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A HOLISTIC APPROACH TO ASSES THE DETERMINANTS OF TRAVEL-TRACKING MOBILE APPLICATION ACCEPTANCE

by

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A thesis submitted in partial fulfillment of the requirements
for the degree of Master of Science in Tourism and Hospitality Management
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ABSTRACT

This thesis investigated factors affecting travelers' intention to adopt a new type of travel-focused mobile application named travel-tracking mobile applications (TTMA). In general, TTMAs enable travelers to act as *travel-posters* (i.e., those who use the application to record and post/share their travel routes and travel-related information and experiences), and/or *travel-takers* (i.e., those who use the application to access, read, and follow the travel routes and other travel-related information and experiences posted/shared by travel-posters). By adopting an extended version of the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) framework (Venkatesh et al., 2012), the first part of the study examined factors influencing travel-takers' intention to use the information provided on TTMAs. Based on the Self-Determination Theory (SDT) (Deci & Ryan 1985; Ryan & Deci, 2000) and an extended version of the UTAUT2 framework (Venkatesh et al., 2012), the second part of the study investigated factors affecting travel-posters' intention to post/share their travel-related information on TTMAs. To examine the proposed relationships, this study adopted a two-step approach recommended by Anderson and Gerbing (1988). The first step included a confirmatory factor analysis (CFA) to assess the measurement model. The second step of the data analysis employed a structural equation modeling (SEM) to test the study hypotheses.

Data collected from 305 mobile app users who traveled for leisure purposes at least once in the last two years demonstrated that performance expectancy, effort expectancy, hedonic motivations, and trust positively; and system privacy, negatively influenced users' intension to use TTMA as travel-takers. In addition, the study results revealed that effort expectancy, hedonic

motivation, social benefits, self-image had a positive impact; and location privacy concern had a negative impact on users' intention to use TTMA as travel-posters.

The findings of the current study contribute to the general body of knowledge in the context of technology acceptance in general, and TTMA acceptance in the travel and tourism industries in particular. The study results also provide significant practical implications for hospitality, tourism-related technology companies, and travel entrepreneurs.

"Whatever you do, work at it with all your heart, as working for the Lord, not for human masters, since you know that you will receive an inheritance from the Lord as a reward."

Colossians 3:23-24

This thesis is dedicated to my Lord Jesus Christ, to my lovely wife Lucimara Garcia, and to the two most precious gifts I have received in my life: my son Lucas Garcia de Medeiros and my daughter Gabriela Garcia de Medeiros

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I also would like to thank the many people who have helped me through the completion of this thesis. Foremost, I would like to express my deepest gratitude to my thesis chair advisor, Dr. Ahmet Ozturk, for his extreme patience, teaching me the first steps and all the subsequent needed details about research writing, something of which I have never before done. I would also like to express my most profound appreciation to my thesis committee members, Dr. Murat Hancer, Dr. Jeffrey Weinland, and Dr. Bendegul Okumus, for their valuable feedback and suggestions which greatly helped me to improve the quality of my work.

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CHAPTER ONE: INTRODUCTION

Background

Over the past years, the rapid progress of information technology and the increasing availability of high-speed internet connectivity through mobile networks have stimulated the adoption of smartphones worldwide (Luo et al., 2019). Studies indicate that almost every household globally has a smartphone. Smartphones have been massively adopted by everyone across different countries, ages, races, or social levels (Van Deursen et al., 2015). In fact, smartphones have become a necessity for many people, especially for the younger generation, becoming an essential part of their daily lives (Okazaki & Hirose, 2009). In 2019, almost 96% of American citizens owned a smartphone (PRC, 2019). Furthermore, studies have shown that the majority of smartphone users stated that they could not live happily without their always-connected handheld devices (Amez & Baert, 2019).

Today, a smartphone is no longer considered as a mobile phone just for phone calls, but it is perceived as an essential component of users' personal daily lives (Lenhart, 2012), changing the way people live, study, think, travel, and communicate (Woodcock et al., 2012; Buhalis & Leung, 2018). Offering functions similar to a computer, smartphones can facilitate multitasking, downloading music, watching videos, and connecting peers to a social network, changing the way people communicate and interact with each other (Anshari et al., 2016). Mobile applications available in smartphones also stimulate users to stay connected to their mobile networks (Mulyani et al., 2019). Smartphones also have the advantage of being portable, personal, and internet-ready 24/7; therefore, they can be used almost anywhere at any time (Cochrane & Bateman, 2010).

As in many industries, mobile technologies drastically changed the way the hospitality and tourism businesses operate (Buhalis & Leung, 2018), and the use of smartphones has become a prerequisite for tourists during their travels (Law et al., 2018). One of the reasons for this growing adoption is the increasing technological advancements embedded in smartphones, such as touchscreens, high-speed internet connectivity, the frequent release of high-quality cameras to take pictures and record videos, and the increasing accuracy of sensors such as accelerometers, gyroscope, proximity sensors, fingerprint sensors, and global positioning systems (GPS). In this sense, new applications using these technologies motivate travelers to use their smartphones in easily and practically (Rigopoulou et al., 2017). For example, the use of mobile technology to book hotel rooms, which has been an important distribution channel for online travel agencies and hotel companies (Ozturk, Bilgihan, et al., 2016), benefits from GPS-enabled mobile devices to search for hotels nearby, facilitating the users' view of hotel lists located close to their geographical location (Ozturk, Nusair, et al., 2017).

With the advancement in information communication technologies (ICT), an increasing number of companies are focusing on developing new tools to help travelers to acquire information to plan and book their next trip. One example is TripAdvisor, an online review platform, which enables and encourages tourists to post user-generated content to share their travel perceptions and experiences. Today, TripAdvisor is considered as the world's largest and the most popular tourism-related online review platform. TripAdvisor’s desktop and mobile platforms empower travelers and tourists to write, search, read, and share their travel experiences (Yoo et al., 2016). TripAdvisor provides more than 145 million travel reviews and opinions, covers over 3 million tourism businesses, and attracts over 3,100 million unique monthly

visitors, generating around 100 new contributions every minute (Taecharungroj & Mathayomchan, 2019). In addition to TripAdvisor, other generic online travel booking sites (e.g., hotels.com, Travelocity, Priceline) and social media platforms such as Facebook, Youtube, Instagram, and Twitter have enabled travelers to quickly and effectively share information, post reviews, and provide accredited opinions about the lodging facilities, restaurants, activities, or attractions in any touristic destination, wherever and whenever they want (Okazaki et al., 2017; Nezakati et al., 2015). However, the increasing adoption of social media and online review platforms, which brings an avalanche of new data, statistics, particularities, figures, and facts that can easily be accessed by the tourist every day with a simple finger touch on their smartphones, may sometimes confuse and overwhelm some tourists due to the plethora of conflicting information available. According to a study conducted by the US Travel Association, 64% of travelers use search engines for their travel planning. Before booking their travels, users spend an average of 54 days visiting 28 different online sources, going through more than 76 online sessions to check multiple social network sources, looking for travelers' past reviews and advice (USTA, 2015). Furthermore, 148.8 million people use online booking platforms to make their travel, tours, or ticket reservations, which is equivalent to 57% of all traveler's bookings around the world. (EGMS, 2018). Consequently, the confusion generated by such online booking sites, social media, and online review platforms may be the side effect of the increasing technology developments designed to help tourists acquire information to plan and then purchase their travel experiences (Lu et al., 2016).

As mentioned earlier, there is a vast number of social media platforms where travelers can share their travel experiences, but the majority of these are not explicitly designed and

developed to help travelers to record, post, and share their travel-related information or their travel routes (Nezakati et al., 2015). The increasing adoption of mobile technologies in the tourism industry (Buhalis & Leung, 2018) and the highly trustworthy and relevant content created by users in online platforms (O'Connor, 2010; Dickinger, 2011) have paved the way for the creation and development of travel-tracking mobile applications (TTMA) in recent years. TTMAs enable travelers to use their mobile devices to record, post, and share their travel experiences with peers belonging to the same virtual communities. TTMAs take advantage of the smartphone's powerful camera and its GPS technology to enable tourists, professional travelers, local experts, digital nomads, or web influencers to quickly and reliably record, post, and share accredited travel plans, routes, and itineraries with a community of tourists looking for planning their vacations without the influences or biased information of traditional online travel agencies (OTA) (Park et al., 2017).

In general, TTMAs enable travelers to act as *travel-posters* (i.e., those who use the application to record and post/share their travel routes and travel-related information and experiences) and/or *travel-takers* (i.e., those who use the application to access, read, and follow the travel routes and other travel-related information and experiences posted/shared by travel-posters). Currently, there are few TTMAs available. One example is called Polarsteps, which automatically records travelers' routes and visited places through their smartphones, allowing them to add photos and comments to their travels (Peters, 2018). Another example is IUI Trips, which was built to empower travelers to automatically record, post, and share their travel itineraries with tourists who are willing to follow their experiences or book their next travel

based on peers' posted routes, saving a considerable amount of time on travel planning, and avoiding expensive intermediaries' fees.

Problem Statement

Over the past few years, an increasing number of scholars have dedicated their research to investigating factors affecting users' intention to use mobile applications in the context of travel, tourism, and hospitality. For example, some studies have focused on investigating factors affecting travelers' behavioral intentions toward travel mobile application acceptance (Im & Hancer, 2014). Other studies investigated factors affecting travelers' acceptance (Wang & Wang, 2010) and continuation of use of mobile hotel booking applications (Ozturk, Nusair, et al., 2016). Scholars have also used the restaurant setting to research users' intention to use smartphone diet mobile applications to order food (Okumus et al., 2018) and their acceptance of using mobile payment technology to pay their restaurant bills (Ozturk, Bilgihan, et al., 2017). Despite the numerous studies dedicated to investigating mobile applications in the tourism and hospitality fields, to the author's best knowledge, there has been no study specifically focused on investigating travelers' acceptance of TTMAs.

As previously mentioned, TTMA enables travelers to act as travel-posters and/or travel-takers. Prior studies in the context of mobile applications in the hospitality and tourism industries have mainly focused on users' behavioral intention to use a given technology or use the information and/or reviews posted by other users in a given web-based platform. In this sense, limited research has been conducted to analyze the factors affecting the acceptance of technology considering the different roles the users can adopt; the role of only accessing, reading, or

following the information provided on the applications; and the role of recording, posting, and sharing information to be accessed by other users. The TTMA is a perfect example to investigate these two different users` roles because, on TTMAs, travel-takers and travel-posters have entirely different roles and attribution when using the same mobile application. Therefore, this study adopted a holistic approach to examine factors affecting users' intention to use TTMAs to read and follow other travelers` experiences, and factors affecting users` intention to record, post, and share their own travel-related information to be followed by other travelers.

Purpose of the Study

The current study has two parts. By adopting an extended version of the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) framework (Venkatesh et al., 2012), the objective of the first part of the study was to examine factors influencing travel-takers' intention to use the information provided on TTMAs. Based on the Self-Determination Theory (SDT) (Deci & Ryan 1985; Ryan & Deci, 2000) and an extended version of the UTAUT2 framework (Venkatesh et al., 2012), the second part of the study aimed to investigate factors affecting travel-posters' intention to record, pose, and/or share their travel-related information on TTMAs.

Based on the above-mentioned objectives, the following research questions were explored:

1. What are the factors influencing travel-takers' intention to use the information provided on TTMAs for their future travel planning?

2. What are the factors affecting travel-posters' intention to record, post, and/or share their travel-related information on TTMAs?

Significance of the Study

The findings of the current study can contribute to the general body of knowledge in the context of technology acceptance in general and TTMA acceptance in the travel and tourism industries in several ways. For example, although mobile applications have been extensively investigated in the context of hospitality and tourism by previous scholars, TTMA technology is considered new as a research topic in the technology acceptance literature. To the author's best knowledge, this is the first study that investigated factors affecting users' TTMA adoption. In addition, prior mobile app, user-generated content, and social media related studies in the context of hospitality and tourism have mainly focused on examining only the factors affecting users' intention to read and follow the information provided by other peers that have previously posted travel-related information on these type of systems. For this reason, there is a lack of deeper understanding of the factors influencing users` intention to post and/or share their travel-related information on mobile applications dedicated to share user-generated content.

By adopting the UTAUT2 framework (Vankatesh et al., 2012) and the Self-Determination Theory (SDT) (Deci & Ryan 1985; Ryan & Deci, 2000), the current study attempted to fill the above-mentioned gaps in the literature by not only examining the factors affecting travelers' intention to utilize the information provided on TTMAs for their future travel planning, but also investigating the factors affecting users' intention to record, post, and/or share their travel-related information on TTMAs.

In addition, this study extended the UTAUT2 framework within the TTMA domain by adding additional constructs. More specifically, in the first part of the study, privacy concerns and trust have been added to the original UTAUT2 framework (Vankatesh et al., 2012) to

examine and validate the impacts of these two additional constructs on travel-takers' behavioral intentions towards TTMAs. In the second part, the location privacy construct was added to the UTAUT2 constructs to investigate and validate its impact on travel-posters' intention to use TTMAs. To the authors' best knowledge, the current study is one of the first studies that incorporated extended versions of the UTAUT2 framework (Vankatesh et al., 2012) and SDT (Deci & Ryan 1985; Ryan & Deci, 2000) in a predictive model, which provides a comprehensive theoretical foundation that demonstrates how different types of users' (i.e., travel-takers and travel-poster) behavioral intentions toward TTMAs form.

While providing valuable theoretical contributions in the context of mobile application in general and TTMAs in particular, the results of the study also provide significant practical implications for tourism and travel technology companies and entrepreneurs that have not yet developed and have an intention to develop or have already developed a TTMA. Due to the novelty of TTMAs, it is crucial for tourism, and travel technology companies to understand what factors motivate travelers' acceptance of this new category of mobile travel applications. In this regard, the findings of this study bring significant contributions to both developers and designers of these mobile applications in understanding their client-base motivations to accept their products. Furthermore, the findings of the study also help user-experience (UX) professionals to improve their mobile applications' usability and encourage technology companies to continue developing TTMAs targeting the travel and tourism industries.

Definition of Key Terms

Smartphone: A mobile phone or personal hand-phone system that incorporates a public general-purpose operating system, to which users can freely add applications, extend functionality, or customize. (Shiraishi et al., 2011).

Mobile Application: A type of software designed to operate on a mobile device, such as a smartphone or a tablet computer, providing similar services of a personal computer (Techopedia, 2018).

Global Positioning System (GPS): A satellite-based navigation system that was developed by the US Department of Defense in the early 1970s and is able to provide continuous positioning and timing information to an unlimited number of users in any part of the world under any weather conditions (El-Rabbany, 2002).

Location-based Services (LBS): Smartphone systems that take advantage of the location of people, places, and things to enhance interactions among users (Wang & Canny, 2006)

Geotag: The smartphones' ability to link any kind of information such as words, phrases, images, audios, or videos to a particular physical location using a standard geographic reference system such as GPS (Humphreys & Liao, 2011).

Travel-Tracking Mobile Application (TTMA): Mobile apps designed to help travelers to track, post, and follow travel experiences using their smartphones. This mobile app allows travelers to record their travel itineraries when their smartphones' GPS functionality is activated. TTMAs can also take advantage of the geotags recorded in the photos and videos taken during the trips to automatically place them on a map. TTMAs enable travelers to follow peers' past travels itineraries previously posted in TTMAs.

Travel-poster: A type of TTMA user who uses a GPS-enabled smartphone to record, post, and/or share their travel routes, travel-related information, and experiences such as photos, audios, and videos.

Travel-taker: A type of TTMA user who uses the application to access, read, and follow the travel routes and other travel-related information and experiences posted/shared by travel-posters.

Organization of the Study

This study consists of five chapters. Chapter one introduces the study, including the background, problem statement, purpose, significance, key terms, and elaborates on the research questions of this study. Chapter two provides a literature review on travel-related mobile applications, explains travel tracking mobile applications with examples, and also presents the theoretical background for this study. The Unified Theory of Acceptance and Use of Technology 2 and the Self Determination Theory are introduced and discussed, including their original and suggested constructs. The literature review includes both research models of this study. Chapter three explains the methodology applied in this study, explaining the research design, survey instrument, sampling, data collection, and data analysis. Chapter four presents the study results and findings, including Confirmatory Factor Analysis and Structural Equation Modeling. Chapter five highlights the study's conclusions and discusses the results combined with those of previous studies. Theoretical and managerial implications are discussed in this section. The limitations and future research directions are also suggested.

CHAPTER TWO: LITERATURE REVIEW

Mobile Applications in the Travel and Tourism Industry

The usage of mobile phones has experienced a profound transformation over the past decades. From a simple device primarily developed to make calls and send text messages, mobile phones have been increasingly gaining new features. The capability to connect to wireless data networks, to the World Wide Web, and to global positioning system (GPS) networks, ability to take high-quality pictures and record high-quality videos, and the capability to run stand-alone software commonly known as mobile applications are some examples of mobile phone advancements. Consequently, mobile applications have also grown in usability and performance. Commonly known as mobile apps, these software applications are specifically developed to run in mobile phones, enabling users to access, navigate, and connect to the internet, allowing them to consume information and services anywhere at any time (Buhalis & Leung, 2018).

The possibility to run mobile apps using a handheld device has empowered everyday users, including travelers and tourists, to access a wide range of information and services through their smartphones. Mobile apps have continually been released not only to access social networks, news, podcasts, e-mails (Yang, 2013) but also to improve travel experiences (Kang & Gretzel, 2012) and to purchase tourism-related products (Kim et al., 2015). For example, mobile apps were developed to allow tourists and travelers to use their smartphones to book hotel rooms (Ozturk, Bilgihan, et al., 2016; Ozturk, Nusair, et al., 2017), buy airline tickets (Lubbe & Louw, 2010), and search and acquire about many other travel-related products and services. Almost every travel-related product can be purchased using a smartphone, including food and beverage, transportation, and accommodation services, tours, festivals, other events, theme parks tickets,

recreation activities, and any other services provided by traditional travel agencies (Tan et al., 2017). In addition to the developments in smartphone technologies, the advancements in tourism and hospitality sectors' distribution and reservation systems (e.g., Global Distribution Systems - GDS, Central Reservation Systems - CRS, and Destination Management Systems - DMS) have actively contributed to providing crucial information to developers to increase their offer of mobile apps enabling travelers to search and acquire any type of travel-related services and products (De Maggio et al., 2011).

Today, tourists have access to travel-related, user-generated reviews posted or shared by their peers through various mobile social media and mobile online review platforms, which help their future travel planning. Popular travel applications such as TripAdvisor, Hotels.com, Expedia.com, Booking.com, and many others have created a competitive environment offering travelers user-friendly mobile platforms not only to book their travels but also to reach user-generated content posted by other travelers (Singh, 2019). Furthermore, today's travelers can take advantage of their smartphones' GPS to share their locations with tourism providers to receive personalized travel-related offerings based on their location. (Zheng et al., 2017).

GPS enabled smartphones allow travel-focused mobile apps to precisely trace and record tourists' locations, movements, and routes (Yun & Park, 2015). In other words, mobile apps with smartphones' GPS function can provide accurate and precise information about tourists' location for extended periods of time (Hardy et al., 2017). Besides, GPS technology can provide continuous tracking information on travelers' routes, including their velocity and directionality (Asakura & Iryo, 2007). These technologies have contributed to improving the ways to track tourists' movement in a less invasive and more accurate manner (Shoval & Ahas 2016). In

addition, many mobile apps used in the tourism industry can automatically track and record users' movements to enable location-based services, encouraging consumers to trade their location information in exchange for benefits of location-aware mobile services (Dou et al., 2016). Therefore, mobile apps based on GPS technology can help tourism providers to offer personalized services based on travelers' geographical locations.

The increased use of GPS supported mobile apps has also empowered a growing number of researchers to conduct studies based on tourists' locations and movements (Beeco et al., 2013). Some examples of previous studies using location-based GPS technology in the tourism setting include the investigations of cross-country ski racers' location (O'Connor et al., 2005); a study investigating cruise passengers behavior in specific destinations (De Cantis et al., 2016); an investigation of visitors' behavior in a Hong Kong's city park (McKercher et al., 2012); a study on spatial behavior of recreational walkers on trails in South Carolina (Beeco & Hallo, 2014); and a relatively new investigation on how to accurately predict tourists' trajectories, using the Summer Palace of Beijing as background scenario (Zheng et al., 2017).

Travel-Tracking Mobile Applications (TTMA)

TTMAs are specific software developed to run on smartphones with the objective to provide a user-friendly mobile platform to stimulate users to post and follow travel experiences. Travelers can use TTMAs to share entire travel experiences, including travel routes, itineraries, photos, videos, audios, and all travel-related information with other users who want to follow the travel experiences previously posted on TTMAs. More specifically, TTMAs use GPS-enabled smartphones to enable travelers to record, post, and/or share accredited travel plans, routes, and

itineraries with a community of tourists looking for planning their vacations without the influences or potentially biased information of traditional online travel agencies (OTAs) (Park et al., 2017). As mentioned in the previous chapter, travelers can use the TTMA as *travel-posters* (i.e., those who use the application to record, post, and/or share their travel routes and travel-related information and experiences) and/or *travel-takers* (i.e., those who use the application to access, read and follow the travel routes and other travel-related information and experiences posted/shared by travel-posters). Therefore, TTMA is a type of travel-related mobile application that encourages travelers to produce travel roadmaps to be shared with other travelers seeking information related to similar types of travel experiences.

Operationally, TTMAs allow travelers' smartphones to track and record their movements during their travels automatically. Besides, TTMAs can use the geotag information recorded in the photos and videos taken during their travels to place them in their travel route roadmap automatically. Travelers using TTMAs just need to press a "start" button, and the app starts to record the travel itinerary. At the end of the journey, travel-posters can edit and include all travel-related information that could be relevant to future travel-takers such as hotel reviews, type of accommodation, activities, restaurants, prices, and ratings. TTMAs not only allow users the possibility to record and share their leisure journeys but also allow travel professionals or travel businesses such as tour-guides and destination marketing organizations (DMO) to post very detailed travel experiences with commercial or promotional purposes.

Theoretically, TTMAs combine the characteristics of location-based services and tourism-recommender systems. Location-based services are network-based systems that integrate the location information provided by smartphones with users' personal preference information to

provide more appropriate services, adding some value to location-based services users (Xu & Gupta, 2009). Tourism-recommender systems are web or mobile-based systems that use location-based services' information to provide travel-focused recommendations to users such as tourist destinations and packages, attractions, ratings, trip planning, and social networking (Borràs et al., 2014). The primary function of most tourism-recommender systems is limited to recommending and rating attractions, but they do not allow trip planning or sharing as their main purpose even though many of them work in combination with social networks (Chen & Tsai, 2019). Since tourism-recommender systems do not provide complete travel-related experiences, they differ from TTMAs, which are focused on stimulating the exchange of entire travel experiences among users.

IUI Trips, which is one of the examples of TTMAs available on the market, focuses on creating an environment of travel information exchange between travel-posters and travel-takers. Travel-posters or called by IUI Trips as "U-traveler," can be regular tourists visiting destinations, professional travelers, local experts, web-influencers, and digital nomads interested in sharing their travel experiences. Travel-takers, or named by IUI Trips as "U-tourist," can be regular tourists planning their next travels, tourists interested in travel-related location-based systems during their journeys, or tourists interested in following past travels posted by family, friends, persons with similar profiles, idols, local experts, or web-influencers. An example of the IUI Trips model is shown in Figure 1.

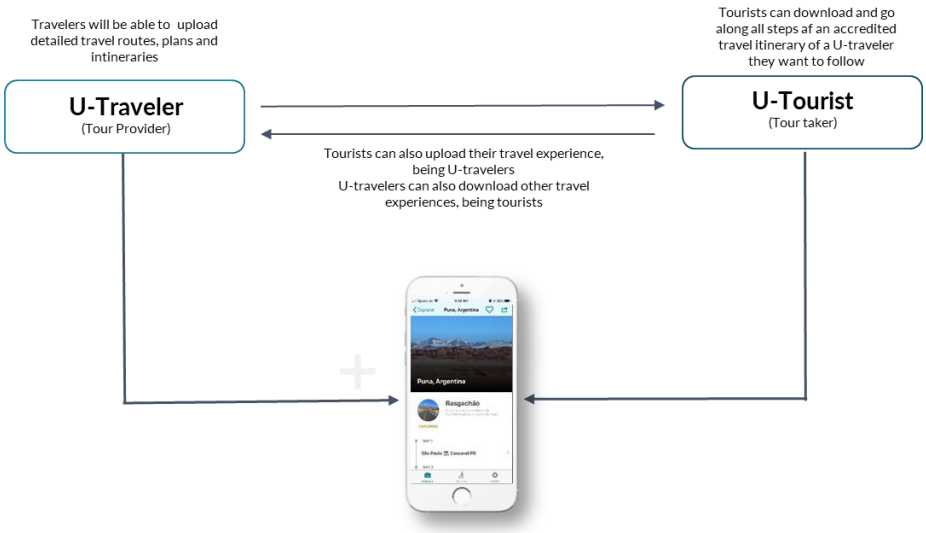

Figure 1: TTMA users' information flow on IUI Trips mobile app

Theoretical Background

Unified Theory of Acceptance and Use of Technology 2 (UTUAT2)

Developed by Venkatesh et al. (2003), the Unified Theory of Acceptance and Use of Technology (UTAUT) explains the degree of acceptance of a new information technology. In an effort to examine users' intention to continue to use a technology, UTAUT2 modified and extended UTAUT from an organization perspective to a consumer perspective (Venkatesh et al., 2012). More specifically, while UTAUT was mainly designed for organizational contexts, UTAUT2 focused on consumers and the factors that influence their intentions to use new technologies. In addition to the four original UTAUT constructs (i.e., performance expectancy, effort expectancy, social influence, facilitating conditions) as predictors of behavioral intention, UTAUT2 extended UTAUT by adding three more constructs including hedonic motivation, price value, and habit. Venkatesh et al. (2012) defined performance expectancy as "the degree to

which using a technology will provide benefits to consumers in performing certain activities"; effort expectancy as "the degree of ease associated with consumers' use of technology"; social influence as "the extent to which consumers perceive that important others"; facilitating conditions as "consumers' perceptions of the resources and support available to perform a behavior"; hedonic motivation as "the fun or pleasure derived from using a technology"; price value as "consumers' cognitive tradeoff between the perceived benefits of the applications and the monetary cost of using them"; and finally, they defined habit as "the extent to which people tend to perform behaviors automatically because of learning" (Venkatesh et at., 2012, p. 161). The behavioral intention to use a technology was defined as the willingness of a user to adopt the technology (Venkatesh et at., 2012). As can be seen in Figure 2, UTAUT2 suggests that behavioral intention to use technology is theorized to be determined by seven exogenous variables, including performance expectancy, effort expectancy, social influence, facilitation conditions, hedonic motivation, price value, and habit. In addition, behavioral intention, facilitating condition, and habit are theorized to influence technology use behavior.

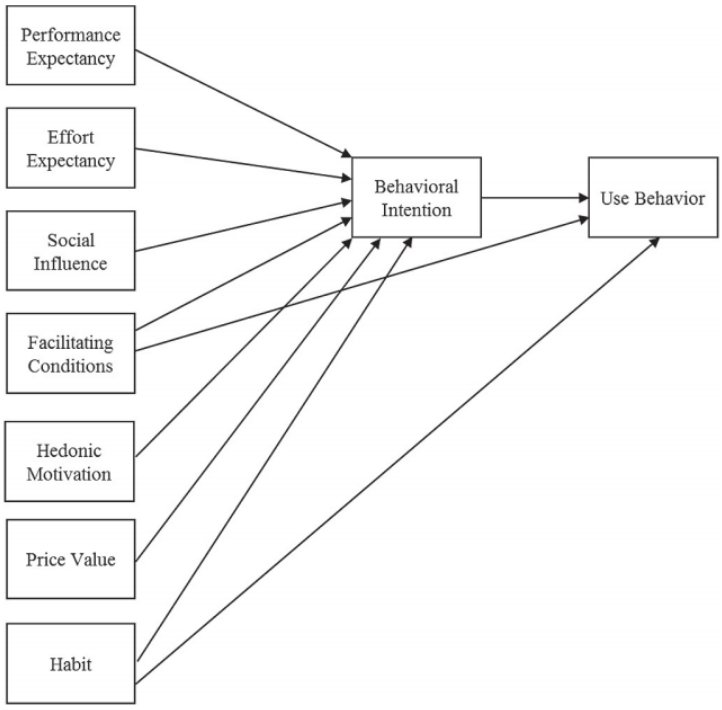

Figure 2: The Original UTAUT2 Framework

The UTAUT2 model has been applied in many types of research, and its hypothetical relationships were widely supported, and empirically proved by several academic articles (Alalwan et al., 2017). UTAUT2 has also been adopted in the context of mobile app adoption in the hospitality and tourism industries. For example, Morosan and DeFranco (2016) adopted UTAUT2 to explain users' intention to use Near Field Commutations (NFC) based mobile payment systems in hotels. Their study found that performance expectancy was the highest predictor of intentions, while hedonic motivations, habit, and social influences have a relatively lower influence on users' behavioral intentions to adopt the technology. In addition, based on UTAUT2, Gupta and Dogra (2017) examined the factors affecting tourist's intentions to use mobile mapping apps while traveling. The data collected from 284 travelers in India using a

structured questionnaire demonstrated that the most significant antecedents of users' behavioral intentions to use the proposed technology were habit, facilitating conditions, performance expectancy, and hedonic motivation, while effort expectancy, social influence, and price value were demonstrated as having no significant effects on tourist's intentions to use mapping apps while traveling. A more recent study conducted by Palau-Saumell et al. (2019) employed an extended version of the UTAUT2 model to investigate users' acceptance of mobile apps for restaurant searches and reservations. Their study, which collected data from 1,200 Spanish users, revealed that that the drivers of intention to use the mobile application were, in order of relevance, as follows: habit, perceived credibility, hedonic motivation, price-saving orientation, effort expectancy, performance expectancy, social influence, and facilitating conditions. According to their results, habit, and facilitating conditions were not significantly related to the intention to use mobile applications for restaurant searches and reservations. Another example, with a closer relationship with the TTMA environment, was the study by Herrero and San Martin (2017), which took the UTAUT2 as a reference to develop an extended model to explain the adoption of social network sites for sharing travel-related, user-generated content. After analyzing data collected from 537 tourists visiting Spanish destinations, they found that there were three main drivers of travelers' intentions to use social network sites to publish content about their travel experiences: performance expectancy, hedonic motivation, and habit. In addition, their study suggested that facilitating conditions, social influence, and privacy concerns did not influence travelers' intention to use social network sites to post travel-related information.

While this thesis adopted UTAUT2 as its core theoretical framework (Venkatesh et al., 2012), the simple adoption of UTAUT2 may not fully explain factors affecting travelers' acceptance of TTMAs without introducing certain modifications. For example, in the travel-taker part of the study, four UTAUT2 constructs, namely performance expectancy, effort expectancy, facilitating condition, and hedonic motivation, were utilized. In the travel-poster part of this study, three UTAUT2 constructs, including effort expectancy, facilitating condition, and hedonic motivation, were used. Price value, habit, and social influence constructs have not been utilized in this study because they are not considered as relevant predictors for travel-takers' and travel-posters' intentions to use TTMAs. More specifically, price value and habit constructs were not used in the current study since TTMAs are free applications with no economic cost to users, and the data of the study was collected from individuals who had no prior TTMA experience due to the novelty of the technology.

On the other hand, this study extended the UTAUT2 model by adding additional constructs for each type of TTMA user. The additional constructs added have been considered by the author as the best fit for each type of TTMA role (i.e., travel-taker and travel-poster). In this sense, system privacy and trust have been added as new constructs to investigate the travel-takers' intention to use TTMA; and location privacy concerns have been added as a new construct to investigate travel-posters' intention to use TTMA. The inclusion of these new constructs to the UTAUT2 framework adds to the body of knowledge in the literature concerning TTMA investigations.

Self-Determination Theory

The Self Determination Theory (SDT) (Deci & Ryan 1985; Ryan & Deci, 2000) is one of the most commonly applied theories for exploring human motivational behavior. The SDT framework has also been proved to be an effective contemporary framework to investigate motivational factors influencing users to adopt different types of technologies (Nikou & Economides, 2017). The SDT assumes that human behavior has a natural tendency to be intrinsically and extrinsically motivated, integrating external and self-regulation towards social integration, personal-psychological growth, and well-being (Ryan & Deci, 2000). Accordingly, the SDT distinguishes between two basic types of motivations: intrinsic and extrinsic (Deci & Ryan, 1985). Intrinsic motivation is the type of motivation in which users act to fulfill their own desires because they enjoy the activity itself. Hence, intrinsic motivations lead users to a behavior that is inherently interesting and pleasant, making them engage in activities for their self-satisfaction, enjoyment, or challenge (Ryan & Deci, 2000).

In addition, according to the SDT framework (Deci & Ryan 1985; Ryan & Deci, 2000), three psychological factors, including competence, autonomy, and relatedness, can stimulate individuals' intrinsic motivation, acting as self-regulators for their psychological health, contributing to their well-being. Competence is defined as the feeling of an individual to be effective and capable to perform a given activity, having control over the outcome, and mastery performing the experience (White, 1959). In this sense, competence is generally associated with people's desire to feel effective and efficient when they are performing and engaging in activities (Ryan & Deci, 2000; White, 1959). Autonomy is the individuals' feeling of being the originator of their own behaviors, being the causal agents of their own life experiences, acting in harmony

with their integrated self (De Charms, 1968). Hence, autonomy is generally associated with a positive experience in performing activities and succeeding in making well-functioning systems. Relatedness is defined as the feeling of an individual to be understood and cared for by other persons, having the willingness to interact, connect and experience caring with others (Baumeister & Leary, 1995). Relatedness needs are satisfied when users feel connected to others, or when they feel that they belong to a group (Van den Broeck et al., 2010). For example, hospitality businesses such as restaurants and hotels are providing ways for their customers to interact and communicate with other customers using mobile apps or branded websites, with the objective of increasing their relatedness, intrinsic motivations, and, consequently, their behavioral intentions as customers (Ahn, 2020). Other examples of relatedness factors influencing individual intrinsic motivations are satisfaction in helping other consumers (Tong et al., 2013) and perceived social benefits (Hennig-Thurau et al., 2004).

Although the intrinsic motivation factors are crucial elements to understand individuals' motivation to perform a given activity, they are not the only type of self-determined motivation (Deci & Ryan, 1985). According to Ryan and Deci (2000), many people cannot be intrinsically motivated because they cannot not feel any social pressures to perform some types of activities. To address this gap, Ryan and Deci (2000) included the concept of extrinsic motivation in their framework, which refers to the "performance of an activity in order to attain some separable outcome and, thus, contrasts with intrinsic motivation, which refers to doing an activity for the inherent satisfaction of the activity itself" (Ryan & Deci, 2000, p. 71). In other words, extrinsic motivation refers to users' intention to perform a given activity for a consequence that is independent of the activity itself, such as the pursuit of a reward or the avoidance of punishment

(Ryan & Deci, 2000). Extrinsic motivation factors can have a wide range of factors and vary significantly in their relative autonomy. For example, extrinsic motivation can be associated with external tangible or non-tangible perceived rewards for the individual. Extrinsic tangible motivational factors could be monetary or economic rewards (Hennig-Thurau et al., 2004; Tong et al., 2013), while non-tangible extrinsic rewards could be the possibility of enhancing the individual self-image through positive feedback from others (Ryan & Deci, 2000).

Prior studies adopted the SDT to explore and explain users' behavioral intention to adopt a specific type of technology. For example, a study conducted by Nikou and Economides (2017) integrated the SDT with the Technology Acceptance Model (TAM) developed by Davis (1989), to investigate students' intention to adopt mobile-based assessments. The study findings confirmed that their proposed integrated model, using intrinsic motivation factors of autonomy, competence, and relatedness as SDT constructs, was effective in explaining and predicting students' intention to use mobile assessment systems. Similar findings were revealed in Hew and Kadir's (2016) investigation on users' acceptance of cloud-based virtual learning systems. This study combined the SDT and Channel Expansion Theory and found that content design, attitude toward knowledge sharing, trust-in-website, school support and education significantly affect users' intention to use virtual learning tools.

In the tourism and hospitality technological context, prior studies also adopted SDT as their main research framework to investigate motivational factors that influence travelers' intentions to adopt tourism and hospitality related technology systems. For example, a study conducted by Huang et al. (2016) developed a research framework integrating TAM and SDT to understand tourists' intention to use 3D virtual world technology to explore tourism destinations.

After analyzing primary data from 186 participants, the study revealed that perceived usefulness is positively related to the experience of enjoyment, indicating that useful information in 3D virtual world technology available on tourism-related websites can enhance the consumer experience of enjoyment. Moreover, tourists' intrinsic motivational perceptions of autonomy and relatedness had positive impacts on their experience of enjoyment as well.

The SDT framework has also been explored by scholars to investigate users' motivational factors to contribute to user-generated content systems such as online review platforms and social media networks. For example, Wang and Li (2014) employed the SDT to investigate users' motivation to produce user-generated content on social media networks. The empirical evidence suggested that the intrinsic motivational factors, including perceived autonomy, perceived competence, and perceived orientation, strongly influenced users' intention to produce user-generated content on social media networks. In another study, Tong et al. (2013) adopted the SDT to explore the factors affecting consumers' intention to contribute to online reviews of shopping websites. Their experiment, which involved 168 survey respondents, revealed that consumers' intention to contribute to online product reviews was significantly influenced by perceived satisfaction gained in helping other consumers (intrinsic motivation), perceived satisfaction gained in influencing the merchant (intrinsic motivation), perceived probability of enhancing self-image (extrinsic motivation), and perceived execution costs (amotivation factor). Furthermore, the presence of an extrinsic motivation, such as economic rewarding mechanism, was found to motivate users' intention to contribute to online review platforms when enhancing self-image (extrinsic motivation) was observed in the consumers.

Since travel-posters using TTMAs can have similar motivations to share travel experiences as users of online review platforms and social media applications, this study also adopted the SDT to investigate travel-posters' motivations to use TTMAs to share their travel experiences. More specifically, satisfaction to help and social benefits are considered as intrinsic motivations, and self-image and economic rewarding are considered as extrinsic motivational factors that influence travel posters' intention to use TTMAs.

Factors Affecting Travel-Takers' Intention to use TTMA

Performance Expectancy

According to Venkatesh et al. (2012, p.159), performance expectancy is "the degree to which using technology will provide benefits to consumers in performing certain activities." Performance expectancy has been considered for many scholars as one of the core predictors of users' intention to adopt a specific technology (Venkatesh et al., 2003; Wang et al., 2003). Previous research has vastly tested this relationship and has obtained significant results in the mobile technology adoption contexts such as mobile payment systems (Slade et al., 2015), mobile app tour guides (Lai, 2015), and mobile dieting apps (Okumus et al., 2018). Thus, it is imperative to recognize that performance expectancy delivers a crucial influencing element of travelers' acceptance of using mobile applications. In addition, travel-takers' adoption of TTMAs may be influenced by the mobile app's perceived productivity during their travels and how the application could help them achieve things they consider important. For example, the perception of receiving useful travel-related information that can help travel-takers' travel-related decision-making processes before and during their travel experiences can increase their intention to use

the TTMAs. Considering the discussion mentioned above, this study proposes the following hypothesis:

H1: Performance expectancy is positively associated with users' intention to use TTMA as a travel-taker.

Effort Expectancy

Effort expectancy can be defined as the "degree of ease/effort associated with consumers' use of the technology (Venkatesh et at., 2012, p. 159). According to the previous studies, the higher the perceived effort expectancy, the more rapid the rate of adoption for innovations (Eneizan et al., 2019). Furthermore, the findings from prior empirical studies on mobile app adoption support the idea that effort expectancy has a positive relationship with users' acceptance of the referred technology (Lin et al. 2014; Okumus et al., 2018). In addition, existing literature confirmed that consumers prefer to adopt a user-friendly technology maximizing its efficiency (Godoe & Johansen, 2012). The lower the effort needed to understand a technology, the more the intention to adopt that technology (Kang, 2014). Accordingly, travel-takers' intention to use TTMAs can also be influenced by the mobile app's ease of use. A technology that is easy to use in the adoption phase has a positive influence on the consumer's attitude towards using it (Gupta & Dogra, 2017). Hence, a user-friendly platform can be critical in the travel-takers' decision-making process to adopt TTMAs. Since travel-takers can experience the effects of effort expectancy in their intention to use TTMAs to read, access, and follow other travelers' experiences, the following hypothesis is proposed:

H2: Effort expectancy is positively associated with users' intention to use TTMA as a travel-taker.

Facilitating Condition

Facilitating condition is described as "consumers' perceptions of the resources and support available to perform a behavior" (Venkatesh et at., 2012, p. 159). In the original UTAUT2 model, the authors suggested that users' perception of facilitating conditions influences their acceptance towards a given technology, suggesting a direct relationship between the facilitating conditions and the users' intentions to use the technology. Other scholars adopting the UTAUT2 model have also confirmed this relationship under the mobile application environment (Lai, 2015; Lin et at., 2014), affirming that appropriate facilitating conditions are essential for the acceptance of a technology (Venkatesh et al., 2003). Another example can be found in the literature on mobile banking adoption, which suggested that easier access to computers and the internet, improved facilitating conditions, driving to a higher users' adoption rate (Joshua & Koshy, 2011).

Travel-takers perception that they have enough resources to use TTMAs, that they have the knowledge necessary to use this mobile application and their perception that the mobile application is compatible to other technologies they normally use in their daily lives can directly and significantly influence their intention to use technology (Venkatesh et al., 2003) In this sense, higher facilitating conditions are expected to lead to higher intention to use TTMA by travel-takers. Based on the above discussions, and the empirical evidence on mobile apps adoption field, the following hypothesis is proposed:

H3: Facilitating conditions are positively associated with users' intention to use TTMA as a travel-taker.

Hedonic Motivation

Hedonic motivation is defined as the fun or enjoyment that is derived from using technology, being an essential predictor of technology adoption and usage (Brown & Venkatesh, 2005; Venkatesh, 2012). Hedonic motivation has shown to play a substantial role in determining technology acceptance, suggesting that consumers' intention to use a technology increases if they perceive a higher level of entertainment value of the particular technology (Gupta & Dogra, 2017). Furthermore, prior studies in mobile commerce have revealed that hedonic motivation significantly influences users' intentions to adopt this type of mobile technology (Zhang et al., 2012; Baptista & Oliveira, 2015). Hedonic motivation was also found to play a crucial role as an essential catalyst in shaping travelers' attitudes toward using travel-focused mobile apps (Im & Hancer, 2014). Based on the discussion above, it is expected that travel-takers intention to use TTMAs can be influenced by their perceived fun, joy, and entertainment using TTMAs. Hence, the following hypothesis is proposed:

H4: Hedonic motivation is positively associated with users' intention to use TTMA as a travel-taker.

Trust

The concept of trust has been conceptualized in different ways by different disciplines. Trust can be understood as an individual difference by personality scholars, as the willingness to be vulnerable by social psychologists, or as an institutional construct by sociologists or economists (Banerjee & Chua, 2019). In the consumer and marketing environment, trust can also be defined as the expectation that a firm is delivering what was promised (Sirdeshmukh et al., 2002). In technological-oriented environments, trust is considered the most important factor in

determining whether people will or not engage in online purchases (Wang & Emurian, 2005). Trust has also been studied in the context of tourism-related online review platforms measuring users' uncertainty and confusion on evaluating the integrity of user-generated content posted on online platforms and the challenging experience of guessing to what extent reviewers are providing reliable information (Lu et al., 2016).

In this study, trust is defined as travel-takers' willingness to rely on the information provided on TTMAs with a sense of relative security that they will receive accurate and accredited travel-related information posted by other travelers. This definition is consistent with trust's definition provided by previous studies on the role of trust in online hotel review platforms (Banerjee & Chua, 2019). The role of trust has been widely examined and proven to be a crucial factor predicting users' perception and intention to use mobile applications (Banerjee & Chua, 2019; Choi et al., 2019; Hanafizadeh et al., 2014; Luo et al., 2010; Zhou, 2012). Trust was empirically supported by Luo et al. (2010) to have a significant influence not only on the user's intention towards mobile application acceptance but also on mobile application performance expectancy. The relationship between trust and user acceptance has also been supported by Hanafizadeh et al. (2014) as a critical driver for the adoption of mobile applications. In the tourism and hospitality setting, the role of trust has been revealed as a significant predictor of travelers' continuing use intentions of travel-focused mobile apps (Choi et al., 2019).

It is expected that travel-takers' intention to read, access, and follow travel-related information posted by other travelers on TTMAs is highly influenced by their perceived reliability of the information posted on TTMA. In addition, travel-takers' feeling of security and their level of comfort in trusting the travel-related information provided on TTMAs can also

influence their adoption decision. Accordingly, trust is expected to have a direct effect on the travel-takers' intention to adopt TTMAs. Hence, the following hypothesis is proposed:

H5: Trust is positively associated with users' intention to use TTMA as a travel-taker.

System Privacy Concerns

System privacy can be defined as the users' perceived risk of having their personal information unwanted disclosed or misused when using a given system (Sathye, 1999; Makki et al., 2016). System privacy can also be explained as the "potential loss of control over personal information, such as when information about an individual is used without his or her knowledge or permission" (Featherman & Pavlou, 2003, p.455). Scholars have vastly explored the relationship between system privacy and technology adoption. Scholars have argued that violations of users' privacy can lead to disappointment, frustration, and increased barriers towards the adoption of electronic systems (Aldas-Manzano et al., 2009). Furthermore, users' perceived privacy risk and insecurity of their personal information being exposed without their knowledge have been identified as having a significant negative impact on system adoption such as internet banking services (Howcroft et al., 2002), wearable devices (Yildirim & Ali-Eldin, 2019), location-based systems (Xu et al., 2005), and mobile payment systems (Makki et al., 2016; Khalilzadeh et al., 2017).

Travel-takers' intention to use TTMAs also may be influenced by concerns about losing control of their personal information privacy. As the majority of mobile online review platforms and social media networks, TTMAs also request users' identifiable information for signing-up. In this regard, travel-takers may have some concerns that using TTMAs could lead to some type of privacy exposure of their personal and sensitive information. Hence, users can be negatively

influenced by privacy concerns when deciding to adopt TTMAs as travel-takers. To investigate this relationship, the following hypothesis is proposed:

H6: System privacy concern is negatively associated with users' intention to use TTMA as a travel-taker.

The conceptual framework below concisely illustrates hypotheses (H1 to H6) of the travel-takers' part of this study.

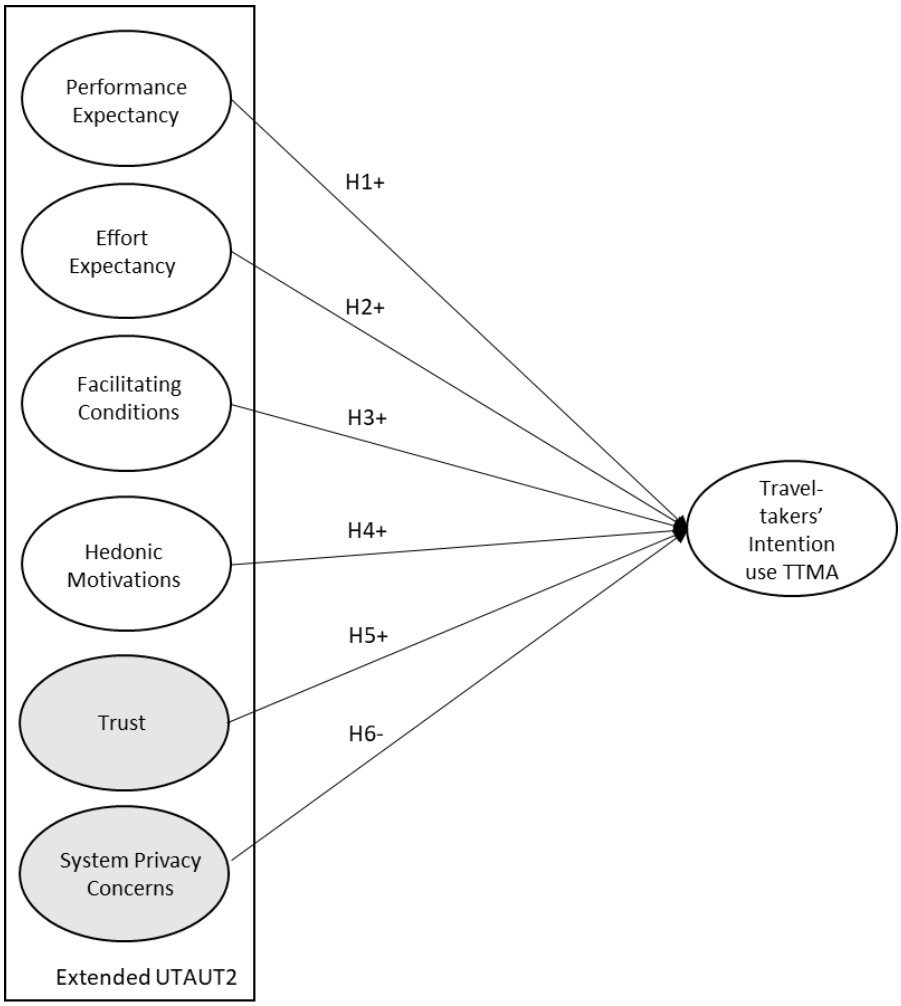

Figure 3: Research Model for Travel-Takers` Intention to Use TTMA

Factors Affecting Travel-Posters' Intention to Use TTMA

Effort Expectancy

As previously mentioned, effort expectancy has been closely related to users` intention to use a technology (Venkatesh et al., 2003). The existing literature confirms that mobile application users prefer to adopt a user-friendly technology, maximizing its efficiency (Godoe & Johansen, 2012). Moreover, prior studies have shown that the lower the efforts to understand a technology, the more the intention to adopt mobile applications (Kang, 2014). Effort expectancy can also be considered as an important factor affecting users' behavioral intention to post or share user-generated content in different online platforms. Prior studies indicated that effort expectancy is positively associated with the behavioral intention to post and share user-generated content on social media networks (Herrero & San Martín, 2017). In the same vein, effort expectancy may impact users' behavioral intention to post travel-related information on TTMAs. For example, if a travel-poster believes that TTMAs are easy to use and have a user-friendly platform to automatically track, record, and post their travel routes, their willingness to adopt the mobile application could be higher. In addition, TTMAs' function of using photos, videos, and audios geotags to automatically place them in their roadmap, providing the exact location where they were taken, and reducing travel-posters' efforts to post and share their full travel experiences, could positively influence their intention to use TTMAs. Therefore, the following hypothesis is proposed:

H1: Effort expectancy is positively associated with users' intention to use TTMA as a travel-poster.

Facilitating Condition

Previous scholars identified facilitating conditions as a significant predictor of intention to post and share information on social media (Huang, 2018). Hence, it is expected that facilitation conditions can positively affect travel-posters intention to use TTMA, since the act of posting and sharing travel-related information can depend on the users' perceptions of the resources and support available on the system platform (Venkatesh et al., 2003).

Travel-posters' intention to adopt TTMA could increase if they believe that they have enough resources and knowledge to interact with this mobile application's functionalities easily. TTMAs are designed to facilitate the hard work to record and remember all the details of users' travel experiences to be shared with other travelers who want to have the same travel experience. Today, after arriving from vacation travels, it is not always easy to organize all the photos and videos taken during the travel, share routes and itineraries, and all other travel-related information about accommodations, restaurants, and attractions. Hence, if travel-takers can perceive they have the knowledge and resources necessary to interact with TTMA, it can directly and positively influence their intention to use the technology (Venkatesh et al., 2003). Hence, the following hypothesis is proposed:

H2: Facilitating conditions are positively associated with users' intention to use TTMA as a travel-poster.

Hedonic Motivation

Scholars investigating the role of hedonic motivations in users` intention to adopt technology, suggested that users' acceptance of using technology increases if the user perceives a higher level of entertainment value of the particular technology (Gupta & Dogra, 2017). Posting

and sharing information on online platforms is associated with hedonic motivations, and it has been found to have a significant and positive influence on intention to post user-generated content on social media (Herrero & San Martín, 2017, Huang, 2018). Travel-posters can be influenced by the perceived sensation of fun, enjoyment, and entertainment while using TTMA. The platform is designed to provide a better alternative for travel-posters to share their travel experiences, and the feeling of enjoyment and fun achieved by travelers when vacationing could be enhanced if they are able to use a platform that allows an easy way to share their travel experiences. Therefore, it is expected that travel-posters' intention to use TTMAs can be positively influenced by their perceived sense of joy and entertainment while posting their travel-related information on TTMAs. To understand the impact of hedonic motivation on travel-takers' intention to adopt TTMAs, the following hypothesis is proposed:

H3: Hedonic motivations are positively associated with users' intention to use TTMA as a travel-poster.

Location Privacy Concerns

TTMAs can be included in the category of location-based mobile applications. Location-based mobile applications are technology-based services that take advantage of mobile devices' GPS information to provide valuable services to the users according to their current location (Yun et al., 2013). Supported by the popularization of smartphones, location-based mobile applications have emerged as a global phenomenon, and more attention has been paid to this industry, including its imminent privacy concerns (Rao & Minakakis, 2003; Ryu, 2010). The reason is that location-based mobile applications involve a considerable risk increasing the

perception of privacy concerns since users' location information must be disclosed (Yun et al., 2013).

Location privacy is defined as the information about users' current and past location, tracked and shared with others (Yun et al., 2013). Researchers have vastly investigated location privacy, and location privacy has been acknowledged as a significant inhibitor of users' online activities (Wu et al., 2012). Since smartphones are portable personal items, location privacy concerns arise significantly because smartphones can allow mobile apps to track and collect the activity performed by their users, empowering service providers to collect users' location information to use this information for a variety of purposes (Zhang et al., 2013).

The disclosure of location information has been considered as an increasing issue in users' intention to use location-based mobile applications (Yun et al., 2013). In the hospitality and tourism context, researchers found that mobile hotel booking apps requesting customers' geographic locations to provide a more personalized booking experience had a strong influence on users' location privacy concerns, decreasing their behavioral intention towards using mobile hotel booking apps (Ozturk, Nusair, et al., 2017). Obviously, in TTMAs, travel posters disclose their location in order to provide detailed information about their travel routes. For example, travel-posters should enable their smartphone GPS functionality to enable the mobile app to track and record their travel route automatically. Moreover, travel-posters should also enable the TTMA to use the geotag information recorded in the photos, videos and audios taken with their smartphones for automatically placing them in the virtual roadmap. Lastly, travel-posters allow TTMAs to disclose their travel routes and travel-related information with other travelers they may not know personally. All these uses may create location privacy concerns, which, in turn,

may impact travel-posters' intention to use TTMAs. Based on this, the following hypothesis is proposed:

H4: Location privacy concerns are negatively associated with users' intention to use TTMA as a travel-poster.

Satisfaction to Help Others

In online review literature, the thought of helping other users belonging to the same virtual community has argued to be an intrinsic motivation or a self-fulfilling reward to the contributor (Tong et al., 2013). Users' satisfaction to help others in the context of social media has been investigated in various ways in previous studies. For example, Okkonen (2019), investigated why people share food pictures on social media. The study results indicated that people share food selfies mostly because of two motives: documentation and personal satisfaction, which includes the satisfaction to help others. Chae and Ko (2016) conducted a research to investigate customers' motivations to participate in social networking services in which they found that, in general, social media users appear to be highly influenced by self-efficacy and tend to feel better when they find some altruistic pleasure in providing useful information that could help others. In addition, Wasko and Faraj (2005), on their research on social capital and knowledge contribution in electronic networks, found that social network contributors seem to be motivated to share information to help other users without the expectation of any reciprocity from them.

Similar to a product review provided on online review platforms, travel-posters can help other travelers in their travel decision-making process by providing detailed information about their own travel experiences. A traveler who feels good when helping other travelers is likely to

be motivated and engaged in using TTMAs as a travel-poster. Hence, the following hypothesis is proposed:

H5: Satisfaction to help others is positively associated with users' intention to use TTMA as a travel-poster.

Social Benefits

According to the prior literature, social benefits are perceived as the level of the users' affiliation with a virtual community because of the reasons associated with users' identification with other users as well as social integration (Hennig-Thurau et al., 2004). In this sense, social benefits are expected to engage users in online review platforms and electronic word of mouth (e-WOM) communication, posting, and sharing their travel-related information in order to participate and belong to online communities (McWilliam, 2000). Since users may perceive value writing comments and opinions on online review platforms, travel-posters' sharing their travel-related information and travel routes on TTMA can also perceive value on their participation and presence among the TTMA users' virtual community. Recent studies revealed that social benefits have a positive relationship with users' psychological motivations to use social media to post and share user-generated content because it increases users' self-worth among friends (Swani et al., 2017). As well as online review and eWOM platforms, TTMAs can also enable travel-posters to receive social benefits from the surrounding social environment. Therefore, the following hypothesis is proposed:

H6: Social benefits are positively associated with users' intention to use TTMA as a travel-poster.

Enhance Self-Image

Self-image is how an individual's success is viewed by others or the perception of a person about how he/she is known by others According to the SDT, self-image is "based on success as viewed by the control elements of the external world, or its introjected counterparts" (Deci & Ryan, 1985, p. 115). Applying this definition to the user-generated content setting, online review platform users' can be motivated to post user-generated content due to the respect and recognition they receive from other peers because they have provided insightful product reviews, helping peers in their decision-making process (Tong et al., 2013). The respect and recognition of peers can result in the achievement of a higher status of satisfaction since users are more likely to rely on others' opinions and feedback as much as they have positive reviews from other peers. Bringing the same analogy to the TTMA environment, travel-posters can also feel motivated to post their travel experiences if other peers can provide the same respect and recognition, enhancing travel-posters' self-image. Thus, the following hypothesis is proposed:

H7: Enhancing self-image is positively associated with users' intention to use TTMA as a travel-poster.

Economic Rewarding

Economic rewards have been demonstrated to significantly influence human behavior since the recipients consider them as a strong sign of appreciation of their behaviors by the reward giver (Lawler, 1984). Prior studies indicated that economic rewarding mechanisms strongly motivates users to adopt and engage in mobile social networks (Tang et al., 2016). Also, economic rewarding leads consumers to articulate themselves in electronic word-of-mouth communities using the internet (Hennig-Thurau et al., 2004). For example, a relatively recent

investigation on the adoption of mobile coupon sharing social network applications identified economic rewarding as having a strong relationship with users' motivation to use the coupon sharing mobile apps (Tang et al., 2016).

Travel-posters can be motivated to post and share their travel experiences if they receive an economic reward in exchange. Understandably, travel-posters have the work to produce travel-related content in order to provide reliable and useful information to travel-takers to follow their travel experiences. In this sense, travel-poster would be motivated to do this work if they receive an economic reward to compensate for their hard work. A similar concept can be found on YouTube, the world's largest online video sharing platform (Burgess & Green, 2018), where video-posters or namely "youtubers" can earn money if their videos achieve a certain number of views. On TTMAs, travel-posters can also be motivated to post travel-related information if they can earn money or receive some type of non-monetary incentives when their posted travels achieve a certain number of views. Based on the discussion provided above, the following hypothesis is proposed:

H8: Economic rewarding is positively associated with users' intention to use TTMA as a travel-poster.

The conceptual framework below concisely illustrates the hypotheses (H1 to H8) of the travel-posters' part of this study.

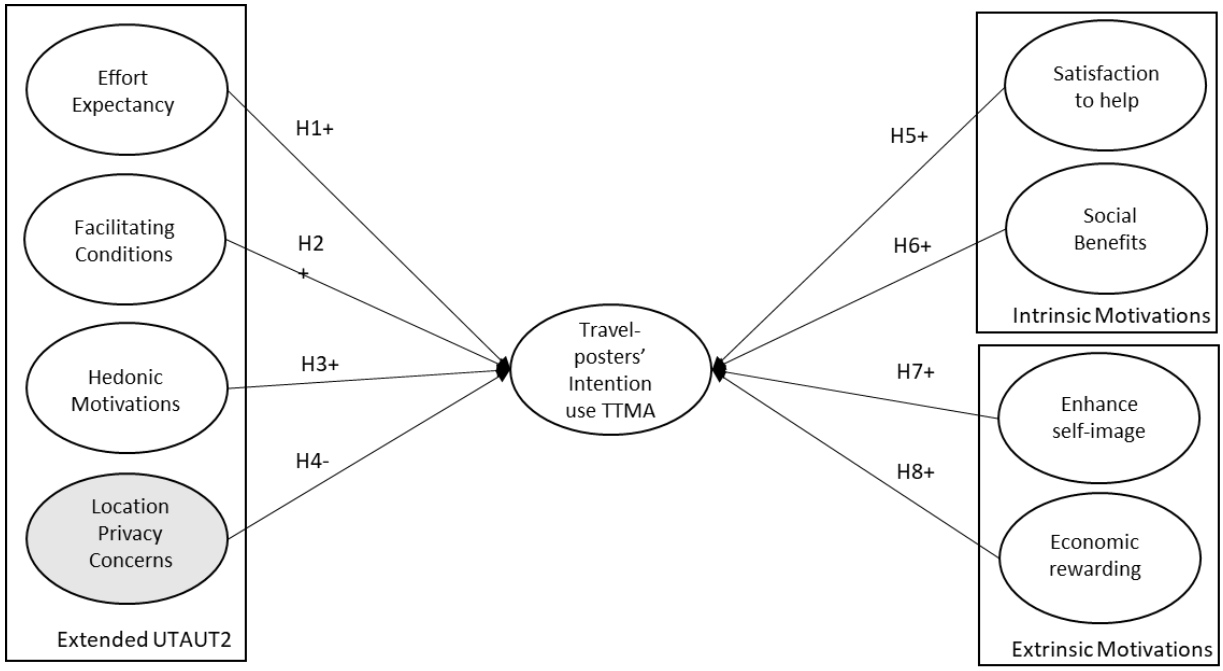

Figure 4: Research Model for Travel-Posters` Intention to Use TTMA

CHAPTER THREE: METHODOLOGY

Research Design

In order to obtain a comprehensive understanding of the factors influencing the acceptance of both types of TTMA users (i.e., travel-takers and travel-posters), a non-experimental, quantitative, deductive research approach was utilized in this thesis. Deductive research approach enables investigators to employ a known theory or theoretical background to better understand and explain a pattern of interactions or relationships between dependent and independent variables (Altinay et al., 2015). Following the deductive design, this study employed an extended version of the UTAUT2 framework (Venkatesh et al., 2012) and the SDT (Deci & Ryan 1985; Ryan & Deci, 2000) to quantitatively test the previously mentioned proposed hypotheses.

Quantitative research is considered as one the best methods for testing theories deductively, building protection against bias and controlling for alternative explanations (Creswell & Creswell, 2017). The quantitative approach is also considered to be based on positivism, characterized by empirical research, whose indicators can represent the truth (Sale et al., 2002). By adopting this method, researchers are able to investigate the phenomenon without influencing it or being influenced by it, focusing on measuring and analyzing the relationships between variables, taking in consideration a value-free framework (Guba & Lincoln, 1994).

The variables selected in a quantitative approach should be measured using instruments, usually represented by numbers, that can be acquired from surveys or experimental research, and analyzed under the adoption of statistical procedures (McCusker & Gunaydin, 2015). Accordingly, this study utilized a survey and adapted instruments to measure participants'

responses, enabling the employment of statistical procedures (i.e., CFA and SEM) as described in the data analysis section. More specifically, this study followed the five sequential stages that researchers should adopt in deductive approaches proposed by Robson (2002), which are as follows: (1) develop a hypothesis or hypotheses; (2) express these hypotheses in operational terms; (3) test the hypotheses through an experiment and/or statistical analysis; (4) examine if the outcomes corroborate or refute the hypotheses; and (5), if necessary, suggest modifications or extension to the adopted theories according to the findings.

Survey Instrument

The utilization of surveys can be considered as a popular strategy among hospitality and tourism researchers employing deductive and quantitative approaches (Altinay et al., 2015). In this sense, this deductive study has selected a sample of informants, as described in the following sampling section, to administer a standardized questionnaire to them. Questionnaires, or surveys, are considered one of the most popular methods for collecting data among hospitality and tourism researchers since they are very effective in systematically collecting information from a relatively large number of people at a low cost in order to produce reliable and valuable quantitative data to be analyzed using statistical models (Altinay et al., 2015).

Among the two main types of surveys, namely descriptive and analytic, this study adopted an analytic survey to explore its proposed hypotheses. While descriptive surveys have a broader perspective and are indicated to explore and gather widely information on what the sample of the population think and do, analytic surveys are more focused and developed to measure specific relationships between selected dependent and independent variables.

The web-based self-administered survey instrument used in this study consisted of four sections, with a total of 21 questions and 56 items. To ensure that all participants have sufficient understanding of the TTMA technology, a description of what a TTMA is was included in the first section of the survey. In addition, a short video explaining the main functionalities of a TTMA, including the differences in the travel-takers' and travel-posters' roles, was included in the first section of the survey. This section also included four screening questions to filter only respondents who are qualified as the sample of the study (i.e., older than 18 years, own a smartphone, have used a mobile application, and have traveled for leisure purposes in the past five years) and seven more questions about respondents' mobile device usage, social media adoption, travel purposes, and travel preferences. In the second section of the questionnaire, after reading an explanation about how to use TTMAs as travel-takers, the respondents indicated their agreement about a total of 24 items related to the factors affecting their TTMA technology acceptance as travel-takers. In the third section of the questionnaire, after reading an explanation about using TTMAs as travel posters, the respondents were asked to indicate their agreement to 32 items related to the factor affecting their intention to use TTMAs as travel posters. The fourth section contained a set of eight questions about respondents' demographic characteristics and their prior TTMA experience. Finally, the last section of the questionnaire included an open-ended question asking the respondent to write their opinion about TTMA technology in general.

All of the study constructs were measured using existing scales that had been previously validated. The items were adapted from previous studies in the context of motivation and information technology acceptance literature. The scales were modified slightly to reflect the TTMA context of this study. More specifically, performance expectancy, effort expectancy, and

facilitating conditions were measured with four-items each and were all adapted from Venkatesh et al. (2012). Hedonic motivation was measured with a three-item scale also adapted from Venkatesh et al. (2012). Trust was measured with a three-item scale adapted from Sparks and Browning (2011) and Banerjee and Chua (2019). The system privacy scale was adapted from Featherman and Pavlou (2003) and measured with three items. Location privacy concerns was measured with a four-item scale adapted from Yun et al. (2013) and from Xu (2007). In order to measure satisfaction to help others, this study utilized a three-item scale adapted from Tong et al. (2013) and from Li and Hitt (2008). Social benefits and economic rewarding constructs were measured using three-item scales each, and they were both adapted from Hennig-Thurau et al. (2004). The self-image was measured with a four-item scale adapted from Tong et al. (2013) and Sundaram et al. (1998). Finally, to measure the intention to use, a three-item scale was adapted from Davis et al. (1992). All of the study constructs were measured using a 7-point Likert scale (1 = "strongly disagree," and 7 = "strongly agree"). A copy of the survey instrument can be found in Appendix B.

Sampling and Data Collection

The target population of this study was individuals who are 18 years old or older, own a smartphone, have used mobile applications on their smartphone in the last six months, and have traveled for leisure purposes in the past five years. A non-probability sampling technique, namely the self-selection sampling method, was utilized in this study since the sample frame was unknown (Gurdin & Patterson, 1987). The advantage of using self-selection sampling is that

individuals can volunteer to participate in the sample after complying with the screening questions. (Creswell & Creswell, 2017).

A crowdsourcing platform, Amazon's Mechanical Turk (M-Turk), was used to collect data of the study. Although the use of M-Turk for survey deployment has been criticized (Lease et al., 2013), prior studies have shown that M-Turk respondents can adequately represent the U.S. population as good as other sampling methods used in social science research (Berinsky et al., 2012).

A total of 347 responses was collected. Before starting the data analysis, the data set was screened and cleaned by examining the missing data and the outliers. Thirty-six surveys with missing data were deleted from the sample. No univariate or multivariate outliers were identified. A data screening for unengaged responses was also conducted by calculating the standard deviation for all responses that used a Likert-scale. Unengaged responses were identified when the standard deviation is equal to zero, meaning that the respondent answered all questions using only one number of the 7-point Likert scale. Standard deviation equals to zero clearly demonstrates the respondents` lack of attention or engagement. Four surveys were found with standard deviation equals zero, and they were deleted from the sample. Two additional surveys with standard deviation close to zero were also deleted because the respondents answered all questions with the same value, with few exceptions (less than four items) with different values. In the end, 305 responses were retained for the data analysis.

Data Analysis

To examine the relationships proposed in this study, the author adopted a two-step approach recommended by Anderson and Gerbing (1988). The first step included a confirmatory factor analysis (CFA) to assess the measurement model. After the examination of the fit indices for the measurement model, the reliability and validity of the scales were evaluated. To measure the internal consistency of the adopted scales, Cronbach's alpha coefficients and composite reliability (CR) values were calculated for each construct. The validity of the constructs was evaluated by assessing convergent validity and discriminant validity. Convergent validity was evaluated by calculating the average variance extracted (AVE) values. AVE values were then checked to see if they were above the minimum recommended value of 0.5. Discriminant validity was assessed by comparing the square roots of AVEs with the correlation values between the constructs. In order to have a satisfactory discriminant validity, the square roots of AVEs must have higher values than the correlations between the variables (Fornell & Larcker, 1981). The second step of the data analysis included employing a structural equation modeling (SEM) to test the study hypotheses. This two-step method is proper to use when researchers need to validate constructs in psychology and the social sciences (Anderson & Gerbing, 1988).

It is important to note that the proposed models for each part of the study (i.e., travel-takers and travel-posters parts of the study) were tested separately. Therefore, the CFA, reliability, validity tests, and SEM were independently conducted for both parts of the study. For the data analysis, IBM Statistical Package of Social Sciences (SPSS) version 25 and IBM SPSS Analysis of a Moment Structures (AMOS) Graphics version 25 software packages were used.

CHAPTER FOUR: FINDINGS

Preliminary Analysis

The normality of the dataset was analyzed based on the visual inspection of histograms and box plots. The visual inspections revealed no significant issues regarding the normality of the data set. In addition, Skewness and Kurtosis values were calculated using SPSS and checked if they are within the acceptable range of ±2 (George & Mallery, 2010). The results demonstrated that all of the Skewness and Kurtosis values were in the acceptable range of ±2. To evaluate the Multicollinearity, tolerance, and the Variable Inflation Factor (VIF) values were calculated. Tolerance values above 0.2 (Hair et al., 1998) and VIF values below 5 (O'brien, 2007) were used as an acceptable value for not having a multicollinearity issue. All of the study constructs' tolerance values and VIF values were in the acceptable range. The values can be found in Table 1.

Table 1: Multicollinearity Statistics

Variables	Tolerance	VIF
Performance Expectancy	0.241	4.143
Effort Expectancy (travel-takers)	0.293	3.416
Effort Expectancy (travel-posters)	0.411	2.436
Facilitating Conditions (travel-takers)	0.532	1.881
Facilitating Conditions (travel-posters)	0.648	1.543
Hedonic Motivations (travel-takers)	0.371	2.694
Hedonic Motivations (travel-posters)	0.362	2.760
Trust	0.378	2.646
System Privacy	0.840	1.190
Location Privacy Concerns	0.865	1.156
Satisfaction to Help	0.381	2.626
Social Benefits	0.318	3.149
Enhance Self Image	0.285	3.508
Economic Rewarding	0.363	2.753

Sample Profile

The demographic characteristics of the sample are presented in Table 2. The results indicated that 55.4% of the respondents were male; 43.6 % of the participants were female. The vast majority (55.5%) of the participants were between the ages of 18 and 35. More than 75% of the participants had at least a bachelor's degree, and around 19.3% of the participants earned a master's degree. Twenty-five percent of the sample had a household income of $25,001 - $50,000. Sixty-two percent of the participants have never married, while 30.8% of the surveyed declared that they were married or living with a partner.

Table 2: Participants' Demographics and Characteristics

Variable	**Level**	**N**	**%**
Gender	Male	169	55.4%
	Female	133	43.6%
	Prefer not to say	3	1.0%
Age	18-25 years	45	14.8%
	26-35 years	124	40.7%
	36-45 years	69	22.6%
	46-55 years	38	12.5%
	56-65 years	21	6.9%
	66 years or older	5	1.6%
	Prefer not to say	3	1.0%
Marital Status	Married	78	25.6%
	Never married	191	62.6%
	Living with a partner	16	5.2%
	Separated/Divorced	14	4.6%
	Widowed	3	1.0%
	Prefer not to say	3	1.0%
Education Level	High School	13	4.3%
	Associate Degree (2 years)	16	5.2%
	Some college	35	11.5%
	Bachelor's Degree (4 years)	170	55.7%
	Master's Degree	59	19.3%
	Doctorate Degree	10	3.3%
	Prefer not to say	2	0.7%
Household Income	$25,000 or less	36	11.8%
	$25,001 - $50,000	77	25.2%
	$50,001 - $75,000	73	23.9%
	$75,001 - $100,000	60	19.7%
	$100,001 - 150,000	39	12.8%
	$150,001 - 200,000	11	3.6%
	$200,001-$250,000	1	0.3%
	$250,001 or more	5	1.6%
	Prefer not to say	3	1.0%

The respondents' characteristics related to their smartphone adoption, travel behavior, and previous usage of travel-related mobile applications and TTMA are presented in Table 3. The results revealed that the majority of the participants (59.3%) stated that they had been using smartphones for at least seven years and dedicated more than four hours per day to their mobile devices (69.8%). Seventy-nine percent of the respondents stated that they travel for leisure purposes from one to four times per year. Considering their mobile application usage, the majority of the sample spend from one to six hours per day using a mobile application, 85.2%

have already used a travel-related mobile application, 96.1% have used a location-based mobile application, but 59.7% of the respondents have never used or are not sure if they have used a TTMA. Finally, around 64% of the participants reported that they post user-generated content on social media at least once a week.

Table 3: Participants' Individual Difference Characteristics

Variable	**Level**	**N**	**%**
Number of years using a smartphone	Less than 1 year	8	2.6%
	1 to 2 years	20	6.6%
	3 to 4 years	42	13.8%
	5 to 6 years	70	23.0%
	7 to 8 years	41	13.4%
	More than 8 years	124	40.7%
Number of hours using a smartphone per day	Less than 1 hour	13	4.3%
	1 to 3 hours	79	25.9%
	4 to 6 hours	149	48.9%
	7 to 10 hours	33	10.8%
	More than 10 hours	31	10.2%
Number of hours using a mobile app per day	Less than 1 hour	35	11.5%
	1 to 3 hours	115	37.7%
	4 to 6 hours	111	36.4%
	7 to 10 hours	30	9.8%
	More than 10 hours	14	4.6%
Number of leisure travels per year	Less than once	19	6.2%
	1 to 2 times	143	46.9%
	3 to 4 times	98	32.1%
	5 to 6 times	30	9.8%
	More than 6 times	15	4.9%
Have used a travel-related mobile app	Yes	260	85.2%
	No	45	14.8%
Have used a location-based mobile app	Yes	293	96.1%
	No	12	3.9%
Have used a TTMA	Yes	123	40.3%
	No	151	49.5%
	Not sure	31	10.2%
Have posted user-generated content on social media	Never	26	8.5%
	Less than once a week	84	27.5%
	Once a week	88	28.9%
	2-3 times a week	79	25.9%
	4-6 times a week	12	3.9%
	Daily	16	5.2%

Factors affecting Travel-Takers` Intention to Use TTMA

Confirmatory Factor Analysis (CFA)

A series of absolute and incremental fit indices were employed to assess the measurement model fit. The absolute fit indices provide a direct measure of how well the theoretical model fits the observed data. Incremental fit indices assess how well the theoretical model fits relative to an alternative baseline model (Hair et al., 2010). The most widely used absolute fit indices include the chi-square statistic, the root mean square error of approximation (RMSEA), and the goodness-of-fit statistic (GFI). The most commonly used incremental fit indices are the normed-fit index (NFI) and the comparative fit index (CFI) (Hair et al., 2010).

The results of the CFA demonstrated an acceptable model fit. According to the results, the chi-square statistic was significant, and the ratio of the chi-square value to the degree of freedom was less than the cut-off points of 3 (chi-square = 402.988, df = 230). Other fit indices, including RMSEA (0.050), GFI (0.901), CFI (0.975), NFI (0.945), indicated an acceptable theoretical model fit (Hair et al., 1998). In addition, items with factor loadings equal or greater than 0.5 were retained in the CFA analysis (Hair et al., 1998). All the items' factor loadings were above 0.5. Therefore, all observed items were included in the CFA analysis (Table 4).

Table 4: Measurement Model Results

Constructs	Standardized Loadings	Construct Reliability	AVE
Performance Expectancy		0.92	0.84
1. Using a TTMA as a travel-taker would increase my chances of achieving things that are important to me during my travels.	0.88		
2. Using a TTMA as a travel-taker would help me to accomplish things more quickly during my travels.	0.86		
3. Using a TTMA as a travel-taker would increase my productivity during my travels.	0.88		
4. Overall, I find TTMAs useful as a travel-taker.	0.84		
Effort Expectancy		0.94	0.80
1. Learning how to use a TTMA as a travel-taker would be easy for me.	0.90		
2. My interaction with a TTMA as a travel-taker would be clear and understandable.	0.90		
3. I would find TTMAs easy to use as a travel-taker.	0.91		
4. It would be easy for me to become skillful at using a TTMA as a travel-taker.	0.87		
Facilitating Condition		0.82	0.55
1. I have the resources necessary to use a TTMA as a travel-taker.	0.63		
2. I have the knowledge necessary to use a TTMA as a travel-taker.	0.70		
3. As a travel-taker, I would find TTMAs compatible with other technologies I use.	0.83		
4. I can get help from others when I have difficulties using a TTMA as a travel-taker.	0.74		
Hedonic Motivation		0.91	0.78
1. Using a TTMA as a travel-taker would be fun.	0.86		
2. Using a TTMA as a travel-taker would be enjoyable.	0.90		
3. Using a TTMA as a travel-taker would be entertaining.	0.89		
Trust		0.87	0.80
1. As a travel-taker, I would feel comfortable to trust the travel-related information provided on TTMAs.	0.78		
2. As a travel-taker, I would not hesitate to rely on the travel-related information provided on TTMAs.	0.84		
3. As a travel-taker, I would feel secure to trust the travel-related information provided on TTMAs.	0.86		

Constructs	Standardized Loadings	Construct Reliability	AVE
System Privacy Concern		0.96	0.89
1. The chances of using a TTMA as a travel-taker and losing control over my personal information privacy are high.	0.95		
2. My signing up and using a TTMA as a travel-taker would lead me to a loss of privacy because my personal information would be used without my knowledge.	0.96		
3. I think using a TTMA as a travel-taker could not keep my personal sensitive information from exposure.	0.92		
Intention to Use		0.94	0.84
1. Given a chance, I intend to use a TTMA as a travel-taker.	0.92		
2. Given a chance, I predict that I should use a TTMA as a travel-taker.	0.91		
3. Given a chance, I plan to use a TTMA as a travel-taker.	0.92		

Validity and Reliability

To assess the reliability of the scales, the internal consistency between items in the adopted scales were checked by calculating Cronbach's alpha coefficients values for each construct. None of the items in the survey related to travel-takers` intention to use TTMA utilized a negatively worded question. Therefore, there was no need to reverse code, and negative alpha coefficients were not expected.

According to Table 5, the scales' alpha coefficient values ranged from 0.864 to 0.962. Based on the recommended benchmark value (i.e., 0.70), the scales were considered reliable and can be used for further analysis (Nunnally, 1970). Like Cronbach's alpha, composite reliability (CR) values of 0.70 or higher suggest acceptable reliability (Hair et al., 2010). Table 5 shows that all constructs are following the minimum CR threshold of 0.7 (Hair et al. 2010).

Table 5: Cronbach's Alpha Values

Scale	**Coefficient**
Intention to Use	0.940
Performance Expectancy	0.921
Effort Expectancy	0.941
Facilitating Conditions	0.927
Hedonic Motivations	0.914
Trust	0.864
System Privacy	0.962

As mentioned earlier, the validity of the constructs was evaluated by assessing convergent validity and discriminant validity. The AVE values for all the constructs were above 0.5, which is an indication of high convergent validity because all of the AVE values are higher than the recommended value of 0.5 (Fornell & Larcker 1981). The discriminant validity of the constructs was examined by comparing the square roots of AVEs with the correlation between

variables. Results indicated the square roots of AVEs were higher than the correlation between the constructs, confirming an acceptable discriminant validity (Table 6).

Table 6*: Discriminant Validity Matrix*

		Square Root AVE / Correlations						
		1	**2**	**3**	**4**	**5**	**6**	**7**
1	Intention to Use	**0.92**						
2	Performance Expectancy	0.86	**0.88**					
3	Effort Expectancy	0.81	0.88	**0.90**				
4	Facilitating Conditions	0.60	0.66	0.66	**0.74**			
5	Hedonic Motivations	0.78	0.82	0.77	0.70	**0.88**		
6	Trust	0.83	0.82	0.75	0.74	0.75	**0.90**	
7	System Privacy	-0.43	-0.38	-0.39	-0.19	-0.29	-0.35	**0.95**

Note: Off-diagonal elements: Inter-construct correlations. Diagonal elements (bold): Squared root of AVEs.

Structural Equation Model (SEM)

SEM analysis was conducted to test the study hypotheses. Similar to CFA, the same absolute and incremental fit indices were used to test the structural model fit. Overall, the results indicated a good model fit. The chi-square (402.988) to degrees of freedom (230) ratio was equal to 1.752, which was below the previously mentioned threshold point of 3. In addition, other fit indices were at acceptable values (RMSEA = 0.050, GFI = 0.901, CFI = 0.975, NFI = 0.945, and IFI = 0.976).

Hypotheses testing results are presented in Table 7. All hypotheses except H3 were supported. (i.e., H3 was statically significant; however, the results indicated a negative relationship, which was the opposite direction of what was hypothesized). More specifically, the results indicated that performance expectancy, effort expectancy, hedonic motivations, and trust positively; system privacy negatively influenced users' intension to use TTMA as travel-takers.

Table 7: Hypotheses Test Results

				Findings			
Hypothesis	**Independent Construct**	**-->**	**Dependent Construct**	**P-Value**	**Significant**	**Standardized β**	**Conclusion**
H1	Performance Expectancy	-->	Intention to use TTMA	0.017	Yes	0.256	Supported
H2	Effort Expectancy	-->		0.028	Yes	0.179	Supported
H3	Facilitating Conditions	-->		0.017	Yes	-0.159	Not supported
H4	Hedonic Motivations	-->		0.005	Yes	0.201	Supported
H5	Trust	-->		0.001	Yes	0.429	Supported
H6	System Privacy	-->		0.019	Yes	-0.083	Supported

In terms of the total effect of each determinant on travel-takers' intention to use TTMA, trust was the strongest predictor with the total standardized effect of 0.429 followed by performance expectancy (β = 0.256), hedonic motivations (β = 0.201), effort expectancy (β = 0.179), and system privacy (β = -0.083).

Factors Affecting Travel-Posters' Intention to Use TTMA

Confirmatory Factor Analysis (CFA)

The same series of absolute and incremental indices were used to assess the measurement model fit. The results of CFA indicated that the measurement model demonstrated an acceptable model fit. According to the data retrieved from AMOS, the chi-square statistic was significant, and the ratio of the chi-square value to the degree of freedom was less than the cut-off points of 3 (chi-square = 733.642, df = 397). Other fit indices, including RMSEA (0.049), GFI (0.95), CFI (0.95), and NFI (0.91), indicated an acceptable model fit (Hair et al., 1998). In addition, items with factor loadings equal to or greater than 0.5 were retained in the CFA analysis (Hair et al., 1998). All the items' factor loadings were above 0.5. Therefore, all observed items were included in the CFA analysis, as shown in Table 8.

Table 8: Measurement Model Results

Construct	Standardized Loadings	Construct Reliability	AVE
Effort Expectancy		0.93	0.77
1. Learning how to use a TTMA as a travel-poster would be easy for me.	0.87		
2. My interaction with a TTMA as a travel-poster would be clear and understandable.	0.89		
3. I would find TTMAs easy to use as a travel-poster.	0.90		
4. It would be easy for me to become skillful at using TTMAs as a travel-poster.	0.85		
Facilitating Condition		0.81	0.52
1. I have the resources necessary to use TTMA as a travel-poster.	0.68		
2. I have the knowledge necessary to use TTMA as a travel-poster.	0.74		
3. As a travel-poster, I would find TTMAs compatible with other technologies I use.	0.79		
4. I can get help from others when I have difficulties using TTMA as a travel-poster.	0.66		
Hedonic Motivation		0.89	0.74
1. Using a TTMA as a travel-poster would be fun.	0.84		
2. Using a TTMA as a travel-poster would be enjoyable.	0.84		
3. Using a TTMA as a travel-poster would be entertaining.	0.90		
Location Privacy		0.95	0.83
1. As a travel-poster, I would be concerned that TTMAs may not take measures to prevent unauthorized access to my location information.	0.90		
2. As a travel-poster, I would be concerned that TTMAs may inaccurately keep my location information in their database.	0.91		
3. As a travel-poster, I would be concerned that TTMAs may share my location information with other parties without obtaining my authorization.	0.93		
4. Overall, as a travel-poster, I would feel unsafe about providing my location information to TTMAs.	0.89		
Satisfaction to Help Others		0.88	0.70
1. As a travel-poster, I would feel good that I can help other travelers by sharing my travel route and other travel-related information in TTMAs.	0.82		
2. As a travel-poster, I would enjoy being able to help other travelers by providing my travel route and other travel-related information in TTMAs.	0.85		
3. As a travel-poster, I would feel good that I can give other travelers the opportunity to make more informed travel decisions by sharing my travel-related information in TTMAs.	0.84		

Construct	Standardized Loadings	Construct Reliability	AVE
Social Benefits		0.89	0.73
1. As a travel-poster, I believe sharing my travel routes and other travel-related information among other like-minded people on TTMAs is a nice thing.	0.86		
2. As a travel-poster, I believe it is fun to communicate with other travelers by sharing my travel routes and other travel-related information on TTMAs.	0.87		
3. As a travel-poster, I believe I would meet nice people by sharing my travel route and other travel-related information on TTMAs.	0.83		
Enhance Self-Image		0.90	0.83
1. As a travel-poster, providing my travel route and other travel-related information on TTMAs can improve my reputation among TTMAs users.	0.77		
2. As a travel-poster, when I provide my travel route and other travel-related information on TTMAs, I can get more respect than those users who do not.	0.85		
3. As a travel-poster, providing my travel route and other travel-related information on TTMAs can help me get more recognition from other users.	0.84		
4. As a travel-poster, I can enhance my image among other users by providing my travel route and other travel-related information on TTMAs.	0.87		
Economic Rewarding		0.85	0.83
1. As a travel-poster, I would provide my travel route and other travel-related information on TTMA because of the non-monetary incentives	0.81		
2. As a travel-poster, I would provide my travel route and other travel-related information on TTMA because I can receive monetary incentives	0.80		
3. As a travel-poster, I would provide my travel route and other travel-related information on TTMA because I can receive a reward for my post	0.82		
Intention to Use		0.95	0.86
1. Given the chance, I intend to use a TTMA as a travel-poster.	0.93		
2. Given the chance, I predict that I should use a TTMA as a travel-poster.	0.93		
3. Given the chance, I plan to use a TTMA as a travel-poster.	0.91		

Validity and Reliability

Cronbach's alpha coefficients values were calculated for each construct to assess the reliability of the scales. None of the items in the survey related to travel-posters` intention to use TTMAs utilized negatively worded questions. Therefore, there was no need to reverse code the travel-posters` items, and negative alpha coefficients were not expected.

According to Table 9, the scales' alpha coefficient values ranged from 0.864 to 0.962. Based on the recommended benchmark value (i.e., 0.70), the scales were considered reliable and can be used for further analysis (Nunnally, 1970). Like Cronbach's alpha, reliability values of 0.70 or higher suggest acceptable reliability (Hair et al., 2010). Table 8 indicates that all measurements are following the minimum CR threshold of 0.7 (Hair et al., 2010).

Table 9: Cronbach's Alpha Values

Scale	**Coefficient**
Intention to Use	0.947
Effort Expectancy	0.931
Facilitating Conditions	0.805
Hedonic Motivations	0.895
Location Privacy Concerns	0.950
Satisfaction to Help others	0.875
Social Benefit	0.891
Enhance Self Image	0.900
Economic Rewarding	0.822

As mentioned earlier, the validity of the constructs was evaluated by assessing convergent validity and discriminant validity. The AVE values for all the constructs were above 0.50, which was an indication of high convergent validity because they are all higher than 0.5 (Fornell & Larcker 1981). The discriminant validity of the constructs was examined by comparing the of square roots of AVEs with the correlation between variables. Results indicated

the square roots of AVEs were higher than the correlation between the constructs, confirming an acceptable discriminant validity (Table 10).

Table 10: Discriminant Validity Matrix

		Square Root AVE / Correlations								
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
1	Intention to Use	**0.92**								
2	Effort Expectancy	0.75	**0.88**							
3	Facilitating Conditions	0.48	0.58	**0.72**						
4	Hedonic Motivations	0.76	0.69	0.61	**0.86**					
5	Location Privacy Concerns	-0.44	-0.30	-0.15	-0.39	**0.91**				
6	Satisfaction to Help others	0.68	0.70	0.58	0.78	-0.32	**0.84**			
7	Social Benefit	0.85	0.78	0.51	0.78	-0.35	0.77	**0.86**		
8	Enhance Self Image	0.77	0.65	0.41	0.74	-0.26	0.77	0.79	**0.91**	
9	Economic Rewarding	0.70	0.60	0.44	0.73	-0.21	0.68	0.74	0.87	**0.91**

Note: Off-diagonal elements: Inter-construct correlations. Diagonal elements (bold): Squared root of AVEs.

Structural Equation Model (SEM)

SEM analysis was conducted to test the study hypotheses. The data revealed an acceptable model fit. The chi-square (733.642) to degrees of freedom (397) ratio was 1.848. In addition, other fit indices also demonstrated an acceptable model fit (RMSEA = 0.039, GFI = 0.96, CFI = 0.95, NFI = 0.91, and CFI = 0.96) (Hair et al., 1998).

The hypotheses testing results are presented in Table 11. All hypotheses except H2, H5, and H8 were supported. More specifically, the study results revealed that effort expectancy, hedonic motivation, social benefits, self-image had a positive impact; and location privacy concern had a negative impact on users' intention to use TTMA as travel-posters. H2 and H8 were not supported because p-values were higher than 0.05, revealing not significant. H5 was statistically significant (with p-values below 0.05). However, the results indicated a negative relationship, which was the opposite direction of what was hypothesized (Table 11).

Table 11: Hypotheses Test Results

				Findings			
Hypothesis	**Independent Construct**	**-->**	**Dependent Construct**	**P-Value**	**Significant**	**Standardized β**	**Conclusion**
H1	Effort Expectancy	-->		0.002	Yes	0.197	Supported
H2	Facilitating Conditions	-->		0.653	No	0.024	Not Supported
H3	Hedonic Motivations	-->		0.017	Yes	0.183	Supported
H4	Location Privacy	-->	Intention to use TTMA	0.001	Yes	-0.163	Supported
H5	Satisfaction to Help others	-->		0.006	Yes	-0.224	Not Supported
H6	Social Benefit	-->		0.001	Yes	0.447	Supported
H7	Enhance Self Image	-->		0.007	Yes	0.291	Supported
H8	Economic Rewarding	-->		0.785	No	-0.025	Not Supported

In terms of the total effect of each determinant on travel-posters' intention to use TTMAs, social benefit had the strongest impact on intention to use (β 0.447), followed by enhancing self-image (β 0.291), effort expectancy (β 0.197), hedonic motivation (β 0.183), and location privacy concerns (β -0.163).

CHAPTER FIVE: DISCUSSIONS AND CONCLUSION

Discussion of Results

The purpose of this study was to investigate factors affecting both travel-takers and travel-posters' intention to use TTMAs. Considering that travel-takers and travel-posters have different roles in the same mobile application, this study proposed and tested two different theoretical models to investigate factors affecting TTMAs acceptance for each type of user. In the following section, the results for each part of the study are discussed separately.

Travel-Takers' Intention to Use TTMA

Data collected from 305 mobile application users revealed that performance expectancy, effort expectancy, hedonic motivations, and trust positively; system privacy negatively influenced users' intension to use TTMA as travel-takers. However, the impact of facilitation condition on users' intention to use TTMA was not significant. The study results further indicated that trust was the strongest predictor of travel-takers` intention to use TTMA, followed by performance expectancy, hedonic motivations, effort expectancy, and system privacy. In the following section, the individual discussions of the results of each hypothesis for the travel-takers' part of the study are provided.

Hypothesis 1, which proposed that performance expectancy was positively associated with travel-takers' intention to use TTMAs was supported. This finding was consistent with prior literature, indicating that performance expectancy has been considered as one of the core predictors of users' intention to adopt a technology. Scholars have found that performance expectancy is significantly and positively associated with users' intention to adopt internet

banking systems (Arenas-Gaitán et al., 2015), mobile banking applications (Baptista & Oliveira, 2015), airline tickets applications (Escobar-Rodríguez & Carvajal-Trujillo, 2013), mobile payments in hotels (Morosan et al., 2016), and mobile payments in restaurants (Khalilzadeh et al., 2017). Hence, the results of this study suggested that travel-takers are influenced by the perceived benefit provided by TTMAs during their travels to adopt this type of mobile application.

Hypothesis 2, which stated that effort expectancy was positively associated with travel-takers' intention to use TTMAs was also supported. This finding was partially consistent with prior literature because scholars have found mixed results regarding this relationship. While some studies supported the positive impact of effort expectancy on users' intention to adopt a technology (Lin et al. 2014; Arenas-Gaitán et al., 2015; Okumus et al., 2018), other studies did not support this positive relationship (Baptista & Oliveira, 2015, Morosan et al., 2016). Since the effort expectancy is associated with the degree of ease use of the system, the study results suggested that travel-takers prefer to adopt a mobile application that is user-friendly during their leisure travels.

Hypothesis 3, which proposed a positive relationship between facilitating conditions and travel-takers' intention to use TTMAs was not supported. Although results revealed a significant negative relationship between facilitating conditions and travel-takers' intention to use TTMA, this negative effect was not expected, making the researchers refute this hypothesis. This outcome was consistent with some prior studies in the mobile application environment, indicating that facilitating conditions does not have an impact on users' intention to use mobile payment systems in restaurants (Khalilzadeh et al., 2017) or adopt mobile internet banking

applications (Baptista & Oliveira, 2015). Therefore, it can be concluded that travel-takers' perception that the TTMAs should provide them support to use the application is not associated with their intention to adopt the technology.

Hypothesis 4, which proposed that hedonic motivation was positively associated with travel-takers' intention to use TTMAs, was supported. This finding was partially consistent with prior literature because scholars have found mixed results regarding this relationship. While some study findings suggested that hedonic motivation plays a substantial role in determining technology acceptance, finding that consumer's intention to use mobile applications increases if the user perceives a higher level of entertainment (Baptista & Oliveira, 2015, Morosan et al., 2016; Gupta & Dogra, 2017), other studies found that hedonic motivation does not significantly predict users' acceptance towards mobile services or a particular mobile technology (Escobar-Rodríguez, & Carvajal-Trujillo, 2014; Arenas-Gaitán et al., 2015). In the case of TTMAs, the results of this study revealed that travel-takers behavioral intention was significantly and positively impacted by the mobile application's entertainment level when accessing travel-related information during their leisure travels.

Hypothesis 5, which stated that trust was positively associated with travel-takers' intention to use TTMAs was supported as the strongest predictor of the model. This finding was consistent with prior literature in peer-to-peer and social media network environment, supporting that trust, authenticity, and the reliability of the information posted and shared by peers is a critical factor predicting users' intention to adopt mobile applications (Pranata et al., 2012; Choi et al., 2019; 2014; Luo et al. 2010; Zhou, 2012). As expected, the results revealed that trust was an essential attribute to travel-takers to adopt TTMAs. Therefore, the study results suggested that

in order to use TTMA, travel-takers need to trust the information posted and shared on the application by travel posters.

Hypothesis 6, which proposed that system privacy was negatively associated with travel-takers' intention to use TTMAs was also supported. This finding was consistent with previous studies supporting that system privacy has a negative impact on users' acceptance towards mobile technologies in many types of applications, such as mobile payment systems (Makki et al., 2016), mobile restaurant payment systems (Khalilzadeh et al., 2017), wearable devices (Yildirim & Ali-Eldin, 2019), and location-based systems (Xu et al., 2005). Therefore, this study corroborates previous literature by showing empirical evidence that a potential threat to personal information without travelers' knowledge may increase their acceptance barriers towards the adoption of TTMAs.

Travel-Posters' Intention to Use TTMA

Data collected from the same 305 respondents but using a separate set of scales specifically developed to investigate travel-posters' intention to use TTMAs revealed that effort expectancy, hedonic motivation, social benefits, and self-image had a positive impact; and location privacy concern had a negative impact on users' intention to use TTMA as travel-posters. However, the study results indicated that facilitating conditions, satisfaction to help others, and economic rewarding did not have a significant impact on users' intention to use TTMAs as travel posters. Furthermore, according to the study findings, the most crucial predictor was the social benefit, followed by enhancing self-image, effort expectancy, and hedonic motivation. The individual discussions of the results of each hypothesis for the travel-posters’ part of the study are provided in the following paragraphs.

Hypothesis 1, which proposed that effort expectancy was positively associated with travel-posters' intention to use TTMAs, was supported. As mentioned earlier, prior literature has found mixed results regarding the relationship between effort expectancy and intention to adopt mobile applications. Some studies revealed significant and positive relationships (Lin et al., 2014; Arenas-Gaitán et al., 2015; Okumus et al., 2018), and other studies indicated no significant relationships (Baptista & Oliveira, 2015, Morosan et al., 2016). However, effort expectancy was consistently found to be a significant predictor in recent studies investigating the factors' affecting users' intention to post user-generated content on social media (Herrero & San Martín, 2017). Since posting user-generated content on social media is closely related to the travel-posters' role to record, post, and/or share their travel-related information on TTMAs, this result can be considered consistent with the previous studies in the context of online review and social media.

Hypothesis 2, which proposed that facilitating conditions was positively associated with travel-poster' intention to use TTMAs, was not supported. This result was consistent not only with prior studies in the mobile application environment (Khalilzadeh et al., 2017; Baptista & Oliveira, 2015) but also with prior studies in the context of posting user-generated content on social media networks (Herrero & San Martín, 2017). Therefore, as well as travel-takers, travel-posters' intention to use TTMAs was not associated with the application's ability to provide technical support when they are using the system.

Hypothesis 3, which proposed that hedonic motivation was positively associated with travel-posters' intention to use TTMAs, was supported. This finding was consistent with prior literature on users' intention to post user-generated content on social media networks (Herrero &

San Martín, 2017; Huang, 2018). The study results suggested that travel-posters' intention to use TTMAs was positively influenced by the level of entertainment they could achieve when they post and/or share their travel experiences, travel routes, and travel-related information with other travelers belonging to the same TTMA community.

Hypothesis 4, which proposed that location privacy concern was negatively associated with travel-posters' intention to use TTMAs, was supported. This finding was consistent with prior literature on users' intention to use mobile applications that demand the disclosure of users' location information. Several studies related to location privacy concern have found a significant negative influence on users' intention towards acceptance of location-based mobile applications (Brown & Muchira, 2004; Daminai, 2014; Sadeh et al., 2009; Xu & Gupta, 2009), including in the tourism context. For example, scholars found a significant and negative relationship between location privacy concern and users' intention to use mobile hotel booking apps requesting users' geographic location (Ozturk, Nusair, et al., 2017). In this sense, the findings of the study supported the previous study findings suggesting that when travel-posters are concerned about their location privacy, they are less likely to post and share their travel-related information on TTMAs.

Hypothesis 5, which proposed that satisfaction to help others was positively associated with travel-posters' intention to use TTMAs, was not supported. This finding contradicts the results of prior literature on users' motivation to post their opinions on online review platforms. Prior literature indicated that the thought of helping others had been found as a positive and significant intrinsic motivation for users, positively affecting their intention to post reviews on online review platforms (Tong et al., 2013). For example, a study conducted by Wasko and Faraj

(2005) revealed that social network contributors, which to some extent have close similarities with travel-posters, are motivated because they have a positive feeling in helping other users without the expectation of any reciprocity from them. The results of this study were not consistent with prior studies suggesting that travel-posters are not motivated to record, post, and/or share their travel routes and travel-related information on TTMAs due to their satisfaction to help other travelers.

Hypothesis 6, which proposed that social benefits were positively associated with travel-posters' intention to use TTMAs was supported. This finding was consistent with prior literature on users' motivations to post user-generated content on online review platforms. Hennig-Thurau et al. (2004) found that users participating in online review platforms become a part of the virtual community where social benefit significantly influenced their identification and social integration, which motivated users to post more comments and reviews. The authors revealed that the social benefits of a broader community of reviewers stimulated users' active participation by writing and posting a higher number of online reviews. In this sense, the study results were consistent with prior studies suggesting that travel-posters are motivated to provide travel-related information on TTMAs to articulate themselves with other travelers in order to participate and have some social benefits such as a sense of belonging to the same online community (McWilliam, 2000).

Hypothesis 7, which proposed that enhancing self-image was positively associated with travel-posters' intention to use TTMAs, was supported. This finding was in accordance with previous motivation studies in the context of user-generated content. For example, previous research has found significant evidence that enhancement of self-image and the users' feeling of

belonging to a virtual community are strong contributors of users' posting their comments on online review platforms and electronic word of mouth communication systems (Miko, 2014). In addition, scholars have found that enhancing self-image is critically related to the engagement of millennials and generation Z users to adopt technology in the digital age (Nawaz, 2020). Enhancing self-image has also been found as strong contributors to individuals' willingness to post on online social platforms because they are motivated to establish themselves as opinion leaders, being perceived with appreciation by others when posting quality comments (Wasko & Faraj, 2005). In the same vein, the current study findings suggested that the possibility of receiving respect and recognition from other travelers because of providing insightful travel information to them will significantly increase travel-posters intention to use TTMAs.

Hypothesis 8, which stated that economic rewarding was positively associated with travel-posters' intention to use TTMAs, was not supported. This finding was consistent with prior study investigating users' intention to post comments on online review platforms. This study suggested that the presence of economic rewarding mechanisms did not show a significant main effect on users' intention to increase the number of posts and contributions on online review platforms (Tong et al., 2013). However, on the mobile application environments, other scholars suggested a significant and positive relationship between economic rewarding and intention to use mobile applications (e.g., mobile coupon-sharing social networks, Tang et al., 2016). Although previous scholars have found mixed results, this study revealed that TTMA users are not motivated by monetary and nonmonetary incentives and rewards to use TTMAs as travel-posters.

Theoretical Implications

The study results offer several theoretical implications for researchers in the context of technology acceptance in the travel and tourism industries. First, even though travel-focused mobile applications have been vastly investigated by previous scholars, as a research topic, TTMA technology can be considered relatively new in the travel and tourism literature. TTMAs have been recently released, and to the author's best knowledge, this study was the first study that investigated factors affecting this new category of mobile application's acceptance.

Second, this study was one of the first studies which adopted a holistic approach to investigate factors affecting TTMAs' acceptance by two different types of users (i.e., travel takers and travel posters). Many other mobile applications such as SMN applications (e.g., Facebook, YouTube, Instagram), online review applications (e.g., TripAdvisor, Yelp), and other P2P applications (e.g., Uber, Lyft, Airbnb) also have this feature allowing users to provide information and/or services, and to receive those information/or and services. However, the majority of the previous studies in the context of mobile app, user-generated content, and social media have mainly examined only the factors affecting users' intention to use the information provided by other users, lacking a deeper understanding of the factors influencing users` intention to post and share travel-related information on these types of systems. By adopting the UTAUT2 framework (Vankatesh et al., 2012) and the Self-Determination Theory (SDT) (Deci & Ryan 1985; Ryan & Deci, 2000), the current study attempted to fill the above-mentioned gaps in the literature by not only examining the factors affecting travelers' intention to utilize the information provided on TTMAs for their future travel planning, but also investigating the

factors affecting users' intention to record, post, and/or share their travel-related information on TTMAs.

The third theoretical contribution of the study comes from the validation of the extended versions of UTAUT2 in the context of TTMA. As mentioned earlier, in the first part of the study, system privacy concern and trust; and in the second part of the study, location privacy construct was added to the selected UTAUT2 constructs to examine mobile users' intention to use TTMAs. The study results demonstrated that this study successfully extended UTAUT2's applicability within the TTMA domain by adding new constructs to it. In addition, the second part of the study integrated SDT (Deci & Ryan 1985; Ryan & Deci, 2000) with the extended version of UTAUT2. To the authors' best knowledge, the current study is one of the first studies that incorporated extended versions of the UTAUT2 framework (Vankatesh et al., 2012) and SDT (Deci & Ryan 1985; Ryan & Deci, 2000) in a predictive model, which provided a comprehensive theoretical foundation that demonstrates how different types of users' (i.e., travel-takers and travel-poster) behavioral intentions toward TTMAs form.

Finally, the fourth and final theoretical contribution of the study is due to the improved predictive power of its model used in the travel-taker part of the study. The study results demonstrated that the extended version of UTAUT2 explained 81.9% (i.e., adjusted r square = 0.81) of the variance of the travel-takers' intention to use TTMA. Compared to past empirical results of the UTAUT2 model, which explained about 70% of the variations (Baptista & Oliveira, 2015; Khalilzadeh et al., 2017), the extended model tested in this study achieved significant improvement in the predictive power of the model.

Managerial Implications

While providing critical theoretical contributions in the context of travel-focused mobile applications, the findings of the study also offer valuable practical implications for tourism, travel, and hospitality technology companies, TTMA companies, and entrepreneurs of travel-related, and/or location-based mobile applications.

The novel dual approach of this study and the respective results revealed by the two different research models suggested that mobile app corporations and developers should target their customers' population differently. In the case of TTMAs, two different types of users were identified: travel-takers and travel-posters. Consequently, different approaches should be taken when developers and entrepreneurs are developing their marketing, managerial, and operational efforts towards both types of users.

The results of the first part of this study, targeting travel-takers' intention to use TTMAs, revealed that performance expectancy and effort expectancy significantly impacted their intention to use the system. Therefore, managerial efforts should be made to increase travel-takers' perceived benefits and the system's ease of use. Users, especially those who do not have any previous experience with travel-focused mobile applications, may find TTMAs difficult or confusing to access travel-related information and follow travel routes posted by travel-posters. Therefore, to increase the usability of TTMAs, developers, and entrepreneurs of this type of applications should design the mobile apps in a way that they do not confuse users, making them easy to operate. Another initiative should be developing the system interface in a way to emphasize the potential time and effort savings when travel-takers access travel-related information on TTMAs. It is known that leisure travelers spend an average of 54 days visiting 28

different online sources to research their next travel plans (USTA, 2015). TTMA companies should take advantage of this information and the results of this study to publicize that their TTMAs offer a user-friendly platform that enables travelers to access travelers (i.e., travel-posters) accredited travel information effortlessly and enable them to follow them easily using the application without wasting time on researching travel information in other platforms.

Another crucial finding of this investigation was trust was found to be the strongest predictor of travel-takers' intention to adopt TTMAs. Accordingly, this study suggests that crucial efforts should be made to attest to the reliability of the information posted by travel-posters. One example of an action that could be taken is the implementation of evaluation systems, in which travel-takers evaluate the accuracy and reliability of travel-posters' information posted on TTMAs using star ratings. This system should work similarly to Uber or Lyft mobile applications in which passengers give stars to drivers. The same procedure was adopted by Airbnb, where guests give stars to hosts. On TTMAs, travel-takers should also provide feedback by giving stars to travel-posters, confirming the authenticity of the information posted and improving the perception of trust environment. Travel-posters with five stars, for example, would be more reliable than travel-posters with one or two stars. This information would be extremely relevant when travel-takers are searching for a trustable and reliable source of information in their travel decision-making process.

The empirical findings of this study also demonstrated that system privacy was a significant construct for travel-takers’ acceptance of using TTMAs. System privacy is related to users' concerns over unwanted disclosure or potential loss of control over their personal information. The study results indicated that travel-takers would avoid the use of TTMAs if they

perceive misuse of their private information without their knowledge or permission. System privacy could be more apparent for mobile applications using smartphones' GPS since companies would be able to track users' activities, visited locations, and purchase preferences for marketing purposes. Therefore, TTMA developers and corporations should ensure travel-takers that the mobile application will not inadequately misuse their private data information. A robust data protection system should be used, combined with the implementation of a strict privacy policy. Furthermore, developers should also provide the option for travel-takers to use the system without releasing their location.

From the hedonic motivation perspective, the study results suggested that, for both type of TTMA users (i.e., travel-takers and travel-posters), it is essential that TTMA include entertainment-oriented activities such as users' interaction screens with pleasing visual layouts, or appealing travel images proposing activities to perform during users' leisure travels. Adding fun components to the mobile app is another way to maximize users' hedonic value perceptions. For example, a study conducted by Ihamaki and Heljakka (2017) found that resort guests were able to improve their enjoyment sharing ski tracks in a mobile app that provides a structured visualization of their experience at a ski resort. The guests' journey was enhanced using gamification techniques to stimulate guests' competitiveness and interaction. These types of enjoyment-related efforts, such as gamification strategies, can help designers for TTMA apps to improve users' engagement, especially for younger generations.

The study results revealed that effort expectancy positively influenced travel-posters' intention to adopt TTMAs. Therefore, developers of these types of mobile app should be meticulous in designing the system to ensure easy navigation and complete understanding of

travel-posters' system usability, avoiding their confusion or exhaustion. Since the TTMA concept is relatively new, developers must include illustrative examples and videos demonstrating how to record, post, and/or share travel-related information in different ways. Developing a dedicated help tab, with step-by-step instructions on how to track, record, upload, and post a journey is highly recommended. In addition, a section with frequently asked questions with explanatory examples can be of high significance to address users' effort expectancy.

Location privacy concern has also been found to be a fundamental construct negatively impacting travel-posters' intention to use TTMAs. In this sense, industry professionals and system developers should mitigate travel-posters’ perceived privacy concerns, since it is impossible to run the mobile application without the full disclosure of their location. To address this issue, firstly, TTMA companies should provide a very well-written privacy policy to travel-posters, enhancing all legal and operational procedures to alleviate users' privacy issues. Secondly, applications can provide independent third parties seals to show that the mobile application follows international and acknowledged privacy policies (Zhou, 2017). These types of seals are focused on providing and demonstrating that privacy practices are trustworthy, helping users to mitigate their concerns using TTMA.

This study also found empirical evidence that social benefits and enhancing self-image significantly impacted travel-posters' decision to adopt TTMAs. These results suggested that travel-posters are influenced by how other members of their social groups think, act, and perceived them belonging to the same virtual community. Furthermore, travel-posters would be more likely to use TTMA if they perceive identification with other users, have social integration, and have more friends following and accessing their previously posted travels. In accordance

with these findings, this study suggests TTMA developers improve the system capabilities to enhance the communications among users, stimulate the information exchange, and develop tools to prioritize the act of sharing experiences, which will be very useful in attracting new travel-posters to adopt the system. For example, since travel-posters are motivated by receiving respect and recognition from other travelers, TTMA should be designed to allow travel-posters to publicly display the number of travel-takers following their travels. Similar to other social network platforms such as YouTube, Twitter, Facebook, or Instagram, in which users can see how many followers each user has, TTMA should adopt the same functionality to stimulate social benefits. By enabling travel-posters to acquire and show how many followers they have, they would be more encouraged to keep acquiring more followers and posting better travel routes and travel-related information to achieve this end. In addition, travel-posters would also be motivated to increase their number of followers if the mobile application enables the ranking and comparison of users' progress on acquiring new followers with friends, family members, and other travel-posters belonging to the same virtual community. To improve user experience, TTMA developers can also consider competitive strategies to allow travel-posters to see their position in the universe of travel-posters as the best-rated travels, as well as the most followed traveler.

Despite that self-image and social benefits were found to be significant predictors of TTMA adoption by travel-posters, the current study failed to find a significant relationship between economic rewarding and intention to adopt TTMA as a travel poster. In other words, economic rewarding was not a relevant motivational factor for travel-posters to post their travel-related information on TTMAs. In this sense, the development of reward systems, such as paying

travel-posters with money or other types of rewards (i.e., travel-miles or web points) is not a relevant factor to increase the number of users. This finding can help TTMA companies to save money and time in system improvements and developments. For example, instead of investing resources developing economic rewarding systems for travel-posters, the results of this study suggested that TTMA companies should focus their efforts on enhancing travel-posters' image in their communities and emphasizing their social benefits.

Limitations and Future Research

The current study is subject to several limitations, and the findings should be interpreted with caution. First, the data of the current study was collected from U.S. mobile app users only. Future studies that collect empirical data from more diverse samples of respondents may provide more insightful findings.

Second, this was a perception-based study, and the participants' actual TTMA usage was not measured. Therefore, future longitudinal studies, which require respondents to use the application for a defined period of time before answering the survey, would deliver more precise research findings for TTMA developers and tourism companies targeting this type of mobile technology.

Third, even though this study successfully extended the UTAUT2 framework, a limited number of antecedents were utilized to examine their impacts on users’ intention to use TTMAs. Future research may investigate users’ behavioral intentions with other possible antecedents such as personalization, convenience, mobility, performance risk, and compatibility by utilizing different theoretical frameworks.

Lastly, demographic characteristics (i.e., age, gender, income, marital status, education level) and individual difference characteristics (e.g., number of hours using mobile applications, number of times of leisure travels per year) asked during the survey were not utilized as a construct to explain travel-takers and travel-posters intention to use TTMAs. Future research should investigate if these variables moderate, mediate, or simply influence users' intention to adopt TTMA technology.

APPENDIX A
INTELLECTUAL PROPERTY RIGHTS APPROVAL LETTER

UNIVERSITY OF CENTRAL FLORIDA
Office of Research

November 18, 2019

Mr. Marcos Medeiros
Executive Assistant, Rosen Professional Internships
Teaching Assistant, Hospitality Financial Management
medeiros@knights.ucf.edu

Re: Intellectual Property Rights
UCF IP ID #11507 & 11508
Invention Disclosures Titled, "IUI Trip-Software/Copyright"

Dear Mr. Medeiros:

Thank you for contacting the Office of Technology Transfer regarding your upcoming graduate thesis activities and submitting the referenced invention disclosures.

The UCF Office of Technology Transfer has reviewed the disclosures and, based on the information you provided, and in accordance with the UCF Graduate Catalog 2018-2019 Ownership of Intellectual Property policy, has concluded that the intellectual property identified in the referenced disclosures constitutes Student-generated Effort and was not created with University-support. Therefore, UCF will not assert any interest in the subject matter or work(s) identified in the referenced disclosures, which are deemed your personal property or the personal property of the author(s), as applicable.

We wish you the best of luck in pursuing your graduate degree at UCF and achieving personal success beyond your academic endeavors.

Sincerely,

Svetlana Shtrom

Svetlana Shtrom, Ph.D., MBA
Director, UCF Office of Technology Transfer
Vice President of Technology Transfer, University of Central Florida Research Foundation, Inc.

cc Andrea Adkins, Assistant Director, Technology Licensing

12201 Research Parkway, Suite 501 • Orlando, FL 32826 • (407) 823-3778 • FAX (407) 882-2233

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APPENDIX B
SURVEY INSTRUMENT

Default Question Block

Informed Consent

Principal Investigators: Marcos de Medeiros, MBA and Ahmet Ozturk, Ph.D.

Dear Sir or Madam,

You are being invited to take part in a research study, titled "Factors affecting users' acceptance of travel-tracking mobile applications." You have been asked to take part in this research study because you have been identified as a possible smartphone user. Your participation in this study will help researchers and managers in the tourism and hospitality industry. You must be 18 years of age or older to be included in the research study. Before you begin, please note that the data you provide may be collected and used by Amazon as per its privacy agreement. This agreement shall be interpreted according to United States law.

Full details of the research are as follows:
Purpose: The purpose of this study is to identify the factors affecting users' intention to use travel-tracking mobile applications. Knowledge gained through this study will help information technology executives, educators, and the hospitality and travel industries in general.
Procedures: This study involves completing an online survey. You will be asked to provide answers to a series of questions related to the purpose of the study.
Time Required: The survey will take approximately 25 to 30 minutes.
Risks: There are no known risks associated with this research project.
Confidentiality: This study is anonymous. That means your responses remain confidential, and no one, not even members of the research team, will know that the information you gave came from you.
Participant's Right: Your participation in this study is voluntary.

Study contact for questions about the study or to report a problem: If you have questions, concerns, or complaints contact Mr. Marcos de Medeiros, Research Assistant at Rosen College of Hospitality Management, University of Central Florida, at (407) 777 1273 (medeiros@knights.ucf.edu) or Dr. Ahmet B. Ozturk, Faculty Supervisor, Rosen College of Hospitality Management at (407) 903-8215 (Ahmet.Ozturk@ucf.edu).

IRB contact about your rights in this study or to report a complaint: If you have questions about your rights as a research participant, or have concerns about the conduct of this study, please contact Institutional Review Board (IRB), University of Central Florida, Office of Research, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246 or by telephone at (407) 823-2901, or email irb@ucf.edu.

I have read and understood the above consent form and desire of my own free will to participate in this study

I agree
I disagree

Do you own a smartphone? (a smartphone is a mobile phone that performs many of the functions of a computer, typically having a touchscreen interface, Internet access, and an operating system capable of running downloaded applications).

Yes
No

Have you ever used a mobile application on your smartphone? (a mobile application is a type of software designed to operate on a mobile device, such as a smartphone or tablet computer, providing similar services of a personal computer).

Yes
No

Have you ever traveled for leisure purposes in the last five years?

Yes
No

For how long have you been using a smartphone?

Less than 1 year
1 to 2 years
3 to 4 years
5 to 6 years
7 to 8 years
More than 8 years

What is the average number of hours per day do you use your smartphone?

Less than 1 hour a day
1 to 3 hours a day
4 to 6 hours a day
7 to 10 hours a day
More than 10 hours a day

What is the average number of hours per day do you use a mobile application on your smartphone?

Less than 1 hour a day
1 to 3 hours a day
4 to 6 hours a day
7 to 10 hours a day
More than 10 hours a day

How often do you travel for leisure?

Less than once a year
1 to 2 times a year
3 to 4 times a year
5 to 6 times a year
More than 6 times a year

What type of accommodation do you mostly use during your leisure travels?

Budget/Economy hotels
Extended Stay hotels
Midscale hotels
Upscale hotels
Luxury hotels
Airbnb
Other (please specify)

Have you ever used any travel-related mobile application?

Yes
No

Have you ever used any location-based mobile app during your travels? (e.g. Google Maps, Waze, Uber, Lyft, mobile hotel booking, or online travel agencies' mobile application). (Location-based mobile applications take advantage of your smartphone's positioning functions to capture your location and provide personalized services suitable to your location).

Yes

No

Have you ever posted a user generated content (e.g, images, videos, text, review etc.) on online platforms such as social media and/or online review platforms?

Never

Less than once a week

Once a week

2-3 times a week

4-6 times a week

Daily

Please read the following information about travel-tracking mobile applications before you start the survey.

Travel-tracking mobile applications (TTMA) are mobile apps designed to help travelers to track, post, and follow travel experiences using their smartphones. TTMAs allow travelers to read and follow other users' travel routes and experiences (as travel-takers), and/or record and post own travel routes and experiences (as travel-posters).

As the same user can use TTMAs as travel-poster and/or travel-takers, you will be asked to answer questions for both situations in this survey.

One example of TTMA is a mobile application called IUI Trips. A brief video explaining how IUI Trips TTMA works is in the following video:

Using TTMA as Travel-Taker

When you use the TTMA as a travel-taker, you can browse and read other users' past travel routes and their travel-related information. The TTMA can automatically suggest travel routes based on your profile, or you can search for travel routes by destination, type of experience, or profile of the traveler you want to follow. Once you find the travel route you want to follow, you click on the selected travel and you will be able to access all the information recorded and posted by the travel-poster on your smartphone (e.g., the travel route map, pictures and videos of visited places, audios explaining the travel route, descriptions of the visited locations, information about transportation, restaurants, accommodation, services, etc.).

After reading the information about using a TTMA as a travel-taker, please indicate your level of agreement with the following statements.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
Using a TTMA as a travel-taker would increase my chances of achieving things that are important to me during my travels.	○	○	○	○	○	○	○
Using a TTMA as a travel-taker would help me to accomplish things more quickly during my travels.	○	○	○	○	○	○	○
Using a TTMA as a travel-taker would increase my productivity during my travels.	○	○	○	○	○	○	○
Overall, I find TTMA useful as a travel-taker.	○	○	○	○	○	○	○
Learning how to use TTMA as a travel-taker would be easy for me.	○	○	○	○	○	○	○
My interaction with TTMA as a travel-taker would be clear and understandable.	○	○	○	○	○	○	○
I would find TTMA easy to use as a travel-taker.	○	○	○	○	○	○	○
It would be easy for me to become skillful at using TTMA as a travel-taker	○	○	○	○	○	○	○
I have the resources necessary to use TTMA as a travel-taker.	○	○	○	○	○	○	○
I have the knowledge necessary to use TTMA as a travel-taker.	○	○	○	○	○	○	○
As a travel-taker, I would find TTMAs compatible with other technologies I use.	○	○	○	○	○	○	○
I can get help from others when I have difficulties using a TTMA as a travel-taker.	○	○	○	○	○	○	○

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
Using TTMA as a travel-taker would be fun.	○	○	○	○	○	○	○
Using TTMA as a travel-taker would be enjoyable.	○	○	○	○	○	○	○
Using TTMA as a travel-taker would be entertaining.	○	○	○	○	○	○	○
As a travel-taker, I would feel comfortable to trust the travel-related information provided on TTMAs.	○	○	○	○	○	○	○
As a travel-taker, I would not hesitate to rely on the travel-related information provided on TTMAs.	○	○	○	○	○	○	○
As a travel-taker, I would feel secure to trust the travel-related information provided on TTMAs	○	○	○	○	○	○	○

After reading the information about using a TTMA as a travel-taker, please indicate your level of agreement with the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
Given a chance, I intend to use a TTMA as a travel-taker.	○	○	○	○	○	○	○
Given a chance, I predict that I should use a TTMA as a travel-taker.	○	○	○	○	○	○	○
Given a chance, I plan to use a TTMA as a travel-taker.	○	○	○	○	○	○	○

Using TTMA as a Travel-Poster

When you use a TTMA as a travel-poster, your smartphone will be able to automatically track your travel routes using your smartphone's global positioning system (GPS) to record your location information. Also, TTMAs can use the information recorded on your photos and videos (geotags) to automatically place them in an easy-to-read route map on your smartphone. As a travel-posters, you can also provide comments and record audios with the key takeaways of your journeys, enabling travel-takers to follow every step of your travels. At the end of your travel, you can post and share your detailed travel experiences recorded on TTMA using social media applications of your preference. By increasing the number of your followers as a travel-poster, you can increase your influence in the community, which then may help you to earn incentives (e.g., peers' recognition, discounts, coupons, miles, rewards, or money).

After reading about the role of a travel-poster, please indicate your level of agreement to the following statements if you are invited to use a TTMA as a travel-poster:

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
Learning how to use TTMA as a travel-poster would be easy for me.	○	○	○	○	○	○	○
My interaction with TTMA as a travel-poster would be clear and understandable.	○	○	○	○	○	○	○
I would find TTMA easy to use as a travel-poster.	○	○	○	○	○	○	○
It would be easy for me to become skillful at using TTMA as a travel-poster.	○	○	○	○	○	○	○
I have the resources necessary to use TTMA as a travel-poster.	○	○	○	○	○	○	○
I have the knowledge necessary to use TTMA as a travel-poster.	○	○	○	○	○	○	○
As a travel-poster, I would find TTMAs compatible with other technologies I use.	○	○	○	○	○	○	○
I can get help from others when I have difficulties using TTMA as a travel-taker.	○	○	○	○	○	○	○
Using TTMA as a travel-poster t would be fun.	○	○	○	○	○	○	○
Using TTMA as a travel-poster would be enjoyable.	○	○	○	○	○	○	○

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
Using TTMA as a travel-poster would be entertaining.	○	○	○	○	○	○	○
As a travel-poster, I would be concerned that TTMAs may not take measures to prevent unauthorized access to my location information.	○	○	○	○	○	○	○
As a travel-poster, I would be concerned that TTMAs may inaccurately keep my location information in their database.	○	○	○	○	○	○	○
As a travel-poster, I would be concerned that TTMAs may share my location information with other parties without obtaining my authorization.	○	○	○	○	○	○	○
Overall, as a travel-poster, I would feel unsafe about providing my location information to TTMAs.	○	○	○	○	○	○	○

After reading about the role of a travel-poster, please indicate your level of agreement to the following statements if you are invited to use a TTMA as a travel-poster:

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
As a travel-poster, I would feel good that I can help other travelers by sharing my travel route and other travel-related information in TTMAs.	○	○	○	○	○	○	○
As a travel-poster, I would enjoy being able to help other travelers by providing my travel route and other travel-related information in TTMAs.	○	○	○	○	○	○	○

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
As a travel-poster, I would feel good that I can give other travelers the opportunity to make more informed travel decisions by sharing my travel route and other travel-related information in TTMAs.	○	○	○	○	○	○	○
As a travel-poster, I believe sharing my travel routes and other travel-related information among other like-minded people on TTMAs is a nice thing.	○	○	○	○	○	○	○
As a travel-poster, I believe it is fun to communicate with other travelers by sharing my travel routes and other travel-related information on TTMAs.	○	○	○	○	○	○	○
As a travel-poster, I believe I would meet nice people by sharing my travel route and other travel-related information on TTMAs.	○	○	○	○	○	○	○
As a travel-poster, providing my travel route and other travel-related information on TTMAs can improve my reputation among TTMAs users.	○	○	○	○	○	○	○
As a travel-poster, when I provide my travel route and other travel-related information on TTMAs, I can get more respect than those users who do not.	○	○	○	○	○	○	○
As a travel-poster, providing my travel route and other travel-related information on TTMAs can help me get more recognition from other users.	○	○	○	○	○	○	○
As a travel-poster, I can enhance my image among other users by providing my travel route and other travel-related information on TTMAs.	○	○	○	○	○	○	○

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
As a travel-poster, I would provide my travel route and other travel-related information on TTMA because of the non-monetary incentives (e.g., appreciation among peers, increase online reputation, gain social media followers, etc.).	○	○	○	○	○	○	○
As a travel-poster, I would provide my travel route and other travel-related information on TTMA because I can receive monetary incentives (e.g., money, discount coupons, etc.).	○	○	○	○	○	○	○
As a travel-poster, I would provide my travel route and other travel-related information on TTMA because I can receive rewards for my post (e.g., reward points, web miles, loyalty programs points, etc.).	○	○	○	○	○	○	○

After reading about the role of a travel-poster, please indicate your level of agreement to the following statements if you are invited to use a TTMA as a travel-poster:

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
Given the chance, I plan to use a TTMA as a travel-poster.	○	○	○	○	○	○	○
Given the chance, I predict that I should use a TTMA as a travel-poster.	○	○	○	○	○	○	○
Given the chance, I intend to use a TTMA as a travel-poster.	○	○	○	○	○	○	○

Based on the definitions provided earlier, have you ever used a TTMA?

Yes

No

I am not sure

What is your gender?

Male

Female

Prefer not to answer

What is your age?

18-25
26-35
36-45
46-55
56-65
66 or older
Prefer not to answer

What is your marital status?

Never married
Married
Living with a partner
Separeted / Divorced
Widowed
Prefer not to answer

What is your education level?

High School
Associate degree (2 year)
Some college
Bachelor's Degree (4 year)
Master's Degree
Doctorate Degree
Prefer not to answer

What is your approximate household annual income?

$25,000 or less
$25,001- $50,000
$50,001-$75,000
$75,001-$100,000
$100,001 - $150,000
$150,001- $200,000
$200,001-$250,000
$250,001 or more
Prefer not to answer

Do you have any comments or considerations about TTMA for the researchers of this study and/or for the developers of this type of mobile applications?

SURVEY CODE

6998

APPENDIX C
IRB APPROVAL LETTER

UNIVERSITY OF CENTRAL FLORIDA

Institutional Review Board
FWA00000351
IRB00001138, IRB00012110
Office of Research
12201 Research Parkway
Orlando, FL 32826-3246

EXEMPTION DETERMINATION

March 6, 2020

Dear Marcos De Medeiros:

On 3/6/2020, the IRB determined the following submission to be human subjects research that is exempt from regulation:

Type of Review:	Initial Study, Exempt Category 2
Title:	FACTORS AFFECTING USERS` ACCEPTANCE OF TRAVEL-TRACKING MOBILE APPLICATIONS
Investigator:	Marcos De Medeiros
IRB ID:	STUDY00001522
Funding:	None
Grant ID:	None
Documents Reviewed:	• HRP - 244, Category: Consent Form; • HRP - 255, Category: IRB Protocol; • Recruitment Script, Category: Recruitment Materials; • Survey Sample, Category: Survey / Questionnaire;

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made, and there are questions about whether these changes affect the exempt status of the human research, please submit a modification request to the IRB. Guidance on submitting Modifications and Administrative Check-in are detailed in the Investigator Manual (HRP-103), which can be found by navigating to the IRB Library within the IRB system. When you have completed your research, please submit a Study Closure request so that IRB records will be accurate.

If you have any questions, please contact the UCF IRB at 407-823-2901 or irb@ucf.edu. Please include your project title and IRB number in all correspondence with this office.

Sincerely,

Adrienne Showman
Designated Reviewer

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