A study of user acceptance of destination management systems in Taiwan tourism with the modified technology acceptance model

Hsing-Chau Tseng, Pauline Pei-Ning Tu, Yun-Chen Lee, Tung-Sheng Wang

Abstract

In the tourism sector, the Internet is a medium of growing importance. Over the years, people's strategies and choices to utilize tourism information have shifted dramatically due to the increased accessibility provided by the Internet. Today, most of the daily operations of travel enterprises involve the use of the Internet to connect to distributed resources, personnel and travelers globally. The accurate and specific travel-related information provided via the Internet can reach the target audience with the accuracy of more personalized information sources. According to Buhalis and Law (2008), multimedia on the Internet is becoming one of the key areas of development that influences tourism. Even though there are many tourism information searches on the Internet involving geospatial information through WebGIS, few researchers have discussed tourists' behavioral patterns with destination management systems (DMSs) media. The purpose of this study was to test the modified Technology Acceptance Model (TAM), to apply it to a broad sample of Taiwan tourists and to examine the factors affecting consumers' intentions to use and adopt destination management systems (DMSs) in Taiwan. By integrating new constructs into the technology acceptance model (TAM), this study aims to discuss the hypotheses and to demonstrate the effect of a modified TAM on the intention of DMSs. A questionnaire survey was conducted to explore the correlations between the variables. The empirical results overall support a modified TAM in explaining consumers' behavioral intentions to use/adopt DMSs. Implications of this study are important for both researchers and practitioners.

Keywords: Tourism information search; Technology acceptance model (TAM); Destination Management Systems (DMSs); intention to use.

1. Introduction

In the 21st century, the tourism industry has grown rapidly to become one of the most profitable industries in Taiwan. In order to aggressively promote Taiwan's tourism, it is important to maximize Taiwan’s technological strengths and potential, develop suitable travel technology products and skills, and broadcast internationally in order to achieve the goals of Taiwan’s government and companies in the industry. With the growth in Internet accessibility, consumers now tend to go online to search for tourism information. Consequently, there has emerged a new generation of web-based geographic information systems (WebGIS), including Google Maps, Yahoo Maps, and Glob Explore, which have expanded the ways that travel information can be accessed. Since tourism has grown vigorously, Taiwan’s government established “My-E-government”, the E-government entry point of the country’s official website in 2001. In order to make Taiwan’s tourism more visible throughout the world and stimulate economic growth, the Taiwanese government utilized E-tourism as a new research area created by the adoption of Information and Communication Technologies (ICTs) in the tourism industry (Buhalis and Law, 2008) to continuously promote Taiwan’s tourism. The government’s official travel website serves as a gateway to the public services offered by the government as well as a high-speed communication link between the government and the people which will allow users to query a wide range of government information, traveler sightseeing information and perform online application tasks. One of the government entry plan’s basic services was a visible Taiwan travel website. The purpose of this travel website is to set up destination management systems (DMSs) in each sightseeing place, which will display complete and updated information regarding any particular tourism destination. In other words, instead of having to be there in person, the DMSs will enable people to capture what is happening at a point in time at a particular tourism destination.
Past studies focused primarily on the road service, medical care and security in the real-time video monitor system, yet very few studies have researched the DMSs of Internet acceptance and use by tourists. This study aims to fill this gap by applying a modified technology acceptance model to explain consumers’ behavioral intentions to use/adopt destination management systems.

2. Theoretical Background

2.1. Technology Acceptance Model (TAM)

In recent years, the Technology Acceptance Model (TAM) as shown in Figure 1 has been popularly used and assessed to predict user acceptance and use based on perceived usefulness and ease of use (Davis, 1986; Davis, 1989; Davis et al., 1989; Davis, 1993). In the mid-1980s, TAM was developed under contract with IBM Canada, Ltd. in order to guide investments in new product development by evaluating the market potential for newly emerging PC-based applications related to multi-media, image processing, and pen-based computing. TAM is adapted from the Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975; Ajzen & Fishbein, 1980) which was intended to lead to a better understanding of the causal chain linking external variables to its user acceptance and actual use in a workplace. The theory holds that objective system design characteristics, training, computer self efficacy, user involvement in design, and the nature of the implementation process will indirectly influence intention to use—and thus actual usage—via their influence on perceived usefulness and perceived ease of use, which are the external variables.

TAM posits that perceived usefulness and perceived ease of use determine behavioral intention, which is in turn a significant determinant of actual system use. Perceived usefulness is “the degree to which an individual believes that using a particular system would enhance his/her job performance” (Davis, 1993, p. 477). Perceived ease of use refers to “the degree to which an individual believes that using a particular system would be free of physical and mental efforts” (Davis, 1993, p. 477). According to TAM, an individual’s belief determines the attitude toward using the system, which then develops the intention to use. This intention shapes the decision of actual technology usage. These causalities have been studied extensively and broadly accepted (Yu, Yu, and Cheng, 2012; Ho, Hung, and Chen, 2012; Suh and Han, 2002; Morris and Dillon, 1997; Teo et al., 1999).

With the rapid proliferation of the Internet and convergence technologies, researchers have modified TAM to demonstrate empirical evidence of it in the convergence context. In fact, numerous researchers have proposed various extended TAM. The motivational model adapted by Davis et al. (1992) uses two key constructs: extrinsic and intrinsic motivation. According to Venkatesh and Speier (1999), extrinsic motivation refers to the performance of an activity. Extrinsic motivation is believed to enable the achievement of valued outcomes that are distinct from the activity itself, such as improving job performance or pay. In contrast, intrinsic motivation refers to the performance of an activity for no reason other than the process of performing it. Brief et al. (1979) define these terms differently: “An extrinsically motivated user is driven by the expectation of some reward or benefit external to the...
system–user interaction. An intrinsically motivated user is driven by benefits derived from the interaction with the system” (p. 497). Basing their research on Flow Theory, Moon and Kim (2000) extended the TAM model into the context of the Internet. Their extended TAM model includes the intrinsic motivation factor ‘perceived playfulness’, which they define as “the extent to which the individual perceives that his or her attention is focused on the interaction with the WWW; is curious during the interaction; and finds the interaction intrinsically enjoyable or interesting” (Hsu & Lu, 2004).

In technology acceptance studies, perceived usefulness is an example of extrinsic motivation, whereas perceived fun, playfulness, and enjoyment are examples of intrinsic motivation. Moon and Kim (2001) propose a model that describes perceived playfulness as one of the antecedents of attitudes toward Internet surfing. They also noted that most previous TAM research had focused only on extrinsic motivation, not on intrinsic motivation. Morris and Dillon (1997) found that TAM helps predict individual usage of software.

In a study by Davis et al. (1992), the authors found that perceived enjoyment was significantly related to perceived ease of use. Conducting research on the usage intentions for information systems, Heijden (2004) adds perceived enjoyment to the TAM model. Cheong and Park (2005) also developed a more comprehensive version of TAM in order to more accurately reflect mobile Internet context. In addition to perceived usefulness and ease of use, their model employs perceived playfulness, content quality, system quality, Internet experience, and perceived price level. In their research on mobile services, Nysveen et al. (2005) investigated consumers’ intention to use mobile services and found that there are four overall influences on usage intention: motivational influences, attitudinal influences, normative pressure, and perceived control. Based on the above literature review, it is expected that the general causalities found in TAM are also applicable to the context of destination management systems.

Based on the TAM model, a large number of studies have investigated the use of information technology and electronic commerce, but the area of tourism remains virtually unexamined. Thus, the purpose of this study was to test the modified technology acceptance model to peoples’ adaptation of destination management systems for their travel by examining the seven variables perceived usefulness, perceived ease of use, perceived availability, perceived quality, perceived enjoyment, attitude, and intention to use in order to represent the uniqueness of destination management systems acceptance in tourism.

2.2 The E-government

E-government projects can potentially increase the quality of government services, generate financial savings, and improve the effectiveness of government policies and programs (Gant, Gant, & Johnson, 2002; Garson, 2004; Landsbergen & Wolken, 2001). In the future, tourism organizations will be increasingly information-oriented and knowledge-driven, and a great deal of their daily processes will be automated via the Internet. The Internet and multimedia applications provide great possibilities for remote integration and collaboration in business applications. This paper attempts to provide a review of the application of destination management systems in tourism. Furthermore, this paper aims to provide justification for the application of multimedia in various tourism sub-domains, such as tourism marketing, tourism education, mobile learning for travelers, mobile tourism guides, and multimedia travel plans for tourism services.

2.3 Destination Management Systems (DMSs)

A DMS is the ICT infrastructure of a Destination Management Organization (DMO) and is used for the collection, storage, manipulation, and distribution of tourism multimedia information, as well as for reservation transactions and other related commercial activities (Buhalis, 2003). DMSs are capable of handling information concerning both the pre-trip and the post-arrival as well as integrating availability and booking services (Kanellopoulos and Panagopoulos, 2008). If Information and services provided in the entry-point web site do not successfully meet users’ needs while users are more likely to view the destination management systems around Taiwan.

3. Research method
3.1. Research model

The present study uses seven constructs: perceived usefulness, perceived ease of use, perceived availability, perceived quality, perceived enjoyment, attitude, and intention to use. Figure 2 depicts the proposed research model.

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3.2. Research hypothesis

In the following, we develop the corresponding hypotheses. According to Fishbein & Ajzen (1975), “attitude is a learned pre-disposition to respond in a consistently favorable or unfavorable manner with a given object.” In essence, attitude refers to the negative or positive feelings a person has about performing a particular behavior. Attitude is directly related to behavioral intention because people will have intention to perform behaviors only towards the things for which they have positive feelings. In our research, we focus on individual acceptance. Therefore, we emphasize attitude in the model, which is based on the theory of Davis (1989).

In the model proposed in this research, the explanatory variables influence attitude, which in turn shapes the behavioral intention. In accordance with the prevailing concepts of attitude in the recent literature, this study considers attitude to be the user's summary evaluation (Ajzen, 2002) of DMSs. This refers to one’s disposition towards a specific service rather than DMSs in general, as one service might be regarded positively by one user while disregarded as invaluable by another. Considering the above arguments, we propose H1:

**H1: Attitude has a direct, positive effect on the intention to use.**

The TAM is based on two distinct but interrelated beliefs, perceived usefulness and perceived ease of use, to predict the acceptance of computer technology by end-users. Studies have found perceived usefulness to have the strongest influence among the two TAM variables (Davis, 1989; Igbaria et al., 1996). According to TAM (Davis et al., 1989), we define perceived usefulness as “the degree to which an individual believes that using the services will contribute to reaching a particular objective” in this study. In accordance with the previous literature regarding information system usefulness (Davis, 1989; Taylor & Todd, 1995), this study proposes that increased usefulness has a positive association with one’s attitude towards usage. The discussion by experts and users in the qualitative phase showed that DMS’ main assets are its potential for facilitating communication with more than one user at a time and the instant feedback on one's availability. The concept of perceived usefulness is multi-dimensional and related to the issues of working speed, work efficiency and effectiveness, making work easier, and other practical considerations. A system with high perceived
usefulness is one that is viewed by users as offering a positive “use-performance” relationship. This variable directly influences the actual use of particular information technologies (Davis, 1989; King and He, 2006). Relationship is centered on the notion that people form intentions towards behaviors that they believe will increase their performance; this transcends whatever positive or negative feelings they may associate with the behavior. Therefore, this relationship captures the impact of performance considerations on one’s intentions when attitude is not fully activated. Based on this, H2 and H3 are proposed as follows:

**H2:** Perceived usefulness has a direct, positive effect on the attitude.

**H3:** Perceived usefulness has a direct, positive effect on the intention to use.

Several authors have mentioned that while ease of use influences perceived usefulness, the opposite is not true. Therefore, a system that is easier to use can be more useful (e.g. Davis et al., 1989; Igbaria et al., 1996; Venkatesh et al., 2003; Avlonitis and Panagopoulos, 2005). According to Mathieson (1991), a great amount of variance in usefulness can be explained by ease of use. The effort saved by tourists as a result of increased ease of use can be re-directed elsewhere, thus allowing for more work to be done with the same effort (Davis et al., 1992). Ease of use deals with a more fundamental type of use characteristic. It involves the bare functional characteristics of DMSs with regard to the service complexity, the speed of learning to use the service, and the integration of the service in DMSs. Models measuring the acceptance of services acknowledge the effect of ease of use on attitude (Davis, 1989). We propose H4 and H5 as follows:

**H4:** Perceived ease of use has a direct, positive effect on the perceived usefulness.

**H5:** Perceived ease of use has a direct, positive effect on the attitude.

In this study, the variables viewed as more relevant to DMSs are perceived enjoyment, which is taken from Heijden’s (2004) study, and content quality, which is taken from Cheong and Park’s (2005) study. As hedonic information systems, DMSs are better suited to enjoyment and content quality than ease of use.

According to Davis et al. (1992), enjoyment is a type of intrinsic motivation and perceived usefulness as a type of extrinsic motivation. The authors define enjoyment as the extent to which the activity of using a computer system is perceived to be personally enjoyable in its own right aside from the inherent value of the technology. Venkatesh (1999) compares the two training methods of traditional training and game-based training, finding higher ease of use perceptions associated with the training method with a component aimed at enhancing intrinsic motivation. Later, Venkatesh (2000) conceptualized enjoyment as an antecedent of ease of use, explaining that the effect of enjoyment increases over time as users gain more experience with the system. However, the specific effect of enjoyment on attitude has been largely overlooked in a convergence context. Moon and Kim (2001) investigated playfulness, which is a conceptually similar but distinct intrinsic motivation construct, as an antecedent of Internet use, finding that intrinsic motivation plays a noticeable role in determining the use of web-based information systems.

A number of studies have investigated the effect of perceived enjoyment in computer usage studies. Heijden (2003) extended the original TAM by adding the construct of perceived enjoyment. In a research project analyzing the antecedents of perceived playfulness, it was shown that speed, content, variety and focused attention are the most important factors (Chung & Tan, 2004). The lessons that have been learned from human computer interaction, acceptance, and usage surveys can be adapted to the DMSs. These findings resulted in a model suggesting an influence of perceived enjoyment on the usage of DMSs. Most recently, Heijden (2004) researched the Internet from utilitarian and hedonic purpose frameworks and found that perceived enjoyment as a hedonic purpose strongly influenced web use for entertainment purposes. Most of these research projects focus on the utilitarian aspect of information system usage (Goodhue & Thompson, 1995). When it comes to mobile media, however, young people’s usage is due to hedonic reasons rather than instrumental ones (Nyseveen et al., 2005). DMSs can be seen as a hedonic system, as they offer entertaining content and services. Therefore, it can be hypothesized that people seek hedonic DMSs to satisfy their entertainment purposes.

In keeping with the literature (e.g., Moon & Kim, 2001; Heijden, 2004) that perceived enjoyment...
is an important factor influencing IS usage, we propose the following hypotheses H6 and H7:

**H6:** Perceived enjoyment has a direct, positive effect on the intention to use.

**H7:** Perceived enjoyment has a direct, positive effect on the attitude.

DeLone and McLean (1992) first proposed the notion of information quality and argued that it is a significant construct for building successful information systems. Information quality was further developed as a determinant of system quality by Lin and Lu (2000), who went on to argue that information quality variables are good predictors of perceived ease of use and perceived usefulness. As systems have become complex enough to handle a wide range of content, researchers have begun using perceived quality instead of perceived information quality. For example, Beyah et al. (2003) assessed web-based reference systems by measuring perceived quality along with other constructs and found perceived quality to be a significant determinant of the usage of the reference systems. Most recently, Cheong and Park (2005) applied perceived quality to the acceptance model of mobile Internet devices. These TAM studies have defined perceived quality as one of the consumer satisfaction over content or services provided by technologies. Examples of perceived quality include products, trust in the medium, and trust in the information, support, and convenience. In previous research, perceived quality has been examined primarily from somewhat peripheral aspects of technology quality, such as customer service, convenience, or trust in technologies, rather than focusing on the actual utility or functions of technologies. For consumers, the technology and its functions are inseparable. Therefore, this study focuses on the perceived quality of actual functionality, such as high-quality video and real-time voice with minimized delay, latency, jitter, and packet loss. These qualities are particularly important in DMSs because they provide complete and up-to-date information on a particular tourism destination. The present study uses quality as a possible factor for the DMSs’ use and adoption. Thus, the quality of service and the quality of content have a positive impact on the attitude because better content can make individuals feel DMSs are more enjoyable and playful. Based on this, we propose the following hypotheses H8 and H9:

**H8:** Perceived quality has a direct, positive effect on the perceived enjoyment.

**H9:** Perceived quality has a direct, positive effect on the attitude.

Within the user interface discipline, numerous studies have focused on perceived availability. For example, Xie et al. (2003) investigated users’ perceived availability in web servers and concluded that user-perceived availability depends on the system’s characteristics as well as the user’s behavior. Similarly, Gokhale and Lu (2006) examined web-based e-commerce systems and found that users were influenced more by the perceived availability of the system than its actual availability. Recently, this perceived availability has been applied to mobile devices. Angleman (2000) proposed an unrealized gratification in the Internet and argued that users may be influenced by this unrealized gratification. If this unrealized gratification applies to mobile Internet, it can be a new gratification specific to mobile Internet, known as embedded gratification. In contrast with actual gratifications, which can be obtained from an actual medium’s content (e.g., watching a specific program), embedded gratification refers to users’ feelings of psychological readiness to access content or resources at any time. Embedded gratification can also be described as unconscious gratification, which refers to users’ perceptions of being emotionally connected with the world, its resources, and its people. This embedded nature of gratification can be applied to DMSs as they offer real-time content and services. Users may think of DMSs as tools that are available everywhere and are a part of pervasive computing, ambient informatics, and tangible media. From this perspective, it can be hypothesized that users are gratified by their ability to enjoy advanced services over DMSs at any time and at their own convenience. With the perceived availability, users may feel that they can access content at any place and at any time. Based on this, we propose the following hypotheses H10 and H11:

**H10:** Perceived availability has a direct, positive effect on the perceived usefulness.

**H11:** Perceived availability has a direct, positive effect on the attitude.

3.2 Instruments
This research adopts a convenient sampling method to collect data and investigate objects with the personnel of actual usage destination management systems in sightseeing in Taiwan for research objects. A total of 400 questionnaires were given out, 338 of which were returned, and after reviewing and excluding the invalid questionnaires, a final tally of 269 effective questionnaires are available for this study. Therefore, the effective recovery rate is 79.58%, and this data will be used in this research for analysis of the intention behavior regarding the destination management systems. Table 1 lists the operational definitions of seven variables which are used in this study.

### Table 1. Operational definition contents

<table>
<thead>
<tr>
<th>Variables</th>
<th>Operational Definition</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Usefulness</td>
<td>Users perceive that destination management systems are useful for engaging in learning with active and effective communicative efficiency in forming subjective perception.</td>
<td>Davis (1989)</td>
</tr>
<tr>
<td>Perceived Ease of Use</td>
<td>Users forming perceptions about real-time image systems are an easy task, and users are thoroughly engaged in the user-friendly operative procedures.</td>
<td>Davis (1989)</td>
</tr>
<tr>
<td>Perceived Availability</td>
<td>Users may feel that they can access content at any place and at any time.</td>
<td>Gokhale and Lu (2006)</td>
</tr>
<tr>
<td>Perceived Quality</td>
<td>One of the aspects of consumer satisfactions regarding the content or services provided by technologies.</td>
<td>Cheong and Park (2005)</td>
</tr>
<tr>
<td>Attitude</td>
<td>Attitude towards use is the user’s evaluation of the desirability of employing a particular information systems application.</td>
<td>Bhattacherjee (2001)</td>
</tr>
<tr>
<td>Intention to Use</td>
<td>A measure of the likelihood that a person will employ the application.</td>
<td>Roca, Chao-Min &amp; Martinez (2006)</td>
</tr>
</tbody>
</table>

### 4. Data analysis

A total of 269 valid responses were used in this study. There are 200 male responses, accounting for approximately 74.3% of the total valid responses. A total of 202 valid responses (75.1%) were from respondents between the ages of 21 and 30 and 206 of the valid respondents (76.6%) hold a bachelor degree. The data analysis is adapted to structural equation modeling (SEM) based on Smart PLS (Ringle et al., 2005) software was used in this study to verify the research assumptions.

According to Table 2, the composite reliability lies between 0.853 and 0.928, which is higher than 0.7 (Bagozzi and Yi, 1988; Fornell and Larcker, 1981), and the average variance extracted lies between 0.561 and 0.745, which is higher than 0.5 (Bagozzi and Yi, 1988; Fornell and Larcker, 1981). Consequently, evaluation of the core concepts has convergent validity and reliability. For each factor, the square root of AVE was obviously larger than its correlation coefficients with other factors, in addition to slightly lower than the value of CA. Thus the scales had good discriminate validity (Fornell & Larcker, 1981). Every index reaches ideal value, revealing good fitness in the structural model. This means that there is good fitness of samples and model in this study. Only H5 is not supported (see Table 3 & 4).
Table 2. PLS Quality Criteria, AVE, CR and Alpha.

<table>
<thead>
<tr>
<th></th>
<th>AVE</th>
<th>Composite Reliability</th>
<th>R Square</th>
<th>Cronbachs Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude</td>
<td>0.720871</td>
<td>0.928066</td>
<td>0.792670</td>
<td>0.903010</td>
</tr>
<tr>
<td>Perceived Availability</td>
<td>0.694287</td>
<td>0.900629</td>
<td>0.854668</td>
<td></td>
</tr>
<tr>
<td>Perceived Enjoyment</td>
<td>0.654780</td>
<td>0.904255</td>
<td>0.632596</td>
<td>0.867865</td>
</tr>
<tr>
<td>Intention to Use</td>
<td>0.595060</td>
<td>0.852662</td>
<td>0.687997</td>
<td>0.766745</td>
</tr>
<tr>
<td>Perceived Ease of Use</td>
<td>0.745853</td>
<td>0.921382</td>
<td></td>
<td>0.886017</td>
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<tr>
<td>Perceived Usefulness</td>
<td>0.626766</td>
<td>0.893081</td>
<td>0.504737</td>
<td>0.850843</td>
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<tr>
<td>Perceived Quality</td>
<td>0.561700</td>
<td>0.884000</td>
<td></td>
<td>0.842100</td>
</tr>
</tbody>
</table>

Table 3. T-values

<table>
<thead>
<tr>
<th>Path</th>
<th>T Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude -&gt; Intention to Use</td>
<td>3.039494</td>
</tr>
<tr>
<td>Perceived Availability -&gt; Attitude</td>
<td>2.437480</td>
</tr>
<tr>
<td>Perceived Availability -&gt; Perceived Usefulness</td>
<td>3.503693</td>
</tr>
<tr>
<td>Perceived Enjoyment -&gt; Attitude</td>
<td>3.764937</td>
</tr>
<tr>
<td>Perceived Enjoyment -&gt; Intention to Use</td>
<td>5.360742</td>
</tr>
<tr>
<td>Perceived Ease of Use -&gt; Attitude</td>
<td>1.016230</td>
</tr>
<tr>
<td>Perceived Ease of Use -&gt; Perceived Usefulness</td>
<td>11.934513</td>
</tr>
<tr>
<td>Perceived Usefulness -&gt; Attitude</td>
<td>7.022534</td>
</tr>
<tr>
<td>Perceived Usefulness -&gt; Intention to Use</td>
<td>5.799586</td>
</tr>
<tr>
<td>Perceived Quality -&gt; Attitude</td>
<td>3.733121</td>
</tr>
<tr>
<td>Perceived Quality -&gt; Perceived Enjoyment</td>
<td>33.013979</td>
</tr>
</tbody>
</table>

Table 4. Path coefficients and their significance.

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Path</th>
<th>Path coefficient by PLS</th>
<th>Supported or not</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>Attitude -&gt; Intention to Use</td>
<td>0.249738***</td>
<td>Yes</td>
</tr>
<tr>
<td>H2</td>
<td>Perceived Usefulness -&gt; Attitude</td>
<td>0.370562***</td>
<td>Yes</td>
</tr>
<tr>
<td>H3</td>
<td>Perceived Usefulness -&gt; Intention to Use</td>
<td>0.372345***</td>
<td>Yes</td>
</tr>
<tr>
<td>H4</td>
<td>Perceived Ease of Use -&gt; Perceived Usefulness</td>
<td>0.583083***</td>
<td>Yes</td>
</tr>
<tr>
<td>H5</td>
<td>Perceived Ease of Use -&gt; Attitude</td>
<td>0.069038</td>
<td>No</td>
</tr>
<tr>
<td>H6</td>
<td>Perceived Enjoyment -&gt; Intention to Use</td>
<td>0.278941***</td>
<td>Yes</td>
</tr>
<tr>
<td>H7</td>
<td>Perceived Enjoyment -&gt; Attitude</td>
<td>0.219026***</td>
<td>Yes</td>
</tr>
<tr>
<td>H8</td>
<td>Perceived Quality -&gt; Perceived Enjoyment</td>
<td>0.795359***</td>
<td>Yes</td>
</tr>
<tr>
<td>H9</td>
<td>Perceived Quality -&gt; Attitude</td>
<td>0.236743***</td>
<td>Yes</td>
</tr>
<tr>
<td>H10</td>
<td>Perceived Availability -&gt; Perceived Usefulness</td>
<td>0.184883***</td>
<td>Yes</td>
</tr>
<tr>
<td>H11</td>
<td>Perceived Availability -&gt; Attitude</td>
<td>0.113905***</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*p<0.05; **p<0.01; ***p<0.001.

5. Conclusion and suggestion

5.1. Conclusion

In recent years, those in the tourism industry have been searching for ways to efficiently and effectively communicate with the public. Traditional methods of communication such as brochures, publications, radio announcements, television advertising, and word of mouth have certain restrictions and limitations, and practitioners and researchers in this field must thus consider the advantages of
DMSs in promoting tourism. DMSs offer an integrated platform which makes it possible to satisfy people’s information needs by providing useful and dynamic information. The highly-visualized natural and interactive functionality of DMSs may bring some powerful tools to tourism marketing.

The results of the present study show that perceived usefulness and perceived enjoyment are the two most important factors in DMSs. Perceived usefulness is an effective predictor of users’ attitudes and intentions to use DMSs. This means that users’ needs for DMSs are more closely related to perceived usefulness (i.e. convenience, effectiveness and productivity) than perceived ease of use (e.g. interaction with the devices and ease of use). The need for effective functionalities and a wider scope of mobile services in tourism and hospitality locations should be important issues of concern for users. The promotion and presentation of mobile provision services to potential users should reflect the attitudinal factors in the model (i.e. perceived usefulness). Users will be most concerned with their ability to receive the most updated travel information in the quickest way. Using only one system will increase efficiency and thus provide greater convenience to users; therefore, the option of integrating the destination management systems and the e-traffic systems will be the optimal solution. In this study, the model is sufficiently predictive and explains the behavioral intention of DMSs. The structural model provides a good fit to the data and most path coefficients in the model were found to be statistically significant, with the expectation of the path from perceived ease of use to attitude. This implies that users are more concerned with usefulness than perceived ease of use.

Because users have become increasingly sophisticated and selective when using and adopting new technologies, they may be especially sensitive about the perceived quality, and they may seek specific usefulness and novel enjoyment. For discretionary use, customers may want a technology that targets their specific interests, rather than one which gives them general options. While using DMSs, the perceived availability would indicate a sense of synchronicity and continuity with significant people, things, activities, and social norms. When using convergence technologies, users may want to feel as if they are emotionally and virtually connected with the world, its resources, and its people.

In addition, DMS users may establish a ubiquitous network environment, which allows users to access information and content freely. In conclusion, given the constantly changing nature of mobile technologies, this study leads to a better understanding of the user factors of DMSs in this new field of convergence and sheds light on the implications for development of effective mobile applications. The findings of this study provide a good basis for industry to develop a service evaluation framework to determine the adoption potential of new mobile services.

5.2. Suggestion

One of the major limitations of the study is that the sampling only comes from the tourism industry, so the results may not be applied to other industries also experiencing real-time image system. It is suggested that future studies can be targeted at different industries so as to further examine the correlations among those variables. In addition, this is a quantitative study. Future research can include a qualitative method which observes and records users’ satisfaction and future intention to use after experiencing a real-time image system for further analysis. By doing so, a clearer picture of this topic can be drawn with more complete results.

This study will contribute to that process by providing a comprehensive user acceptance model of mobile technology. The results should make tourism and hospitality marketers aware of the factors they should consider in attracting customers by using mobile technology. This study also contributes to theory building by considering mobile technology acceptance in the tourism and hospitality context. Moreover, it successfully developed and tested an extensive model of the traveler mobile technology adaptation by including the external factors of technology and trip experience. The results supported all the hypotheses except for hypothesis (H5) regarding how attitudinal factors were related to travelers’ intentions to use mobile devices. Travelers’ technology and trip experience appear to be influential factors in mobile technology adoption. The findings suggest that frequent travelers have more positive attitudes in using mobile devices and have a higher intention to use them on trips. That is, frequent travelers have stronger mobile usage needs for trips. This implies that tourism and hospitality marketers should consider using mobile services as one of the key elements in attracting frequent travelers. Providing mobile and wireless services will make properties and facilities more relevant, meaningful, effective, and engaging.

The model developed and tested in the present study addresses the specific individual factors that affect adoption, particularly in the hospitality and tourism context. From a managerial point of view,
our results suggest that the main factor of mobile use during travels is the perceived usefulness, which is mainly influenced by trip experience. The findings indicate that when a hospitality and tourism marketer launches or promotes service areas or facilities, a mobile-enabled environment is a necessity for frequent travelers. Successful hospitality and tourism services are therefore likely to provide travelers with more ubiquitous mobile service that is easily accessed and tailored to the needs of travelers. By doing so, hospitality and tourism properties may convert more would-be customers by providing mobile services, as well as retaining repeat guests.

Reference


