



E-Tourism

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1.0. Introduction

The Internet is the most important innovation since the development of the printing press (Hoffman, 2000). There have been significant innovations, such as the railroad, electricity, the telephone, the automobile, the airplane, radio and television, which had widespread impact on both business and everyday life (Barwise, Elberse, & Hammond, 2006). However, the Internet combines many of the features of existing media with new capabilities of interactivity and addressability; thus, it transforms not only the way individuals conduct their business with each other, but also the very essence of what it means to be a human being in society (Barwise et al., 2006). Nowadays, millions of people worldwide rely on the Internet for working, learning, socializing, entertainment, leisure and shopping.

In 2009, worldwide Internet users reached 1.8 billion (27% of the population worldwide) including 360.0 million Internet users in China (27% of its population) and 227.7 million users in the US (74% of its population) (www.internetworldstats.com). This statistic represents an increase of 399% compared to year 2000. With the continuous growth in Internet penetration, demographic characteristics of online population are getting to resemble the general population. The average age of Internet users is rising in tandem with that of the general population, and racial and ethnic characteristics are more closely mirroring those in the offline population (eMarketer, 2010). More interesting is the fact that over 90% of people between age of five and 17 use the Internet on a regular basis (Turban, King, McKay, Marshall, Lee, & Viehland, 2008). These younger people are more familiar with the Internet than other media such as radio and television. When they grow into the economically active population, the Internet will be the most influential medium in business.

Since the emergence of the Internet, travel planning (e.g., travel information search and booking) has always been one of the main reasons that people use the Internet. The top five most popular online purchases were books (66%), clothes (57%), travel arrangements (57%), gifts (51%) and CDs (45%) in the US in 2007 (Center for the Digital Future, 2008). A study conducted in Britain (Dutton & Helsper, 2007) also found that respondents' most search activity conducted online was making travel plans (84%), followed by getting information about local events (77%), looking for news (69%) and finding information about health or medical care (68%) in 2007. The revolution of the Internet and information and communication technologies (ICTs) has had already profound implications for the tourism industry. A whole system of ICTs and the Internet has been rapidly diffused throughout tourism sectors (Buhalis, 2004; Buhalis & Law, 2008; Poon, 1993; Werthner & Klein, 1999). Subsequently, online travel bookings and associated travel services are recognized as one of the most successful e-commerce implementations, with estimates of sales of \$73.4 billion in 2006 (Turban et al., 2008).

It is evident that e-business is an essential prerequisites for successful organisations in the emerging, globally networked, internet-empowered business environment, especially for the tourism industry. Many tourism-related organisations had to go through a major business processes re-engineering to take advantage of the emerging technologies in order to transform their processes and data handling as well as their ability to operate and to compete in the emerging global marketplace (Laudon & Laudon, 2007).

The purpose of this review is to provide essential knowledge related to ICT developments and main implications of ICT in tourism. It illuminates the complexity of the various types of systems

and demonstrates how they fit together in the production, distribution and delivery of tourism products. In addition, the utilisation of ICTs and the Internet by different functions and sectors of the industry is examined and conclusions for the future impact of ICTs are outlined.

Website Links

Internet World Stats: <http://www.internetworldstats.com/stats.htm>

eMarketer: <http://www.emarketer.com/Products/Reports.aspx>

Center for the Digital Future: http://www.digitalcenter.org/pages/site_content.asp?intGlobalId=22

Oxford Internet Institute: <http://www.oii.ox.ac.uk/>

2. Information and Communication Technologies (ICTs) in Tourism

Tourism has closely been connected to progress of ICTs for over 30 years. The establishments of the Computer Reservation Systems (CRSs) in the 1970s, Global Distribution Systems (GDSs) in the late 1980s and the Internet in the late 1990s have transformed operational and strategic practices dramatically in tourism (Buhalis, 2003; Buhalis & Law, 2008). The tourism industry at first focused on utilizing computerized systems (e.g., CRS, GDS) to increase efficiency in processing of internal information and managing distribution. Nowadays, the Internet and ICTs are relevant on all operative, structural, strategic and marketing levels to facilitate global interaction among suppliers, intermediaries and consumers around the world (Buhalis & Law, 2008; Egger & Buhalis, 2008).

In this section, we first provide the concepts and definitions of the key terms related to the Internet and ICTs. Then we discuss benefits and limitations of the Internet and ICTs.

2.1. Definitions and Concepts

World Wide Web (WWW or the Web): a multimedia protocol which uses the Internet to enable the near instant distribution of media-rich documents (e.g., textual data, graphics, pictures, video, sounds) and to revolutionise the interactivity between computer users and servers.

Internet: the network of all networks. Nyheim, McFadden, and Connolly (2005) defined the Internet as a network which links multiple networks and users around the globe and a network that no one owns outright. The terms, the Web and the Internet, have often been used interchangeably; however, the Web is part of the Internet as a communication tool on the Internet (Nyheim et al., 2005). Additionally, the terms, the Internet and ICTs, are often utilized in parallel; however, rigorously speaking, the Internet is part of ICTs.

Intranet: a corporate or government network that uses Internet tools, such as Web browsers and Internet protocols (Turban et al., 2008). Intranets are “closed,” “secured” or “fire walled” networks within organisations to harness the needs of internal business users, by using a single controlled, user-friendly interface to support all company data handling and processes.

Extranet: a network that uses the Internet to link multiple intranets (Turban et al., 2008). Increasingly enterprises need to formulate close partnerships with other members of the value-chain

for the production of goods and services. As a result, extranets utilise the same principle and computer networks to enhance the interactivity and transparency between organisations and their trusted partners. This facilitates the linking and sharing of data and processes between organisations to maximise the effectiveness of the entire network.

Information and communication technologies (ICTs): ICTs include not only the hardware and software required but also the groupware, netware and the intellectual capacity (humanware) to develop, program and maintain equipment (Buhalis, 2003) (Figure 1). Synergies emerging from the use of these systems effectively mean that information is widely available and accessible through a variety of media and locations. In addition, users can use mobile devices such as portable computers, mobile phones as well as digital television and self serviced terminals/kiosks to interact and perform several functions. This convergence of ICTs effectively integrates the entire range of hardware, software, groupware, netware and humanware and blurs the boundaries between equipment and software (Werthner & Klein, 1999).

According to Buhalis (2003), ICTs include “the entire range of electronic tools, which facilitate the operational and strategic management of organisations by enabling them to manage their information, functions and processes as well as to communicate interactively with their stakeholders for achieving their mission and objectives.” Thus, ICTs emerge as an integrated system of networked equipment and software, which enables effective data processing and communication for organisational benefit towards transforming organisations to e-businesses.

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- ◆ **Hardware:** Physical equipment such as mechanical, magnetic, electrical, electronic or optical devices (as opposed to computer programmes or method of use).
 - ◆ **Software:** Prewritten detailed instructions that control the operation of a computer system or of an electronic device. Software co-ordinates the work of hardware components in an information system. Software may incorporate standard software such as operating systems or applications, software processes, artificial intelligence and intelligent agents, and user interfaces.
 - ◆ **Telecommunications:** The transmission of signals over long distances, including not only data communications but also the transmission of images and voices using radio, television, telephony and other communication technologies.
 - ◆ **Netware:** Equipment and software required to develop and support a network or an interconnected system of computers, terminals and communication channels and devices.
 - ◆ **Groupware:** communication tools, such as email, voice mail, fax, videoconferencing that foster electronic communication and collaboration among groups.
 - ◆ **“Humanware”:** the intellect required for the development, programming, maintenance and operation of technological development. Humanware incorporates the knowledge and expertise pool of the society

Adapted from: Gupta (1996); O’Brien (1996); Laudon & Laudon (2002); Werthner & Klein (1999)

Figure 1: Information and Communication Technologies

Electronic commerce (e-commerce) and electronic business (e-business): E-commerce is defined as the process of buying, selling, or exchanging products, services, or information via computer networks, including the Internet (Turban et al., 2008). In this review, the terms are used interchangeably. E-business includes not only buying and selling of goods and services,

but also servicing customers, collaborating with business partners, conducting e-learning, and conducting electronic transactions within an organization (Turban et al., 2008).

Electronic tourism (e-tourism): the application of ICTs on the tourism industry (Buhalis, 2003). Buhalis (2003) suggests that e-tourism reflects the digitisation of all processes and value chains in the tourism, travel, hospitality and catering industries. At the tactical level, it includes e-commerce and applies ICTs for maximising the efficiency and effectiveness of the tourism organisation. At the strategic level, e-tourism revolutionises all business processes, the entire value chain as well as the strategic relationships of tourism organisations with all their stakeholders. E-tourism determines the competitiveness of the organisation by taking advantage of intranets for reorganising internal processes, extranets for developing transactions with trusted partners and the Internet for interacting with all its stakeholders and customers. The e-tourism concept includes all business functions (i.e., e-commerce, e-marketing, e-finance and e-accounting, eHRM, e-procurement, eR&D, e-production) as well as e-strategy, e-planning and e-management for all sectors of the tourism industry, including tourism, travel, transport, leisure, hospitality, principals, intermediaries and public sector organisations. Hence, e-tourism bundles together three distinctive disciplines: business management, information systems and management, and tourism.

Computer reservation system (CRS): a database which enables a tourism organisation to manage its inventory and make it accessible to its partners. Principals utilise CRSs to manage their inventory and distribute their capacity as well as to manage the drastic expansion of global tourism. CRSs often charge competitive commission rates while enabling flexible pricing and capacity alterations, to adjust supply to demand fluctuations. Airlines pioneered this technology, although hotel chains and tour operators followed by developing centralised reservation systems. CRSs can be characterised as the “circulation system” of the tourism product.

Global distribution systems (GDSs): Since the mid 1980s, airline CRSs developed into GDSs by gradually expanding their geographical coverage as well as by integrating both horizontally, with other airline systems, and vertically by incorporating the entire range of principals, such as accommodation, car rentals, train and ferry ticketing, entertainment and other provisions. In the early 1990s, GDSs emerged as the major driver of ICTs, as well as the backbone of the tourism industry and the single most important facilitator of ICTs globalisation (Sheldon, 1993). In essence, GDSs matured from their original development as airline CRSs to travel supermarkets. Since the late 1990s GDSs have emerged as business in their own right, specialising in travel distribution. SABRE, GALILEO, AMADEUS and WORLDSPAN are currently the strongest GDSs in the marketplace.

Intermediaries: Intermediaries (brokers) play an important role in commerce by providing value-added activities and services to buyers and sellers (Turban et al., 2008). The most well-known intermediaries in the physical world are wholesalers and retailers. Traditionally, intermediaries of the travel industry have been outbound and inbound travel agencies and tour operators (Egger & Buhalis, 2008). However, the Internet restructured the entire touristic value chain, forcing the existing intermediaries to take up the new medium and to develop corresponding business models (Egger & Buhalis, 2008). Intermediaries in the cyber-world refer to organizations/companies that facilitate transactions between buyers and sellers and receive a percentage of the transaction’s value (Turban et al., 2008). Expedia, a system developed by Microsoft, has had a very rapid growth, demonstrating that the new major e-mediaries constitute

not only a stronger competition but are also able to displace many companies with years of experiences in tourism, such as American Express and Rosenbluth Travel (Buhalis, 2003).

Infomediaries: an electronic intermediary that provides and/or controls information flow in cyberspace, often aggregating information and selling it to others (Turban et al., 2008). The most well-known infomediaries in the tourism industry are TripAdvisor and HolidayCheck which successfully implement a Web 2.0 approach and integrate the users as producers of trusted content (Egger & Buhalis, 2008). Metamediaries like travel meta-search engines (TSEs) appear between suppliers and consumers to aggregate and filter out relevant and pertinent information from the wealth of material (Egger & Buhalis, 2008). TSEs like Sidestep, Mobissimo and Kayak enable customers to compare offers and prices by carrying out live queries to suppliers, consolidators and online agencies and presenting the results transparently.

Web 2.0: coined by O'Reilly Media at the Web 2.0 Conference held in San Francisco in 2004, refers to "the second-generation of Internet-based services that let people collaborate and share information online in perceived new ways-such as social networking sites, blogs, wikis, communication tools, and folksonomies" (Turban et al., 2008). A Web 2.0 website may feature a number of the following techniques: Rich Internet application techniques, optionally Ajax-based; Cascading Style Sheets (CSS); Semantically valid XHTML markup and the use of Microformats; Syndication and aggregation of data in Really Simple Syndication (RSS/Atom; Clean and meaningful URLs; Extensive use of folksonomies (in the form of tags or tagclouds, for example); Use of wiki software; Weblog publishing; and Mashups and REST or XML Webservice APIs. Increasingly the Internet is becoming a platform of data/views/knowledge creation and sharing which harness the network to get better information to all users.

Figure 2 illustrates differences between Web 2.0 and the previous generation, referred to as Web 1.0. The figure indicates how the Web 2.0 emphasizes online collaboration and sharing among users via various Internet application tools.

Web 1.0		Web 2.0
DoubleClick	→	Google AdSense
Ofoto	→	Flickr
Akamai	→	BitTorrent
mp3.com	→	Napster
Britannica Online	→	Wikipedia
personal Web sites	→	blogging
Evite	→	upcoming.org and EVDB
domain name speculation	→	search engine optimization
page views	→	cost per click
screen scraping	→	Web services
publishing	→	participation
multimap	→	Google Earth with content layers
content management systems	→	wikis
directories (taxonomy)	→	tagging ("folksonomy")
stickiness	→	syndication

Figure 2: Examples to Illustrate Differences between Web 1.0 and Web 2.0.

Source: O'Reilly, T. (2005). What Is Web 2.0: Design Patterns and Business Models for the Next Generation of Software. Retrieved from <http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html>.

Social media: Social media is defined as the online platform and tools that people use to share opinions and experiences, including photos, videos, music, insights, and perceptions with each other (Turban et al., 2008) (Figure 3). As a powerful democratization force, social media enables people, rather than organizations, to control and use various media with ease at little or no cost; consequently, it enables communication and collaboration on a massive scale (Turban et al., 2008).

Communication

Blogs: [Blogger](#), [LiveJournal](#), [Open Diary](#), [TypePad](#), [WordPress](#), [Vox](#), [Xanga](#)

Micro-blogging/Presence applications: [FMyLife](#), [Jaiku](#), [Plurk](#), [Twitter](#), [Tumblr](#), [Posterous](#)

Social networking: [Facebook](#), [Geni.com](#), [Hi5](#), [LinkedIn](#), [MySpace](#), [Ning](#), [Orkut](#), [Skyrock](#), [Qzone](#), [Vkontakte](#), [RenRen](#), [Kaixin](#), [ASmallWorld](#), [studivz](#), [Xing](#), [RunAlong.se](#), [Bebo](#), [BigTent](#), [Elgg](#), [Hyves](#), [Flirtomatic](#)

Social network aggregation: [NutshellMail](#), [FriendFeed](#), [dillidost.com](#)

Events: [Upcoming](#), [Eventful](#), [Meetup.com](#)

Collaboration

Wikis: [Wikimedia](#), [PBworks](#), [Wetpaint](#)

Social bookmarking (or social tagging): [Delicious](#), [StumbleUpon](#), [Google Reader](#), [CiteULike](#)

Social news: [Digg](#), [Mixx](#), [Reddit](#), [NowPublic](#)

Multimedia

Photography and art sharing: [deviantArt](#), [Flickr](#), [Photobucket](#), [Picasa](#), [SmugMug](#), [Zoomr](#)

Video sharing: [YouTube](#), [Viddler](#), [Vimeo](#), [sevenload](#), [Zideo](#)

Livcasting: [Ustream.tv](#), [Justin.tv](#), [Stickam](#), [Skype](#), [OpenCU](#)

Music and audio sharing: [MySpace Music](#), [The Hype Machine](#), [Last.fm](#), [ccMixer](#),

Presentation sharing: [slideshare](#), [scribd](#)

Reviews and opinions

Product reviews: [epinions.com](#), [MouthShut.com](#)

Business reviews: [Customer Lobby](#), [yelp.com](#)

Community Q&A: [Yahoo! Answers](#), [WikiAnswers](#), [Askville](#), [Google Answers](#)

Entertainment

Media and entertainment platforms: [Cisco Eos](#)

Virtual worlds: [Second Life](#), [The Sims Online](#), [Forterra](#)

Game sharing: [Miniclip](#), [Kongregate](#)

Brand monitoring

Social media monitoring: [Attensity](#) Voice of the Customer, [Sysomos](#) Heartbeat

Social media analytics: [Sysomos](#) MAP

Other

Information Aggregators: [Netvibes](#), [Twine \(website\)](#)

Figure 3.: Examples of Social Media Software Applications

Source: Wikipedia (2010). Social Media Software Applications. Retrieved 04/01/2010 from http://en.wikipedia.org/wiki/Social_media.

Social network: a place where people create their own space, or home page, on which they write blogs (Web logs); post pictures, videos or music; share ideas; and link to other Web locations they find interesting (Turban et al., 2008). Using the Web 2.0 application tools, individuals tag contents they post with keywords they choose themselves and this process makes their contents searchable through the Internet. According to the social network theory, a social

network is a social structure made of nodes and ties (Turban et al., 2008). Nodes are the individual actors within the networks, and ties are the relationships between the actors (Figure 4). Social networking indicates the ways in which individuals are connected through various social familiarities ranging from casual acquaintance to close familial bonds (Turban et al., 2008).

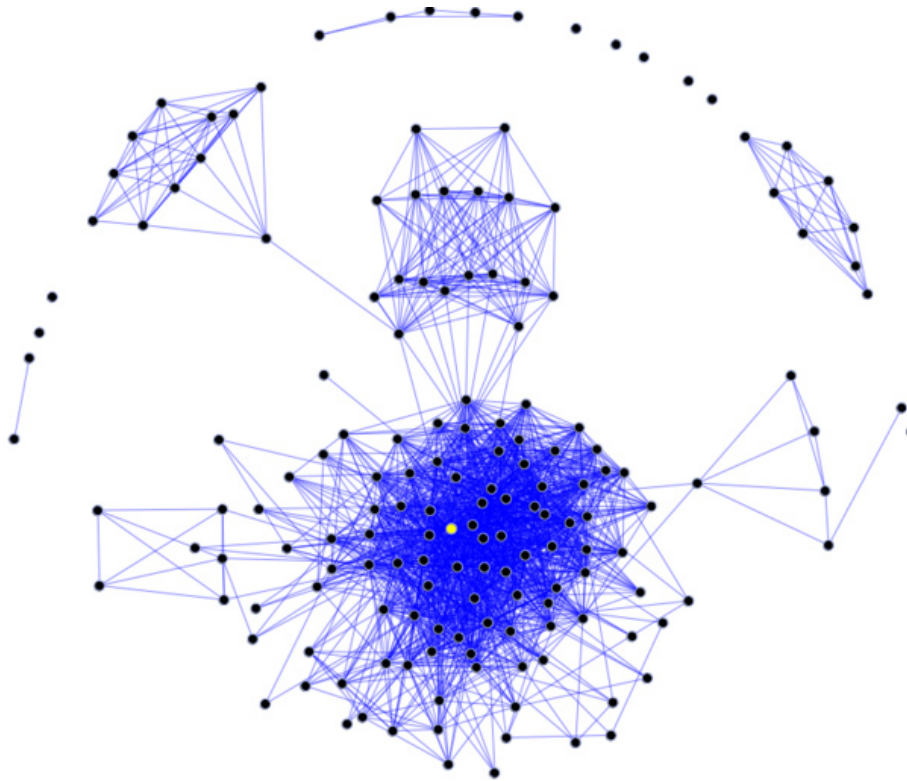


Figure 4: A Social Network Diagram

Source: Wikipedia (2010). Screenshot of free software taken by User: DarwinPeacock. Retrieved 04/01/2010 from http://en.wikipedia.org/wiki/File:Sna_large.png.

Website Links

SABRE Holdings: <http://www.sabre-holdings.com/index.html>

Travel Port (GALILEO and WORLDSPAN): <http://www.travelport.com/uk/sitecore/content/Corporate/about.aspx>

AMADEUS: <http://www.amadeus.com/>

Expedia: <http://www.expedia.com/daily/service/about.asp?rfr=-950>

American Express Travel and Vacation Services: <https://www134.americanexpress.com/consumertravel/travel.do?a=book-flights>

Rosenbluth Travel: <http://www.rvacations.com/about/>

TripAdvisor: http://www.tripadvisor.co.uk/pages/about_us.html

HolidayCheck: <http://www.holidaycheck.com/aboutus.php>

Kayak and SideStep: <http://www.sidestep.com/help/kayak-sidestep.html>

Mobissimo: <http://www.mobissimo.com/company/about.html>

O'Reilly Media: <http://oreilly.com/archive.html>

2.2. Benefits of the Internet and ICTs

The development of the Internet and ICTs has made many significant impacts on the operation, structure and strategy of organisations, as well as communication with consumers. The enhancements in ICTs capabilities, in combination with the decrease of the size of equipment and ICTs costs, improved the reliability, compatibility and inter-connectivity of numerous terminals and applications (Gupta, 2000). The emergence and mainstreaming of the Internet empowered the global networking of computers, enabling individuals and organisations to access a plethora of multimedia information and knowledge sources, regardless of their location or ownership, often free of charge. Figure 5, summarized by Turban et al. (2008), displays benefits of e-commerce to organizations and individual customers.

Benefits to Organizations

- Locating customers and/or suppliers worldwide, at reasonable cost and fast
- Reduce cost of information processing, storage, distribution
- Reduce delays, inventories, and cost through supply chain improvements
- Business always open (24/7/365); no over time or other cost
- Customization/personalization at a reasonable cost
- Seller can specialize in a narrow field, yet make money
- Facilitate innovation and enable unique business models
- Rapid time-to-market and increased speed
- Lower communication cost
- Saves time and reduces cost by enabling e-procurement
- Improve customer service and relationship through direct interactions with customers
- May need fewer permits in business and be able to avoid sales tax
- All distributed material is up-to-date
- E-commerce may help small companies to compete against large ones by using special business models
- Using customization inventories can be minimized
- Reduce distributing cost by deliver online

Benefits to Consumers

- Can shop any time from any place because of ubiquity
- Large selection to choose from a variety of channels (e.g., vendor, products, styles)
- Can customize many products and/or services
- Can compare and shop for lowest prices
- Digitized products can be downloaded immediately upon payment
- Easy finding what you need, with details, demos, etc.
- Do auctions any time and from any place
- Sometimes no sales tax
- Can work or study at home
- Can socialize online in communities yet be at home
- Can find unique products/items

Figure 5: Benefits of Electronic Commerce

Source: Turban et al. (2008)

The Internet and ICTs have enabled tourism organisations to develop their processes and adapt their management to take advantage of the emerging digital tools and mechanisms to:

- ◆ Increase their internal efficiency and manage their capacity and yields better. For example an airline's reservations system allows the company to manage their inventory more efficiently and the managers to increase occupancy levels. They also incorporate sophisticated yield management systems that support organisations to adjust their pricing to demand fluctuations in order to maximise their profitability (Buhalis, 2004).
- ◆ Interact effectively with consumers and personalise the product. For example, British Airways has launched the Customer Enabled BA (ceBA) strategy to enable passengers to undertake a number of processes, including booking, ticketing, check-in and seat and meal selection, from the convenience of their computer.
- ◆ Revolutionise tourism intermediation and increase the points of sale. For example, Expedia, Travelocity, Lastminute, Orbitz and Opodo have emerged as some of the most dominant global electronic travel agencies, offering an one-stop-shop for consumers.
- ◆ Empower consumers to communicate with other consumers. For example www.tripadvisor.com, www.virtualtourist.com or www.igougo.com supports the exchange of destination information and tips, whilst www.untied.com or www.alitaliasucks.com enables dissatisfied customers to make their views available.
- ◆ Provide Location Based Services by incorporating data, content and multimedia information on Google Maps and Google Earth.
- ◆ Support efficient cooperation between partners in the value system. For example Pegasus enables independent hotels to distribute their availability through their web sites and other partners online whilst an extranet allows hoteliers to constantly change availability and pricing.
- ◆ Enhance the operational and geographic scope by offering strategic tools for global expansion.

Website Links

Customer-enabled British Airways (ceBA): http://www.hotelmarketing.com/index.php/content/article/me_british_airways_starts_online_booking/

Lastminute: <http://www.lastminute.com/>

Orbitz: <http://www.orbitz.com/>

Opodo: <http://www.opodo.com/>

TripAdvisor: www.tripadvisor.com

VirtualTourist: www.virtualtourist.com

IgoUgo: www.igougo.com

Dissatisfied customers' review for United Airlines: www.untied.com

Dissatisfied customers' review for Alitalia: <http://www.alitaliasucks.com/index.html>

Google Maps: <http://maps.google.co.uk/>

Google Earth: <http://earth.google.co.uk/>

Pegasus: <http://www.flypgs.com>

Pegasus Solutions, Inc: <http://www.pegs.com/>

2.3. Limitations of the Internet and ICTs

As discussed above, the Internet and ICTs provide numerous benefits to individuals and organizations. However, there are also limitations and barriers in utilizing the Internet and ICTs. Turban et al. (2008) classified barriers to e-commerce as either technological or nontechnological (Figure 6).

Technological Limitations

- Lack of universal standards for quality, security, and reliability
- The telecommunications bandwidth is insufficient, especially for m-commerce
- Software development tools are still evolving
- It is difficult to integrate Internet and e-commerce software with some existing (especially legacy) applications and databases
- Special web servers are needed in addition to the network servers, which add to the cost of e-commerce
- Internet accessibility is still expensive and/or inconvenient
- Order fulfilment of large-scale B2C requires special automated warehouses

Nontechnological Limitations

- Security and privacy concerns deter customers from buying
- Lack of trust in e-commerce and in unknown sellers hinders buying
- People do not yet sufficiently trust paperless, faceless transactions
- Many legal and public policy issues, including taxation, have not yet been resolved or are not clear
- National and international government regulations sometimes get in the way
- It is difficult to measure some of the benefits of e-commerce, such as online advertising. Mature measurement methodologies are not yet available
- Some customers like to feel and touch products. Also, customers are resistant to the change from shopping at a brick-and-mortar store to a virtual store
- In many cases, the number of sellers and buyers that are needed for profitable e-commerce operations is insufficient
- Online fraud is increasing
- It is difficult to obtain venture capital due to the failure of many dot-coms

Figure 6: Limitations of Electronic Commerce

Source: Turban et al. (2008)

One of the most concerned technological barriers is a lack of global standards for quality, security, and reliability (Turban et al., 2008; Van Toorn, Bunker, Yee, & Smith, 2006). The lack of standards in technology and its applications eventually increases the cost of system integration for effective and efficient management in distribution, operation and communication worldwide. Large hospitality corporations have invested to transform their systems into a total network system; however, small and medium-sized tourism enterprises (SMEs) struggle to integrate the systems due to a shortage of financial sources. Consequently, SMEs are at a competitive disadvantage and find it increasingly difficult to maintain their position in the marketplace.

Payment security and privacy concerns are one of the major nontechnological barriers that prevent consumers from completing transactions online (Buhalis & Law, 2008). Business organizations must therefore pay more attention to protect themselves and their customers from

losses due to cyber-crimes, such as auction fraud, vacation fraud, gaming fraud, spamming, identity theft and hacking booking details (e.g., credit card numbers and card-verification codes) (Buhalis & Law, 2008; Mills, Ismail, Werner, & Hackshaw, 2002).

Additionally, the recent surge of Internet usage and availability has caused overwhelming volumes of information, some of which is inaccurate or misleading (Jun, Vogt, & MacKay, in press; Susskind, Bonn, & Dev, 2003). For this reason, the Internet has led to a decrease in the efficient search for information (Allen & Shoard, 2005; Farhoomand & Drury, 2002; Lurie, 2004). From the consumer perspective, the increasing number of alternatives or attributes in a choice set increases uncertainties and risks in consumer choices (Bettman, Luce, & Payne, 1998; Lurie, 2004) and entails higher transaction costs, such as search costs for identifying alternatives, learning costs associated with familiarizing oneself with alternatives, and activity costs involved in motivating a change (Jun et al., in press; Schweitzer, 1994).

Using ICTs as a stand-alone initiative is inadequate and has to be coupled with a redesign of processes, structures and management control systems. ICTs can support business success when rational and innovative planning and management is exercised constantly and consistently. Corporations should be able to respond to current and future challenges, by having the resources and expertise to design new processes from scratch, in a timely fashion. As a result of the rapid ICT developments, corporations need to convert their operations from business functions to business processes, as well as re-conceive their distribution channels strategy, and even more importantly, their corporate values and culture (Tapscott, 1996). Perhaps the greatest challenge organisations face is to identify and train managers who will be effective and innovative users of ICTs and would lead technology based-decision making. Intellect therefore becomes a critical asset, while continuous education and training are instrumental for the innovative use of ICTs and the competitiveness of tourism organisations.

Website Links

News articles about hacking of customers' booking details:

http://news.cnet.com/8301-1009_3-10028291-83.html

<http://www.tomsguide.com/us/Radisson-Hotel-Hacked-credit-cards,news-4478.html>

3. E-Tourism: Supply and Demand

In this section, we provide a comprehensive review of e-tourism within two themes: supply (e.g., tourism industry sectors) and demand (e.g., consumers).

3.1. Supply: The Tourism Industry Sectors

E-tourism provides opportunities for business expansion in all geographical, marketing and operational senses. As a result of Internet developments, a number of new players have come into the tourism marketplace. Perhaps the most significant change was the proliferation of low-frills airlines that use the Internet as a main distribution mechanism for direct sales. This development has educated consumers that they can only find cheap fares if they go direct to the carrier online threatening both traditional/flag carriers as well as their entire distribution system (e.g., GDSs and travel agencies). Equally the development of major eTravel agencies

such as Expedia, Travelocity, Lastminute, Orbitz and Opodo has created powerful “travel supermarkets” for consumers. They provide integrated travel solutions and a whole range of value added services, such as destination guides, weather reports and insurance. By adopting dynamic packaging (i.e., the ability to package customised trips based on bundling individual components at a discounted total price), they effectively threaten the role of tour operators and other aggregators.

A thorough analysis of the various sectors of the tourism industry demonstrates the key developments and the influence of ICTs and the Internet for their internal organisation, their relationships with partners and the interaction with consumers and stakeholders.

3.1.1. eAirlines

Due to the complexity of their operations, airlines realised quite early the need for efficient, quick, inexpensive and accurate handling of their inventory and internal organisation. Originally, reservations were made on manual display boards, where passengers were listed. Travel agencies had to locate the best routes and fares in manuals and then check availability and make reservation by phone, before issuing a ticket manually.

In 1962, American Airlines introduced the SABRE CRS as an alternative to expand its Boeing 707 fleet by 50%. The growth of air traffic and air transportation deregulation stimulated the expansion of CRSs to gigantic computerised networks. As prices, schedules and routes were liberated, airlines could change them indefinitely, while new airlines entered the market. CRSs enabled airlines to compete by adapting their schedule and fares to demand. To increase competitiveness, airlines developed the “hub and spoke” systems, while their pricing became very complex and flexible. “Fare wars” multiplied the fare structures and increased the computing and communication needs, while most major CRSs installed terminals in agencies to facilitate distribution. In addition, vendor airlines biased their CRSs screens in order to give higher display priority to their flights rather to their competitors. The remote printing of travel documents, such as tickets and boarding passes, itineraries and invoices, as well as the sale settlements between airlines and travel agencies, and the partnership marketing through frequent flyer programmes were invaluable benefits supported by the emerging ICTs.

CRSs were developed to GDSs and re-engineered the entire marketing and distribution processes of airlines. They essentially became strategic business units (SBU) in their own right due to their ability to generate income and to boost airlines’ sales at the expense of their competitors. Many airlines sold their interests in GDSs enabling them to operate as independent distribution companies.

Distribution is a crucial element of airlines’ strategy and competitiveness, as it determines the cost and the ability to access consumers. The cost of distribution is increasing considerably and airlines find it difficult to control. Nowadays ICTs and internal CRSs are used heavily to support the Internet distribution of airline seats. These systems are at the heart of airline operational and strategic agendas (Buhalis, 2004). This is particularly the case for smaller and regional carriers as well as no-frills airlines which cannot afford GDSs’ fees and aim to sell their seats at competitive prices. This has forced even traditional/full-service/flag airlines, such as British Airways and Air Lingus, to recognise the need for re-engineering the distribution processes, costs and pricing structures. Hence, they use the Internet for:

- ◆ enhancing interactivity and building relationships with consumers and partners;
- ◆ on-line reservations;
- ◆ electronic ticketing;
- ◆ yield management;
- ◆ electronic auctions for last minute available seats;
- ◆ disintermediation and redesign of agency commission schemes; and
- ◆ maximising the productivity of the new electronic distribution media (Buhalis, 2004).

The Airline IT Survey 2006 demonstrates that the vast majority of airlines have a 3-year IT strategy that aims to reduce costs and increase efficiency. Between 1999 and 2006 on average airlines spend between 2 and 3% of their revenue on ICTs investment. As demonstrated on Figure 7, on average 21.5% of airline bookings take place on own airline website, and 29.7% on all online sales (SITA, 2006). Airlines are investing heavily in direct sales which coupled with 'customer relations management (CRM)' and 'revenue management systems (RMSs)' will enable them to better control their distribution and strategic marketing.

Online sales and e-tickets

Proportion of all tickets sold				
Percentage of total seat sales	Own airline website	All online sales	Call centres	e-tickets issued
None	3%	8%	0%	7%
2% or less	18%	11%	8%	7%
2%-10%	18%	15%	26%	0%
10%-20%	14%	19%	26%	2%
20%-30%	31%	26%	23%	6%
30%-40%	9%	6%	7%	13%
40%-50%	4%	0%	7%	6%
Over 50%	10%	29%	0%	58%
Average 2006	21.5%	29.7%	17.7%	58.9%
Unweighted 2006	17.1%	22.7%	17.3%	43%
Average 2005	16.4%	20.1%	20.3%	26.6%
Average 2004	11.0%	14.5%	17.1%	19.1%
Average 2003	9.7%	15.8%	-	14.7%
Average 2002	5.1%	10.1%	-	11.1%

Figure 7: Online Sales and eTickets for Airlines

Source: SITA (2006)

Website Links

SITA: <http://www.sita.aero/>

About SITA: <http://www.airport-technology.com/contractors/traffic/sita/>

3.1.2. eHospitality

Hotels use ICTs in order to improve their operations, manage their inventory and maximise their profitability. Their systems facilitate both in-house management and distribution through electronic media. 'Property management systems (PMSs)' coordinate front office, sales, planning and operational functions by administrating reservations and managing the hotel inventory.

Moreover, PMSs integrate the “back” and “front” of the house management and improve general administration functions such as accounting and finance; marketing research and planning; forecasting and yield management; payroll and personnel; and purchasing. Understandably, hotel chains gain more benefits from PMSs, as they can introduce a unified system for planning, budgeting and controlling and coordinating their properties centrally.

Hotels also utilise ICTs and the Internet extensively for their distribution and marketing functions. Global presence is essential in order to enable both individual customers and the travel trade to access accurate information on availability and to provide easy, efficient, inexpensive and reliable ways of making and confirming reservations. Although Central Reservation Offices (CROs) introduced central reservations in the 1970s, it was not until the expansion of airline CRSs and the recent ICT developments that forced hotels to develop hotel CRSs in order to expand their distribution, improve efficiency, facilitate control, empower yield management, reduce labour costs and enable rapid response time to both customers and management requests. Following the development of hotel CRSs by most chains, the issue of interconnectivity with other CRSs and the Internet emerged. As a result, ‘switch companies,’ such as THISCO and WIZCOM, emerged to provide an interface between the various systems and enable a certain degree of transparency. This reduces both set-up and reservation costs, whilst facilitates reservations through several distribution channels (Emmer, Tauck, Wilkinson, & Moore, 1993; O’Connor, 2000).

One of the most promising developments in hospitality is ‘application service providers (ASPs)’. ASPs will be increasingly more involved in hosting a number of business applications for hospitality organisations. Hotels will ‘rent’ the same software for a fee and will use it across the Internet. For example, some hotel firms may ‘rent’ their PMS software application from supplier Micros/Fidelio. ASPs are ideal for hotels, especially for smaller- to mid-sized ones, that want to leverage the best vertical and enterprise support applications on the market without having to deal with the technology or pay for more functionality than needed. As they do not have extensive ICT departments and expertise, they can easily access up-to-date applications and benefit from the collective knowledge accumulated by ASP providers without having to invest extensively in technology or expertise building (Paraskevas & Buhalis, 2002).

The development of the Internet has provided more benefits as it reduces the capital and operational costs required for the representation and promotion of hotels. For example the cost per individual booking can be reduced from US\$10-15 for voice-based reservations, to US\$7.50-3.50 for reservations through GDSs, to US\$0.25 through the WWW. Savings can also be achieved in printing, storing, administrating and posting promotional material.

Chan and Law (2006) suggest that hotel websites are a basic requirement to an increasing number of communication and business strategies. The usability of a website, effectiveness of its interface, as well as its amount of information, ease of navigation, and user friendliness of its functions, are central to the success of these strategies and an Automatic Website Evaluation System (AWES) can provide objective and quantitative guidance to website design. However, many small and medium sized, independent, seasonal and family hotels, find it extremely difficult to utilise ICTs due to:

- ◆ lack of capital for purchasing hardware and software;
- ◆ lack of standardisation and professionalism;

- ◆ insufficient marketing and technology training and understanding;
- ◆ small size which multiplies the administration required by CRSs to deal with each property; and finally,
- ◆ the unwillingness of proprietors to lose control over their property.

As it is estimated that one-third of bookings in hospitality in the U.S. will be generated from the Internet and another third will be directly influenced by online research, but booked offline, hoteliers gradually explore online marketing to increase their market awareness and to attract more guests and higher revenues. HeBS (2007) demonstrate that they use techniques like website design, search engine optimization, paid search marketing and email blasts. In their benchmark survey of hospitality executives worldwide, including general managers, revenue managers, sales and marketing managers, and other industry professionals, they found that:

- ◆ In 2007, a remarkable 68% of hoteliers will be shifting their budgets from offline to online marketing activities, representing a huge shift from traditional methods.
- ◆ US properties rely more on direct to consumer bookings via their stand-alone websites compared to intermediary sites as a percentage of their overall Internet business (20.7% and 16.6%, respectively) than do their international counterparts (15.3% and 17%, respectively) who are still receiving, on average, more of their Internet bookings from intermediaries.
- ◆ The top three Internet marketing formats hoteliers believe produce the highest ROIs are website optimization, Search Optimization + Organic Search, and website re-design.
- ◆ Interestingly enough, more hoteliers believe new media formats as consumer generated media and blogs will generate better ROIs than traditional banner advertising.
- ◆ An average of 16.2% of Internet transactions occur through intermediary websites.
- ◆ US hotels rely more heavily on keyword search marketing (PPC) and search engine optimization (SEO) than their international counterparts who favour website re-design and optimization, and strategic linking.
- ◆ Franchised hotels seem to rely more heavily on the chain websites (HeBS, 2007).

HeBS (2007) concludes that hoteliers have gradually matured and now understand that long-term, strategic objectives and formats (e.g., website re-designs and optimizations, email marketing and strategic linking) produce higher Return on Investment than “quick fix” solutions (e.g., Search Engine Optimisation, Pay Per Click Strategies).

Finally two main strategies issues emerged on online distribution for hospitality, namely price parity and brand integrity. Post Sept 11th, many hotels around the globe were having problems filling their rooms. In combination with the development of on-line intermediaries (e.g., Hotels.com, Expedia) that were using the merchant model of contracting at the time, it meant that many hotels were unable to control their price effectively on the various online outlets. This not only caused revenue loss because prospective customers were shopping around, but also damaged their brands. Over a period of time major branded properties realised that control over pricing should be central to the marketing proposition and hence undertook a number of measures to address that. Key findings of O'Connor's (2002) study include that brands use multiple simultaneous routes to the marketplace, and that the rates offered over alternative routes have equalised.

Website Links

Formation of THISCO: <http://www.hospitalitynet.org/news/4012295.search?query=thisco>

News article related to WizCom: http://www.hotel-online.com/News/PressReleases/1999_2nd/June99_WIZCOMTenOnline.html

WizCom International, Ltd.(Pegasus Solutions Inc.): <http://www.wizcom.com/>

Micros/Fidelio: <http://www.micros.com/>

HeBS (Hospitality eBusiness Strategies): <http://www.hospitalityebusiness.com/>

3.1.3. eTour operators

Leisure travellers often purchase “packages,” consisting of charter flights and accommodation, arranged by tour operators. Tour operators tend to pre-book these products and distribute them through brochures displayed in travel agencies. Hence, until recently in northern European countries, where tour operators dominate the leisure market, airline and hotel CRSs were rarely utilised for leisure travel. In the early 1980s, tour operators realised the benefits of ICTs in organising, promoting, distributing and coordinating their packages. Thomson’s Open-line Programme (TOP) was the first real-time computer-based central reservation office in 1976. It introduced direct communication with travel agencies in 1982, and announced that reservations for Thomson Holidays would only be accepted through TOP in 1986. This move was the critical point for altering the communication processes between tour operators and travel agencies. Gradually, all major tour operators developed or acquired databases and established electronic links with travel agencies, aiming to reduce their information handling costs and increase the speed of information transfer and retrieval. This improved their productivity and capacity management whilst enhancing their services to agencies and consumers. Tour operators also utilised their CRSs for market intelligence, in order to adjust their supply to demand fluctuations, as well as to monitor the booking progress and productivity of travel agencies (Karcher, 1996).

Tour operators have been reluctant to focus on ICTs through their strategic planning. Few realise the major transformation of the marketplace, while the majority regard ICTs exclusively as a facilitator of their current operations, and as a tool to reduce their costs. However, several tour operators in Germany, Scandinavia and the UK have moved towards electronic brochures and developed their online strategies. Successful operators report that up to 25% of their packages are booked directly by consumers online. This enables them to concentrate on niche markets by:

- ◆ offering customised packages;
- ◆ up date their brochures regularly;
- ◆ save the 10-20% commission and reduce the costs of incentives, bonus and educational trips for travel agencies; and
- ◆ save the cost for developing, printing, storing, distributing conventional brochures which is estimated to be approximately £20 per booking.

Although a partial disintermediation seems inevitable, there will always be sufficient market share for tour operators who can add value to the tourism product and deliver

innovative, personalised and competitive holiday packages. As ICTs will determine the future competitiveness of the industry, the distribution channel leadership and power of tour operators may be challenged, should other channel members or newcomers utilise ICTs effectively to package and distribute either unique or cheaper tourism products. However, many key players including TUI have started disintegrating their packages and selling individual components directly to the consumers. In this sense they will be able to re-intermediate, by offering their vast networks of suppliers through their channels.

Innovative tour operators use the Internet extensively to promote their products and to attract direct customers. They also use the Internet to de-compose their packages and sell individual products. Thomson.co.uk for example has developed a comprehensive online strategy to provide media rich information on its web site. The company supports podcasting and videocasting and also has integrated Goggle Earth geographical information data on its website. It also distributes branded content on a wide range of Internet sites such as youtube.com to attract consumers to its web site and to encourage them to book. In January 2007 a total of 5.5 million people visited the Thomson.co.uk website demonstrating that the customer acquisition strategy used is effective. It is evident therefore that tour operators that will use technology innovatively will be able to provide value to their clientele and safeguard their position in the marketplace.

Website Links

Thomson Holidays: www.thomson.co.uk

TUI Travel PLC: <http://www.tuitravelplc.com>

3.1.4. eTravel agencies

ICTs are irreplaceable tools for travel agencies as they provide information and reservation facilities and support the intermediation between consumers and principals. Travel agencies operate various reservation systems, which mainly enable them to check availability and make reservations for tourism products. Until recently GDSs have been critical for business travel agencies to access information and make reservations on scheduled airlines, hotel chains, car rentals and a variety of ancillary services. GDSs help construct complicated itineraries, while they provide up-to-date schedules, prices and availability information, as well as an effective reservation method. In addition, they offered internal management modules integrating the "back office" (accounting, commission monitor, personnel) and "front office" (customers' history, itinerary construction, ticketing and communication with suppliers). Multiple travel agencies in particular experience more benefits by achieving better coordination and control between their remote branches and headquarters. Transactions can provide invaluable data for financial and operational control as well as for marketing research, which can analyze the market fluctuations and improve tactical decisions.

The vast majority of leisure travel agencies used 'videotext networks' to access tour operator and the reservation systems of other suppliers such as ferry operators, railways and insurance companies. On the plus side, Videotext systems are relatively inexpensive to purchase and operate, require little training and expertise and are fairly reliable. However on the minus side, they are slow; data has to be retyped for each individual database searched; they fail to integrate

with the back office; cannot interface with multimedia applications; and are unable to take advantage of the emergent ICTs. Effectively, the type of agency and its clientele determine the type of ICTs utilised. Typically business travel agencies are more GDSs dependent, whilst leisure agencies and holiday shops are more likely to use videotext systems (Inkpen, 1998).

The Internet has revolutionised the travel agency industry as for the first time ever. Agencies had the ability to reach travel inventory directly without having to invest in time and costs for acquiring GDSs. They are able to search and book suppliers such as airlines and hotels online, increasing their bookable inventory. They also have the tools to sell their own services and to promote their organisations. However, until recently travel agencies have been reluctant to take full advantage of the ICTs, mainly due to:

- ◆ a limited strategic scope;
- ◆ deficient ICTs expertise and understanding;
- ◆ low profit margins which prevents investments; and
- ◆ focus on human interaction with consumers.

This has resulted in a low level of integration of ICTs and capitalisation on the Internet's potential. Many agencies still do not have Internet access and are unable to access online information or suppliers. As a result many agencies lack access to the variety of information and reservation facilities readily available to consumers and therefore their credibility in the marketplace is severely reduced. This may jeopardise their ability to maintain their competitiveness and consequently, they may be threatened by disintermediation. Several forces intensify this threat:

- ◆ Consumers increasingly search information and make reservations on-line;
- ◆ principals aim to control distribution costs by communicating directly with consumers and by developing customer relationship management;
- ◆ commission cuts; and
- ◆ travel agencies have limited expertise as they employ inadequately trained personnel.

Gradually it is becoming evident that travel agencies around the world not only will have to utilise the Internet to access travel suppliers and information online but will also have to rely on the media to communicate with their clientele, to put the offerings forward to the marketplace and to attract business. Traditional travel agencies can use the Internet to provide extra value to their clientele by integrating additional products and services to their core products. In addition, they may use the internet to specialise to particular niche markets and to offer specialised services to those markets.

In contrast, new players (e.g., Expedia, Travelocity, Orbitz, Lastminute, Opodo) have already achieved a high penetration the marketplace and grown spectacularly. Through a number of mergers and acquisitions, there are effectively 5 major groups that have emerged in the marketplace: 1) Amadeus IT Group includes Vacation.com, Opodo and TravelTainment; 2) the Expedia group includes Expedia.com, Hotels.com, Anyway.com (Expedia.fr), Egencia (formerly Expedia Corporate Travel), Travelnow.com, Hotwire.com, Venere.com, ClassicVacations.com, eLong.net, TripAdvisor and SeatGuru.com; 3) the Orbitz group includes [Orbitz](#), [CheapTickets](#), [ebookers](#), [HotelClub](#), [RatesToGo](#), the [Away Network](#), [Asia hotels](#), and corporate travel brand [Orbitz for Business](#); 4) Priceline includes Priceline.com, Active Hotels.com, Booking.com and Agoda.com; and 5) the Sabre group (Sabre Holdings or Sabre, Inc.) includes Travelocity.com, Sabre Travel Network, Sabre Airline Solutions, Sabre Hospitality Solutions, Cubeless, GetThere,

Holidayautos.com, IgoUgo, Lastminute.com, Moneydirect, Nexion, Trams, Travelguru, Travelocity Business, World Choice Travel and Zuji.

Interestingly even in areas with low Internet penetration, online travel agencies have taken off. The Chinese market is one of those markets which are growing rapidly (Li & Buhalis, 2006). For example in early 2007 Ctrip.com posted impressive results demonstrating both the potential and the growth of the Chinese eTourism market. Chinese online travel service provider Ctrip.com (CTRP) announced that for the full year ended December 31, 2006, total revenues were RMB834 million, representing a 49% increase from 2005. Hotel reservation revenues were RMB476 million, a 31% increase from 2005. The hotel reservation revenues accounted for 57% of the total revenues in 2006, compared to 65% in 2005. The total number of hotel room nights booked was approximately 6.84 million in 2006, compared to approximately 5.45 million booked in 2005. Air ticket booking revenues were RMB303 million, an 83% increase from 2005. The air ticket booking revenues accounted for 36% of the total revenues in 2006, compared to 30% in 2005. The total number of air tickets sold was approximately 6.39 million in 2006, compared to approximately 3.67 million air tickets sold in 2005. Packaged tour revenues were RMB42 million, an 83% increase from 2005. The packaged tour revenues accounted for 5% of the total revenues in 2006. For the full year ended December 31, 2006, net revenues were RMB780 million, a 49% increase from 2005 whilst gross margin was 80%, compared to 83% in 2005. For the full year 2007, Ctrip expects to continue the year-on-year net revenue growth at a rate of approximately 30%. Before share-based compensation charges, the company expects operating margin to be approximately 35%. This demonstrates clearly not only the size of the Chinese market and the huge potential but also the fact that even markets with low internet penetration experience a dramatic growth of eTourism (ChinaTechNews.com Editor, 2007).

As location becomes less significant electronic travel agents will dominate global travel retailing. Already in the USA more than 80% of online travel retailing is concentrated in the top five players. Therefore, the future of travel agencies will depend on their ability to utilise ICTs in order to increase the added-value to the final tourism product and to serve their customer. Agencies which simply act as booking offices for tourism products will probably face severe financial difficulties in the future. In contrast, knowledgeable and innovative agencies which utilise the entire range of technologies in order to provide suitable integrated tourism solutions will add value to the tourist experience and increase their competitiveness. Traditional travel agencies will have to compete on both price and service with both suppliers and online travel agencies and will only be able to survive if they offer superior service.

Website Links

Amadeus IT Group: <http://www.amadeus.com/>

Vacation.com: <http://vacation.com/>

Opodo: <http://www.opodo.com/>

TravelTainment: <http://www.traveltainment-group.com/>

Priceline: <http://www.priceline.com/>

ActiveHotels.com: <http://www.activehotels.com/>

Booking.com: <http://www.booking.com/>

Agoda.com: <http://www.agoda.com/>

Expedia group

Expedia.com: <http://www.expedia.com>

Hotels.com: <http://www.hotels.com/>

Anyway.com (Expedia.fr): <http://voyages.anyway.com>

Egencia (formerly Expedia Corporate Travel): <http://www.egencia.com/>

Travelnow.com: <http://www.travelnow.com/>

Hotwire.com: <http://www.hotwire.com/>

Venere.com: <http://www.venere.com>

ClassicVacations.com: <http://www.classicvacations.com/>

eLong.net: <http://www.elong.net/>

TripAdvisor: <http://www.tripadvisor.com>

SeatGuru.com: <http://www.seatguru.com/>

Sabre group (Sabre Holdings or Sabre, Inc.): <http://www.sabre-holdings.com>

Travelocity.com: <http://www.travelocity.com/>

Sabre Travel Network: <http://www.sabretravelnetwork.com>

Sabre Airline Solutions: <http://www.sabreairlinesolutions.com/>

Sabre Hospitality Solutions: <http://www.sabrehospitality.com/>

Cubeless: www.cubeless.com

GetThere: www.getthere.com

Holidayautos.com: www.holidayautos.com

IgoUgo: www.igougo.com

Lastminute.com: www.lastminute.com

Moneydirect: www.moneydirect.com

Nexion: www.nexion.com

Trams: www.trams.com

Travelguru: www.travelguru.com

Travelocity Business: www.travelocitybusiness.com

World Choice Travel: www.wctravel.com

Zuji: www.zuji.com

Orbitz Worldwide: <http://corp.orbitz.com/>

Orbitz: <http://www.orbitz.com/>

CheapTickets: <http://www.cheaptickets.com/>

ebookers: <http://www.ebookers.com/>

HotelClub: <http://www.ebookers.com/>

RatesToGo: <http://www.ratestogo.com/>

Away Network: <http://away.com/>

Asia hotels: <http://www.asiahotels.com/>

Orbitz for Business: <http://www.orbitzforbusiness.com/>

Ctrip.com: <http://english.ctrip.com/>

3.1.5. eDestinations

Destinations are amalgams of tourism products, facilities and services which compose the total tourism expertise under one brand name. Traditionally the planning, management and coordination functions of destinations have been undertaken by either the public sector (at national, regional or local level) or by partnerships between stakeholders of the local tourism industry. They usually:

- ◆ provide information and undertake some marketing activities through mass media advertising;
- ◆ provide advisory service for consumers and the travel trade;
- ◆ design and distribute brochures, leaflets and guides; and
- ◆ coordinate local initiatives.

Although ICTs were never regarded as a critical instrument for the development and management of destinations, increasingly 'destination management organisations' (DMOs) use ICTs in order to facilitate the tourist experience before, during and after the visit, as well as for coordinating all partners involved in the production and delivery of tourism. Thus, not only do DMOs attempt to provide information and accept reservations for local enterprises as well as coordinate their facilities, but they also utilise ICTs to promote their tourism policy, coordinate their operational functions, increase the expenditure of tourists, and boost the multiplier effects in the local economy.

Despite the fact that studies on destination-oriented CRSs have been traced back to as early as 1968, it was not until the early 1990s that the concept of 'destination management systems' (DMSs) emerged. Even at this stage however most DMSs are mere facilitators of the conventional activities of tourism boards, such as information dissemination or local bookings. Several planned DMSs have failed in their development phase, mainly due to:

- ◆ inadequate financial support;
- ◆ lack of long term vision of the developers;
- ◆ lack of understanding of industry mechanisms and the interest groups;
- ◆ expensive and inappropriate technological solutions; and
- ◆ IT leading rather following tourism marketing.

This has discouraged DMO managers to further invest in the development of suitable systems (Buhalis, 1997). However, by 2004 most destinations around the world had recognised the value of the DMS concept and had some type of system offering information about their region. In the last few years, DMOs have realised that it is critical for their competitiveness to develop their online presence. To the degree that tourists increasingly research their holidays online DMOs realise the need to have an inspirational web site that can encourage and facilitate tourist visitation. Most importantly several DMS system providers - including Tiscover (Figure 8), World.net, Integra, and New Vision - have emerged as the leading suppliers in the marketplace. Interesting destinations are coming together to *coopete*- compete and collaborate at the same time. As demonstrated in Figure 9, the European Portal visitEurope.com brings together 34 European destinations and creates a virtual window to the world where each destination both competes and collaborates online.

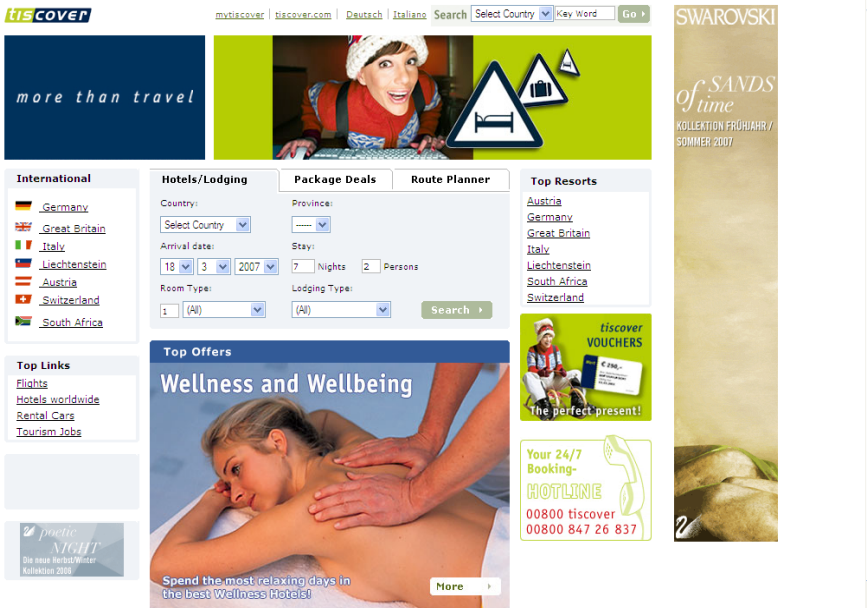


Figure 8: Tiscover.com



Figure 9: The European Travel Commission Portal: VisitEurope.com

Using the emergent opportunities for multimedia distribution, DMSs increasingly utilise the Internet to provide interactive demonstrations of local amenities and attractions and to enable consumers to build their own itinerary based on their interests, requirements and constraints. In addition, DMSs are utilised to facilitate the management of DMOs, as well as the coordination of the local suppliers at the destination level. DMSs are particularly significant for SMEs which lack the capital and expertise to undertake a comprehensive marketing strategy and rely on destination authorities and intermediaries for the promotion and coordination of their products (Frew & O'Connor, 1999; WTO, 2001). Interestingly it is not only DMOs that provide destination information online but a wide range of players (Buhalis & Deimezi 2004). Govers and Go (2006) demonstrate how destination identity can be projected only through the use of photographic imagery and narratives in an online environment in the context of marketing a fast growing tourist destination such as Dubai. They conclude that private sector organizations, in particular hospitality and transport, are product oriented and projected images relate primarily to the specific facilities and tourist activities on offer. In contrast, the destination marketing organization focuses on the projection of cultural identity and heritage.

Advanced DMSs would enable destinations to achieve differentiation by theming their products and targeting niche markets. Providing accurate and realistic information would also improve the balance between the expectations and the perceived experiences for both tourists and locals, improving their interaction. This would enable destinations to integrate their offering and satisfy the needs of both indigenous people and visitors. In addition, DMSs can increase the bargaining power of local enterprises with tourism intermediaries as they enable them to explore new and innovative distribution channels. The illustration of environmentally sensitive areas as well as the demonstration of socio-cultural rituals would enable a better understanding by locals and tourists and therefore would improve the tourism impacts in the area. DMOs should benefit by implementing advanced DMSs (or Destination Integrated Computer Information Reservation Management Systems).

Gretzel and Fesenmaier (2003) suggest that the development of knowledge-based tourism business-to-business (B2B) communities requires the adoption of a multidimensional, multi-level perspective on system design that incorporates processes of knowledge creation and transformation and takes organizational stages of effective technology use into consideration. Integrating the management of information and knowledge flows can foster capacity building among community members towards strengthening the collective competitiveness of destinations. DICIRMS can rationalise destination management and marketing by supporting their promotion, distribution and operations and also by offering innovative tools for strategic management and amelioration of tourism impacts (Buhalis, 2003; Buhalis & Spada, 2000; WTO, 2001).

Website Links

Tiscover: <http://www.tiscover.com/>

World.net: <http://www.world.net/>

New Vision Group: <http://www.newvisiongroup.co.uk/>

The European Travel Commission Portal: <http://www.visiteurope.com/>

3.2. Demand: Travel Markets and Consumers

Travellers have heavily relied on the Internet because of the information-intensive characteristic of travel products. Travel products are generally intangible (e.g., products cannot be touched nor returned), inseparable (e.g., products must be produced and consumed simultaneously although they are often paid for in advance), heterogeneous (e.g., products are difficult to standardize) and perishable (e.g., products cannot be stocked) (Edgett & Parkinson, 1993; Flipo, 1988; Mattila, 2001; Tarn, 2005; Zeithaml, Parasuraman, & Berry, 1985). Thus, travel products are normally purchased before the time of use, consumed (i.e., experienced) after arriving at the travel site, and best evaluated after consumed. Because of all these unique characteristics, purchasing travel products is associated with a higher level of perceived risks compared to tangible products. Consumers, therefore, search for a greater amount of information via the Internet to reduce the risks.

The Internet enables travellers 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. Thus, they improve the service quality and contribute to a higher tourist satisfaction. Additionally, the Internet provides access to transparent and easy to compare information on destinations, holiday packages, travel, lodging and leisure services, as well as about their real-time prices and availability. Increasingly consumers utilise commercial and non-commercial Internet sites for planning, searching, reserving, purchasing and amending their tourism products. They can also get immediate confirmation and speedy travel documents, enabling prospective travellers to book at the "last minute." Experienced travellers are empowered by ICTs and use information and booking systems to improve their personal efficiency and competencies. A number of new organisations, such as Expedia, Travelocity, and Lastminute, emerged in the late 1990s on-line, empowering consumers to research their travel requirements. They gradually assumed a leading intermediation role on a global basis.

The Internet has enabled consumers to access this information rapidly and increasingly the development of domain specific search engines and meta-search engines such as Kelkoo and Kayak have introduced utter transparency in the marketplace (Wöber, 2006). In addition consumer generated content, through review portals such as TripAdvisor, multimedia sharing such as Panoramio.com, and blogs also create accessible content that increase the level of information available on a global basis.

The use of ICTs is therefore driven by the development of complex demand requests, as well as by the rapid expansion and sophistication of new products, which tend to address niche market segments. There is evidence that e-tourism has already taken off in several countries. In Europe, the Internet is now more than twice as important as travel agents as an information source, although the travel trade is still very important in terms of travel distribution, according to IPK International's European Travel Monitor in 2006 the information sources used by European outbound travelers where:

- ◆ Internet: 45%
- ◆ Travel agency: 20%
- ◆ Friends/relatives: 17%
- ◆ Travel guide: 8%
- ◆ Travel brochure: 7%

- ◆ Newspaper: 3%
- ◆ Tourist office: 2%
- ◆ TV: 2%
- ◆ Other: 5%

Marcussen (2009) demonstrates that the Internet European Market has increased dramatically since 1998 and in 2009 it is expected to be accounted for 25.7% of the total market as demonstrated in Table 1. The UK accounted for 30% of the European online travel market in 2008, with Germany in second place at 18% (Figure 10). The direct sellers accounted for 64% of online sales in the European market in 2008, followed by intermediaries 36% (Figure 11).

Table 1: Trends in overall online travel market size - Europe 1998 - 2008 with projections to 2009

Europe Year	Market (billion E.)	Internet sales (billion E)	Internet sales in % of market	Internet sales increase %
1998	200	0.2	0.1%	N.A.
1999	212	0.8	0.4%	257%
2000	227	2.5	1.1%	216%
2001	223	5.0	2.3%	99%
2002	221	8.9	4.0%	77%
2003	215	14.0	6.5%	57%
2004	220	21.2	9.6%	51%
2005	235	30.4	12.9%	43%
2006	247	40.3	16.3%	32%
2007	254	49.8	19.6%	24%
2008	260	58.4	22.5%	17%
2009	254	65.2	25.7%	12%

Source: Marcussen C. (2009). Internet Distribution of European Travel and Tourism Services. Centre for Regional and Tourism Research, Denmark. Retrieved from <http://www.crt.dk/UK/staff/chm/trends.htm>

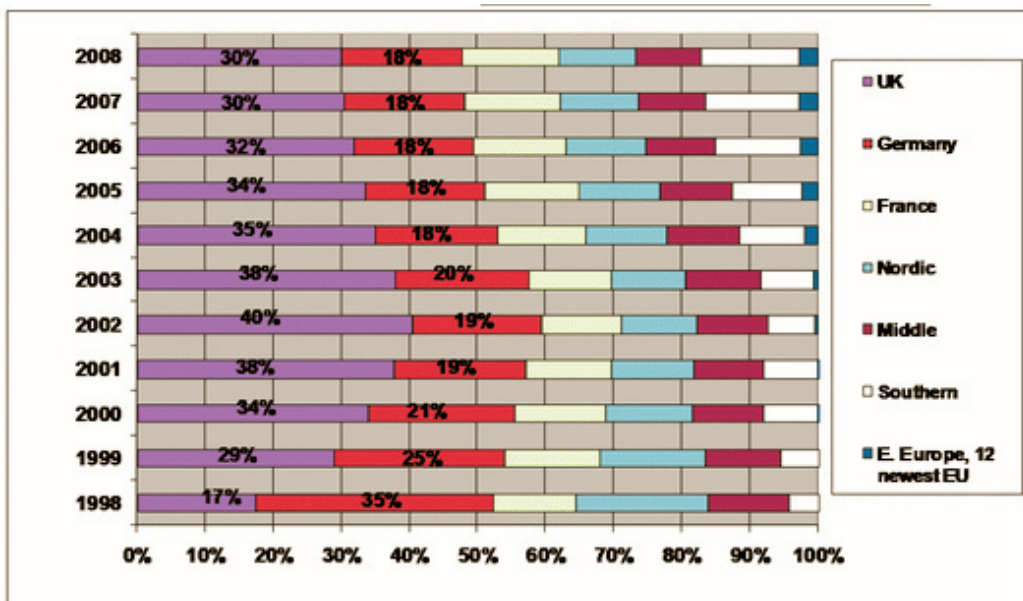


Figure 10: Trends in the European Online Travel Market by Country/Region

Source: Marcussen, C. (2009). Internet distribution of European travel and tourism services. Denmark: Centre for Regional and Tourism Research. Retrieved from <http://www.crt.dk/UK/staff/chm/trends.htm>.

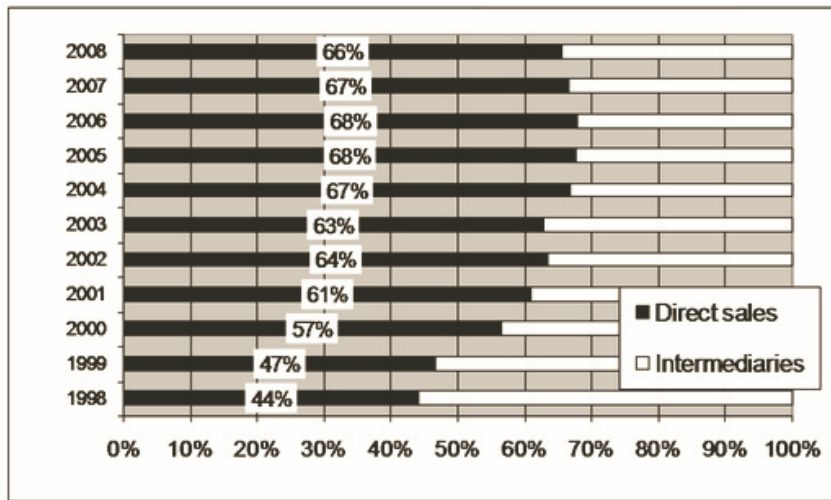


Figure 11: Trends in the European Online Travel Market by Channel

Source: Marcussen, C. (2009). Internet distribution of European travel and tourism services. Denmark: Centre for Regional and Tourism Research. Retrieved from <http://www.crt.dk/UK/staff/chm/trends.htm>.

The Internet and ICTs have furthermore changed travel markets from a customer-centric market to a customer-driven market in which consumers play a stronger role in creating and sharing travel information through community/networking websites and review websites using Web 2.0 (Egger & Buhalis, 2008; Jun et al., in press). Product information has traditionally been produced, distributed and controlled by suppliers to promote their products. Information is now easily created/recreated, distributed and fortified by consumers through the networking/review websites (e.g., TripAdvisor, Twitter) exemplified by Web 2.0. Consumers are more likely to trust information generated by consumers rather than product suppliers (Figure 12). The tourism industry is required to treat consumers as “co-producers” and leverage network resources to successfully operate their businesses in this consumer-centric era.

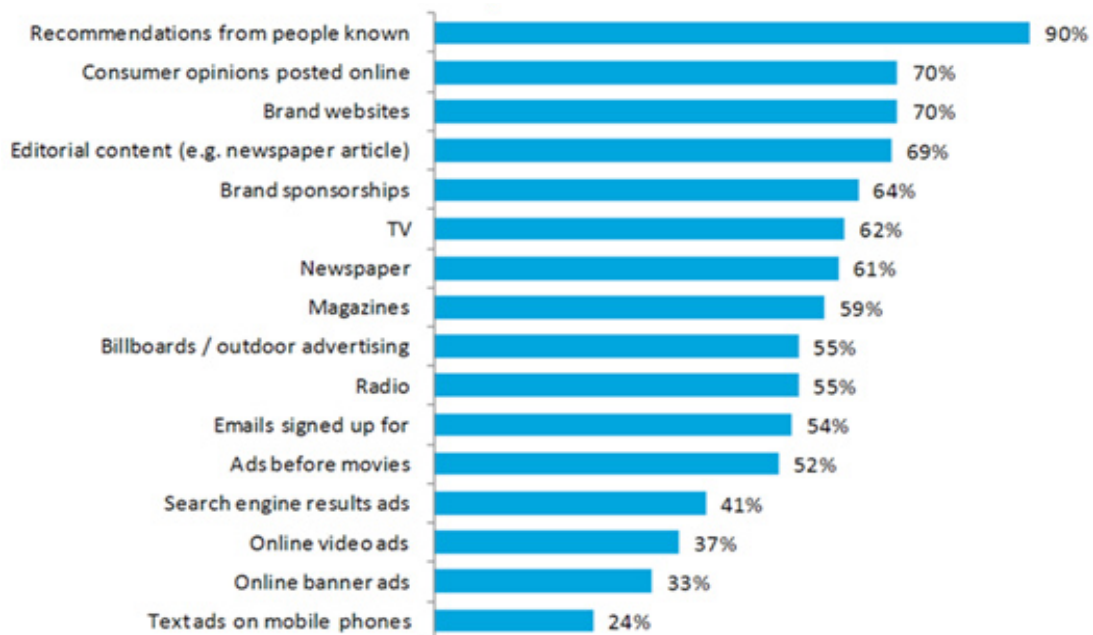


Figure 12: Consumers’ Degree of Trust in the Different Forms of Advertising

Source: The Nielsen Company (2009). Personal recommendations and consumer opinions posted online are the most trusted forms of advertising globally. New York, NY: www.nielsen.com. Retrieved 04/01/2010 from <http://blog.nielsen.com/nielsenwire/consumer/global-advertising-consumers-trust-real-friends-and-virtual-strangers-the-most/>.

Looking forward, successful tourism organisations will increasingly need to rapidly identify consumer needs and to interact with prospective clients by using comprehensive, personalised and up-to-date communication media for the design of products which satisfy tourism demand. Thus, destinations and principals need to utilise innovative communication methods in order to maintain and increase their competitiveness. They also increasingly need to engage in to Web 2.0 activities and engage dynamically with all stakeholders that generate content for their regions and organisations.

The ICT developments have introduced new best strategic and operational management practices that lead organisations to shift their orientation from product-orientation to a consumer-orientation that customises products and services and adopt flexible and responsive practices to the marketplace. Success will increasingly depend on sensing and responding to rapidly changing customer needs and using ICTs for delivering the right product, at the right time, at the right price, for the right customer. To the degree that ICTs can contribute to the value chain of products and services, by either improving their cost position or differentiation, they reshape competitiveness and thus have strategic implications for the prosperity of the organisation (Porter, 1985, 2001). The competitiveness of both tourism enterprises and destinations will increasingly therefore depend on the ability of those organisations to use ICTs strategically and tactically for improving their positioning.

Website Links

Kelkoo: <http://www.kelkoo.co.uk/>

Kayak: <http://www.kayak.com/>

TripAdvisor: <http://www.tripadvisor.com/>

Panoramio.com: <http://www.panoramio.com/>

IPK International's European Travel Monitor: <http://www.ipkinternational.com/>

Twitter: <http://twitter.com/>

4. e-Tourism and the Future

E-tourism represents the *paradigm-shift* experienced in the tourism industry as a result of the adoption of ICTs and the Internet. It is evident that all best business practices have been transformed as a result, and that the each stakeholder in the marketplace is going through a redefinition of their role and scope. There are both challenges and opportunities emerging but the competitiveness of all tourism enterprises and destinations has been altered dramatically. It is evident that the "only constant is change." Organisations which compute will be able to compete in the future. Although ICTs can introduce great benefits, especially in efficiency, coordination, differentiation, and cost reduction, they are not a universal remedy and require a pervasive re-engineering of business processes, as well as strategic management vision and commitment in order to achieve their objectives.

Using Porter's five forces framework Buhalis and Zoge (2007) illustrate that the emergence of the Internet altered the structure of the travel industry. Overall, consumers benefited the most as their bargaining power increased due to their ability to access accurate and relevant

information instantly and to communicate directly with suppliers, while benefiting from lower switching costs. The Internet led to the intensification of rivalry among tourism suppliers as it introduced transparency, speed, convenience and a wide range of choice and flexibility in the marketplace.

Transparency enabled buyers to increase their bargaining power by facilitating price comparisons and access to instant, inexpensive and accurate information but reduced the bargaining power of suppliers. Rivalry was further intensified because of lowered barriers to entry and because of the possibility of equal representation of small businesses. Innovative suppliers increasingly use advanced CRM to gather information on consumers' profile and to offer tailored and value added products whilst expanding their distribution mix widely to harness the marketplace. Suppliers should enhance their direct communications with end consumers and online intermediaries to save on costs, increase profitability and enhance their efficiency. Real time representation facilitated instant distribution and led to bypassing the traditional distribution channels. This not only changed the structure of the tourism value system but also raised challenges for traditional intermediaries.

The need for traditional intermediaries to shift their role to consumer advisors is becoming evident and unless TAs and TOs utilise internet tools for building and delivering personalised tourism products they will be unable to compete in the future. Although the tourism industry structure has been altered dramatically it is evident that both tourism suppliers and online intermediaries should apply constant innovation, in terms of marketing techniques and technological advancements, in order to be able to offer differentiated, personalised, tailored and value added products. The key point for sustaining their competitive advantage is to focus on their core competencies and to exploit the opportunities that technology offers to improve their strategic position in the tourism value system.

ICTs provide innovative strategic tools for tourism organisations and destinations to improve both their operations and positioning. Hence, the visibility and competitiveness of principals and destinations in the marketplace will increasingly be a function of the technologies and networks utilised to interact with individual and institutional customers. Unless the current tourism sector utilises the emergent ICTs, and develops a multi-channel and multi-platform strategy they will be unable to take full advantage of the emerging opportunities (Buhalis & Licata, 2002). It is safe to assume that only creative and innovative principals and destinations which apply continues innovation in using intelligent e-tourism applications and adopt their processes accordingly will be able to achieve sustainable competitive advantages in the future.

Annotated Further Reading

I. Books

Buhalis, D. (2003). *eTourism: Information Technology for Strategic Tourism Management*. London, UK: Pearson (Financial Times/Prentice Hall). (ISBN: 0582357403)

Comprehensive coverage of eTourism from a strategic perspective

Egger, R., and Buhalis, D. (2008). *eTourism Case Studies: Management and Marketing Issues*. Burlington, MA: Elsevier Ltd. (ISBN: 9780750686679)

Comprehensive coverage of eTourism case studies

Turban, E., King, D., McKay, J., Marshall, P., Lee, J., and Viehland, D. (2008). *Electronic Commerce: A Managerial Perspective*. Upper Saddle River, NJ: Pearson-Prentice Hall. (ISBN: 0132243318)

Comprehensive coverage of e-commerce from a managerial perspective

Mills, M. and Law, R. (2005). *Handbook of Consumer Behaviour, Tourism and the Internet*. London, UK: Haworth Press Inc. (ISBN: 078902599X)

Focuses on online consumer behaviour and the emerging trends in online contexts

Nyheim, P., McFadden, F., and Connolly, D. (2005). *Technology Strategies for the Hospitality Industry*. Upper Saddle River, NJ: Pearson-Prentice Hall. (ISBN: 013030549)

Focuses on technology the Internet and the hospitality industry

O'Connor, P. (1999). *Electronic Information Distribution in Tourism and Hospitality*. Oxford, UK: CAB International.

Focuses on the Internet and the emerging trends

O'Connor, P. (2004). *Using Computers in Hospitality*. London, UK: Thomson Learning. (ISBN: 1844800458)

Focuses on technology the Internet and the hospitality industry

Poon, A. (1993). *Tourism, Technology and Competitive Strategies*. Oxford, UK: CAB International.

Strategic thinking and vision towards the new tourism

Sheldon, P. (1997). *Information Technologies for Tourism*. Oxford, UK: CAB International.

Overview of systems used in the tourism industry

Werthner, H., and Klein, S. (1999). *Information Technology and Tourism: A Challenging Relationship*. New York, NY: Springer.

Comprehensive coverage of eTourism from a technology and management techniques perspective

WTO (1999). *Marketing Tourism Destinations Online: Strategies for the Information Age*. Madrid, Spain: World Tourism Organization.

Focuses on technology the Internet and Destination Management Organisations

WTO (2001). *eBusiness for Tourism: Practical Guidelines for Destinations and Businesses*. Madrid, Spain: World Tourism Organisation.

Focuses on technology the Internet and Destination Management Organisations

II. ENTER Conference Proceedings: Wide Range of Papers on ICTs and Tourism

Buhalis, D., Tjoa, A. M., and Jafari, J. (1998). *Information and Communication Technologies in Tourism*, ENTER 1998 Conference Proceedings, Istanbul, Springer-Verlag, Wien-New York.

Buhalis, D., and Schertler, W. (1999). *Information and Communication Technologies in Tourism*, ENTER 1999, Springer-Verlag, Wien-New York, ISBN3211832580.

Fesenmaier D., Klein, S., and Buhalis, D. (2000). *Information & Communication Technologies in tourism*, ENTER'2000, Springer-Verlag, Wien-New York, ISBN3211834834.

Fesenmaier, D., Werthner, H., and Wober, K. (2006). *Destination Recommendation Systems: Behavioural Foundations and Applications* HB 0851990231, CABI, London.

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- Sheldon, P.J. Wöber, K., and Fesenmaier D. R. (2001). Information and Communication Technologies in Tourism 2001: Proceedings of the International Conference in Montreal, Canada, 2001: Springer-Verlag Vienna ISBN: 3211836497
- Wöber, K. W., Frew, A. J., and Hitz, M. (2002). Information and Communication Technologies in Tourism 2002: Springer-Verlag Vienna ISBN: 3211837809

III. Useful Links

Organizations	URL	Description
BTOnline	http://www.btnonline.com/	Newsletters and new developments
Electronic Tourism	http://www.electronic-tourism.com	Newsletters and new developments and white papers
European Travel Commission	http://www.etcnewmedia.com/review/default.asp?SectionID=10	New media group collecting statistics
Eye for Travel	http://www.eyefortravel.com/	Commercial web sites with news and white papers
Forrester	http://www.forrester.com/	Internet Statistics
Genesys	http://www.genesys.net/	Information on Tour Operators and Travel Agencies
Hotel Online	http://www.hotel-online.com	Newsletters and new developments on eHospitality
HotelMarketing.com	http://www.hotelmarketing.com	Monitoring eTourism news
IFITT	http://www.ifitt.org/	IFITT's web site
International Hotel Restaurant Association	http://www.ih-ra.com/	International Hotel Restaurant Association
Internet World Statistics	www.internetworldstats.com	Internet Statistics
Phocuswright	http://www.phocuswright.com	Commercial web sites with news and white papers
Rene Waksburg's wonderful resources	http://www.waksberg.com/	Tourism Research Resources
StarUK	http://www.staruk.org.uk	Tourism Statistics in the UK
TIA	http://www.tia.org/	Information on Travel developments in the USA
Travel Daily News	http://www.traveldailynews.com	Newsletters and new developments
Travelmole	http://www.travelmole.com	Newsletters and new developments
World Tourism Organisation	http://www.world-tourism.org/	World Tourism Organisation
World Tourism Travel Council	http://www.wttc.org	World Tourism Travel Council

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Glossary

Computer Reservation System (CRS): a database which enables a tourism organisation to manage its inventory and make it accessible to its partners. Principals utilise CRSs to manage their inventory and distribute their capacity as well as to manage the drastic expansion of global tourism. CRSs often charge competitive commission rates while enabling flexible pricing and capacity alterations, in order to adjust supply to demand fluctuations. Airlines pioneered this technology, although hotel chains and tour operators followed by developing centralised reservation systems. CRSs can therefore be characterised as the “circulation system” of the tourism product.

Destination Management Organisations (DMOs): also called as Destination Marketing Organisations. These are organisations that undertake tourism destination management. This can include national tourist organisation, regional, provincial or state tourist offices or a convention or visitor bureau. They are the principle organisations that coordinate and monitor tourism development and marketing for a destination.

Destination Management Systems (DMSs): act as a source of information for managers including an inventory of resources occupancy levels, reservations, and visitor numbers.

Electronic commerce (e-commerce) and electronic business (e-business): the process of buying, selling, or exchanging products, services, or information via computer networks, including the Internet (Turban et al., 2008). In this review, the terms are used interchangeably. E-business includes not only buying and selling of goods and services, but also servicing customers, collaborating with business partners, conducting e-learning, and conducting electronic transactions within an organization (Turban et al., 2008).

Electronic tourism (e-tourism): the application of ICTs on the tourism industry (Buhalis, 2003). Buhalis (2003) suggests that e-tourism reflects the digitisation of all processes and value chains in the tourism, travel, hospitality and catering industries. At the tactical level, it includes e-commerce and applies ICTs for maximising the efficiency and effectiveness of the tourism organisation. At the strategic level, e-tourism revolutionises all business processes, the entire value chain as well as the strategic relationships of tourism organisations with all their stakeholders.

Extranet: a network that uses the Internet to link multiple intranets (Turban et al., 2008). Increasingly enterprises need to formulate close partnerships with other members of the value-chain for the production of goods and services. As a result, extranets utilise the same principle and computer networks to enhance the interactivity and transparency between organisations and their trusted partners. This facilitates the linking and sharing of data and processes between organisations to maximise the effectiveness of the entire network.

Global Distribution Systems (GDSs): Since the mid 1980s, airline CRSs developed into GDSs by gradually expanding their geographical coverage as well as by integrating both horizontally, with other airline systems, and vertically by incorporating the entire range of principals, such as accommodation, car rentals, train and ferry ticketing, entertainment and other provisions. In the early 1990s, GDSs emerged as the major driver of ICTs, as well as the backbone of the tourism industry and the single most important facilitator of ICTs globalisation (Sheldon, 1993). In essence, GDSs matured from their original development as airline CRSs to travel supermarkets.

Since the late 1990s GDSs have emerged as business in their own right, specialising in travel distribution. SABRE, GALILEO, AMADEUS and WORLDSPAN are currently the strongest GDSs in the marketplace.

Infomediary: the electronic intermediary that provides and/or controls information flow in cyberspace, often aggregating information and selling it to others (Turban et al., 2008). The most well-known infomediaries in the tourism industry are TripAdvisor and HolidayCheck which successfully implement a Web 2.0 approach and integrate the users as producers of trusted content (Egger & Buhalis, 2008). *Metamediaries* like travel meta-search engines (TSEs) appear between suppliers and consumers to aggregate and filter out relevant and pertinent information from the wealth of material (Egger & Buhalis, 2008). TSEs like Sidestep, Mobissimo and Kayak enable customers to compare offers and prices by carrying out live queries to suppliers, consolidators and online agencies and presenting the results transparently.

Information and Communication Technologies (ICTs): include not only the hardware and software required but also the groupware, *netware* and the intellectual capacity (*humanware*) to develop, program and maintain equipment (Buhalis, 2003). Synergies emerging from the use of these systems effectively mean that information is widely available and accessible through a variety of media and locations. In addition, users can use mobile devices such as portable computers, mobile phones as well as digital television and self serviced terminals/kiosks to interact and perform several functions. This convergence of ICTs effectively integrates the entire range of hardware, software, groupware, netware and humanware and blurs the boundaries between equipment and software (Werthner & Klein, 1999).

Intermediaries (brokers): play an important role in commerce by providing value-added activities and services to buyers and sellers (Turban et al., 2008). The most well-known intermediaries in the physical world are wholesalers and retailers. Traditionally, intermediaries of the travel industry have been outbound and inbound travel agencies and tour operators (Egger & Buhalis, 2008). However, the Internet restructured the entire touristic value chain, forcing the existing intermediaries to take up the new medium and to develop corresponding business models (Egger & Buhalis, 2008). Intermediaries in the cyber-world refer to organizations/companies that facilitate transactions between buyers and sellers and receive a percentage of the transaction's value (Turban et al., 2008). Expedia, a system developed by Microsoft, has had a very rapid growth, demonstrating that the new major *e-mediaries* constitute not only a stronger competition but are also able to displace many companies with years of experiences in tourism, such as American Express and Rosenbluth Travel (Buhalis, 2003).

Internet: the network of all networks. Nyheim, McFadden, and Connolly (2005) defined the Internet as a network which links multiple networks and users around the globe and a network that no one owns outright. The terms, the Web and the Internet, have often been used interchangeably; however, the Web is part of the Internet as a communication tool on the Internet (Nyheim et al., 2005). Additionally, the terms, the Internet and ICTs, are often utilized in parallel; however, rigorously speaking, the Internet is part of ICTs.

Intranet: a corporate or government network that uses Internet tools, such as Web browsers and Internet protocols (Turban et al., 2008). Intranets are "closed," "secured" or "fire walled" networks within organisations to harness the needs of internal business users, by using a single controlled, user-friendly interface to support all company data handling and processes.

Online Travel Bookings: the process of consumers booking travel products over the Internet.

Property management systems (PMSs): part of hospitality information systems. They provide an accounting function, record keeping, guest history, housekeeping data and revenue data for operating departments.

Social media: the online platform and tools that people use to share opinions and experiences, including photos, videos, music, insights, and perceptions with each other (Turban et al., 2008) (Figure 3). As a powerful democratization force, social media enables people, rather than organizations, to control and use various media with ease at little or no cost; consequently, it enables communication and collaboration on a massive scale (Turban et al., 2008).

Social network: a place where people create their own space, or home page, on which they write blogs (Web logs); post pictures, videos or music; share ideas; and link to other Web locations they find interesting (Turban et al., 2008). Using the Web 2.0 application tools, individuals tag contents they post with keywords they choose themselves and this process makes their contents searchable through the Internet. According to the social network theory, a social network is a social structure made of *nodes* and *ties* (Turban et al., 2008). Nodes are the individual actors within the networks, and ties are the relationships between the actors (Figure 4). Social networking indicates the ways in which individuals are connected through various social familiarities ranging from casual acquaintance to close familial bonds (Turban et al., 2008).

Web 2.0: coined by O'Reilly Media at the Web 2.0 Conference held in San Francisco in 2004, refers to "the second-generation of Internet-based services that let people collaborate and share information online in perceived new ways—such as social networking sites, blogs, wikis, communication tools, and folksonomies" (Turban et al., 2008). A Web 2.0 website may feature a number of the following techniques: Rich Internet application techniques, optionally Ajax-based; Cascading Style Sheets (CSS); Semantically valid XHTML markup and the use of Microformats; Syndication and aggregation of data in Really Simple Syndication (RSS/Atom; Clean and meaningful URLs; Extensive use of folksonomies (in the form of tags or tagclouds, for example); Use of wiki software; Weblog publishing; and Mashups and REST or XML Webservice APIs. Increasingly the Internet is becoming a platform of data/views/knowledge creation and sharing which harness the network to get better information to all users. Figure 2 illustrates differences between Web 2.0 and the previous generation, referred to as Web 1.0. The figure indicates how the Web 2.0 emphasizes online collaboration and sharing among users via various Internet application tools.

World Wide Web (WWW or the Web): a multimedia protocol which uses the Internet to enable the near instant distribution of media-rich documents (e.g., textual data, graphics, pictures, video, sounds) and to revolutionise the interactivity between computer users and servers.