliminates travel expenses and the time that it takes to travel to a training session | An assessment system needs to be in place that helps to determine what information employees are learning and to provide feedback to inform managers of how successful employees are in the modules |
| Enables employee to log on from the hotel | Electronic communication requires a specific skill, which not many people have mastered. However, this may depend on the nature and content of the course |
| Eliminates the need to create and print bulky manuals, which become obsolete after being distributed | Learning is impersonal and limited interaction with tutor |
| Mostly modular based, employees can dedicate shorter time periods over a number of days or weeks and still learn the required information | Tutor does not take sufficient feedback from students and hence limited diagnostics of learning |
| Additional material is easily accessible online | Student requires high degree of self-discipline |

| Advantages | Disadvantages |
|---|---|
| Some courses linked to professional and academic qualifications | |
| Allows the employee to learn at his/her own pace in the style of learning that works best for them | |
| Ability to retain more information | |

## 6. ICTs and SMTEs

The advent of the Internet in the late 1990s has had a strong impact on the tourism and hospitality industry. It is due to the fragmentation of the hotel industry, which makes the Internet ideal for selling inventory online. The Internet as a channel of distribution has become one of the most successful channels used by consumers to research travel options, compare prices and make reservations for airline tickets, hotel rooms and car rental. Therefore, the provision of online travel services is the single most successful business-to-consumer (B2C) segment on the Internet. Most large hotel organizations have moderate integration of daily operations and have implemented Web sites, Intranets and extranets in order to reduce costs, improve communications internally and externally and to develop alternative distribution channels. Cline (2001) and O'Connor and Frew (2000) also identified that hospitality organizations develop ICTs to access new customers on a global basis and to be able to streamline operating procedures. Integrating daily operations such as sales, marketing and distribution as well as aggregating demand to drive down prices on the procurement side are some of the major benefits of the Internet (Buhalis, 2003).

With SMTEs still under-represented in global distribution systems (GDSs) and with over 85 per cent of European hoteliers not listed on GDSs, this has become a severe limitation for SMTEs as GDSs serve more than 50,000 travel agents world-wide (Werthner and Klein, 1999). Albeit, if SMTEs utilize the Internet as their main distribution channel, then it can enable them to overcome their challenge of being globally represented and they can develop their virtual site at minimal cost. Morrison and Thomas (1999) have also implied that the application of ICTs by SMTEs can help them to overcome the management issues that often confront these small businesses. Despite all of the benefits to be achieved, the Internet and new technologies have failed to make a major impact on the majority of the SMTEs in the hospitality industry. SMTEs have been slow to adopt and to realize the actual benefits of applying ICT to their business. However, according to Anckar and Walden (2001), there is evidence that there are small minorities of SMTEs that are taking full advantage of the electronic marketplace and who are benefiting from the many opportunities that it provides. This in turn sends out a warning signal to hoteliers who have yet to have an online presence and urges them to use the Internet as a mainstream distribution channel and to integrate Web-enabling technologies into their daily business process. Otherwise SMTEs will lose out in maximizing both their performance and profitability in the long term (Cheng and Piccoli, 2002).

## 7. Conclusions and Implications

### 7.1. Concluding Remarks

The technological revolution experienced through the development of the Internet has changed dramatically the market conditions for tourism organizations. ICTs evolve rapidly providing new tools for tourism marketing and management. They support the interactivity between tourism enterprises and consumers and as a result they re-engineer the entire process of developing, managing and marketing tourism products and destinations. Increasingly the impacts of ICTs are becoming clearer, as networking, dynamic interfaces with consumers and partners and the ability to re-develop the tourism product proactively and reactively are critical for the competitiveness of tourism organizations. The literature review undertaken demonstrates that e-tourism research is in IT infancy and that a number of issues have only now started being addressed in the literature.

Increasingly ICTs will provide the "info-structure" for the entire industry and will overtake all mechanistic aspects of tourism transactions. It is evident, however, that the future of eTourism will be focused on consumer-centric technologies that will support organizations to interact with their customers dynamically. Consumers are becoming incredibly powerful and are increasingly able to determine elements of their tourism products. They are also much more sophisticated and experienced and therefore are much more

difficult to please. Innovative tourism enterprises will have the ability to divert resources and expertise to servicing consumers and provide a higher value added transactions. The development of new and more powerful ICT applications empowers both suppliers and destinations to enhance their efficiency and re-engineer their communication strategies. Innovative technologies will support interoperability, personalization, and constant networking. Agile strategies are therefore required at both strategic and tactical management levels to ensure that the ICT-driven opportunities and challenges are turned to the advantage of tourism organizations towards enhancing their innovation and competitiveness.

However, IT is not a panacea and therefore, a thorough revision of all operational and strategic managerial practices are required in order to achieve the emerging benefits. Should tourism principals neglect the significance of IT, they will effectively jeopardize their competitiveness and become marginalized from the mainstream of the tourism industry. Business processes re-engineering redesigns the inter- and intra-organizational processes, based on the newly available tools and aims to improve the entire range of functions. In return, re-engineering gives perspective and empowers organizations to achieve competitive advantages and overcome long-term threats. As a result, tourism enterprises need to understand, incorporate and utilize IT strategically, in order to be able to serve their target markets, improve their efficiency, maximize profitability, enhance services and maintain long term prosperity for both themselves and destinations. The future success of tourism organizations and destinations will be determined by a combination of innovative management and marketing, intellect and vision, as well as strategic use of advanced IT.

The main challenge for SMTEs in their current situation is dealing with human resource management. The adoption and implementation of ICTs is not a priority for many SMTEs at present. Due to the characteristics associated with SMTEs and their slow adoption of ICTs this is not surprising. Another major downfall of SMTEs is that SMTEs understandably do not want to wait long-term to see their return on investment on ICTs but want to see the benefits immediately. It is evident from the survey, however, that many SMTEs may be more willing to engage in the use of the Internet and online learning if they can overcome the barriers that are preventing them from moving forward in this digital economy. These have been identified as lack of financial resources and the time and unwillingness to invest in training. SMTEs have yet to realize that by incorporating training it gives them the ability to solve some of their human resource issues, such as high staff turnover, which is so commonplace in the hospitality industry. It is critical for SMTEs to invest in new skills through online learning.

SMTEs suffer from a lack of a strategic sense of how to move forward in the e-marketplace. SMTEs use the Internet mainly to promote their property through a Web site. They have yet to incorporate an e-business strategy into their business or use Web-enabled technologies to assist them in their internal and external business processes. Therefore, the challenge for SMTEs is to realize the full potential of e-learning as a driver to increasing productivity, performance and profit, by making it an integral part of their strategy and operations. The ability of SMTEs to embrace e-learning can become crucial determinants of success and improve the competitiveness of SMTEs and point the way to an era of unprecedented growth and opportunity in the digital economy.

### 7.2. Limitations and Future Possibilities

There is a need for a well-structured Information System or Intelligent System technologies in tourism industry to facilitate the access of tourist information by the users. The current ICT system has certain limitations. For instance, accessing information through Internet and www is an intelligent mean of getting the information, but many a times, the information is highly fragmented. One shall arrive at it only after intelligent navigation, which is time consuming and may mislead in the process. Sometimes, presentation of information in the web is not intelligent too. Search engines for tourism should be developed. Facilities to browse according to the topic portals can be made. Wireless is likely to be the next major event in the history of technology. IT application in tourism industry is also likely to increase in future. Mobile services shall continue to be an important channel of information and tourism services distribution for both providers and consumers. Future mobiles might decrease in size, weight ad prize and likely to increase in power, storage, connectivity, position and capabilities.

It is also essential that usability studies and research is conducted to examine the ICT integration in tourism and IT impact. Usability is the measure to the quality of a user's experience while using the ICT tools.

It could be a product of a system, website, a software application, mobile technology, or nay related technology. It is important to note the technology and application to work together with respect to bandwidth, user interface, position etc. All applications, technology and services should be user-friendly which can be used both by the veterans as well as the new-bees effectively. Hence technology and services should be effective, efficient and safe. It should have utility value and simple to comprehend.

Information technologies influence the strategic management and marketing of contemporary organizations, as a paradigm-shift is experienced, transforming the 'best' business practices globally. IT transforms the strategic position of organizations by altering their efficiency, differentiation, operational cost and response time. In particular, IT has stimulated radical changes in the operation and distribution of the tourism industry. Perhaps the most apparent example in tourism is the re-engineering of the booking process, which gradually becomes rationalized and enables both consumers and the industry to save considerable time in identifying, amalgamating, reserving and purchasing tourism products. Ultimately, prospective tourists will be able to browse through the Internet and identify a rich variety of offers in order to make travel choices suited to their personal requirements.

### References

1.  Anckar, B. and Walden, P. (2001). "Introducing Web technology in a small peripheral hospitality organization", International Journal of Contemporary Hospitality Management, Vol. 13 No. 5, pp. 241-50.

2.  Anderson, R.E., & Srinivansan, S. S. (2003). E-satisfaction and e-loyalty: A contingency framework. Psychology and Marketing, 20(2), 123–138.

3.  Arlt, W. (2003) Connecting with Cultures. Locum Destination Review 11, 43–46.

4.  Bieger, T. (2002) Management von Destinationen. Oldenbourg, Munich, 365 pp.

5.  Baggio, R. (2005), "The relationship between virtual and real image of tourism operators", e-Review of Tourism Research, Vol. 3 No. 5, pp. 118-25.

6.  Buhalis, D. (2003), E-Tourism: Information Technology for Strategic Tourism Management, Prentice-Hall, Englewood Cliffs, NJ.

7.  Buhalis, D. & Licata, M.C. (2002). The future eTourism intermediaries. Tourism Management, 23(3), 207–220.

8.  Buhalis, D. and Main, H. (1998), "Information technology in small and medium hospitality enterprises: strategic analysis and critical factors", International Journal of Contemporary Hospitality Management, Vol. 10 No. 5, pp. 198-202.

9.  Bauernfeind, U. & Zins, A. (2006). The perception of exploratory browsing and trust with recommender websites. Information Technology & Tourism, 8(2), 121–136.

10. Braun, P. (2002), "Networking tourism SMEs: e-commerce and e-marketing issues in regional Australia", Information Technology and Tourism, Vol. 5, pp. 13-23.

11. Caldeira, M.M. and Ward, J.M. (2003), "Using resource-based theory to interpret the successful adoption and use of information systems and technology in manufacturing small and medium-sized enterprises", European Journal of Information Systems, Vol. 12 No. 2, pp. 127-41.

12. Chaffey, D. (2003). E-business and E-commerce Management, Prentice-Hall, Hemel Hempstead.

13. Cline, R. (2001). "The future of hospitality e-business", Lodging Hospitality, pp. 24-30.

14. Chen, C. (2006). Identifying significant factors influencing consumer trust in an online travel site. Information Technology & Tourism, 8(2), 197–214.

15. Cheng, C. and Piccoli, G. (2002). "Web-based training in the hospitality industry: a conceptual definition, taxonomy and preliminary investigation", International Journal of Hospitality Information Technology, Vol. 2 No. 2, pp. 19-33.

16. Clemons, E.K., Hann, I.-H., & Hitt, L.M. (2002). Price dispersion and differentiation in online travel: An empirical investigation. Management Science, 48(4), 534–549.

17. Collins, C., Buhalis, D. & Peters, M. (2003). Enhancing small medium tourism enterprises' business performance through the Internet and e-learning platforms. Education & Training, 45(8/9), 483–494.

18. Cragg, P.B. and King, M. (1993). "Small firm computing: motivators and inhibitors", MIS Quarterly, March, pp. 47-60.

19. Ditto, S. and Pille, B. (1998). "Marketing on the internet", Healthcare Executive, Vol. 13 No. 5, pp. 54-6.

20. European Commission (2006a). Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions. Implementing the Community Lisbon Program: Financing SME Growth – Adding European Value. Brussels.

21. European e- business market Watch, Sector Report, No 13 II/July (2003).

22. Fesenmaier, D., Gretzel, U., Hwang, Y. H., & Wang, Y. (2003). The future of destination marketing: e-Commerce in travel and tourism. International Journal of Tourism Science, 3(2), 191–200.

23. Globalreach (2004). Online Language Populations. Accessed at: www.glreach.com Goodall, B. and Ashworth G. (1988) Marketing in the Tourism Industry: The Promotion of Destination Regions. Croom Helm, London, 244 pp.

24. Gupta, S & Bansal, S.P. (2001). Tourism towards 21st Century, Deep and Deep. New Delhi.

25. Inkpen, G. (1998). Information technology for travel and tourism (2nd Ed.). London: Addison-Wesley-Longman.

26. Jameson, S.M. (2000). "Recruitment and training in small firms", Journal of European Industrial Training, Vol. 24 No. 1, pp. 43-9.

27. Jang, S. C. (2004). The past, present, and future research of online information search. Journal of Travel & Tourism Marketing, 17(2/3), 41–47.

28. Jennifer X. M, Dimitrios, B & Haiyan, S. (2003). Information Journal of Information Management. Vol 23. Issue 6. Pg. 451-467.

29. Jeong, M., Oh, H., & Gregoire, M. (2003). Conceptualizing Web site quality and its consequences in the lodging industry. International Journal of Hospitality Management, 22(2), 161–175.

30. Kim, W.G., & Lee, H.Y. (2004). Comparison of web service quality between online travel agencies and online travel suppliers. Journal of Travel & Tourism Marketing, 17(2/3), 105–116.

31. Law, R. & Jogaratnam, G. (2005). A study if hotel information technology applications. International Journal of Contemporary Hospitality Management, 17(2), 170–180.

32. Levy, M. Loebbecke, C. and Powell, P. (2003), "SMEs, co-competition and knowledge sharing: the role of information systems", European Journal of Information Systems, Vol. 12 No. 1, pp. 3-17.

33. Li, L., & Buhalis, D. (2005). Predicting Internet usage for travel bookings in China. Information and communication technologies in tourism 2005 (pp. 429–439). Wien.

34. Luo, M., Feng, R., & CAI, L.A. (2004). Information search behavior and tourist characteristics: The Internet Vis-a`-Vis other information sources. Journal of Travel & Tourism Marketing, 17(2/3), 15–25.

35. Main, H. (2002). "The expansion of technology in small and medium hospitality enterprises with a focus on Net technology", Information Technology and Tourism, Vol. 4, pp. 167-74.

36. Marcussen, C.H. (2003) Trends in European Internet Distribution/Trends in the US Online Travel Market 2000–2002. Centre for Regional and Tourism Research, Denmark.

37. Martin, L.M. and Matlay, H. (2001), "Blanket approaches to promoting ICT in small firms: some lessons from DTI ladder adoption model in the UK", Internet Research: Electronic Networking Applications and Policy, Vol. 11 No. 5, pp. 399-410.

38. Meethan, K. (2001). Tourism in Global Society. Place, Culture, Consumption. Palgrave, Basingstoke, UK.

39. Mills, J., & Law R. (2004). Handbook of consumer behaviour, tourism and the Internet. New York: Harworth Hospitality Press.

40. Milne, S., Mason, M., Roberts, E., Nodder, C., Ateljevic, J. and Cameron, A. (2005). "New Zealand accommodation providers and ICT: impacts on labor use and demand".

41. Morrison, A.M., Jing, S., O'Leary, J.T., & Lipping, A.C. (2001). Predicting usage of the Internet for travel bookings: An exploratory study. Information Technology & Tourism, 4(1), 15–30.

42. Morrison, A., Taylor, S., Morrison, A. and Morrison, A. (1999). "Marketing small hotels on the World Wide Web", Information Technology and Tourism, Vol. 2 No. 2, pp. 11-97.

43. Murphy, H.L. (2001). "E-learning put to the test", Crain's Chicago Business, Vol. 24 No. 35, pp. 1-3.

44. Murray, B. (1997). Tourist information search. Annals of Tourism Research, 24(3), 503–523.

45. O'Connor, P. (1999). Electronic information distribution in tourism and hospitality. Wallingford: CAB.

46. O'Connor, P., & Frew, A. (2001). Expert perceptions on the future on hotel electronic distribution channels. In P. J. Sheldon, K. W. Wo¨ber, & D. R. Fesenmaier (Eds.), Information and communication technologies in tourism 2001 (pp. 346–357). New York: Springer Wien.

47. Poon, A. (1993). Tourism, technology and competitive strategies. Oxford: CAB International.

48. Porter, M. (2001). Strategy and the Internet. Harvard Business Review, 79(3), 63–78.

49. Reynolds, J. (2000). "E-Commerce: a critical review", International Journal of Retail & Distribution Management, Vol. 10 No. 3, pp. 417-44.

50. Sabado, O. (2005) www.estig.blogspot.com/2005/10/role-of-ict.html

51. Sheldon, P. (1997). Tourism information technologies. Oxford: CAB.

52. Sigala, M. (2002). "The impact of multimedia on employment: evidence from small and medium tourism and hospitality enterprises in the UK".

53. Sigala, M., Airey, D., Jones, P. and Lockwood, A. (2001). "Multimedia use in the UK tourism and hospitality sector: training on skills and competencies", Information Technology and Tourism, Vol. 4, pp. 31-9.

54. Thomas, R. (1999), "The future of small firms in the hospitality industry", International Journal of Contemporary Hospitality Management, Vol. 11 No. 4, pp. 148-54.

55. Werthner, H & Klein, S. (1999). Information Technology and Tourism – A Challenging Relationship, Springer, Wien and New York.

56. Zhang, D. and Nunamaker, J.F. (2003). "Powering e-learning in the new millennium: an overview of e-learning and enabling technology", Information Systems Frontiers, Vol. 5 No. 2, pp. 207-18.