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NOVEL TRENDS OF USING ICTS IN THE MODERN TOURISM INDUSTRY

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Abstract

Our paper focuses on the analysis of the modern information and communication technologies (ICTs) employed by the modern tourism industry. We demonstrate how the needs and the scope of the tourism industry have changed over the past few decades and how important the new digital technologies have become.

We discuss the phenomenon of e-tourism and discuss the importance of the new technological trends that are used both by the providers of the tourism services and the tourists and visitors. We argue that in order to keep with with the time, tourist authorities and companies should further invest into advances information technologies and broaden the scope and the offer of new digital tourism services. Several new trends like virtual reality (VR) or augmented reality (AR) might become a crucial turning point in the further development on the tourism industry.

Keywords: tourism economics, ICTs, user preferences, consumer satisfaction, e-tourism

JEL Classifications: L83, M15, O17

Introduction

An increase in the competition in the international tourism market industry has forced tourism agents to adopt the latest technology aiming to achieve a competitive edge as well as a satisfactory growth. Adoption of the latest technological trends has also enabled the industry to provide efficient and high-quality services. As a result, there have been significant changes in the industry over the past years. For instance, the new Information and Communications Technology allows for the tourists to have a wide range of information giving them a variety of destinations to choose from as well as have the ability to choose their tourist agents.

The Internet also has brought about a great impact on costs and market in the tourism industry. Through the use of the new technologies, the industry can now satisfy their customers' sophisticated demands through doing market researches to understand their customers' preferences then incorporating technology into their services to meet these needs. Nonetheless, the level of adoption of technology varies with nations whereby China is said to be more innovative in this industry and also despite the great positive changes that technology has brought into the industry, it also has its disadvantages.

Changes that information technology has brought in the tourism industry

Numerous transformations have taken place in the tourism industry due to the incorporation of Information and Communication Technology into the industry's services. For instance, the travel agents and the tourism companies use different systems which are more efficient compared to the traditional ones. In the past, the major technologies which were used in the tourism sector were electronic funds transfer and electronic data interchange. However, the Small and Medium enterprises were not able to adopt these technologies due to their high set up costs. Nevertheless, that has changed in the current era due to the introduction of global distribution systems. This new type of technology enables tourists to obtain a collection of information from airlines which makes it easy for them to make reservations as well as order other services from a single point. Examples of these systems include Worldspan, Sabre, Amadeus, and Galileo (Shekhar Jadhav and Mundhe, 2011).

Traditional travel agents are also slowly replaced by the new intermediaries in the sector, that is online booking servers. These new technologies serve as virtual travel agents ensuring the provision of booking facilities for holiday packages, air travel, car rentals, and hotels. Some these servers are operated by the traditional tourism players like Travelocity while others are run by the new entrants such as Microsoft with Expedia. The new entrants into the market have been attracted by the decreased entry barriers as well as the continued growth of the industry (Bilgihan and Nejad, 2015). These new entrants like Microsoft or Bertelsmann are exploiting the possibility of linking the tourists to other Internet services offered.

There has also been an introduction of innovative business models which merge the concepts of customer advocacy and flexible pricing. For instance, TravelBids operates reverse auctions whereby the clients indicate their travel plans and the travel agents bid in an attempt to satisfy their needs. Another model, Priceline, the customers are given the opportunity to denote their preferences with the inclusion of price. The business then advertises the bidding offers to airlines then leaves them to decide whether they can satisfy the client's additional requirements at the prices they offer. These services have improved the possibility of the clients' order fulfillment and have also led to a reduction of communication and coordination cost for sellers and buyers.

Measuring the changes

Website and commerce website development typically begins simply and evolves over time with the addition of more functionality and complexity as firms gain experience with Internet technologies (Poon and Swatman, 1999; Van Slyke, 2000). The relative maturity of web sites in the tourism and cultural tourism industry has been benchmarked using the extended Model of Internet Commerce Adoption (eMICA) developed by Burgess and Cooper (2000). The model has three stages, representing three levels of business process: web-based promotion; the provision of information and services; and transaction processing. These are similar the stages proposed by Ho (1997) and Liu et al. (1997) indicate where a business, or industry sector, is in terms of its development of Internet commerce applications. The main stages of the eMICA model are summarised in Table 1.

The extended model of Internet Commerce Adoption can be applied to any site, including a more sophisticated interactive IT platform like ISAAC. The functionality any advanced tourism platform might be described by listing and describing its stages and layers using the eMICA model. The platform could be then compared with other sites and platforms described in the literature (see for example Van Slyke, 2000; Burgess and Cooper, 2000; Doolin et al., 2002).

Table 1: The extended Model of Internet Commerce Adoption (eMICA)

EMICA	Examples of functionality
Stage 1 – promotion	
Layer 1 – basic information	Company name, physical address and contact details, area of business
Layer 2 – rich information	Annual report, email contact, information on company activities
Stage 2 – provision	
Layer 1 – Low interactivity	Basic product catalogue, hyperlinks to further information, online enquiry form
Layer 2 – Medium interactivity	Higher-level product catalogues, customer support (e.g., FAQ, sitemaps), industry-specific value-added features
Layer 3 – High interactivity	Chat room, discussion forum, multimedia, newsletters or updates by email
Stage 3 - processing	Secure online transactions, order status and tracking, interaction with corporate servers

Source: Burgess and Cooper (2000)

Another important tool of assessment of tourism-related ICT technologies might be the web site quality assessment criteria toolbox developed by Moustakis et al. (2004) and summarized in Table 2 below.

Table 2: Web site quality assessment criteria

Criteria	Definition of the criterion
Relevance	User perception of the relevance of website’s content to their inquiry and interests
Usefulness	Usefulness extends relevance to the nature of the specific inquiry. Often website administrators ask visitors to evaluate information provided using a star rating.
Reliability	Reliability is related to accuracy of information contained in the website. Often designers include a note about last update of information.
Specification	Specialization captures the specificity of information contained in the website. It contributes to website usefulness, but places a heavier burden on reliability
Architecture	Architecture concerns the way that the content is organized in a website, particularly the arrangement of objects, which are used to convey information to visitors
Navigability	This dimension reflects both the ease and convenience of moving in and around the site
Efficiency	Efficiency captures the technical performance characteristics of the website (e.g. is it fast? Is there advance notice of the estimated time it may take to retrieve information?)
Layout	Layout reflects the unique aspects of the website involved in the presentation of objects.
Animation	This dimension concerns the moving objects involved in the presentation of information and the website-user interaction

Source: Moustakis et al. (2004)

The main difference in website quality aspects and web site quality assessment criteria is that the first one concentrates solely on the “technical” characteristics of website itself and on the impressions and, first of all, satisfaction it can provide its users with. On the other hand, the later one concentrates on the “value added” of the websites for human beings, i.e. its users (representing more “personal-like issues, such as reliability, architecture and efficiency).

Benefits of adoption of information technology by the tourism industry

The integration of new Information and Communication Technology and Internet services into the tourism industry has brought about numerous positive effects on the business. For instance, it has made a quick flow of accurate information between the tourism suppliers who take part in taking care of the customers' needs, intermediaries and the clients. The new technology also allows for efficient management and transportation of information worldwide. Moreover, through the provision of this information, the clients can also have easy access to booking engines to make reservations. Apart from making reservations, the tourists can also compare prices from different organizations and select one that is affordable to them. Booking engines like Orbitz and Expedia, which are available through online interfaces, are taking advantage of technology and providing such services to clients (Werthner and Klein, 2009). These booking engines also decrease costs for travel businesses through a reduction in call volume and providing the tourist with more control over their purchasing process. Direct access to information has also increased the bargaining power of both suppliers and clients since the two parties can communicate directly without interacting with intermediaries (Zelenka, 2009). Therefore, the Internet allows for the upgrading of the tourism businesses through speeding up of the communication and the provision of all the important information.

Internet means a lot in spreading useful information but it can be more important in sharing reviews, opinions and hints about places to visit and things to see. It can also be very important in rating tourism goods and services, both formally and informally. More people rely on various rating services web sites and blogs than on the official sources of information and plan their trips to various destinations accordingly.

New information and technology models enable the tourism industry to research about the customer needs and preferences. In the modern world, the customer's preferences are frequently changing, and most clients are becoming disloyal. However, with the incorporation of technology into the industry, the tourism businesses can understand these changing preferences and develop services that met these changing needs. Therefore, the internet enables the travel agencies to sell services that are on demand hence increasing their revenues and helping the businesses obtain a competitive edge in the industry. Also, through technology, the companies are able to promote visualization of tourism products and services hence leaving a greater impression on the potential clients compared to the traditional use of leaflets, catalogs, and brochures (Batinić, 2013). As a result, the production distribution and services in the industry do not rely on the number of printed catalogs anymore, and also information regarding the agencies can reach a great population of potential customers in a short period. Accordingly, efficiency is easily obtained in the tourism through the application of new technologies to their services.

Use of information and technology in the tourism industry has also cut down on costs for both the businesses as well as the clients. For instance, the clients are no longer required to make pre-arrangements with the respective suppliers since they can just make their reservations on the internet and save on time (Werthner and Klein, 2009). It has also created a business travel management processes that are effective. Throughput the widespread use of the Internet, the various businesses in the industry can easily lower their costs as well as redesign approaches that can streamline their processes hence attracting more customers. By development of automated systems, the costs of passing through intermediaries have also reduced for both the businesses and the customers.

Disadvantages of adoption of information and communication technology in tourism

With the continued advancement of technology and increase of use of internet in the tourism industry, some of the traditional procedures are being replaced by computerized systems, and as a result, individuals are losing jobs. For instance, travel agents who act as intermediaries between the travel businesses and the clients are experiencing loss of jobs because of the introduction of automated approaches that enable the tourists to place their orders directly. As a result, the application of technology in the industry is facing resistance from some individuals hence forcing the management to include training processes to help the workers accept the adoption of technology. The integration of information technology in the tourism sector also requires the workers to be trained on how to operate the new systems which can be costly. Automation of services also forces the industry to layoff some workers who end up losing their sources of income or replace them with more skilled one. Moreover, due to the emergence of new technologies, the tourism industry is experiencing stiff competitions. As such, the small businesses that cannot afford the setup and maintenance costs of these technologies end up losing customers leading to closure or making of losses. Furthermore, the adoption of technology is also related to security issues (Januszewska et al., 2015).

The application of virtual reality to the tourism industry

The advancement of technology has created a great impact on the tourism industry. However, the future of this industry is predicted to include virtual reality in its applications to enhance their customers' experiences. Virtual reality can be quite significant in the entertainment, planning and management, heritage preservation, education, marketing, and accessibility sections of the industry (Abbas Najafipour et al., 2014). Throughout the use of this technology, the customers can be able to make decisions regarding the places they wish to visit. This action will be achievable through virtual tours which can allow the clients to experience a holiday destination before making their reservations.

Mark Zuckerberg, the founder of Facebook, made a prediction that the virtual reality will see a major rise in the application within the tourism industry in a few years. Moreover, he foretold that in a short period, people will be able to capture 3D events that they can share with others just like how currently individuals take videos and photographs and post them on their social networking accounts (Butler, 2016). However, some companies are already experimenting with the new technology. For instance, the Marriott Hotels have been attempting to use virtual reality experiences and permit their clients to try their virtual reality headphones. Furthermore, the company has introduced a virtual travel content platform known as Virtual Reality Postcards, which comprises of immersive travel stories that follow an individual traveling to an exceptional destination like the streets of Beijing or the Andes Mountains (Butler, 2016). In addition, VR glasses and helmets that are getting popularity nowadays also include interesting options for tourism content to be developed and offered to potential customers. Therefore, the advancement of virtual reality is set to bring great changes in the tourism industry.

Conclusions and discussions

The growth of information technology has led to the introduction of different changes in various businesses and industries. In the tourism industry, the adoption of technology has been associated with various effects both positive and negative. The incorporation of technology into this industry

has made operations efficient whereby the tourists can easily make reservations without passing through intermediaries. Also, they have a great pool of information which can enable them to compare prices from different agencies. Moreover, the businesses have also benefitted from the introduction of information technology into their systems for it has smoothed out operations. Through technology, the businesses can also get to understand the complex needs of their customers and meet them effectively hence obtaining a competitive advantage in the market. Nevertheless, the adoption of technology is also associated with loss of jobs and closure of some businesses. Despite having a great impact on the industry, the future of this sector is set to experience more positive changes as a result of the adoption of virtual reality.

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