Preface

Tourism is fundamental to the world economy. The World Travel and Tourism Council Tourism reports travel and tourism in 2006 is expected to post US$6.477 trillion of economic activity (total demand) and this is forecast to grow to US$12.119 trillion by 2016. It is estimated that in 2006 the travel and tourism industry will contribute 3.6% to worldwide GDP. The broader classification of travel and tourism economy indicates that the industry will contribute 10.3% to world GDP in 2006, making it arguably the largest single industry worldwide. The importance of the industry also is evident in terms of employment; in 2004 the tourism sector provided approximately 214 million jobs or 8.1% of global employment. It is expected that the industry will provide 260 million jobs (or 8.6% of world employment) by 2014.

For many regions throughout the world, reliance on tourism is considerable. It is the lifeblood of many local economies. It also has a significant influence on culture. This is especially true for many less-developed nations as much as for rural and regional areas in developed nations. Growth of the magnitude mentioned above has brought and will bring many opportunities and many problems to both source and destination markets, just as earlier growth patterns in manufacturing and mining or agricultural sectors has done. One of those opportunity/problem areas is the exchange of information within and external to the tourism industry.

New information communication technologies (ICT) are dramatically transforming spatial relationships within all industries, at every scale from local to global. It

provides improved linkage, command, and control systems. This book examines that process of technological transformation as it relates to the tourism industry. It is about the changes that modern electronic communications are supporting, or could support, in the world of tourism, not only geographically but in terms of culture, economics, marketing, social, and regional issues. Issues covered in the book range from the use of the Internet to supply information, to the emerging patterns of tourist decision making and investment based on such information. The book is about developing an informed appreciation of a wide range of issues arising from the growth of information technology and the Internet in particular and ICT in general for the tourism industry.

Tourism leads the way with respect to ICT uptake and development. The main aim of the book is thus to enhance the reader's knowledge as to the developments and application of ICT within the industry. It takes a multidisciplinary perspective of cybertourism and considers the role of ICT in the evolving world of tourism in the 21st century. The Internet is especially relevant to tourism since it enables knowledge about the consumer or tourist to be gathered, as well as providing information to them. Online technologies within the tourism industry have significantly impacted on communications, transactions, and relationships between the various industry operators and with the customer, as well as between regulators and operators (Clayton & Criscuolo, 2002; Dogac et al., 2004; Galloway, Mochrie, & Deakins, 2004; Sharma, Carson, & DeLacy, 2000; Sheldon, 1998; Werthner & Klien, 1999; World Tourism Organisation, 1999). The benefits of ICT, particularly those of the Internet for tourism are substantial. These benefits are no longer dependent on proprietary information systems as has been the past experience, since the Internet is a commonly available technology. The Internet can enhance the level of collaboration between tourist operators, important especially for tourism destinations, and brings about greater levels of interoperability with internal and external applications, previously available only to the larger players via proprietary systems such as Galileo for example.

Awareness of the functionality of the Internet, as well as resources and expertise necessary to take advantage of this functionality may be lacking, especially with respect to small and medium tourism enterprises (SMTEs). It is not yet clear that individual SMTEs are able to use this intelligence, or indeed even recognize its value. Information potentially available therefore is lost, but even if it is used, infrastructure issues such as access to reliable broadband may impede its effectiveness. These issues may especially be relevant for tourism operators in countries where infrastructure is less developed.

The book is divided into three sections: the first discusses the use of computers and the Internet in tourism; the second the transformation of the tourist industry under the influence of ICT; and the third provides a set of case studies.

Section I: Use of Computers and the Internet in Tourism

Section I provides an overview of ICT, its development and application to tourism. This section, which comprises 3 chapters, is designed to introduce the reader to these developments and applications. This is especially the case with respect to Chapters I and III. Chapter II provides more detail regarding the use of the Semantic Web and ontologies that underpin the same.

In **Chapter I**, *Online Delivery of Tourism Services: Developments, Issues and Challenges*, John W. Houghton presents an overview of recent developments in online delivery of tourism services, highlighting major issues and challenges. The chapter notes that the tourism sector is among the leaders in online marketing and sales, but considerable potential remains, with the sector lagging in the adoption of supply chain related systems and the use of ICT for internal efficiency. The Internet brings new opportunities and challenges, with both disintermediation and the emergence of new intermediaries. Key policy issues include the need to carefully monitor the competition effects of online service delivery and take advantage of the potential for the development of destination management systems that provide an integrated front-end for SMTEs.

Chapter II, *A Framework for Ontology-Based Tourism Application Generator*, by Roopa Jakkilinki and Nalin Sharda, provides an overview of tourism ontology and how this can be used for developing e-tourism applications. The Semantic Web is the next generation Web; it uses background knowledge captured as ontology and stored in machine-processable and interpretable form. Ontologies form the core of the Semantic Web and can be used to develop intelligent applications. However, generating applications based on ontology still remains a challenging task. This chapter presents a framework that provides a systematic process for developing intelligent e-tourism applications by using tourism ontologies.

Chapter III, *ICT and the Travel Industry: Opportunities and Challenges for New Zealand Travel Agents*, by Vladimir Garkavenko and Simon Milne, provides an in-depth study of how ICT has influenced the New Zealand travel agent's market. The authors focus on the impact of ICT on the travel industry. Key findings from a longitudinal study of New Zealand travel agents (TA) conducted during 2000-2004 are presented. These findings are compared and contrasted with information gathered from in-depth interviews with tourism consumers. The study explores major pressure factors on TA businesses: direct airline-consumer sales, introduction of the Internet, and the increasing sophistication of the tourist consumer. There is great variation in the extent to which New Zealand TAs use the advantages associated with new technology and their perception of ICT.

Section II: Transformation of the Tourist Industry

This section, being the core of the book, contains 8 chapters that address a broad range of more specific applications of ICT to tourism. The intention of this section is to focus on specific aspects of ICT, many of which are emerging and cutting-edge.

Chapter IV, *The Transformation of the Distribution Process in the Airline Industry Empowered by Information and Communication Technology*, by Patrick S. Merten, reviews the historical evolution of the airline market and its first-generation airline reservation and distribution systems. The development and diffusion of computer reservation systems (CRS) and global distribution systems (GDS) is discussed extensively in order to provide a comprehensive overview of the state of business in the 1990s. Based on this evaluation, the influence of modern ICT on the airline distribution system environment is discussed.

Chapter V, *Design and Implementation Approaches for Location-Based, Tourism-Related Services*, by George Kakaletris, Dimitris Varoutas, Dimitris Katsianis, and Thomas Sphicopoulos discusses design and implementation approaches for location-based, tourism-related services. The recent globally observed slump in the mobile services market has led mobile network operators to seek opportunities to provide other value added services. This chapter presents the key concepts, capabilities, and considerations of infrastructures and applications targeted to the mobile tourist. It covers data and content delivery, positioning, systems' interactions, platforms, protocols, security, and privacy as well as business modelling aspects.

Chapter VI, *Developing Visual Tourism Recommender Systems*, by Mohan Ponnada, Roopa Jakkilinki, and Nalin Sharda, develops this theme further. The authors note that tourism recommender systems (TRS) have become popular in recent years; however, most lack visual means of presenting the recommendations. This chapter presents ways of developing visual travel recommender systems (V-TRS). The two popular travel recommender systems used today are the TripMatcher and Me-Print. Tour recommendation using image-based planning using SCORM (TRIPS) is a system that aims to make the presentation more visual. A case study demonstrating the operation of current TRS also is presented. Further research in this area should aim to improve user interaction and provide more control functions within a V-TRS to make tour-planning simple, fun, and more visually interactive.

The next two chapters look at the development of virtual reality approaches to the task of informing the potential tourist of markets and attractions. **Chapter VII**, *Virtual Reality Applications in Tourism*, by Călin Gurău, starts with a description of the present development of virtual reality technology and applications. The physical tools and the software programmes required to interact with virtual reality applications are presented, and on the basis of their description, various hardware/software systems of virtual reality are identified and discussed. **Chapter VIII**, *Virtual Reality Mapping Revisited: IT Tools for the Divide Between Knowledge and Action in Tourism*, by Malcolm Cooper and Neil MacNeil, deepens this discussion by providing a

brief overview of the available technologies and opportunities for the use of virtual reality in tourism marketing. It acknowledges that in almost all formulations of the tourism marketing model to date, much has been made of the notion that tourism is unique because production and consumption occur not only at the same time but in the same place. Location or proximity is therefore often a critical determinant of the take-up of tourism opportunities. The chapter then goes on to posit the question: what if the place variable could be removed from this equation through the further development of virtual reality techniques?

Chapter IX, *Towards Improved Business Planning Decision Support for Small-to-Medium Tourism Enterprise Operators* by G. Michael McGrath, reports on the use of system dynamics (SD) in the modelling and analysis of the problem domains for tourism businesses such as rapid change, complexity, and uncertainty. The chapter discusses the development and implementation of a "tourism enterprise planning simulator" (TEPS) based largely upon SD constructs and technologies. Scenarios in which TEPS might be used to good effect in small business are outlined and the potential benefits of this deployment are detailed. Michelle Rowe and Alfred Ogle take this discussion further in **Chapter X**, *Collaborative Commerce and the Hotel Industry*, by proposing a framework to consider the application of collaborative commerce (c-commerce) in the hotel industry. C-commerce and some general characteristics of the hotel industry are examined followed by a discussion of the likelihood of c-commerce adoption by hotels. Corporate structure, IT and its importance to organization strategy, the role and attitudes of the General Manager of each hotel to IT, as well as the social identity of the hotel, emerge as issues critical to c-commerce. This area of study is in its infancy and further research is required to more fully consider the issues.

The final chapter in this section, *Sex Tourism and the Internet: Information, Amplification, and Moral Panics*, by Jerry Eades, looks at sex tourism and the Internet. Probably no sector of the tourist market has been more affected by the rise of the Internet than that of sex tourism. In fact, as shown in **Chapter XI**, until the advent of the Internet sex tourism as a concept, sex tourism was rarely discussed in the media, even though sex as a motivation for travel has a very long history. But the relationship between sex tourism and the Internet also is extremely complex and contested, as befits such a controversial subject. The author argues that in relation to tourism the Internet has proved a double-edged sword. Even though it has provided greatly enhanced opportunities for members of a wide variety of sexual interests, orientations and subcultures to contact and interact with each other, it also has provided an environment in which certain types of sex tourism have been increasingly demonized by the media, civil society and the politicians, resulting in the imposition of increasingly severe regulation and sanctions in a number of countries.

Section III: Case Studies

The final section is a compilation of three case studies that consider the application of IT with respect to demographic features such as culture and age and innovative behaviour of the tourist.

In **Chapter XII**, *Digital Imaging Trek: A Practical Model for Managing the Demand of the Digitally Enabled Traveller*, Stephen C. Andrade and Hilary Mason note that in recent years digital communication platforms and technologies have evolved and become accessible to a wide mainstream audience of tourists and travellers. Organizations engaging in travel and tourism commerce need to understand this wave of innovative behaviour among their customers. What does a traveller need to know to keep current with changing technologies? It is critical that service providers and travellers alike stay informed, because one thing is certain, technological innovation and change will be a constant companion for the travel and tourism industry. This chapter provides insight into evolving technologies that will be helpful to the practitioner, student, educator and the tourist-travellers themselves. Being prepared to meet the new demands of customers will provide rewarding experiences for parties on all sides of the tourism equation.

Chapter XIII, *Feeling Welcome: Internet Tourism Marketing Across Cultures*, by Wolfgang Arlt, discusses the way in which cross-cultural marketing via the Internet can be used to make visitors feel welcome—or not. In this chapter the author notes that if used in a proper way, the Internet can be a powerful cross-cultural incoming tourism communication tool. This chapter examines to what extent the opportunities are utilized which are offered in the virtual sphere to extend across physical and cultural distances a welcoming hand to potential visitors from far-away source markets. The discussion is based on the results of a study about the non-german language Web sites of Central European destination marketing organizations (DMOs), conducted in 2002 and updated in 2006, and the results of a study of German-language Web sites of non-European national tourism organizations (NTOs) and DMOs, conducted in 2005. It was found that an increase in multilingual Web sites within the period under review can be recognized, but that an increase in cross-cultural awareness of the providers of such Web sites is still lacking.

Chapter XIV, *Changing Technological Trends in the Travel Behaviour of Older Tourists*, by Ian Patterson, looks at changing technological trends in the travel behaviour of older tourists. The chapter examines the growth in usage of information technology and the Internet by older adults. As many countries are now experiencing, we are becoming an ageing society with seniors and baby boomers now responsible for a larger share of all holiday spending. But, while the Internet provides a perfect vehicle for the travel industry, many seniors are still fearful about using it, and perceived problems still exist with credit card security, quality control and privacy issues. In the future, Internet travel bookings are likely to increase with the growth in baby boomers who generally prefer to use the Internet. This will further

encourage the use of discount fares but also will place increased pressure on the future role of the travel agent.

Throughout the book we have concentrated on what Dimitrios Buhalis considers is the defining characteristic of the changing ICT environment with respect to tourism—it is evident that ICTs evolve constantly, providing new tools for tourism marketing and management. This evolution promotes and requires the interactivity between tourism enterprises and consumers and potentially enables the reengineering of the development, management and marketing of tourism products and destinations. The book has identified a number of key changes in hardware, software, and networking that will impact on the tourism industry in the future. It has explored generic technical issues such as online delivery of tourism services but also has looked at cutting edge technological innovations. The past two decades have brought profound change to the way in which the tourism industry functions as a business and the place tourism has in the economy, at a regional, national, and international level. The tourism industry can be seen as one of the first business sectors whose business functions are almost exclusively using ICT in their operation. This book makes a significant contribution to knowledge in terms of the use of ICT within the industry and will become both a repository of information and a source for demonstrating and generating awareness of innovative approaches.

References

Clayton, T., & Criscuolo, C. (2002). *Electronic commerce and business change*. Retrieved April 16, 2005, from http://www.statistics.gov.uk/cci/article. asp?ID=139

Dogac, A., Kabak, Y., Laleci, G., Sinir, S., Yildiz, A., Kirbas, S., et al. (2004). Semantically enriched Web services for the travel industry. *SIGMOD Rec., 33*(3), 21-27.

Galloway, L., Mochrie, R., & Deakins, D. (2004). ICT-enabled collectivity as a positive rural business strategy. *International Journal of Entrepreneurial Behaviour and Research, 10*(4), 247-259.

Sharma, P., Carson, D., & DeLacy, T. (2000). National online tourism policy initiatives for Australia. *Journal of Travel Research, 39*(2), 157-162.

Sheldon, P. J. (1998). *Tourism information technology*. New York: CABI Publishing.

Werthner, H., & Klien, S. (1999). *Information, technology, and tourism: A challenging relationship*. Vienna, Austria: Springer.

World Tourism Organisation. (1999). *Marketing tourism destinations online: Strategies for the information age*. Madrid.