



Resource Guide in:

## **Information and Communication Technologies** **for Travel & Tourism**

### **INTRODUCTION**

As one of the world's largest and most pervasive industries, the travel and tourism sector is as exposed as any other to the forces of change that are being brought about by ongoing developments in the Information and Communication Technologies (ICT) arena.

ICT have, in fact, affected the travel and tourism industry for at least the last 50 years (SABRE, the first airline computer system was developed by IBM and American airlines in 1953), particularly in the area of automation and networking of distribution channels.

The advent of the Internet is also having profound impacts on the industry: travel and tourism has become the single largest category of products/services sold over the Internet and the proportion of business being transacted through this medium is constantly growing.

The following resource guide is designed to assist individual lecturers and/or programme development teams wishing to introduce a tourism/ICT module into their programmes. It contains an annotated bibliography of texts and other learning resources that have been used by the author to design and deliver courses, training workshops and consultancy both in academic and commercial environments.

Given the size and pace of development of this topic area it would be impossible to claim comprehensiveness of coverage in this resource guide. It does however provide a detailed pointer to the main resources which can be used to further develop expertise in this area.

## ANNOTATED BIBLIOGRAPHY

- Poon, A (1993) *Tourism, Technology and Competitive Strategies*, CAB International.

This seminal piece of work is one of the earlier books to be written in this subject area. The text analyses some of the major challenges facing the tourism industry and clearly outlines how ICT have helped address these issues over the last few decades.

The book is divided into five parts and 10 chapters. Part one sets the scene by illustrating how the travel and tourism industry has reached an important crossroads: the end of the growth of mass tourism (old tourism) on one side and the approach of new, more personalised forms of tourism (new tourism) on the other. Part two provides a detailed analysis of both sides, tracing the characteristics, historical roots and the global imperatives that are leading to the rapid shift from 'old' tourism to 'new' tourism.

Part three examines the driving forces of change: new consumers with their changing values, lifestyles and demographics which make them profoundly different from the previous mass tourists, and new technologies which are helping to re-engineer the tourism product/service to make it more flexible and suitable for the 'new' tourist.

Part four provides a competitive scenario outlook for the industry where technology is playing a key strategic role in reshaping the value chain. Part five concludes by looking at the future of tourism and strategies for tourism destinations.

Whilst this book is several years old and some of the technologies described in it are now obsolete, its underlying message is still relevant today and can still be considered one of the best texts which provide an overview of the nexus between tourism and ICT.

- Inkpen, G (1998) *Information Technology for Travel and Tourism*, Addison Wesley Longman, Essex UK.
- Sheldon, P (1997) *Tourism Information Technology*, CA International, Wallingford, UK and New York, USA.

Both of these books have now been used as standard texts in undergraduate tourism and ICT courses. They provide the reader with a detailed and clear understanding of the main applications of ICT in different travel and tourism sectors. They are either biased towards the USA (Sheldon) or the UK (Inkpen), but this is not to be considered to be a serious limitation, given that many of the information systems analysed are increasingly being used on a global scale.

Both texts have been extensively researched and present a potentially complex subject in a clear and logical order. This makes them relatively easy to read, although some prior knowledge of basic ICT concepts would definitely help the reader.

Inkpen's book consists of seven chapters organised around the author's view of the travel and tourism industry structure.

- Chapter one examines the main characteristics of the tourism industry structure within which new and existing technologies operate. It also includes some useful information on the leading standards bodies and other travel organisations that are crucial to the successful development and implementation of new technologies in travel and tourism.
- Chapter two deals with the growing use of ICT by Public Tourism Organisations (PTOs) such as National Tourism Organisations (NTOs) and Tourism Information Centres (TICs). The author provides an in-depth overview of the experiences of the British Tourism Authority and the Irish Tourist Board to illustrate how innovative use of ICT can make PTOs more effective in their quest for destination promotion and customer support.
- Chapter three looks at ICT applications for tourism suppliers, such as airlines, hotels, tour operators and rail companies with interesting and informative case studies provided for each sector (eg British Airways' e-ticketing, Marriott's MARSHA central reservations system and the Cosmos' international communication and distribution system).
- Chapter four examines four of the world's largest Global Distributions Systems (GDS) namely Sabre, Galileo, Amadeus and Worldspan. A notable omission in this analysis is the Abacus system widely used in the Asia Pacific region.
- Chapter five examines the changing patterns of consumer access to travel information, illustrating how the Internet has had a profound impact on travel and tourism markets. The chapter starts with a general discussion of Internet marketing and then moves on to examine how different operators in different sectors of the travel and tourism industry have changed to take advantage of this new medium.
- Chapter six is dedicated to the analysis of other telecommunication technologies (other than the Internet already analysed in the previous chapter). The chapter covers videoconferencing, EDI, email, teletext and videotext, and value added networks such as those run by AT&T and Imminus.
- Finally, chapter seven explores the various technologies that are used by travel agents as part of their ongoing operations with a particular focus on front and back

office systems. The chapter concludes with an analysis of some of the leading agency management systems such as the Sabre TravelBase, the Icanos PAMS and TravelEdge.

Sheldon's "Tourism Information Technology" is structured in ten chapters:

- Chapter one begins with an examination of the main characteristics of the tourism industry and highlights its strong dependence on information and communication technologies. The stated need for a strategic approach to the management of information leads the author to examine the role of ICT in the tourism industry.
- Chapter two deals with ICT in the Airline Industry, examining the development of Computer Reservation Systems' (CRS, now known as Global Distribution Systems). Other airline applications of ICT are also examined with emphasis on decision support systems (eg, flight and crew scheduling and planning) and airport systems (such as flight information displays, electronic immigration control systems and passenger service applications). The Chapter concludes with an analysis of Singapore Airlines' use of ICT.
- Chapter three looks at ICT applications for intermediaries, such as travel agencies, wholesalers and speciality channellers (eg, meeting and convention planners). Importantly, the author examines how ICT applications are changing the structure of this sector. A case study on several ICT developments by international travel management company Rosenbluth Travel concludes the chapter.
- Chapter four deals with surface transportation and looks at present and future developments of Intelligent Transportation Systems for private cars. Cruising, rail and car rental reservations systems are also analysed. Two short case studies on National Car Rental and Royal Caribbean Cruise Lines highlight the importance of ICT for both marketing and operations.
- Chapter five examines the changing patterns of consumer access to travel information illustrating how ICT is giving consumers direct access to product suppliers (eg, via the Internet and interactive television). A new model of electronic consumer access, highlighting the advantages and disadvantages of electronic travel distribution is developed. A case study on one of the first 'cyber-agents', Internet Travel Network, is also provided.
- Chapter six looks at ICT in the hospitality sector, focusing on Hotel CRS and Property Management Systems (PMS) and specific ICT application for the food and beverage sector (eg, Point Of Sale and restaurant management systems). An interesting case study on Swissotel provides a good example of how an

international hotel chain can use ICT to improve efficiency in operations and, most importantly, enhance visitor satisfaction.

- Chapter seven offers an insight into ICT for the attraction sector. Access management and ticketing systems are discussed, as well as technology used to enhance the visitor experience and safety (eg, IMAX theatres, virtual reality etc). The chapter also covers ICT applications in gaming and sports. A case study on the Polynesian Cultural Centre in Hawaii showcases the possible applications of ICT in the attraction sector.
  - Chapter eight examines the use of ICT by the public tourism sector with particular reference to Destination Information Systems as tools for sophisticated marketing of a destination and, most importantly, as a possible solution for small-and medium-sized tourism enterprises' difficulty in accessing distribution channels. Some consideration is also given to the role of ICT in fulfilling the public sector needs in terms of market research and management. The case study in this chapter looks at several ICT applications within the Finnish Tourist Board (FTB).
  - Chapter nine deals with the telecommunication networks and systems which facilitate travel information flows: travel specific networks such as ARINC and SITA are analysed in detail, as well as computer switches such as THISCO's Ultraswitch which allow the seamless flow of information between hotel and airline computer reservation systems.
  - Chapter ten looks at emerging trends in tourism information systems including the potential application of expert systems, neural networks and robotics in the travel and tourism arena, the opportunities created by technology-based market segmentation and the sectoral changes which are likely to be brought about by further ICT development.
- Werthner, H and Klein, S (1999) *Information Technology and Tourism – A Challenging Relationship*, Springer, Wien and New York.
  - Buhalis, D (2003) *eTourism – Information technology for strategic tourism management*, Prentice Hall, Harlow, UK.

Whilst these two books cover much of the content provided by Inkpen and Sheldon (with relevant and welcome updates), they move one step forward by providing an in-depth look at the strategic implications of ICT in tourism; something that was missing or only superficially addressed in the previously mentioned texts.

Werthner and Klein's *Information Technology and Tourism* clearly stands out from this selection in terms of logic, structure and the clarity of information provided. The book is structured around six chapters.

- The introductory chapter takes a bird's eye view of the connections between tourism and ICT, setting the scene for the remaining five chapters.
- Chapter two provides a clear and detailed overview of the structure of the tourism industry, focusing on main definitions, its contribution to the economy, trends in consumer behavior, structure of the tourism market, market transactions and the role that information plays within the industry.
- Chapter three focuses on the major trends shaping the discipline of information technology: hardware and software developments together with networking, information management and intelligent applications, are dealt with in a clear and accessible manner. The chapter concludes with an analysis of the important issue of systems integration.
- Chapter four is possibly the most interesting section of the book, as it represents one of the first clear attempts to ground ICT in a business strategy perspective. The interrelationships between ICT, strategy and organisation, and the impact of ICT on business strategy are clearly articulated in this section.
- Chapter five provides some examples of ICT applications in travel and tourism, focusing on GDS, travel agent systems and destination management systems. This chapter concludes with an interesting model of the new and complex tourism networks which are emerging as a result of recent ICT developments and, in particular, as a result of the Internet.
- Chapter six deals with the implications of the ICT 'revolution' and structural changes within the tourism industry for management. Key topics covered include the shift of managerial competencies from the management of the firm to the management of business networks, the delineation of a framework for the transformation of supply chains and business networks (basically a total re-examination of the way the tourism industry operates in the light of the possibilities provided by ICT), management of information and information systems, the emerging information, marketing, and distribution infrastructures provided by electronic commerce. The chapter concludes with a framework for web design.
- A very succinct chapter seven (just over two pages) concludes by reaffirming the strategic importance of the tourism/ICT symbiosis.

*eTourism* by Buhalis is the latest book on ICT and tourism and represents a welcome addition to the growing body of knowledge in this field. The book is structured around two main parts. Part A focuses on providing a clear outlook of new ICT driving change in the industry, the main strategic management choices and the generic impacts of ICT on strategic management.

Part B focuses on a selection of key tourism and hospitality sectors, providing a comprehensive overview of their use of ICT at both the operational and strategic/management level. Part B concludes with a 'Synthesis and Vision for the Future' section which reviews the arguments explored throughout the book and provides a stimulating outlook for future developments in the tourism/ICT domain, and their implications for various industry stakeholders.

Published in 2003, this is the most up-to-date and possibly, the most authoritative textbook in the field of ICT and tourism, although its structure and writing style make it, at times, difficult to follow.

- Buhalis, D and Laws, E (eds) (2001) *Tourism Distribution Channels – Practices, Issues and Transformations*, Continuum Publishing, London and New York.
- O'Connor, P (1999) *Electronic Information Distribution in Tourism and Hospitality*, CABI Publishing, UK.

Both these texts deal with the crucial issue of distribution channels (and electronic distribution in particular) within the tourism industry. They are therefore crucial references for anyone wishing to gain a good understanding on the impacts of ICT on tourism.

Buhalis and Law's edited book is a collection of 23 papers clustered into four parts.

- In part one, eight chapters deal with the theory, practice and issues relating to tourism distribution.
- Part two looks at tourism distribution structures from a mainly European and UK perspective (with the exception of one chapter focusing on Australia).
- Part three looks at distribution strategies and approaches from a destination point of view, with interesting contributions from Canada, Australia and China.
- Finally, part four examines the transformation in tourism distribution brought about by ICT with a stimulating concluding chapter by the editors who attempt to set an agenda for future research in tourism distribution channels

Peter O'Connor's *Electronic Information Distribution in Tourism and Hospitality* is a widely used textbook on electronic distribution, possibly thanks to its readability, logical structure and numerous case studies.

- After an introduction dealing with the importance of information to the travel and tourism industry, chapter one provides an historical overview of computerised reservation systems by tracing the evolution of airline computer reservation systems (airline CRS) into Global Distribution Systems (GDS). A case study on SABRE well illustrates such transition.
- Chapter two deals with CRS in the international hospitality industry and illustrates how these systems link to wider distribution channels (eg, via links to GDS, switching companies and hotel representative companies). The chapter concludes with four case studies looking at specific CRS implementations at Holiday Inn, Groupe Accor, Utell International and Best Western.
- Chapter three looks at the important issue of distribution for small hotel and tourism enterprises, focusing on the facilitating role that regional tourism organisations can play in this arena. The chapter examines the development of Destination Management Systems and their key success factors, concluding with case studies on two well known destination management systems: Tyrol Information System and Gulliver.
- Chapter four examines the rapidly growing phenomenon of travel distribution via the Internet, highlighting its advantages and disadvantages and exploring its possible impacts on distribution channels structure and functionality. Case studies on Degri4tour, TravelWeb and Expedia provide good examples of the possibilities offered by the Internet.
- The final chapter 'What Next?' provides an overview of present and future developments that will have further impacts on the way tourism and hospitality services are distributed. The chapter looks at how major GDS are trying to re-invent themselves in the face of the challenges and opportunities posed by the Internet, examines the role of intranets and extranets in travel distribution and the possible scenarios provided by the development of home shopping and interactive television and the use of intelligent agents.

- O'Connor, P (2000) *Using Computers in Hospitality*, 2<sup>nd</sup> ed, Cassell, London.
- Collins, G R & Malik, T (1999) *Hospitality Information Technology.- Learning how to use it*, Kendall/Hunt Publishing Company, Dubuque, IO.
- Kasavana, M & Cahill, J J (1997) *Managing computers in the hospitality industry*. 3<sup>rd</sup> ed, Educational Institute of the American Hotel and Motel Association, East Lansing, MI.
- Peacock, M (1995) *Information Technology in the Hospitality Industry: Managing People, Change and Computers*, Cassell, London.

The first three of these textbooks focus on the practical aspects of operating and managing computer systems in the hospitality sector. They provide an introduction to the basics of computing by looking at generic computer hardware and software and then move on to hospitality specific applications in different levels of detail and focus. Topics covered include hotel computer reservation systems (CRS), property management systems (PMS) Points of Sale systems (POS) and various examples of ICT applications in Food and Beverage.

Peter O'Connor's book would probably be the recommended choice in this selection, both in terms of being the most updated of the three, but also thanks to its European rather than US focus.

Whilst still dealing with ICT in the hospitality sector, Peacock takes a different approach: rather than focusing on applications and technologies, the author examines categories of users, and suggests that the choice of how an application is used and which technology to use should depend on the interaction between customers, operatives, and management.

- Carter R & Bédard, F (2001) *E-Business for Tourism – Practical Guidelines for Tourism Destinations and Businesses*, WTO Business Council, Madrid.
- Carter R & Richer P (1999) *Marketing Tourism Destinations Online*, WTO Business Council, Madrid.

These are two excellent World Tourism Organisation publications, mainly targeted at operators in the field. In particular, *E-Business for Tourism – Practical Guidelines for Tourism Destinations and Businesses* is probably the book of choice here, as it represents not only a substantial update of *Marketing Tourism Destinations Online*, but also an expansion of its original contents to include new material written specifically for tourism businesses.

*E-Business for Tourism* is arranged in three sections: part A provides the foundations of the book by giving a detailed overview of market trends and developments of

eCommerce in the travel and tourism arena; part B focuses on e-business for Destination Management Organisations (DMO), analysing their changing value chains and providing a “step by step” approach on how to develop an Internet presence for consumers, intermediaries, travel media and tourism businesses; part C focuses on e-business for businesses with a focus on practical advice for small- and medium-sized enterprises (SME). Four sectors are considered, namely hospitality services, travel agencies, tour operators and visitor attractions.

- Kärcher, K (1997) *Reinventing the Package Holiday Business*, Deutscher Universitäts-Verlag GmbH, Wiesbaden.

This book is largely based on Dr Karcher’s doctoral dissertation, and therefore, more than a textbook suitable for a generic tourism/ICT course, it represents an attempt to test a specific research hypothesis, namely that tour operators are using ICT to define and secure their positioning in the marketplace.

Nevertheless, the book provides a detailed insight into the tour operating sector in two of the largest generating countries in Europe; the UK and Germany, and a clear overview of how the major European tourism operators are re-engineering their businesses to overcome the threat of disintermediation.

- Marcussen, C (1999) *Internet Distribution of European Travel and Tourism Services*, Research Centre of Bornholm, Denmark.

This book represents an important attempt to provide an overview of innovative developments with regards to the Internet in European distribution of travel and tourism services. Whilst the report is far from being comprehensive, it is nevertheless a welcome contribution to the body of knowledge in this area particularly as it provides a wealth of statistical data and travel and tourism related eCommerce transactions previously unavailable for the European sector. Updates on the data provided in the book can be found at: <http://www.crt.dk/uk/staff/chm/trends.htm>.

- Theobald, W & Dunsmore, H E (2000) *Internet Resources for Leisure and Tourism*, Butterworth-Heinemann, Oxford.
- Sweeney, S (2000) *Internet Marketing for Your Tourism Business*, Maximum Press, Gulf Breeze, USA.
- Chaffey, D (2002) *E-Business and E-Commerce Management*, London, Prentice Hall.
- Greenberg, P (2002) *Customer Relationship Management*, Berkley, USA.

- Rayport, J & Laworski, B (2002) *Introduction to E-commerce*, New York, McGrawHill/Irwin.
- Curtis, G & Cobham, D (2001) *Business Information Systems*, 4<sup>th</sup> ed, Financial Times, Prentice Hall.
- Stair, R & Reynolds, G W (2003) *Principles of Information Systems: A Managerial Approach*, 6<sup>th</sup> ed, Thomson-Course Technology.
- Chaffey et al (2002) *Internet Marketing: Strategy, Implementation and Practice*, Financial Times, Prentice Hall.

This is list of generic textbooks on various topics ranging from information systems to eCommerce, internet marketing etc. Useful for those wishing to explore beyond the travel and tourism boundaries.

Finally it is worth highlighting and recommending the proceedings of the ENTER Conference on Information and Communication Technology in Tourism. The conference has now been running for ten years and its proceedings represent the largest single source of academic level knowledge in this area. Most of the proceedings (or at least the most recent ones) are available directly from the publisher, Springer-Verlag (<http://www.springer.de/>).

## ANNOTATED GUIDE TO JOURNALS AND PERIODICALS

There are only two journals, so far, specifically dedicated to the area of ICT in the tourism and hospitality sector:

- *Information Technology & Tourism – Applications, Methodologies, Techniques*, published by Cognizant, USA.  
<http://itt.ec3.at>
- *Information Technology in Hospitality* (formerly International Journal of Hospitality Information Technology), published by HITA (Hospitality Information Technology Association) and HFTP (Hospitality Financial and Technology Professionals), USA.  
<http://www.hitaworld.org/ITH.htm>

*Information Technology & Tourism* (ITT) is the first and definitively the most authoritative scientific journal dealing with the relationship between ICT and Tourism. ITT's aim is to contribute to the process of growing the body of knowledge available in this field, through a multidisciplinary approach, aimed at bridging the gap between information technology and tourism research where both fields may influence each other.

The appearance of the *International Journal of Hospitality Information Technology* reflects the growing importance of technology in the hospitality industry, and the impact it has had on hotels and restaurants worldwide. The primary aim of the journal is to provide a rigorous educational resource and a forum for academia, industry practitioners, and information technology vendors to exchange ideas, research, and information.

There are, of course, numerous tourism and hospitality related journals which are increasingly covering travel and tourism ICT related issues: some of the most active in this field include:

- *Annals of Tourism Research*, Elsevier Science, Oxford, UK.  
<http://www.elsevier.com/inca/publications/store/6/8/9/index.htm>
- *International Journal of Tourism Research*, John Wiley & Sons, Inc.  
<http://www.wiley.com/cda/product/0,,JTR%7Cdesc%7C2968,00.html>
- *Journal of Travel Research*, Sage Publications, Thousand Oaks, CA.  
<http://www.sagepub.com/journal.aspx?pid=45>
- *Journal of Travel & Tourism Marketing*, Haworth Press, NY

- <http://www.haworthpressinc.com/store/product.asp?sku=J073>
- *Journal of Vacation Marketing*, Henry Stewart Publications, USA  
<http://www.henrystewart.com/journals/hspindex.htm?vm/index.html~mainFrame>
- *Tourism Management*, Butterworth-Heinemann Oxford, UK  
<http://www.elsevier.com/inca/publications/store/3/0/4/7/2/index.htm>
- *Cornell Hotel and Restaurant Administration Quarterly*, Elsevier Science Inc. NY  
<http://www.hotelschool.cornell.edu/publications/hraq/>
- *International Journal of Hospitality Management*, Butterworth-Heinemann, Oxford, UK. <http://www.elsevier.com/inca/publications/store/6/5/9/index.htm>

Finally a list of dedicated ICT/eCommerce journals that would be recommended reading for anyone wishing to focus their research and teaching in this area:

- *MIS Quarterly* (Management Information Systems), Society for Management Information Systems, Minneapolis, USA  
<http://www.misq.org/>
- *European Journal of Information Systems*, Operational Research Society, Birmingham  
<http://www.palgrave-journals.com/ejis/index.html>
- *MIT Sloan Management Review*, Massachusetts Institute of Technology  
<http://smr.mit.edu/>
- *Harvard Business Review*, Harvard Business School, USA  
[http://harvardbusinessonline.hbsp.harvard.edu/b02/en/hbr/hbr\\_home.jhtml](http://harvardbusinessonline.hbsp.harvard.edu/b02/en/hbr/hbr_home.jhtml)
- *Electronic Markets – The International Journal of Electronic Commerce and Business Media*  
<http://www.electronicmarkets.org/>
- *International Journal of Electronic Commerce*, M. E. Sharpe  
<http://www.qvsu.edu/business/ijec/>
- *Journal of Interactive Marketing*, Henry Stewart Publications  
<http://www.henrystewart.com/journals/hspindex.htm>
- *e-Service Journal*, Indiana University Press  
<http://www.e-sj.org/>

## **ANNOTATED GUIDE TO WEB RESOURCES**

Given the growing importance and pervasiveness of ICT applications for the travel and tourism industry, there are literally thousands of websites that cover this area from different angles. The following represents a very small and by no means exhaustive sample of the resources available.

### **Airline GDS**

These are the pioneers of electronic commerce in the travel and tourism sector. Developed from the 1950s onwards these systems still represent the largest electronic distribution channels in this sector, although their importance is arguably being slowly eroded by alternative distribution channels on the internet and other platforms.

- SABRE <http://www.sabre.com>
- GALLILEO <http://www.galileo.com>
- AMADEUS <http://www.amadeus.com>
- WORLDSPAN <http://www.worldspan.com>
- ABACUS <http://www.abacus.com.sg>

### **Airlines**

There are hundreds of airline websites with different levels of sophistication. Following is just a small sample of some airline websites displaying good levels of functionality and user-friendliness.

- British Airways <http://www.ba.com>
- American Airlines <http://www.aa.com>
- EasyJet <http://www.easyjet.com>
- Southwest Airlines <http://www.southwest.com>
- Lufthansa <http://www.lufthansa.com>
- Qantas <http://www.qantas.com.au>

### **Destination Management Systems**

DMS play an important role in the electronic marketing and the management of destinations. Following are some examples of successful DMS:

- Irish Tourist Board <http://www.ireland.travel.ie>
- British Tourist Authority <http://www.visitbritain.com>
- Australian Tourist Commission <http://www.australia.com>

- Tiscover <http://www.tiscover.com>
- Gulliver Ireland <http://www.gulliver.ie>

### **Hotels and Hotel Reservation Networks**

The following are some examples of hotel chain websites, hotel consortia or third party reservation services.

- Pegasus Solutions <http://www.pegs.com>
- Hotels.com <http://www.hotels.com>
- WorldRes.com <http://www.worldres.com>
- Hotel Distribution Network <http://www.hdn.com>
- Tablet Hotels <http://www.tablet.com>
- Octopustravel.com <http://www.octopustravel.com>
- Hilton <http://www.hilton.com>
- Hyatt <http://www.hyatt.com>
- The Leading Hotels of the World <http://www.lhw.com>
- Marriott <http://www.marriott.com>
- Travelweb <http://www.travelweb.com>

### **Online Travel Agencies**

These operators have taken the travel retail sector by storm, often capturing substantial market share in their respective markets. The last three in this list (Opodo, Orbitz and Zuji) are, in effect, travel portals developed and owned by European, American and Asian airline consortia and concerned with the growth of online travel agencies outside their direct control.

- Travelocity <http://www.travelocity.com>
- Expedia <http://www.expedia.com>
- Lastminute.com <http://www.lastminute.com>
- Ebookers <http://www.ebookers.com>
- Priceline <http://www.priceline.com>
- Orbitz <http://www.orbitz.com>
- Opodo <http://www.opodo.com>
- Zuji <http://www.zuji.com>

### **Tour Operators**

Tour Operators are also developing a considerable internet presence and the functionality of their websites has grown considerably in the last few years, after a relatively slow start.

- Thomson Holidays <http://www.thomson.co.uk>
- MyTravel <http://www.mytravel.com>
- TUI <http://www.tui.com>
- Kuoni <http://www.kuoni.com>

### **Associations**

The following associations are open to academics and industry practitioners interested in developing their knowledge and networks in the area of ICT in hospitality and tourism

- International Federation for Information Technology and Travel & Tourism  
<http://www.ifitt.org>
- Hotel Electronic Distribution Network Association  
<http://www.hedna.org>
- Hospitality Financial and Technology Professionals  
<http://www.hftp.org>
- Hospitality Information Technology Association  
<http://hrmsrv02.hrm.nau.edu/hita/>

### **Standards**

The development of open standards for the exchange of electronic data between tour operators, airlines, hotels and other tourism operators has become a crucial area of intense research and commercial activity. The major groupings involved in these developments are:

- Travel Technology Initiative <http://www.tti.org>
- The Open Travel Alliance <http://www.opentravel.org>
- Harmonise <http://www.harmonise.org>

### **News**

The following websites are good sources of information to keep up to date with industry developments and events:

- e-TID <http://www.e-tid.com>
- Travelmole.com <http://www.travelmole.com>

- Eye for Travel <http://www.eyefortravel.com>
- Internet.com <http://www.internet.com>

### **Market intelligence & research**

Most of the information on these sites is in the form of often quite expensive industry reports. However they also contain some freely available information on eCommerce trends and developments specific to the travel and tourism sector.

- Forrester Research <http://www.forrester.com>
- Nua Internet Surveys <http://www.nua.com>
- Jupiter Research <http://www.jupiterresearch.com>
- PhoCusWright <http://www.phocuswright.com>

### **KEYWORDS**

Information and communication technologies, information systems, travel, tourism, destination marketing systems, computer reservation systems, global reservation systems, internet, business strategy, competitive advantage, standards.

## TEACHING SESSIONS

Teaching sessions could include a mix of lectures, tutorial sessions and industry presentations/seminars; for certain components of the curriculum, computer lab demonstrations and hands on sessions are also required.

Topics included tend to cluster in three distinctive but complementary areas:

**Introduction to basic ICT concepts:** ICT concepts (hardware & software); organising data and information (databases); introduction to telecommunications (overview of communication systems, communication media, devices and carriers, overview of networks), the Internet; introduction to basic eCommerce concepts.

**Overview of ICT usage in organisations;** ICT and organisational structure; relationships between ICT and business strategy; using ICT for competitive advantage; access and use of electronic sources of data; ethical, legal and moral constraints on ICT.

**Overview of major ICT applications in the tourism industry:** Global Distribution Systems; Hotel Computer Reservations Systems; Property Management Systems; Destination Management Systems; Internet and Intranet applications in the tourism industry. This section also includes an analysis of existing and emerging electronic distribution channels

## ASSESSMENT

The suggestions for assessment are by no means prescriptive and represent the author's experience of what has worked in ICT/Tourism modules. This assessment would be appropriate for students in their second or third year of an undergraduate programme.

Assessment comprises a group project and a final exam.

### Group project

This part of the assessment comprises a report and an oral presentation. Students are given two options for their project:

The first option involves a real life ICT audit of a small hospitality or tourism enterprise. Students are required to critically evaluate the company usage of ICT in the light of what they are learning in the module. In particular they are asked to look at: hardware, software, databases, telecommunication and network systems, people (as users of ICT) and procedures.

The second option involves the 'deconstruction' of a travel or hospitality related website where students are asked to go 'behind the screen' to understand and explain:

- 1) The key target markets for the website
- 2) How the information on the website is collected and presented
- 3) The business models and selling mechanisms
- 4) The products or services it sells/promotes
- 5) The security mechanisms that are in place to guarantee safe transactions
- 6) The level of interactivity of the website
- 7) The stakeholders in the website

Some initial guidance is required in this option to ensure that students select websites which have an adequate level of sophistication and functionality, rather than some of the many tourism and hospitality websites which are, in reality, nothing more than online brochures, comprising a few paragraphs of text and photos.

For both projects students are requested to submit a final report and present their findings orally to their colleagues during tutorial sessions.

Whilst both these assignments might seem quite demanding for undergraduate level, the experience of the author has been that students respond enthusiastically to both options and, in general, deliver very detailed reports and presentations of a high quality.

The second part of the assessment comprises a final exam where students are tested on their knowledge of remaining topics covered during the module.

#### **ABOUT THE AUTHOR**

Roberto Daniele is a lecturer in the School of Business and Enterprise at Queen Margaret University College, Edinburgh. Prior to joining QMUC, Roberto was a lecturer at RMIT University in Melbourne, Australia.

Roberto's research and teaching expertise is in the domain of ICT for the travel and tourism industry and marketing. He has actively contributed to this field through teaching, training, research and consultancy, mainly in the Asia Pacific region and most recently in Europe.

Roberto is a current member of IFITT (International Federation for Information Technology and Travel and Tourism) and a Founding President of IFITT Australia.