THE ROLE OF ICTS IN REGIONAL TOURIST DEVELOPMENT

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Abstract
Advances in electronic-based information and communication technologies (ICTs) are rapidly transforming social and economic conditions across the globe. As the cost of ICTs continues to fall and their capabilities increase, their applications are becoming even more vital to all sectors of the economy and society. Developments and continued growth in ICT and its application in the tourism sector have empowered the tourism consumer and are driving significant change within the tourism industry. The increasing spread and uses of ICT create new opportunities for countries to harness these technologies and services to promote social and economic development and human justice. Given the growing importance of technology in all organizational functions and areas, organizations can either adapt to technological changes or will have to face a decline in their organizational viability. This article is concerned with the administration of ICT in tourism regional planning and the concept of organizational change. The paper explores areas of ICT literacy, and concludes that a number of challenges must be addressed if the full benefit of the use and application of ICT in tourism. The article draws the attention of all the stakeholders in the tourism sector to the need to support and promote ICT as the most effective tool for tourism regional planning, tourist information access and dissemination as well as the tourism regional development participants need for organizational change.

Key words: ICT, tourism regional planning, DMOs, organizational change

1. Introduction

Advances in electronic-based information and communication technologies (ICTs) are rapidly transforming social and economic conditions across the globe. As the cost of ICTs continues to fall and their capabilities increase, their applications are becoming even more vital to all sectors of the economy and society. Developments and continued growth in ICTs and their application in the tourism sector have empowered the tourism consumer and are driving significant changes within the tourism industry (Werthner & Klein, 1999a). Mansell (1999) points out that the increasing diffusion of ICTs creates new opportunities for low-income countries to promote not only social and economic development but also social justice. Given the growing importance of technology in all organizational functions and areas, organizations can either adapt to technological changes or face a decline in their organizational viability.

Despite the increasing importance of ICTS for the development of the world regions, the exact nature and scale of the challenges set for policy making in the tourist sector still remains unclear. A number of studies in the tourism and ICTs literature have discussed the significance of the Internet as a communication channel and the variables explaining online information search and patterns of the tourist purchasing behaviour (Kah, Vogt, and MacKay, 2008; Buhalis and Law, 2008; Pan and Fesenmaier, 2006; Morrison et al., 1999; Bonn, Furr, and Susskind, 1999; Weber and Roehl, 1999). Other studies have investigated the spread of innovation in tourism businesses and DMOs and the internal and external factors explaining ICTs adoption and usage (Huh et al., 2009; Garkavenko and Milne, 2008; Hornby, 2004; Gretzel, Yuan, and Fesenmaier, 2000; Collins, Buhalis, and Peters, 2003; Paraskevas and Buhalis, 2002; van der Borg et al., 1997). Other researchers emphasise the effects of inequalities in access, use, and involvement with ICTs on the tourism system at both global and local levels (Minghetti and Buhalis, 2010).

The purpose of this article is to address the role of ICTs in regional tourism development and to bring a critical commentary in order to challenge policy makers to engage in more appropriate sets of policy orientations

2. Tourism and Regional Development

Tourism is a global industry (Wahab and Cooper, 2001), and although the biggest part of international tourist flow is still generated by and between developed countries and regions, there is a strong center–periphery relationship as many emerging destinations are located in peripheral or less developed areas (Scheyvens, 2002). Even within developed countries, tourists generally leave rich metropolitan areas toward popular resorts in peripheral regions (e.g., beaches and ski resorts, small art cities). All these peripheral locations are often less accessible from the main tourist-generating regions, both physically and electronically (Nash and Martin, 2003; Buhalis, 2000; Hall and Page, 2006; Hohl and Tisdell, 1995; Minghetti and Buhalis, 2010). However, the evolution of tourism demand, the emergence of a more skilled and demanding traveller who wishes to explore new destinations and live new experiences, supported by transport developments (low-cost carriers, fast trains, and the proliferation of private cars) and the Internet, make all these destinations close to their potential markets (Minghetti and Buhalis, 2010).

In recent decades the region has been seen to be an increasingly vital component in the global–local context of development (Storper, 1997, p.3). Through a mixture of networks, notions of regions stimulating economic growth and cultural/political attributes have dominated much of the social science discourse on economic development since the early 1980s (Amin, 1989; Sayer, 1995). In tourism the region has become seen as an important driving force in linking disparate segments of the industry and enabling destination networks to form (Milne, 1998). It is also argued that many of the natural and cultural resources upon which the industry depends are regional in nature – ranging from complex ecosystems through to patterns of culture and economic identity (Milne and Ateljevic, 2001).

The globalization of the economy is a continuous challenge for the spatially oriented regional innovation systems. Drawing on Amin's (2002) spatial ontology for a globalized world, it is emphasized that the nation, and region for that matter, are constituted through a topology of overlapping near and far connections and relations (p. 386) that are 'produced through practises and relations of different spatial stretch and duration' (p. 389). Thus, a nation and region together constitute a form of 'place making, through the myriad network practices and memoralisations that mark the sites we choose to call places' (Amin 2002, p.392; 2004, p.40) and geographical demarcation is becoming highly malleable and uncertain. Sectoral innovation systems are based on the idea that different industries and sectors, such as tourism, operate under different knowledge, regulatory and technology regimes, and that these are characterized by particular combinations of opportunity, through mobilization of their specific constellation of regimes (Hjalager, 2010). These driving forces may be highly integrated into national or even regional dynamics, but may also transcend spatial boundaries. (Hjalager, 2010)

A globalized economy raises new challenges to tourism regional development. Because of the concentration of people and political, economic, and social functions, regions are starting to be thought of and designed as active components of a "globalized" world. (Santinha and Castro, 2010). Regions assemble several types of social and institutional networks, whose existence and function depend on some specific conditions, namely: 1) the existence of a telecommunications infrastructure capable of supporting strong economic activity; 2) the availability of qualified human resources; 3) the possibility of easily establishing personal contacts; 4) the existence of working relationships among political, administrative, religious, and cultural sectors; 5) the availability of more public and private services; and 6) the possibility of developing a strong and regular personal and institutional interaction which, in turn, promotes territorial proximity. (Santinha and Castro, 2010).

The new paradigm proposes a different view from the classical monocentric models, underlying the importance of developing a balanced and polycentric settlement system of the regional structure. The

idea, initially supported by the European Spatial Development Perspective (CEC, 1999) and more recently by the Territorial Agenda (CEC, 2007), is that, by promoting the establishment of cooperation networks between tourism systems of certain proximity (underpinning the existing scale benefits), it is possible to overcome some of the weaknesses affecting the less favoured and peripheral areas.

As a means to an end, the importance of ICTs increases in proportion with both the network of contacts and the quantity and complexity of the information exchange between those networks, either from the individual or institutional viewpoint. In this light, ICTs help in the creation of immaterial networks both within regions (internal) and between these and other places (external), an idea reinforced by Castells in his well-known concept of the "space of flows"(Santinha and Castro, 2010). Such arguments can be illustrated by two examples: the use of ICT in the provision of services of general interest to citizens, such as health (e.g., telemedicine), education, culture, justice, and mobility, engendering opportunities for social equity and territorial cohesion and the use of ICT by tourism services to diminish firms' internal bureaucracies and times of response, to facilitate a variety of contacts, to reduce transaction costs, and to improve tourism production and marketing processes.

Tourists and destinations within developed countries and between developed and developing countries suffer from a multiplicity of technological divides (motivational, physical, informational, etc.), which lead to different levels of digital exclusion(Minghetti and Buhalis, 2010). The OECD (2003, p.4) defines digital divide as "the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard both opportunities to access ICTs and the use of the Internet for a wide variety of activities". The geographical evolution of tourism follows a similar development of the global and domestic digital divide. More than 50% of the international tourism flows and receipts is concentrated in the developed areas of the world (Europe, with the exception of Eastern European countries, North America, and Oceania) and are mostly generated by intraregional tourism (especially within Europe; UNWTO 2008). The rest of the international traffic is determined by trips from the northwest to the southeast regions, made by tourists coming mainly from Western developed countries who visit less developed regions (Minghetti and Buhalis, 2010).

Recent studies show that high-tech tourists and regions or enterprises meet in an electronic marketplace and communicate directly through electronic channels, eliminating the need for spatial concentration of production and distribution, but in contrast, medium- and low-digital-access tourists and destinations still depend on analogue transactions and physical intermediaries to develop their vacation planning process and to transact (Minghetti and Buhalis, 2010). Thus, digital inclusion or exclusion is expected to have a major impact on tourism competitiveness, as it creates and/or deepens economic and social disparities between tourists and destinations. Analyzing these effects implies integrating macro and micro perspectives, taking into account the environmental (technical, political, economic, etc.) conditions in which tourism markets, businesses, and organizations develop and operate as well as the structural, cultural, and motivational aspects driving their attitudes and decision-making processes(Minghetti and Buhalis, 2010).

3. ICTs Integration into Destination Marketing Organizations (DMOs) Tourism Strategy

Given that the development of ICTs infrastructure and use has positive effects on economic growth and that tourism often acts as a driver of economic and social development, especially in developing areas, the exploitation of technology is critical for the tourism industry to achieve competitive advantage and to provide economic benefits for their locality, by reducing the asymmetric distribution of economic, political, and cultural capital globally. The tourism industry can be seen as one of the first business sectors where business functions are almost exclusively using information and communications technologies (ICTs) (Garzotto et al., 2004).

Over the last decade, investments in ICT in the tourism and hospitality industry have substantially increased. The challenge for the tourism operator is the provision of accurate, localised data,

increasingly via ICT, whilst maintaining a trust relationship with the tourist. Developing destinations face increasing disadvantages in establishing links with their clientele, promoting their resources, distributing their products, and collaborating with industry partners, especially in high- and upper-digital access markets. This has considerable effects, as not only do they fail to fulfil their full potential and then to gain sufficient economic and socio cultural benefits but also they are unable to build their resources and expertise in order to improve their competitiveness and ensure their future prosperity.

The benefits from ICTs, particularly the Internet, for tourism are substantial. The Internet is especially relevant to tourism since it enables knowledge about the consumer or tourist to be gathered, as well as vice versa. Online resources are proliferating and fewer and fewer components of tourism products are willing to risk being invisible in cyberspace (Milne and Ateljevic, 2001). At the same time, numerous governments are implementing policy frameworks to foster the adoption of ICTs by the industry, and tourists everywhere are beginning to see the potential for new technologies to improve their ability to make travel plans (Sheldon, 1997; Smith & Jenner, 1998).

Online technologies within the tourism industry have significantly impacted on communications, transactions and relationships between the various industry operators and with the customer, as well as between regulators and operators (Galloway, Mochrie and Deakins, 2004; Sharma, Carson and De Lacy, 2000; Sheldon, 1998; Werthner and Klein, 1999a; World Tourism Association, 1999) According to Buhalis, (2002), the internet offers the tourism industry opportunities to provide wider, deeper, and more customised offerings to a greater number of clients, all with greater interactivity, at lower costs, and without substantially altering the quality of information delivered.

Web 2.0 brings a second generation of opportunities for collaboration and information sharing based on web-based communities and hosted services. For tourism the benefits include enhanced information sharing between consumers and between business and consumers. The Web gives tourist firms and organisations the ability to reach highly motivated customers with information-rich messages at a negligible cost. Nevertheless, competitive advantage on the Internet will not be realized by applying existing marketing models but, rather, by developing innovative concepts. Integrated approaches that build on the advantages and capabilities of technology need to be translated into concrete innovative marketing actions. The Internet, Dogac, et al (2004) argues, enhances the level of collaboration between tourist operators and brings about greater levels of interoperability with internal and external applications, previously available to technologically advanced tourism stakeholders via proprietary systems.

ICTs have the potential to upgrade the quality of life by providing new tools for better access to information, knowledge management as well as sharing. A shift of power to the buyer is also evident in that the modern day tourist has ready access to the World Wide Web and a store of information. The tourist consumer has more choice when buying travel products also because of the options provided by on-line travel agents and direct marketing by airlines. Sterne, (1997) adds getting management support, assigning responsibilities, establishing procedures, and setting standards against which the efforts are measured to this list.

In tourism, the ability of destination organizations and businesses to select, to aggregate, and to distribute information to the right consumer at the right time and in the right place is critical. ICT-skilled tourism enterprises and destination marketing organizations (DMOs) have huge opportunities to apply ICTs for communicating their offering, enhancing their visibility on the market and strengthening their competitiveness (Gretzel, Yuan, and Fesenmaier 2000; Buhalis 1998). Design, content, and production access can be achieved through appropriate training, which stimulates the development of specific skills and also trigger staff behavioural intention to use ICTs. In addition, institutional and governmental incentives can support businesses' decision to invest in innovative tools and applications.

The integration of IT into the organizational fabric of the destination marketing organization (DMO) is an important key to success. It is difficult for most DMOs, however, to keep pace with the evolution of new technologies, the emergence of innovative advertising strategies, the changes in the consumer market, and the growing competition due to increasing globalization. They often have to struggle with limited financial and human resources, a lack of technological expertise, and time constraints. The question of how to move from the current way of doing business to one that is responsive to these changes becomes a vital concern.

Many countries are having a two-tiered structure (Werthner, 1999) in which Tier 1 is made of a small number of large, often global, players, and Tier 2 is made up of a much larger collection of small and medium tourism enterprises (SMTEs). Larger players are well versed in current management practices, including information technology applications. Large enterprises are keen on facilitating the uptake of online technologies because they have a critical mass of infrastructure, personnel, and related experience to undertake this transition. These enterprises are generally high up the distribution chain and undertake a large percentage of their communication with other businesses in the chain; hence, they are primarily concerned with business-to-business applications for online technologies. They involve information exchange, inventory management, and alliance facilitation, like for example, association with Travelport, Sabre and Amadeus GDSs.

In contrast, Tier 2 enterprises have mostly limited technological infrastructure and financial power, the level of marketing know-how is generally low, and direct access to the market is limited and they tend to be located in regional and rural areas. Tourism businesses (especially small to medium enterprises (SMEs)) and DMOs with low use of ICTs are often cut off from electronic distribution channels and eCommerce (Buhalis and Kaldis, 2008; Collins, Buhalis, and Peters, 2003). Tourism destinations and SMEs in peripheral, low digital- access regions are even more disadvantaged than their colleagues located in developed countries (Buhalis, 1998, 2003; UNCTAD 2004). Not only are they excluded from the considerable set of their prospective customers but they also struggle for access to expertise, capital, and technologies that could enable them to promote their products and develop suitable tools for attracting new markets (Minghetti and Buhalis, 2010). Their online presence often reflects the level of ICTs deployment in their own location rather than the expected level of use by their clientele, which often operates in high-ICT regions. These destinations and businesses have a high dependence on external traditional intermediaries (i.e., tour operators and incoming agents) to promote and sell their products (Bastakis, Buhalis, and Butler, 2004; Buhalis, 2000).

According to Warschauser (2004), "What is most important about ICTs is not so much the availability of a computing device or the Internet line, but rather people's ability to make use of that device and line to engage in meaningful social practices." Awareness of the functionality of the Internet, as well as resources and expertise necessary to take advantage of this functionality may be lacking, especially with respect to SMTEs. The nature of the Web provides new opportunities but also poses serious threats, especially to small tourism organizations. Naisbitt, (1994) refers to this phenomenon as the "global paradox." This ambiguous situation calls for risk taking and at the same time requires careful management. It is not clear that individual SMTEs are able to use this intelligence, or recognise its value. Information potentially available therefore is lost. Also infrastructure issues, such as access to broadband, may impede its use. Disparities in possessing, controlling, processing, communicating, and distributing information have a greater impact on tourism production and consumption than in other economic sectors. These disparities are determined by both the technological tools available to provide and distribute accurate information widely, and the ability to use these tools effectively(Minghetti and Buhalis, 2010).

Paradoxically, as technology progresses, the gap between the "ICTs – included" and "the ICTs-excluded" widens, further jeopardizing the social, cultural, and economic development at the global level. Highly developed tourism markets and destinations that systematically use and benefit from advanced computer-based and Internet applications will continue to strengthen their position and affect the evolution of the sector. Conversely, others who are able to use basic or simple electronic applications, or those that do not use them at all, will stay behind and be excluded from the first tear of

the global tourism community. They will inevitably be more dependent on offline and online tour operators and travel agencies for putting their offerings forward to the marketplace.

Digital divide may lead to digital and social exclusion—when individuals, communities, and organizations are unable to fully participate in the network society and determine their own destiny (Selwyn 2004). For tourists and destinations, this means being unable to participate in the emerging electronic market and benefit from arising opportunities. Recent studies carried out in Thailand (Vatanasakdakul, Tibben and Cooper, 2004) and in the tourism sector (Cosh and Assenov, 2007) have shown that although the government has funded projects to improve ICTs infrastructure and widen Internet and e-Commerce functionalities, their use in firms is still very limited. The reason is that immediate social and cultural expectations of e-Commerce users in the country are not met by current technologies.

In addition, the high dependency of the local industry on external trade operators and, in the case of tourism, from intermediaries located in highly developed markets, does not give incentives to Thai travel agents to modify their business model. Local agencies generally show a lack of knowledge of e-Commerce and poor Web design capabilities (content management, security issues, etc.). Many of them also feel "that the online channel is already overpopulated, while they are already busy in satisfying physical customers" (Cosh and Assenov, 2007, p. 499). Consequently, digital divide initiatives should be combined with development policies for tourism in order to support the welfare of destinations.

Although the diffusion of ICTs has a great potential for ensuring sustainable global and tourism development, especially in less developed areas (UNCTAD, 2004), disparities still exist in access, skills, use of ICTs, and services. Many infrastructural and above all knowledge barriers have to be overcome therefore to support a wide use. This also applies to the developed regions of the world, which face the challenge of ensuring that everybody has the opportunity to benefit from Internet services (Minghetti and Buhalis, 2010).

4. Use of Innovation Systems and ICTs in Regional Tourist Development

Over the past two decades, inquiry into regional economic development processes has increasingly looked towards determinants in national, regional or sectoral innovation systems (Hjalager, 2010). Competition and globalization are factors that challenge tourism enterprises and destinations to develop and introduce new products, services and concepts at an increased speed (Hjalager, 2010). Keeping pace with new customer demands under cost and other constraints requires a continuous innovative response.

Although providing a more concise understanding of the determinants, mechanisms and outcomes of economic action, the innovation systems approach has been brought into tourism research only to a limited extent (Sundbo and Gallouj, 2000; Hjalager et al., 2008). Dynamic national or regional environments are not cut off from the forces of globalization. Johnson and Lundvall, (2000) argue that sustainable national and regional innovation systems are those able to enhance institutional learning and build social capital on a continual basis. In the context of globalization, innovation emerges as a key factor for acquiring competitive advantages. Innovation has been a stout subject in a wide range of literature, usually related to the development of a productive system and knowledge distribution (Lundvall, 1992; Lundvall and Borras, 1997; Nelson, 1993).

In the modern economy, knowledge is commonly recognized as the most important factor in increasing the competition among firms and regions. If one considers knowledge as the organization of information designed to provide an answer to a question or solve a certain problem, information can be seen as the fuel of knowledge. Innovation is a continuous learning process because the strategic value of information, changes in time; therefore a regular knowledge update is important. It is also a highly coordinated process, because it demands the interaction of several actors, the selective acquisition of information, and the creation of networks in an attempt to produce value through the use

and exchange of information throughout several activities inherent to the innovation process (Santinha and Castro, 2010).

The innovation process thus demands a selective collection, use, and dissemination of information, as well as an intensive interaction among multiple actors. And so, innovation would seem to call for a systematic reorganization of how society and economies function, aiming to enhance the creation and development of social and economic networks, supported by trust and structured around the sharing of common interests, languages, and knowledge. Being able to integrate global knowledge and networks into local innovative processes is of crucial importance, and the existence of an absorptive capacity and learning atmosphere is therefore needed in a contemporary innovation system (Asheim and Isaksen, 2002).

ICTs are driving the innovation process by reducing distance and time constraints in inter-personal and inter-institutional contacts and by reducing the complexity of exchanging and acquiring information (Santinha, Castro, and Sobral, 2006). However, while it is important to acknowledge their important role, these technologies only play a part in enabling the many processes and relationships that characterize the patterns of socioeconomic development. An efficient use of ICT-based services demands the existence of dense immaterial networks, related to social interactions that occur within and between places and socioeconomic activities, allowing in turn the constant production of innovation.

Innovative solutions are the key to the promotion of tourist regional development. Rapid developments in mobile telephony, cable, fibre-optics, and wireless applications as well as in the field of computer hardware and software products appear to offer excellent opportunities to tourism development (Santinha and Castro, 2010; Batlle et al., 2009; Bell, 2008; Van der Meer and Van Winden, 2003). Numerous empirical studies of innovation systems and industrial districts indicate advantages in terms of adaptability and viability. As a consequence, single enterprises, when interlinked to collaborative relations, tend to be more shielded from the exposure to immediate competition (Markusen, 1996). However, the individual and collaborative actors in innovation systems need to address external pressures continuously, such as, for example, shifts in technological paradigms or changed regulatory environments (Hjalager, 2010). If innovations systems slide into a 'comfort' zone and lose their ability for rapid catch-up, their vulnerability may increase (OECD 2006). This perspective is perhaps most important in environments with many small enterprises, as is the case in tourism (Hjalager, 2010).

In the newly evolving production environment the most efficient relationships are based on the creation of alliances, partnerships and networks among firms (Castells, 2004). Destination communities and regions rely on network formation (between businesses, between the private and public sectors) for the development of competitive tourist products. These can be attained through a number of mechanisms including mutual dependency and adaptation, discussion and negotiation, honesty, long-term commitment, quality control and shared knowledge. Networks may also be created and enhanced by the emergence of new information and communication technologies (ICTs). Virtual networks, which can be defined as permeable structures without physical borders of separation from the environment, comprising a multiplicity of autonomous, interdependent, and self-organizing actors that rely on the internet infrastructure to integrate and exchange value, are an example of these new concepts (Romano, Eliva and Passiante, 2001; Pollock, 1998).

Tourist places have often been treated as more or less territorially bounded destinations with the focus laid on organizational and marketing strategies. The destination is seen as a 'container' of attractions and various facilities such as transport, accommodations and food and hence the tourism experience (Tinsley and Lynch, 2001). As a result, the complexities of tourism practices disappear behind dualistic categorizations; on the one hand are tourists, on the other tourist organizers working within destinations. However, the territorial model of industrial districts, where tourism networks are made of relations between fixed nodes in one-dimensional time–space and resting on the physical proximity of homogeneous actors, does not seem to be successfully implemented in tourism. (Bærenholdt et al., 2004). Studies based on this understanding of networks have shown that tourism industries are rather weak in networking, at least in the same way as traditional production industries (Hjalager, 2000;

Tinsley and Lynch, 2001). Instead, the concept of networks is in line with much of economic geography and innovation theory, which has focused on the significance of inter-firm relations and learning economies.

The apparent association of growth in regions and of industries with conspicuous networking activity has encouraged suggestions that successful regional economies in the world economic system must be 'intelligent' or learning regions (Feldman, 1994). Networks are thus part of the dynamics of organizational creativity, directed towards building and maintaining competitive links to the global economy, and based on strengthening existing competitive activities (Hansen, 1992; Castells, 2004). At the same time, the sustainability of the industry may well be tied to creating effective alliances between the private and public sectors. Thus, networks become fundamentally based not on spatial proximity, or shared interests, but on notions of trust and reciprocity. The future competitiveness of destinations, and the development performance of tourism, will not simply depend on a destination's natural and cultural resource base, its ability to harness new technologies, or its depth of human capital.

5. ICTs and Organisational Change in Tourism Stakeholders Business: Towards a model of a learning organisation based on co-operation and co-opetition.

A growing attention has been devoted to the mechanisms through which firms acquire information on new products and processes in order to enhance their productivity. Following different theoretical approaches, the literature has identified and analysed several channels of knowledge diffusion (Marrocu and Paci, 2010). These mechanisms operate, often in a complementary way, through contacts with other firms and final consumers, both at the regional, national and the international level. Knowledge can be conveyed via interactions with suppliers and competitors in the market, trade embodied in goods, foreign direct investment (FDI), direct contacts with customers in the local market and in the case of exporter firms, in the external ones as well. It is worth remarking that all these mechanisms may present some shortcomings that may limit the possibility of acquiring valuable information. As mentioned before, enterprises operating in closed narrow markets receive a limited amount of useful information because of the small number of localised firms and final consumers and this can negatively influence their efficiency levels. At the same time, the fixed costs required to access larger markets prevents them from being exposed to international knowledge spillovers (Marrocu and Paci, 2010). This reservation also applies to tourism, where large multinational corporations in the hotel, airlines and tour operation business control certain knowledge acquisition and dissemination processes (Shaw and Williams, 2009).

Most of the problems organizations face today when designing and implementing online strategies stem from their efforts to fit everything into existing structures and models. Organizational structure can be characterized by how rigid or flexible and how adaptive or non adaptive an organization is, and how it deals with uncertainty and risk (Zeira and Avedisian, 1989). ICTs facilitate the emergence of new structures but do not drive their developments. With information being available to all organizational members regardless of their position within the organization and regardless of time and space, multiple management layers and hierarchies are no longer needed to move information up and down. Rossetti and DeZoort, (1989) mention the shape, composition, and degree of decentralization as an important structural factor that influences an organization's capacity to change. Referring to Drucker,(1997), they suggest that eliminating middle management leads to a better diffusion of knowledge within organizations. The old command-and control model of organizational structure will not be suitable for the environment that organizations are going to face in the 21st century. Organizations of the future will build their competitive advantage on learning instead of controlling. It is suggested that DMOs need to redefine their nature of business and the underlying models and processes. This requires fundamental organizational changes that have to be managed carefully and should be directed toward increasing the organizational flexibility and openness to change. DMOs need to develop organizational cultures that encourage innovations and risk taking and see failures as opportunities to learn.

Becoming a learning organization is vital for establishing competitive advantages in the new economy. Learning should occur on the individual and organizational level. Knowledge creation is useless if the knowledge is not processed and transferred, so that active learning can occur and become incorporated into the online advertising concept. It is clear that boundary-less organizations that are able to form networks with others quickly to pool resources and leverage competencies can best take advantage of the dynamic nature of the Web. In a rapidly changing global climate, DMOs are challenged to understand the needs and aspirations of tourists and to foster innovative approaches to securing existing and enticing potential new markets World Tourism Organisation (1999). For individual destinations understanding consumers' pre-travel expectations and how these contribute to the post-trip image of the destination may be important (Jenkins, 1999). At a destination level, for example, knowledge about these facets of consumer behaviour can be incorporated into improving positioning strategies (Pühringer and Taylor, 2008). Knowledge of this type may also assist in the identification of opportunities for collaborative product marketing and packaging and even in the development of new products according to Pearce, Morrison and Rutledge, (1998). A more fundamental outcome may be achieved by individual businesses who are cognisant of consumer expectations and perceptions and who act on post-travel feedback. Specific opportunities for individual businesses to apply such knowledge include service level improvements, product differentiation for markets and developing effective information and communication strategies (Pühringer and Taylor, 2008). A suitable definition of knowledge is the transformation of contextualized facts (pieces of information) into resources for learning (Turner, 2000). Informational strategies such as knowledge management are a direct threat to the hierarchical nature of most organizations.

The production and distribution of knowledge of these types has been proposed as one pre-condition for innovation in the complex regional tourism systems in which most DMOs operate (Taylor, 2005a). Increasingly business network behaviour is becoming more prominent in research and is of interest to the tourism industry. A sharing of information, either in a centralised or more collaborative way, would assist in the maximization of the value of information and knowledge. In such systems, the value placed on knowledge about markets, competitors and the performance of the system itself can facilitate the identification of and penetration into new markets (Fountain, 2005).

Scholars have identified the need for greater collaboration in the industry (Joo 2002; Palmer and McCole 2000; Picoli 2004; Werthner and Klein 1999a), recognising the need to exploit technologies to become more responsive to the market. Eikebrokk and Olsen (2005) completed a study looking at the incidence and impact of co-opetition on e-business success. Co-opetition can be defined as the simultaneous cooperation and competition between businesses that occurs as a consequence of the formation of virtual organisations amongst competitors in a marketplace (Eikebrokk and Olsen, 2005; Palmer and McCole, 2000).

Collaboration around technology may assist in the promotion of the destination and enhance economic development of regions, especially given the shift in power to the tourist as earlier outlined. Taylor (2005a) has described the types of tourism information resources which can be used for these including online sources, tabular data, industry news and reports, case studies, research publications, maps, media files and how-to guides. The internet-based Consumer Generated Content (CGC) is found on a burgeoning range of e-communities, online forums and social networks which are formed around groups of people with common interests. Of particular interest to DMOs is the potential for Web blogs to inform strategic marketing efforts and to be used by consumers as a source of information in their trip planning and purchasing decisions.

Joo, (2002) argues that ICTs are a critical driver of integration and co-operation as he asserts that "Information technology enables businesses to integrated business activities or functions that otherwise would not be possible to achieve. This integration though requires internal integration of processes and systems as well as externally with other organisations and this has acted to impede co-operation in the past." (Joo, 2002, p.59). It is argued that successful online marketing strategy is not

just about technology and new communication channels, but it is mainly about deconstructing traditional business models and reinventing the organization.

The e-Commerce tourism marketing strategy needs to be continuously revised because things are changing rapidly on the Web, consumers tend to forget, and competition is tough. Unfortunately, limited resources, lack of proper management, insufficient knowledge, lack of communication, legal regulations and restrictions, and ownership issues were the most important barriers to technology implementation and adoption. Whilst centralised bodies such as tourist bureaus promote a tourist destination and disseminating information about a region, others see the importance of demonstrating a unified face of a destination by the actual tourist operators themselves. Yet a proliferation of 'html document-based' websites (Joo, 2002) with respect to operators located there exists, meaning that tourists are not provided with a concerted and unified tourist experience which they are increasingly coming to expect. Therefore, effective communication between all individuals and organizational units involved in the design and implementation of online strategies can greatly facilitate the process and enhance the outcome. If possible, expertise should be acquired in-house to have more control over the outcome and to be able to increase the intellectual capital of an organization, which is necessary for developing innovative approaches. If an external agency is charged with the design and/or implementation, goals and expectations have to be clearly communicated.

The integration of innovative technologies will allow firms to break away from obsolete and ineffective approaches to differentiate themselves in a highly competitive, global, and networked economy. What really matters is how change is integrated into the DMO. Change can be defined as "thinking or doing something new or differently" (Hultman, 1998). It describes the move from one stage to another. Companies cannot avoid change, but they do have a choice in how proactively they seek it. According to Keffeler (1992), organizations have only two options: to choose change or to chase it. There is risk in change, but there is also the risk of not changing (Hultman, 1998). No success or competitive advantage is permanent; therefore, the winners can only be those who keep moving (Prokesch, 1997), and they have to move a lot faster than anybody else. Change has always been the driving force in the evolution of systems, whether they are ecological, biological, social, or organizational entities. And it has always been difficult for people to deal with those changes. Machiavelli wrote in the 15th century, "There is nothing more difficult to plan, more doubtful of success, nor more dangerous to manage, than the creation of a new system" (Goldberg 1992, p. 41). What is new is the accelerating speed with which it occurs and the growing outreach of its implications.

Bill Gates (1999) emphasized in his book *Business and the Speed of Thought* that business is going to change more in the next 10 years than it has in the past 50. This trend to a large extent is caused by the emergence of new information technologies and, as a result, the ease with which information can travel across the globe because information acts as a catalyst for change (Lutz, 1986). Yet, ICTs not only accelerate the speed with which environmental changes occur but also make it possible to respond quickly to such changes. But the pace of change is only one part of the current scenario (Shukla, 1997). The other main factor is the complexity of change. Changes not only are becoming less predictable but also are occurring simultaneously.

Given the growing importance of technology in all organizational functions and areas, organizations can either adapt to technological changes or will have to face a decline in their organizational viability. Productivity in the knowledge era involves creative thinking, flexibility, and the ability to change and adapt quickly (Koch and Steinhauser, 1983). Change implies questioning old goals and functions and establishing new organizational frameworks; profound change also involves a rethinking of who the partners and competitors are and how networks with other organizations could increase the organizational capacity to learn. Organizational changes are the prerequisite for successful and fast technology integration. Adaptation to technological change cannot be realized without changes in the organizational structure and culture. Thus, the relationship between IT and organizational change has become a vital concern for most organizations (Rossetti and DeZoort, 1989).

"If change is about learning, it is also about communicating" (Schiemann, 1992). The more comprehensive and flexible the corporate communication network is, the more likely employees know where the organization wants to go. This is an important factor for reducing employee resistance and for initiating and sustaining change because change tends to ignore the proper channels and established bureaucratic lines (Waterman 1990). Bureaucracy has been designed to resist change (Waterman 1990). It is necessary for establishing consistency and stability in an organization, but hierarchies make the free exchange of knowledge more difficult and, thus, limit the organizational capacity to change.

It is argued that organizations need to be very flat, team-based organizations designed to motivate and help people to learn (Prokesch, 1997). Flat organizations have a built-in flexibility. They have a less rigid division of work, a constant search for innovative solutions, participation in decision making, a free flow of communication in all directions, very general job descriptions, a delegation of authority, and a greater sensitivity to environmental changes (Zeira and Avedisian, 1989). Organizational structures should be as flat as possible so that information can be passed on easily and ideas shared extensively. Top-down management reinforces fear, distrust, and internal competition and reduces collaboration and cooperation. It leads to compliance, but a high capacity to change requires commitment (Drucker et al., 1997).

6. ICTs and Tourism Public Governance

Evidence shows that it is possible to identify different levels in the use of ICTs by public administration in its tourism governance mechanisms, ranging from the simple creation of a front-office information service to a full citizen and institutional involvement in tourism policy design, decision-making, and service delivery. Essential ingredients of success are the continuous learning and the competence to use what is learned. Consequently, it will be human infrastructure that will constitute the crucial element of success for regional tourism development. A sufficient supply of "intellectual capacity" in terms of its quantity and quality, to sustain continual innovation and to broaden the knowledge base in the economy as a whole, is a prerequisite of development. Addressing the human resource requirements of the new age demands a multifaceted approach with central and local governments playing key roles, particularly in terms of developing local talents in line with the information and knowledge needs of the emerging economy.

Key actions for public policy include (Keivani, Ali Parsa and Younis, 2003):
- adapting the education system to the knowledge requirements of the new economy
- initiating and supporting research and development to foster innovation
- initiating and supporting local initiatives for broadening ICT access and skills development through community ICT networks
- upgrading public service delivery and administrative systems through the use of the e-government
- creating the legal and regulatory conditions as well as the incentives for promoting knowledge- and ICT-based activities by market actors
- establishing, and/or participating in local, national, regional, and international inter-government ICT networks,
- promoting a vision of the networked knowledge society through public awareness programs and practical measures for engaging ordinary citizens, including e-government initiatives and innovative ICT-based interaction programs encompassing public, community, and private spheres.

Public administration must, therefore, examine its state of the art in order to determine the best path to efficient tourism governance through the use of ICTs. The creation of virtual platforms for consulting spatial planning and tourism policy design documents, supporting tourism industry localization patterns, enhancing synergies between higher education systems, technological centres and other educational centres, and promoting local and regional tourist products in the global market, can result in heightening the management efficiency of tourism businesses, intensification of business's

interactions with actors from the scientific and technological communities, amplification of the network of contacts with clients and suppliers, and also reinforcement of the value of the local and regional tourism industrial fabric in a global context. Also the use of GIS technology, the establishment of virtual discussion forums with respect to public policy processes, and the construction of ICT-based tourism portals with information about specific themes (cultural events, sports events, etc.) of local and regional scope are some examples of tourist governmental actions (Santinha and Castro, 2010).

In this challenge, four specific criteria must be taken into account: to guarantee an integrated vision of the tourism regional development strategy, to include initiatives that spread the advantages of using virtual platforms so that ideas can be replicated and new initiatives stimulated, to assure the collection and spread of tourism information concerning the productive system and firms' needs, and to facilitate the access to information and supporting services by tourism stakeholders(Santinha and Castro, 2010). Regional tourism initiatives are driven by the need to maximize marketing penetrations for the region and its product, facilitate the entry of local enterprises into e-commerce and demonstrate comprehensiveness of coverage of product in the region, whether or not individual products have independent online presence.

Recently, in many countries, has emerged the need to establish a resource centre to develop education, training, and projects' facilitation, to support the move to online tourism business practices. The responsibilities of the National Online Tourism Resource Centre could include:
• maintaining a resource directory, including a directory of high-standard examples, to be accessed by industry for identifying opportunities and impediments to the uptake of online technologies;
• assisting industry associations to promote online technology among their members, including organizing and conducting workshops;
• developing national competency standards in online technologies
• developing a set of guidelines for minimum infrastructure needs for online business practices;
• monitoring and providing information about tax and legal issues relating to online tourism initiatives; and
• undertaking applied research and data gathering about the most effective online strategies for SMTEs.
While the resource centre will be online, it will have to be supported by considerable offline activities in its initial phases.

6. Conclusions

The emergence of innovative Web-based technologies has led to a reconfiguration of the environment in which tourism business is conducted. These fundamental technological shifts have a profound impact on the perception, consumption and construction of tourism spaces, and their local development outcomes. 'Traditional' regional communities have new tools through which to disseminate their concerns, and may, via global networks, gain new 'community members' that can represent their interests around the world (Gurstein, 2000; Rheingold, 2000). As Zeldin (1994, p. 467) notes, the Earth is being 'criss-crossed afresh by invisible threads uniting individuals who differ by all conventional criteria, but who are finding that they have aspirations in common'. Understanding these changes is crucial for creating a vision in the tourism organization that things are going to evolve.

Tourism leaders need to convince stakeholders to come along on this move toward innovative strategies, knowing that it will cost money, require a lot of training, and take time. The problem with many current online tourism strategies is that organizations try to fit everything into existing structures and models. The co-evolution of innovative Web based technologies and communication strategies will lead to a quantum change in the way business is conducted, from business to consumer, from business to business, and internally. Understanding the medium, the customer, the business, and partners seem to be the key variables for the successful integration of ICTs in regional tourist development. Understanding usually comes from knowledge. Since no expertise is readily available, learning, collaboration, and the active sharing of online experience become extremely important in the

process of knowledge creation. Only DMOs and other tourist stakeholders with an ability to learn quickly and to translate that learning into action rapidly will be able to gain competitive advantages in these high velocity marketplaces.

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