

Tourism Relationship Marketing Empowered by the Convergence of IP Multimedia Subsystem and Interactive Digital Television

***Mastorakis, G. Trihas, N.**

Technological Educational Institute of Crete, Department of Commerce and Marketing, Crete, Greece

Karditsis, I.

Technological Educational Institute of Crete, Department of Applied Informatics and Multimedia, Crete, Greece

Kopanakis, I.

Technological Educational Institute of Crete, Department of Commerce and Marketing, Crete, Greece

*Corresponding author: gmastorakis@staff.teicrete.gr

Abstract: *Interactive broadcasting elaborates on the investigation and realization of novel digital television networks, able to provide multiple interactive multimedia and Internet based services, utilizing Digital Video Broadcasting (DVB) advances. On the other hand, IP Multimedia Subsystem (IMS) is a promising solution that may be adopted in next generation networks, providing advanced capabilities and added value data services. In this context, this paper investigates the convergence of interactive digital television systems with IMS and proposes a novel research approach, which could be adopted in tourism relationship marketing, enabling for a more efficient process of collecting and analyzing feedback data from users/viewers. This process may be vital for optimum marketing and advertising purposes. This potential information data may be used to target customers in more efficient and effective ways, i.e. geographical segmentation, increasing the possibility of impulse sells through t-commerce or allow audience to require more information for a company, brand or product, enhancing the experience that a customer exploits with specific brands.*

Keywords: *Tourism Relationship Marketing, Interactive Marketing, Interactive Broadcasting, IP Multimedia Subsystem.*

1. INTRODUCTION

Travel and tourism has been for many years on the forefront of Information Communication Technologies (ICTs) sector due to its intangible, perishable, global nature and subsequent reliance upon the movement of information (Schweda & Varan, 2003). Both industries (i.e. ICTs and travel/tourism industries) are closely interrelated and intertwined, since ICTs are probably the strongest driving force for changes within the tourism sector (Werthner & Klein, 1999). Recent developments in Information Technology (IT) services and applications have a far reaching impact on the tourism industry in an increasing competitive environment. Each of the various sections of the travel industry (i.e. suppliers, tour operators and travel agencies, as well as travelers) is affected, as global distribution channels change, offering new chances to improve communication with business partners and consumers. The array of choices includes traditional computer reservation systems, Internet, telephone marketing, call centers, kiosk systems, teletext, interactive TV as well as smartcards and ticketless travel. All provide new opportunities to drive down communication costs and to carry out direct marketing, not only for large companies, but also for small and medium-sized enterprises (Kuom & Oertel, 1999).

As one of the most progressive industries in IT adoption, travel and tourism sector provides an ideal context, towards investigating the influence of sophisticated technologies in marketing, especially regarding Customer Relationship Management (CRM) and niche marketing. These technologies provide new business opportunities in establishing, maintaining, enhancing and commercializing customer relationships through a better understanding of customer requirements and promise fulfillment. Tourism suppliers will then have in their disposal new tools and mechanisms for direct communication with consumers, with the interactivity empowered to unprecedented levels. This two-way interactive communication ensures that consumers and suppliers interact dynamically towards achieving their goals. Consumers need maximum satisfaction from the product and enterprises request to achieve their objectives and financial targets (Buhalis, 2003).

Furthermore, advances in interactive broadcasting systems (i.e. digital television networks), next generation network systems such as IMS (i.e. IP Multimedia Subsystem), Internet based technologies and their convergence could contribute efficiently towards, optimizing the process of collecting and analyzing data, useful in tourism relationship marketing. More specifically, interactive broadcasting elaborates on the study and realization of novel digital television networks, able to provide multiple interactive multimedia and Internet based services, utilizing Digital Video Broadcasting (DVB) advances.

On the other hand, IMS is a promising solution that may be adopted in next generation networks (e.g. mobile and broadcasting systems), providing advanced capabilities and added value data services. In this context, this paper elaborates on interactive broadcasting systems with IMS and proposes a novel research approach based on technology convergence, which could be adopted in tourism relationship marketing, enabling for a more efficient process of collecting and analyzing feedback data from users/viewers. As interactive relationship marketing relies upon customer information, this process may enable tourism enterprises and organizations to track customer preferences and subsequently provide them superior value via customized services. As a result, marketers will be able to base much more cost effective marketing decisions on a detailed knowledge of the behaviour and preferences of their existing or potential customers.

2. TOURISM RELATIONSHIP MARKETING AND INTERACTIVE DIGITAL TELEVISION

Relationship marketing (i.e. RM) is a marketing (communications) approach that is aimed at establishing profitable relationships with loyal customers (Kitchen & De Pelsmacker, 2004). Cosic and Djuric (2010) suggest that RM represents a paradigm of changes which take place in marketing practice. Changes are mainly related to shift from the focus at transactions to the focus at relationships. The traditional short-term focus on transactions has been criticised on two main grounds. First, short-termism has promoted a form of hit-and-run marketing in which the customer's best interests are not served. Second, short-termism has not served corporate self-interest either because it is more costly to attract new customers than it is to retain existing ones. Marketing is no longer simply about developing, selling and delivering products. It is progressively more concerned with the development and maintenance of mutually satisfying long-term relationships with customers. This change is driven by several conditions: more intense, often global, competition; more fragmentation of markets; a generally high level of product quality which is forcing companies to seek competitive advantage in other ways; more demanding customers; and rapidly changing customer buying patterns. Enduring relationships with customers cannot be duplicated by competitors, and therefore provide for a unique and sustained competitive advantage. Despite this, marketing theory is still resolutely transaction-oriented. Its focus is clearly on customer acquisition, rather than customer retention. Various other terms have been used either as substitutes for RM or to describe some close parallel – micro-marketing, loyalty marketing, one-to-one marketing, wraparound marketing, customer partnering, symbiotic marketing and interactive marketing (Buttle, 1996).

Moreover, according to Buhalis (2003), customer relationship management (CRM) implies that organizations segment their markets into specific market niches and attempt to dominate them by developing highly appropriate products and services. It involves a two-way interactive and dynamic communication, which ensures that consumers and suppliers interact dynamically towards achieving their goals. Ultimately consumers are involved in the product design process and assist the development of products suitable for themselves. Organizations should therefore encourage consumers to declare their interests and to interact with them in order to provide feedback and develop a relationship. Relationships should be based on adding value to the product on offer and on providing greater satisfaction for consumers. Organizations need to adapt and constantly monitor, analyse and interact with their environment in order to appreciate the dynamic developments and update their products constantly to satisfy the entire range of their stakeholders. Dynamic relationship marketing can use knowledge about consumers to add value to their offerings and to differentiate their products constantly, in order to address the market segment of one – the unique customer. Using several research techniques, organizations can identify critical factors that can drive consumers to purchase products and test the most effective marketing tools (Buhalis, 2003, p. 169-170).

In the tourism industry, relationship marketing is directed to build brand loyalty. While in other economic sectors often there is no direct contact with consumers or very low level of those contacts, majority of activities in tourism assume direct contact with consumers (Cosic & Djuric, 2010). Traditionally few data kept by tourism organizations and were rarely used for interacting with consumers. Some hotels kept guest histories but they were rarely used proactively to make customers feel special. The growth of loyalty clubs has enabled more tourism organizations, airlines and hotel chains in particular to know more about the consumer patterns of their customers. Increasingly travel intermediaries are starting to offer relationship marketing and proactive functions based on consumer profiles. The new intermediaries such as expedia.com and lastminute.com lead the field in this. Although one-to-one marketing may be an expensive process, tourism products are ideal for customization. Not only are they bundles of individually produced products and services, but they are also consumed under unique-by-customer circumstances. There is a great volume of information available through each reservation and consumers are generally happy to provide more information about their preferences when they interact with members of the industry (Buhalis, 2003, p. 170). Technological developments have made the recording of elements of individual taste easier and interactive broadcasting networks and IMS could be proved extremely helpful in this process.

The overall target of relationship marketing is to enable marketers to create a two way communication channel with the existing and potential customers in order to learn their needs and meet them successfully; offering a perceived value to them. Towards this scope, a number of advances/developments have been achieved, to increase the effectiveness of the

relationships among the company and its clients, as well as the extent and strength of this bond. The final intention of every communication attempt, apart from building this kind of bonds, is to influence the customers' buying decision by changing their attitude toward the brand. This can be managed mainly by changing the degree of awareness a customer has by capturing his/her attention, increasing the level of interest and creating the arousal of desire. It is well established that the experience that customers gain through every contact with the company is vital to consolidate the desired differentiation of the value of a product or service (Smilansky, 2009). In the last decades, enterprises have realized the benefits of synergy among their communication efforts that led advertising agents to offer an integrated marketing communication (IMC) mix. An integrated marketing communication strategy has to employ more than one communication medium, considering the argument that one of the reasons that IMC was developed is the fragmentation of traditional mass media and the emergence of new media, which are more effective and efficient regarding the message distribution to the targeted group. Additionally, the sources that are delivering messages to customers are classified in three categories; the planned sources which are the traditional forms of communication like advertising, the unplanned sources which are more effective and are not intentionally developed by the company like chat rooms, blogs, comments and behavior of employees/customers and the often unconsidered sources like distribution channels, design or technical support services.

In this light, the technological achievements have changed already to some degree the most discussed and common in use mean of communication: advertising and its future role on television. Due to the acquaintance of mass audience with personal computers and its familiarity with the idea of interactivity, marketers have adapted this line of action and have realized its effectiveness. One such evolutionary development is the interactive digital television (IDTV), defined as “*a group of technologies that gives the user the possibility to take control over their television experience enabling interactivity with the content*” (Cauberghe & De Pelsmacker, 2006, p. 23). Viewers are invited to move to a more interactive television world, to visit a Web address or call a phone number. Despite the nature of required interaction by advertisers, either offline (not linear and deferred reaction to a received message even through a different medium), or online (which means that a message incites for a simultaneous correspondence from the viewer and simultaneous data exchange with the service provider), this interaction enables the messages from the enterprises to become more personalized to the finest level of one-to-one communication. Most features of the existing forms of mass media are not able to achieve this two way communication model.

Digital communication can be identified when a person has visited a page and this information can be used in order to find out what viewers are interested in. In general, interactive marketing systems were developed to such an extent, that allow large companies to achieve the best possible relationship with their customers, offering numerous choices to meet their needs (Chaffey & Smith, 2008). The extent to which a company has adapted digital communication as a strategy varies, mainly due to their different orientation, mission, budget and the importance they attribute to the online and two-way communication platforms. However, one of the great advantages that this interaction offers is the development of either online or offline communities around the company's products. These communities offer important benefits such as better segmentation through the appropriate management of the input data created by the communities, the overall view of stakeholders, end users and media intermediates, low cost of immediate distribution and increased word of mouth. This open and free dialogue builds strong virtual brand communities, which enhance trust to the company, provide rich information regarding purchase process, depicts feelings and motivations which help the company to gain a better psychographical, behavioral and geodemographical segmentation of the market, improve the direct marketing efforts, expand its Customer Relationship Management and databases.

Moreover, interactive DVB systems could play a vital role towards enabling end users to interact with service providers by utilizing interactivity channels established between customers' premises and the broadcasting system. More specifically, interactive DVB-T (i.e. terrestrial systems) networking architectures (Xilouris et al., 2002) have been realized based on a generic interactivity model, enabling for the provision of asymmetric data transfer among the service provider and the end users. In such cases, DVB-T channel provides forward data traffic, while reverse data traffic is transferred through several interaction channels (e.g. PSTN, ISDN, DECT, GSM, GPRS, UMTS, xDSL, LMDS, MMDS) (Gardikis et al., 2002; Gardikis et al., 2003). According to these configurations, the service provider's side may incorporate both an interactive service provider and a broadcast one. The former may enable access to interactive multimedia services such as video and audio on demand or may provide Internet facilities such as WWW access, e-mail services etc. The latter is responsible for the distribution of broadcast services, such as TV programmes, that utilize digital transmission formats (i.e. MPEG-2). Both interactive and broadcast services are multiplexed into one transmission stream and distributed to the users via the broadcasting delivery media according to the DVB-T standard. Each user receives the multiplexed broadcasts via a broadcast interface module (e.g. antenna, front-end amplifier etc.) that passes the appropriate data to an end user module (TV receiver, PC screen, PC station etc.) via a Set Top Unit (de-multiplexer, decoder etc.). The user's requests for interactive services are forwarded by the Set Top Unit to an interactive interface module that may utilize wired or wireless access technology depending on the interaction media's specifications. The interaction media, in turn, passes the user's requests to the integrated service provider via the interactive network adapter that forwards them to the interactive service

provider. This is essential to address the issue of measurement of the viewing behavior of the audience. In the digital era, the era of plenty advertisers need an extended amount of objective data to invest the limited available marketing budgets in a communication medium where the selected panel groups are not satisfying representative of the population, the time shifting viewing is dominant and the available data are not delivered from an independent organization.

3. IP MULTIMEDIA SUBSYSTEM (IMS)

While the first generation of the Internet was mainly devoted to the transfer of data to non-real time services, sophisticated systems and new services now require interactivity and strict Quality of Service (QoS). Moreover, the requirements for the provision of multimedia services are expected to increase in coming years. The move towards an all Internet Protocol (i.e. IP) architecture for services and applications appears to be a strong trend. In this context, customers seem to wish access to personalized interactive multimedia services on any device, anywhere. This trend introduces new requirements for a network infrastructure. Towards fulfilling this requirement, the IP Multimedia Subsystem (IMS) was originally defined by the 3GPP and 3GPP2 wireless operators working bodies. The main focus was to provide a new mobile network architecture that enables convergence of data, voice and technology in a mobile network over an IP-based network infrastructure (Kinder, 2006). The IMS was designed to bridge the gap between existing traditional telecommunications technologies and Internet technology and support operators to offer new and innovative services that will attract new subscribers and maintain its existing base. IMS is a core network architecture that enables communication between servers and clients using open standards that support IP network interfaces and fixed-mobile convergence. IMS consists of a layered and integrated architecture that manages the media as it moves through the network and provides the systems integration required to provide any IP multimedia services for and between any combination of wired and wireless end users. The core network contains reusable functions that manage media services in application servers. Application servers host the services and IMS defines monitoring services, routing, protocols, and the loading processes across the network. The development of the IMS framework defines how services connect and communicate with the underlying telecommunications network. IMS also defines how services are integrated with the provider of systems back-end (IP Unity, 2005).

One aim of IMS is to make the network management easier. Therefore, it separates control and bearer functions. This means that IMS features an overlay service delivery network on top of a packet switched infrastructure. Moreover, IMS should allow the migration of Circuit Switched services like voice telephony to the Packet Switched domain. As a result, IMS should lead to network administration savings, because an all-IP integrated network is easier to manage. IMS is an end-to-end architecture that must support several kinds of equipment. In addition, IMS is intended to be “access agnostic”, which means that service delivery should be independent of the underlying access technology. Thus, the use of open Internet Protocols is specified in IMS for better interoperability. The level of QoS that can be provided in IMS networks determines the services that can be deployed in such networks. QoS delivery is therefore critical in IMS networks. As a result, QoS management functionalities are integrated in the IMS architecture (Bertrand, 2007).

Commercially available IMS services are still in their infancy and providers are working on the implementation of IMS in both network's and user's side. As usually, implementations may face interoperability issues since the IMS specification is flexible to allow differentiation, as stated in. In particular, QoS solutions are not enforced by the specification, although QoS requirements are well defined. Other non technical challenges include defining the business model. As IMS enables the provision of commercial services by the operator and third parties, another challenge is defining billing schemes for charging services, as the value chain and impact on final services' price have to be determined. Operators are likely to create an "IMS broker", interconnecting operators and third-party service providers via SLAs (Service Level Agreements), so agreements would only take part between the IMS broker and each operator and service provider, simplifying the commercial scenario. However, the success of IMS or any other convergence enabler technology depends on the provision of value-added services that take advantage of all the core services it provides (presence information, session transfer, QoS, etc.). Currently, all the IMS services planned are ports of existent services like the voice service, walkie-talkie (Push to Talk), presence and instant messaging, etc. thus not showing the advantages of the convergence yet. Maybe new highly interactive multiuser multimedia applications like online gaming and collaborative work will unleash the power of IMS. Hence evolution of IMS will enable service and content providers to innovate a wide range of interactive and rich services which were not possible previously with orthodox/conventional networks architectures. The support of location and presence information within the IMS core allows the application server to support location-aware services. The user and device profiles and the context server will ease the deployment of context-aware ubiquitous services. Also, personalised user-centric applications will be supported based on identity management concepts and by defining user profiles and policies for the end users.

IMS-enabled TV systems support combined services and interactivity by joining different communications paradigms into a complete multimedia user experience. IMS was designed to provide a personal communication infrastructure with group communication, thus transforming TV experience from a personal, private domain to a social interactive experience. In

particular, presence and profile management will form the basis of new personalized TV experiences. Operators and their marketing departments can build the most accurate profile of their users - their habits, wants and needs. By having better profiles for users, they can provide better targeted services. Having a single, standardized database, which is based on the cellular world model with additions to meet DVB special needs, can be of great value to service providers.

4. TECHNOLOGY CONVERGENCE EXPLOITATION IN TOURISM RELATIONSHIP MARKETING

Interactive communication is vital in relationship marketing, enabling the real needs of customers/users to be successfully met. Traditionally, tourism enterprises try to maintain contact with customers/users via phone, emails and Internet based networks. Nowadays, sophisticated advances may be the mean, enabling for a vital interactive contact between the enterprise and its customers. In order for a more efficient cooperation and relationship to occur between these two parties, a first part of an IT strategy in an enterprise, is to integrate business systems using a common interface, so that customers can interact and report back directly their needs. The second component of this strategy is a database analysis. The results may define the basis for models aimed at understanding the real customers' needs. In this context, advances in interactive broadcasting systems (Crinon et al., 2006), IP Multimedia Subsystem (IMS) (Camarillo et al., 2007), web technologies and their convergence could contribute efficiently towards optimizing the process of collecting and analyzing data, that is vital in relationship marketing (Barwise & Farley, 2005).

Relationship marketing may then enable customers' collaboration utilizing the digital media and allow a company to use direct response communication in order to build a relationship with them. In a general context, long-term communication strategies could be planned carefully, otherwise the client can develop a negative view of the company. For instance, if a company has come into contact very often with the clients with no real purpose, the customers will likely ignore the notices in the future, when the company needs to communicate with them. In order to avoid this, potential customers are asked for feedback regularly. Despite the promotion of risks taken by tourism companies, they wish to have great opportunities to promote their products to individual customers. Some companies' websites utilize already «call back» images giving the opportunity for customers to contact them. Such information can be delivered directly to the company through fast and easy to complete research or through an independent third party. Therefore, the utilization of an interaction channel, according to the generic interactivity model (ETSI, 1997), is essential in order to transfer end user's requests to the service provider, enabling for the provision of real interactive services (Gardikis, 2004) through digital television systems.

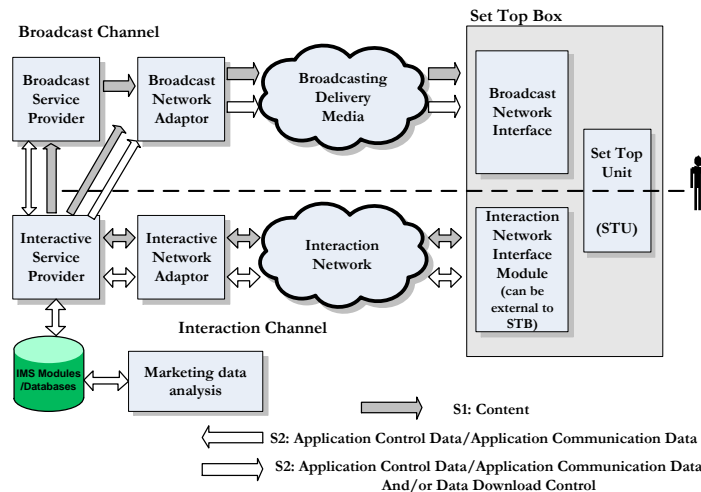


Figure 1: Digital television interactivity model enhanced with IMS functionalities

More specifically, Figure 1 depicts the digital television interactivity model enhanced with IMS functionalities. The proposed convergence model enables for the real time collection of data stemming from customers' premises. This data is stored in the IMS Module/Database of Figure 1 and facilitate the marketing analysis phase towards establishing more targeted and efficient advertising strategies.

5. CONCLUSION

This paper investigates novel interactive broadcasting systems, able to provide multiple interactive multimedia and Internet based services utilizing Digital Video Broadcasting advances. Additionally, it elaborates on the study of IMS, as a promising solution, that may be adopted in next generation networks and broadcasting systems, providing advanced capabilities and added value data services. Taking into account the advances in both research fields, it proposes the convergence of interactive broadcasting systems with IMS, which may result to a novel research paradigm, able to be

adopted in tourism relationship marketing field. In an unstable and unpredictable environment of doing business at the tourist sector, characterized by strong competition and sophisticated demand, implementation of relationship marketing concept with focus at development of high quality relationships with consumers and stakeholders is becoming imperative of gaining a competitive advantage. Ensuring tourists' satisfaction is a sure way to make current customers loyal and attract potential ones. The overall target of relationship marketing is to enable marketers to track existing and potential customers' preferences and subsequently give them superior value via customized service. The proposed concept may enable for a more efficient process of collecting and analyzing feedback data from users/viewers, which is vital for optimum marketing purposes. It might be the answer to the one of the top priorities in the marketers' wishing list; to move forward to one-to-one marketing communication with the desired audience, gain their attention and interest, create their desire and end in the covetable impulse or well thought-out action of buying.

References

- Barwise, P., and Farley, J.U. (2005), "The state of interactive marketing in seven countries: Interactive marketing comes of age", *Journal of Interactive Marketing*, Vol. 19 No. 3, pp. 67-80.
- Bertrand, G. (2007), The IP Multimedia Subsystem in Next Generation Networks, 30 May 2007.
- Buhalis, D. (2003), *eTourism – Information technology for strategic tourism management*, Pearson Education Limited, Essex.
- Buttle, F. (1996), *Relationship Marketing – Theory and Practice*, Paul Chapman Publishing, London.
- Camarillo, G., Kauppinen, T., Kuparinen, M., and Ivars, I.M. (2007), "Towards an innovation oriented IP multimedia subsystem [IP Multimedia Systems (IMS) Infrastructure and Services]", *IEEE Communications Magazine*, Vol. 45 No. 3, pp. 130-136.
- Chaffey, D., and Smith, P.R. (2008), *eMarketing eXcellence: Planning and optimising your digital marketing, 3rd edition*, Butterworth-Heinemann, Oxford.
- Cosic, M., and Djuric, M.D. (2010), "Relationship Marketing in the Tourist Services Sector", *UTMS Journal of Economics*, Vol.1 No. 1, pp. 53-60.
- Crinon, R.J., Bhat, D., Catapano, D., Thomas, G., Van Loo, J.T., and Bang, G. (2006), "Data Broadcasting and Interactive Television", in *Proceedings of the IEEE*, Vol. 94 No. 1, pp. 102-118.
- ETSI: European Telecommunications Standards Institute (1997), "ETSI ETS 300 802: Digital Video Broadcasting (DVB); Network-Independent Protocols for DVB Interactive Services", available at: http://www.etsi.org/deliver/etsi_i_ets/300800_300899/300802/01_60/ets_300802e01p.pdf (accessed 22 December 2011).
- Gardikis, G. (2004), *Provision of TCP/IP services in Digital Terrestrial Television (DVB-T) systems*, Ph.D. Thesis, National Technical University of Athens.
- Gardikis, G., Kourtis, A., and Constantinou, P. (2003), "Dynamic Bandwidth Allocation in DVB-T Networks Providing IP Services", *IEEE Transactions on Broadcasting*, Vol. 49 No. 3, pp. 314–18.
- Gardikis, G., Xilouris, G., Pallis, E., and Kourtis, A. (2002), "An Interactive DVB-T Platform with Broadband LMDS Uplink", in *Proceedings of IST Mobile and Wireless Telecommunications Summit* in Thessaloniki, Greece, June 2002, pp. 288-291.
- IP Unity (2005), "IP Multimedia Subsystem – IMS", Technical White Paper, IP Unity, USA.
- Kinder, N. (2006), "IMS–IP Multimedia Subsystem IMS Overview and the Unified Carrier Network", in International Engineering Consortium (Ed.), *Annual Review of Communication*, vol. 52, International Engineering Consortium, pp. 441-448.
- Kitchen, P.J., and De Pelsmacker, P. (2004), *Integrated Marketing Communications: A Primer*, Routledge, Oxfordshire.
- Kuom, M., and Oertel, B. (1999), "Virtual Travel Agencies", *Netnomics*, Vol. 1 No. 2, pp. 225-235.
- Schweda, A., and Varan, D. (2003), "Use of Interactive Television Promotional Tools as Information Sources in Long-Haul Travel", in Frew, A.J., Hitz, M., and O' Connor, P. (Eds.), *Information and Communication Technologies in Tourism 2003*, Springer, Wien, pp. 412-420.
- Smilansky, S. (2009), *Experiential Marketing: A Practical Guide to Interactive Brand Experiences*, Kogan Page Limited, London.
- Werthner, H., and Klein, S. (1999), *Information Technology and Tourism – A Challenging Relationship*, Springer, Wien.
- Xilouris, G., Gardikis, G., Pallis, E., and Kourtis, A. (2002), "Reverse Path Technologies in Interactive DVB-T Broadcasting", in *Proceedings of the IST Mobile and Wireless Telecommunications Summit* in Thessaloniki, Greece, June 2002, pp. 292-295.