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Revisiting the Impact of ICT to the Tourism Development

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Abstract

Technological development and tourism is close connected since exponential growth is realized in both areas in last 50 years. Information and communication technology influence on global scale on tourism development, and tourism development change the business practice and development strategies. Three new systems has dramatically influence on tactical and strategic level of doing business, computer reservation systems, global distribution system and Internet. Technological changes are obvious in three directions: radical changes in existing industries, development of new industries, incentive of new market development and industries which are not in direct connection with new technologies. The aim of this paper is to point on new technologies development on tourism thru overview of previous research.

Keywords: tourism, ICT, technology, innovation
JEL classification: L83, O31
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Introduction

Accelerated and synergistic interaction between technology and tourism has lately brought changes in the tourism industry as well as our perception of the world. ICT is increasingly playing a key role in the competitiveness of the tourist companies and destinations, and more generally, the relations which define the meaning of the system of tourism (UNWTO, 2001). The development of mobile computer and telecommunication devices, Internet search engines, increasing transmission capacity and speed of the computer networks affected the number of people around the world who use technology to plan their travels. Support of the client – customer interaction takes form of dialogue or even interview. The information systems collect large number of destination data, which they compare, transform, adjust to customer's preferences and present in form that allows client to make a better choice.

The aim of this paper is to point at the influence of the new IC technologies on the tourist industry. Giving the overview of the previous research on that subject, it will also analyze how these changes can influence information infrastructure and management of tourist destination and accommodation facilities.

The impact of technological innovation on tourism

Influence of contemporary technology can be analysed from the three different perspectives: technology innovations, influence of technology innovations on

consumers of tourist products and tourist demand, influence of technology innovations on business (Buchalis, Law 2008).

Information and communication technology (ICT) has a very strong influence since it changes the structure of the entire system of tourism and develops a whole new range of opportunities and threats for all the participants in the tourism industry. ICT has led to radical changes in the effectiveness and efficiency of the relations between tourist companies, influencing business activities at the tourism market, as well as a company-client interaction (Buchalis, 2003).

In the field of tourism innovation there are four key driving forces: tourists, tour operators, technological changes and competition, with the "ICT promoting innovation in tourism on a daily basis and allowing economic operators to conduct more efficient operations and obtain competitive advantage" (Čavlek et.al., 2010). The tourist operators has to understand the Internet – "the last hit of new technology" – as an aid in reaching a large number of markets, without having to establish a separate sales network (Čavlek, N., Strugar I., 1998). The simple information systems that collect, process, store and transmit information to support visualization, analysis, coordination, decision making, control and organization, have developed into a dynamic, interoperable system that collect, store and process information from their own and external environment (Laudon, 2007). Interested market participants share information, specifications, and production process beyond national borders, and thus contribute to greater transparency resulting in lower prices. At the same time, ICT enables companies to have access to a number of markets and to use global supply chains in a simple and acceptable way. Although ICT has a strong impact on all sectors, tourism is one of those that are highly sensible to ICT (Shanker, 2008).

Innovative technologies improve the efficiency of providers; promote interoperability, personalization and permanent networking of participants in the process. The most important advantages of new technologies represent the accessibility of information, and increased efficiency which reduces costs of the production. The knowledge is produced, shared and accessible with minimal costs. The power of knowledge cannot be alienated from global comprehension. Buyers and sellers can share information, specifications, production processes beyond national boundaries. ICT provides access to multiple markets and the increased access to global supply chains.

At the same time use of ICT has led to increased transparency which enables lower prices. Technological innovations that have a strong impact on tourism are the following (Buchalis, 1998):

1. The Internet
2. The development of mobile and wireless telephony
3. Multimedia
4. Interoperability
5. Accessibility for people with disabilities

Internet

Internet Web pages have a very important role and tourists expect that they are informative, interactive and attractive (Chu, 2001). Research confirms that a very poor content websites, which do not provide clients with quality information, could result in loss of 50% of the potential sales and create a negative impression on the 40% of potential users who will no longer access that web page (Cunliffe, 2000). Quality of website service can be classified according the six criteria related to the quality of

website: user-friendly access, usefulness, content, security, liability and personalization (Kim, Cavusgil, Calantone, 2006).

The development of mobile and wireless telephony

The development of mobile and wireless technology enables tourists to easily access the services that was until recently realized by using computer or physical contact, such as hotel reservations and airline tickets, car renting, getting information about the trips schedule and various tourist-guide services (Berger, Lehmann, Lehner, 2003). Benefits of mobile and wireless telecommunication technology application are evident at the level of simple operative, current activities that are conducted with improved efficiency – for example, the provision of timely high-quality information.

Multimedia

Appropriate images, graphics, animations and video clips that ensure interaction, are necessary to introduce and to illustrate the experience and convey the impression of a tourist destination to potential tourists. Particularly attractive is the interactive virtual-access to the destination or "virtual journey. All of the above, as well as the use of 3D technologies and computer simulation, provide the tourists with the anticipation of the destination.

Interoperability

Interoperability is a strictly defined and complete service in a consistent and predictable manner (Missikoff, et.al., 2003). Interoperability offers a realistic alternative to the standardization that is quite inflexible and not globally accepted. It allows the partners to communicate with each other electronically using the most efficient methods to deliver information at the right time and at an affordable price.

Accessibility for people with disabilities

Internet sites need to be design in a manner that makes them accessible to all potential users, people with disabilities, as well as elderly people.

The impact of technological innovation on the behaviour of tourists

More and more tourists are looking for personalized service as opposed to standardized travel arrangements. It is possible to identify several trends regarding the customer's use of the Internet and to determine the strength of their influence on the:

1. Facilitating the discovery of information
2. Higher quality of tourist experience
3. Increased price sensitivity of customers
4. Interactive communication
5. A large selection of tourism products
6. Too much choice problem
7. Barriers to online shopping
8. The impact of virtual communities
9. Simpler expression of complaints about the service
10. Loss of anonymity (Buchalis 1998)

Facilitating the discovery of information

ICT allows travellers to get accurate and reliable information and to make the booking themselves, as opposed to the traditional method of doing business which is sometimes more expensive and complicated (O'Connor, P., 1999). ICT in this way helps improve service and contributes to the satisfaction of passengers. Tourists today are self-

confident, experienced and require interaction with tourist operators that will meet their specific needs and desires. Tourist's leisure time is increasingly used for entertainment, but also for the education and development, both personal and business wise.

Higher quality of tourist experience

Tourism is about experiences. The consumer mindset is shifting towards encompassing the quality of both service and facilities and the tourism sector needs to be ready to meet consumer requirements and enhance their satisfaction. Thus it is important to reduce the gap between guests' expectations and experiences (WTO 2015).

The increased price sensitivity of customers

Tourists are becoming more and more independent in organizing their own trips because of the accessibility of online reservation system and online travel agencies, search engines, the system of destination management, social networking and price comparisons (Buhalis, 1998). Price arrangements play a major role even though there is high price dispersion in arrangements offered online or in a traditional manner (Clemons, Hann, Hitt, 2002). Tourists spend more time comparing prices at different websites.

Interactive communication

Interactive communication tuned according the tourist requirements, creates the additional satisfaction because it leads to a personalization, and the interaction between tourists and tourist operator. Tourist operators can provide better service if they allow the potential customers to create their online profiles and include personal data that indicate their preferences.

A wide selection of tourist products

The development of the Internet provided tourists with a greater choice, more time as well as possibilities of better purchases, supported by the development of low-budget airlines (*EasyJet*, *Ryanair*), and favourable "last-minute" offers that tourists prefer (Klein, 2002).

Too much choice problem

Internet generate problem of large offer of tourist products and services. Good web site organization and design optimized for search engines (Google, Ask) could provide the advantage over the competition. Potential tourists searching for the information could review the several generic search engines, the most popular being Google. Recommended system provides users with valuable information to help them in decision-making (Ricci, 2002). Before making an online hotel reservation, consumers visit on average almost 14 different travel-related sites with about three visits per site, and carry out nine travel-related searches on search engines. (UNWTO-2014)

Barriers to online shopping

"Computer fraud", often prevents tourists in online shopping. Therefore, tourist operators have to invest a particular attention to protection of customers and their services. Tourists frequently use Internet to search for travel-related information, while financial transactions are still done in direct communication with tourist operators. (Dumičić et al., 2015).

The impact of virtual communities

Virtual communities have become very influential in the tourism industry. Potential customers have less confidence in the marketing messages mediated through the media, then that in the group of consumers with the similar characteristics. Virtual travel communities (VTC) allow tourists to obtain information and communicate with other tourists (Stepchenkova, S., et. al., 2007). TripAdvisor Website is one of the most popular

virtual communities. The information tourists get at such virtual locations are independent reviews and advices of TripAdvisor groups (Wang, Y., Fesenmaier, D. R., 2004). The distribution indicates that the majority of research centred on guest reviews (on TripAdvisor at least) is concentrated in the final few days prior to booking, thus supporting the hypothesis that consumers use reviews not to filter hotels but rather to decide amongst a smaller choice set already weeded out from prior search and site visitation and falling within desired hotel classification categories. This is consistent with findings from a recent survey of 2,500 consumers where 35% of respondents use online reviews early on to identify hotels to consider, while 28% use them to narrow down pre-determined choices. (Trip Advisor, 2014)

Simply expressing complaints about the service

Feedback about tourist satisfaction and quality of the service is necessary for evaluating quality and service improving. Hotel classification systems and online guest reviews, or user-generated content (UGC), are themes of great importance and interest to the accommodation industry and the wider tourism sector. When well-designed, they offer an independent and trusted reference on the standard and quality of hotel services and facilities, thereby facilitating consumers in the choice of their accommodation. They also provide a framework for accommodation providers to market and position themselves appropriately and to leverage the investments they have made in the quality of their product-service offer. The matching of offer and expectations is a critical success factor for accommodation providers, as supported by research indicating that being officially classified and working to improve your guest review scores can both have a considerable positive financial impact(UNWTO-2014).

The loss of anonymity

In order to get a better service, tourists are willing to share their own personal information and preferences. Tourist organizations therefore need to collect data before, during and after the journey, with the aim of understanding the behaviour of their clients. Tourists are looking not only for products or service, but also calculate the value of time invested in obtaining the proper information.

Discussion

The most intensive verification of the flexibility of business areas of organizations is influenced by technological innovations, Monitoring of trends, innovative enterprises in tourism make an effort to redirect their resources and skills to meet the requirements of tourists, ensuring the added value realized by transactions (Buhalis, 2000).

The development of information - communication technologies (ICT), results in higher efficiency. It will lead to the reorganization of communication strategies and the ways of doing business of suppliers and stakeholders in the destination [7]. Tourism industry is recognized as a key sector in in West Balkan countries, and was very negatively affected by the global and financial crisis (Farčnik et.al. 2015). In the period of crisis the possibility and willingness of investment reduces. In all countries tourism is not treated as strategic sector. In the various Balkan states tourism sector falls under the jurisdiction of different ministries. In Greece and Croatia there are separate Ministry of Tourism, but in some other countries Turkey, Bosnia and Herzegovina, Albania and Montenegro, tourism policy is created in ministries where the tourism industry is combined with other sectors such as culture, youth and sport, environment and sustainable development. (Metodijeski, Temelkov, 2014). Hotel information systems are widely accepted in the

Mediterranean region, especially in large and medium hotels and hotel chains as well. But further ICT implementation and customization towards market changes and customer preferences will be determined with global end regional economies and developing trends. Challenges create new opportunities and perspectives. Considering the way of organization of travel due to strong influence of ICT, there was an evident trend of less using of services of travel agencies on tourist markets (Mihajlovic, 2014). It affects developing innovative tools that influence more efficient placement of products of service providers in destinations. It also affects new tendencies in choosing of travel trips, new motifs which are the precursors for the development of innovative products aiding to the transformation of business in travel intermediaries

From an ownership standpoint, advances in data analytics are transforming the hospitality industry with the potential to enhance a hotel's financial performance and offer detailed insight into customer preferences. As the use of mobile devices, social media and advanced analytics continues to proliferate, and as online distribution channels become more accessible, technology has created new opportunities for hotels to drive operating efficiencies and engage with guests, from booking to checkout (Mobile marketer, 2014)

Hotel companies are turning to products and applications that empower guests to browse inventory, book amenities, complete reservations and purchase a variety of services (such as room service) via mobile devices to drive engagement and increase revenue-generating opportunities. (Smart Brief, 2014)

Other mobile innovations include mobile keys, check-in kiosks and mobile-enabled property management systems, allowing hotel employees to interact more with guests. Moreover, recent advances in wearable technology, such as smart watches and glasses, are expected to revolutionize the way customers access the web and contribute personal content. (Ernst&Young, 2015).

Conclusion

Technology development and specially information and communication technology changed not only the way how do we do the business but how do we live as well. Every aspect of our lives is changed or changing. The Internet is media that first time in human history enables verbal, visual or data communication between two parties in both directions. The communication parties can be single person, group of people, any computer or any "clever device". Anything and everything can be connected. Internet and communication in both directions between product client and product offer enables product individualisation. Tourist industry is one of the best example how these opportunity can be fast accepted and how to gain business benefit from it. The speed of new technology development shifts present markets in new areas and opens completely new areas for market competition and companies are forced to adopt and even change their business focus. The survival of businesses is linked to the ability of continuous monitoring of changes. The development of enterprises is associated with the degree of flexibility of its organizational structure. The transformation of distribution channels, the creation of innovative products, as well as flexibility in the way of product placement are logical consequences of the organizational Darwinism: according to which Internet and virtualization changes the position of customer in "real king" enabling them to search large amount of data and select specific field of interest, to do shopping and business at any time from any place in the world. In tourism industry

consequence of Internet technology are very deep and we consider some aspects of them in this paper. Mobile technology, smartphones, tablets, and wearable devices enables customer not only to evaluate every service in the moment of consumption and share her/his own experience over social network, but to establish constant link and communicate not only with hotel information system but with information infrastructure and destination as well as with tourist agencies or with other tourist group members. Since this communication is bidirectional as well it enables next level of service customization in tourism. Virtual reality is developing very fast and integrated with geolocation services will be next layer which will have large influence on tourism and related business.

ICT technology adoption and new applications development in hospitality industry will speed up since the new generation of digital natives becomes of the strongest group entering the business travel market. Researches and hospitality industry must carefully track this trends.

Reference

1. Berger, S., Lehmann, H., and Lehner, F. (2003), "Location-based services in the tourist industry", Information Technology & Tourism, Vol. 5 No. 4, pp. 243–256.
2. Buhalis, D. (1998), "Strategic use of information technologies in the tourism industry", Tourism Management, Vol. 19 No. 5, pp. 409–421.
3. Buhalis, D. (2000), "Marketing the competitive destination of the future", Tourism Management, Vol. 21 No. 1, pp. 97-116.
4. Buhalis, D. (2003), "E-Tourism: information technology for strategic tourism management Harlow", England; Toronto, Prentice Hall Financial Times.
5. Buhalis, D., Law, R. (2008), "Progress in information technology and tourism management: 20 years on and 10 years after the Internet—The state of eTourism research", Tourism Management, Vol. 29 No. 4, pp. 609-623.
6. Chen, C. (2006), "Identifying significant factors influencing consumer trust in an online travel site", Information Technology & Tourism, Vol. 8 No. 2, pp. 197–214.
7. Chu, R. (2001), "What online Hong Kong travelers look for on airline/travel Websites?", International Journal of Hospitality Management, Vol. 20, No. 1, pp. 95–100.
8. Clemons, E.K., Hann, I.-H., Hitt, L.M. (2002), "Price dispersion and differentiation in online travel: An empirical investigation", Management Science, Vol. 48 No.4, pp. 534–549.
9. Coates, J.J., Mahaffie, J.B. Hines, A. (1998), "2025 Scenarios of US and global society reshaped by science and technology", Oakhill Press, Toronto.
10. Cunliffe, D. (2000), "Developing usable websites—A review and model", Internet Research: Electronic Networking Application and Policy, Vol. 10 No. 2, pp. 295–397.
11. Čavlek, N. (2013), "Travel and tourism intermediaries: Their changing role", Chapter in book, Tisdell, C.A. (editor) Handbook of Tourism Economics, Analysis, New Applications and Case Studies, New York, World Scientific.
12. Čavlek, N., Strugar, I. (1998), "Influence of network information technology on profilation of tourism supply", Acta Turistica, Vol. 10 No. 2, pp 150-166.
13. Čavlek, N., Matečić, I., Ferjanić Hodak, D. (2010), "Pokretači inovacija u turizmu: Neki teorijski i praktični aspekti", Acta Turistica, Vol. 22. No. 2, pp. 201-220.
14. Dumičić, K., Žmuk, B., Čeh Časni, A. (2015), "Impacts on travel and holiday accommodation online booking in selected South-East European countries: a multivariate analysis approach", Croatian Operational Research Review, Vol. 6 No. 1, pp. 155-168.
15. Ernest & Young Global hospitality insights: top thoughts for 2015 (2015), available at: http://www.ey.com/Publication/vwLUAssets/ey-global-hospitality-insights-2015/$FILE/ey-global-hospitality-insights-2015.pdf (accessed June 2nd 2015)

16. Farčnik, D., Kuščer, K., Trobec, D. (2015), "West balkans tourism", Tourism Economics, IP Publishing Ltd,Vol. 21 No. 1, pp. 141-157.
17. Kim, D., Cavusgil, S.T., Calantone, R.J. (2006), "Information System Innovations, Supply chain management: channel relationship and firm performance", Journal of Academy of Marketing Science, Vol. 34 No.1, pp. 40-54.
18. Klein, S. (2002), "Web impact on the distribution structure for flight tickets", poglavlje u knjizi, Wöber, K.W., Frew, A.J., Hitz, M. (ur), Information and communication technologies in tourism, Springer Wien, New York.
19. Laudon, K., Laudon, J. (2007), "Management information systems (10th ed.)", Prentice-Hall, New Jersey.
20. Mihajlovic, I. (2014), "The Impact of Global Trends at the Level of Macro Environment Dimensions on the Transformation of Travel Intermediaries: Case Of The Republic of Croatia, Wseas Transactions On Business And Economics, Vol. 11, pp. 663–674.
21. Metodijeski, D., Temelkov, Z. (2014), "Tourism policy of Balkan countries: Review of national tourism development strategies", UTMS Journal of Economics, Vol. 5 No. 2, pp. 231-239.
22. Missikoff, M., Werthner, H., Höpken, W., Dell'Erba, M., Fodor, O., Formica, A., Taglino, F. (2003), "Harmonise – Towards Interoperability in the Tourism", available at: http://www.ifitt.org/ (accessed June 4th 2015).
23. Mobile Marketer (2013), "Conrad Hotels empowers travelers with end-to-end mobile customer experience", available at: http://www.mobilemarketer.com (accessed October 5th 2014).
24. O'Connor, P. (1999), "Electronic information distribution in tourism and hospitality", CAB, Wallingford.
25. Ricci, F. (2002), "Travel recommender systems", IEEE Intelligent Systems, pp. 55–57.
26. Smart Brief (2013), "10 Hospitality Technology Trends You Need To Know About", available at: http://www2.smartbrief.com/hosted/ad2187/Hospitality_Trends_2013.pdf (accessed October 10th 2014).
27. Snepenger, D., Meged, K., Snelling, M., Worrall, K. (1990), "Information search strategies by information-naive tourists", Journal of Travel Research, Vol. 29 No.1, pp. 13–16.
28. Stepchenkova, S., Mills, J.E., Jiang, H. (2007), "Virtual travel communities: Self-reported experiences and satisfaction", Chapter in book, Sigala, M., Mich, L. & J. Murphy (ed.), Information and communication technologies in tourism, Springer Wien, New York.
29. Shanker, D. (2008), "ICT and Tourism: Challenges and Ostrortunities", Proceedings of the International Conference on Tourism in India–Challenges Ahead, Indian Institute of Management Kozhikode, pp. 50-58.
30. TripAdvisor (2014), "Social Media, Smartphones & Tablets Now Essential Travel Tools for U.S. Travellers", available at: http://ir.tripadvisor.com/releasedetail.cfm?releaseid=808058 (accessed October 5th 2014).
31. European Travel Commission (2013), "Mobile/Smartphones", European Travel Commission, available at: http://etc-digital.org/digital-trends/mobile-devices/mobile-smartphones/regional-overview/north-america/ (accessed October 8th 2014).
32. UNWTO (2001), "eBusiness for tourism: Practical guidelines for destinations and businesses", World Tourism Organisation, Madrid.
33. UNWTO (2014), "World Tourism Organization, Online Guest Reviews and Hotel Classification Systems – An Integrated Approach", Madrid, available at: http://europe.unwto.org/publication/online-guest-reviews-and-hotel-classification-systems-integrated-approach (accessed June 6th 2015).
34. Wang, Y., Fesenmaier, D.R. (2004) "Towards understanding members' general participation in and active contribution to an online travel community", Tourism Management, Vol. 25 No. 6, pp. 709–722.

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