



## **Drivers and Inhibitors of ICT Adoption in Malaysian Travel Agencies: TOE Perspective**

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### **ABSTRACT**

Buhalis and Law (2008) acknowledged the synergistic interaction between technology and tourism has brought revolutionary changes on the industry structure especially among the Traditional Travel Agencies (TTA) due to the emergence of Virtual Travel Agencies and infomediaries. Interestingly, though it is recognised that ICT epitomizes a strategic instrument for survival, yet TTAs are vulnerable to the growth of the ICTs as a tool for e-business and information dissemination (Khuja and Bohari, 2012). Therefore, it is crucial to investigate the factors driving and inhibiting ICT adoption among the Malaysian TTAs. Technology-Organization-Environment (TOE) framework which provides a solid theoretical basis is used to evaluate technology adoption factors. Overall, researchers have agreed with Tornatzky and Fleischer (1990) that the three aspects of TOE influences technology adoption. Qualitative multiple case studies method was used to ensure the adoption factors were explored in depth. Semi-structured interviews is used to collect data from fourteen case firms in Malaysia. The findings revealed three variable categories, namely technology, organization and environment have either driven and/or inhibited the ICT adoption among the TTAs in Malaysia. The TTAs perceived the technology attributes, organizational attributes, environmental attributes as the factors influencing the ICT adoption.

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## INTRODUCTION

The advancement in Information communication technology (ICT) and the changes in the consumer profile and behaviour has brought about revolutionary changes in the tourism industry structure (Buhalis and Law, 2008). Industries related to tourism activities, such as Traditional Travel Agencies (TTAs), have increasingly become susceptible due to the trend towards Virtual Travel Agencies (VTAs) (Viljoen, Lombard and Jooste, 2015; Xiang, Wang, O' Leary and Fesenmaier, 2014). The rapid ICT adoption have enormous implications for the operation, structure and strategy of organizations (Buhalis, 2003). Given the advancement in ICT and internet technologies, some researchers (Law, Leung and Wong, 2004; Lawton and Weaver, 2009) have predicted that TTAs will fade due to the strong pressure from VTAs. However, researchers (Abou-Shouk, Megicks and Lim, 2016; Bennete and Lai, 2005) stated that the survival of TTAs can be enhanced by ICT adoption and use. However, the type and extent of its adoption may differ across organizations especially in developing country like Malaysia due structural and functional weaknesses (Buhalis, 2000).

Existing studies on ICT adoption among tourism SMEs in the context of Malaysia mainly focus on factor influencing SMEs website continuance intention (Ramayah, Ling, Taghizadeh and Rahman, 2016), factors affecting e-commerce adoption among SMEs in a developing country (Ahmad et. al., 2014), the internet adoption on Tourism Small Medium Enterprises (TSMES) (Set, 2014), Use of Web 2.0 for brand awareness and competitive advantage in Malaysian Hospitality Industry (Xin et al., 2014), Internet based ticketing impacts on travel agencies (Khuja and Bohari, 2012), Travel agency strategies for managing the current dynamic environment (Hamid, 2011), Framework for e-commerce adoption model (Ali, Mat and Ali, 2015), Internet diffusion and e-business opportunities amongst Malaysian travel agencies (Suraya, 2003) and e-commerce and value creation empirical evidences in Malaysian tourism sector (Mohamed et al., 2008). Despite the diverse coverage, limited studies have discussed the drivers and inhibitors of ICT adoption among the TTAs (Ahmad et. al., 2014; Suraya, 2003). However, it is important to understand the drivers and inhibitors in order to devise strategies to ensure successful ICT adoption and implementation for business growth and sustainability in accordance to their organization's resource capabilities.

This paper uses the TOE (technology-organisation-environment) framework that seems to include more comprehensive factors. According to (Awa, Ukoha, Emecheta and Nzogwu, 2015) TOE framework encompasses all factors used by other theories, it offers a large number of factors and hence provides richer theoretical lenses to understand adoption behaviour. The technology adoption theories reveals the adopting organisation not only needs to understand the technological factors, but need to be able to comprehend and identify the organisational and environmental factors as it provides opportunities and constraints. Zhu and Kraemer (2006) described TOE as a generic framework within which a host of various factor can be placed. The flexibility to vary the factors or measures for every new research makes the TOE framework highly adaptable (Baker, 2012). As such, it is appropriate to ground this research in a framework that considers the influence of technology, organisation and environment to account for a broader factor likely to drive or hinder the technology adoption. Therefore, the use of Tornatzky and Fleischer's (1990) technology-organisation-environment (TOE) framework enables the consideration and proposed examination of the drivers and inhibitors of technology adoption in traditional travel agencies. Thus, the research question developed for the study: (1) what are the technology-organization-environmental drivers and inhibitors influencing ICT adoption among the TTAs in Malaysia? (2) Do the drivers and inhibitors of ICT adoption among the Malaysian TTAs conform to TOE framework?

### **Theoretical Underpinning**

Technology-organization-Environment (TOE) framework developed by Tornatzky and Fleischer (1990) is vastly used to evaluate technology adoption factors due to its broad applicability and explanatory power. A review of the literature of information technology adoption and innovations theories and models, it is apparent that there are several similarities between the variables used to explain the technology adoption and use. Firstly, 'Technology' in TOE framework is similar to attributes of innovation in IDT, PU and PEOU in TAM1 and TAM2, beliefs attitudes and PCB in TRA and TPB. All of these factors show the successful adoption of technology depends on the internal technology resources and infrastructure. Furthermore, these factors also facilitate in explaining why organizations adopt and use certain type of technology. Secondly, 'Organization' in TOE framework is similar to subjective norm in TAM2, TPB, TRA and UTAUT, image, job relevance, output quality and result demonstrability in TAM2, facilitating condition in UTAUT and information technology resources and capabilities of an organization which are valuable, rare, and hard to be replaced in RBV. Thirdly, TOE framework discussed 'Environment' in terms of consumer readiness, competitive pressure and trading partner's readiness. In addition, institutional theory included the environmental factors such as regulatory pressure, industry pressure, trading partner resources and business process as influencing factors on organizations' decision on technology adoption and use. Therefore, it is clear that TOE framework seems to include more comprehensive factors that can be used as a basis in identifying the drivers and inhibitors of technology adoption in an organization. However, according to Baker (2012) different types of innovation, culture, national and industries will have different factors influencing the innovation adoption. As such it is crucial for TOE framework to be empirically tested to ensure the applicability and robustness in the context of Malaysia.

## **LITERATURE REVIEW**

Table 1 below depicts the literature that has used TOE factors to identify ICT adoption drivers and inhibitors. The literature indicates that in each study, the three aspects of technology, organization and environment to have either driven or inhibited ICT adoption.

### **Technology Factors**

It is evident that technology resources and innovation attributes has been consistently demonstrated as an important factor for successful IT adoption. An examination of the literature summarised in Table 1 below revealed factors which are frequently used to study the ICT adoption decision. An analysis of the literature in Table 1 indicates the attribute relative advantages has been studied extensively. The ICT adoption literature clearly shows that if the technology is perceived to offer greater benefits/advantages over the organisation's current practises, it is more likely the technology will be adopted (Ramdani et al., 2009; Tarofder et al., 2010; Xin et al., 2014). In a competitive environment, attributes of relative advantages create significant motivation for ICT adoption. Further analysis on the literature revealed the rate of adoption to be inversely related to the degree of complexity (Ramdani et al., 2009; Premkumar and Roberts, 1999; Thong and Yap, 1995). However, their studies did not find this factor to be a significant variable in organisational ICT adoption. This possibly could be because the organisations do not worry about how easy these systems are to operate, since technologies are becoming easier to adopt and implement (Kendall et al., 2001).

Subsequently, IT knowledge and IT infrastructure were found to be important factors influencing ICT adoption. The lack of adequate and relevant skills, knowledge, expertise and IT infrastructure may inhibit ICT adoption. However, organisations are more likely to adopt technology when IT expertise and infrastructure are available (Pudjianto et al., 2011; Xu et al., 2004; Zhu et al., 2003). Likewise, the literature has viewed the lack of security and confidentiality in e-business transaction as an inhibitor to technology adoption decision (Abou-Shouk and Eraqi, 2015; Lippert and Govindarajulu, 2006; Oliveira and Martin, 2010). In fact, Al-Somali et al. (2011)

asserted security concern may impede IT adoption because the parties involved in on-line transactions may be reluctant to participate due to the risk involved. Lastly, the cost factor has been widely examined. The literature suggests that technologies that are perceived to be low in cost are more likely drive ICT adoption. The high costs associated with adoption of new technology are the most obvious reason for small firms not to adopt new technology. Alam (2009) in his study found that cost of adoption has a significant relationship on internet adoption in Malaysia. It can be conceived the adoption costs reflect organisational commitment of financial resources dedicated to the adoption of technology.

### **Organisational factors**

The organisational factors consist of organisation's internal environment which are frequently used to study the ICT adoption decision. An examination of the literature in Table 1 revealed, top management support as one of the three top forecaster and a common variable associated with ICT adoption at the organisational level. The extant literature showed top management support to be critical for creating a supportive climate for the adoption of new technologies (Premkumar and Roberts 1999). Likewise, Jeyaraj, Rottman and Lacity (2006) found that top management support as the best predictor for organisational technology adoption. Besides, researchers (Al-Somali, 2011; Pudjianto, 2011; Ramdani et al., 2009; Scupola, 2009; Xin et al., 2014; Yang et al., 2015) also reported top management support to be a significant factor in driving or inhibiting ICT adoption. Subsequently, the literature indicated organisational readiness and resources have the potential to provide significant competitive advantage and the lack of it may delay or inhibit ICT adoption (Al-Somali, 2011). Further scrutiny of the literature in Table 1 exposed firm size as an essential factor determining ICT adoption decision. Firm size has been consistently found to be positively related to ICT adoption research (Abdollahzadehgan et al., 2013; Pang and Jang, 2008; Pudjianto, 2011; Ramdani et al., 2009; Xu et al., 2004). One possible reason for the positive relationship between organisation size and technology adoption in large firms is the flexibility in their resources to assign more resources for new technology adoption and use (Abdollahzadehgan et al., 2013). However, according Hsu et al. (2006) some researchers in organisational and strategic areas argue that large firms are more bureaucratic and less flexible. Therefore, larger size also can be an inhibitor for new technology adoption.

An investigation of the literature in Table 1 disclosed a well-defined strategy for information technology which links between organisation's strategy and the technology is necessary for a successful adoption (Al-Somali et al., 2011). Successful adoption of ICT would require managing the extensive technology applications that are integrated. Therefore, the extent to which organisations innovate effectively depend on their ability to plan in advance, to have a clear strategy and to manage strategically (Laforet, 2009). In fact, the literature have agreed that setting a strategic goal is critical for technology adoption. Subsequently, Perceived benefits and barriers have been established as an important organisational factor. Past researchers (Kuan and Chau, 2008; Oliveira and Martin, 2010) have found perceived benefits to have driven ICT adoption. Whereas, perceived barriers to have impeded ICT adoption (Pan and Jang, 2008). Finally, the attitude towards ICT adoption and management style has been widely examined to uncover the organisations' decision either to adopt or to reject innovation. The literature indicated the management style and CEOs attitude towards a frontier technology is likely to correspond positively towards using technology, for example IT-savvy organisations are likely to adopt and invest in new technologies and vice versa. As rightly put by Thong and Yap (1995), CEO's perception of the adoption is crucial to drive or inhibit technology adoption as they have no evidence of the technology being superior to the existing method of operation. Moreover, each CEO perceives the degree of risk associated differently. Which means if the CEO perceives the benefits of ICT adoption is greater than the risk, and then the business is more likely to adopt ICT.

### Environmental factors

An examination of the literature in Table 1 below revealed the external pressure plays an important role in driving or inhibiting ICT adoption. Kuan and Chau (2001) asserted that an organisation may adopt a technology due to the pressure exerted by its business partners and/or its competitors and thus have nothing to do with the technology or organisation per se. Further inquiry into the literature revealed government support and regulatory factors to influence ICT adoption. Some studies (Al-Somali et al., 2011, 2015; Pudjianto, 2011; Wisdom et al., 2013; Zhu et al., 2006) have acknowledged government support and regulatory environment as a critical environmental factor that may drive or inhibit ICT adoption. A clear commitment of a government to new technologies would encourage potential adopters. The lack of regulatory and government support for IT adoption might hinder the likelihood of organisations adopting technologies, due to the high risk involved. Wisdom et al. (2013) identified that a favourable regulatory environment is positively related to ICT adoption and plays a more crucial role in developing countries than developed countries (Zhu et al., 2006). According to Kraemer et al. (2006), the common concern of organisations to adopt new technologies are inadequate legal protection, unclear business laws as well as security and privacy concern.

Consequently, national e-readiness was found to be an important factor influencing ICT adoption. According to Bui, Sankaran and Sebastian (2003), e-readiness refers to the ability of a country to use ICTs to migrate traditional business into the new economy. Researchers have pointed out that national e-readiness can be evaluated based on the availability of the relevant physical infrastructure (high bandwidth, affordable price), transportation infrastructure, information infrastructure and telecommunications, banking infrastructure and skilled workforce (Al-Somali et al., 2011; Bui et al., 2003). Researchers such as (Buhalis and Law 2001; Molla and Licker, 2005; Xu et al., 2004) have reported that national e-readiness can pose as a barrier to innovation adoption in an organisation due to poor information and telecommunications infrastructure, lack of IT skilled human resources, high cost for internet access and connectivity, insecurity and high cost of hardware. Finally, external Information system support (IS support) attribute was found to either drive or inhibit ICT adoption. External IS support is the availability of support for adopting and technologies (Ramdani et al., 2009). According to the author, the development of outsourcing activities and the growth of third party support has a significant impact on technology adoption if they perceive there are adequate vendors or third party support. The positive relationship between external information system support and technology adoption can be attributed to the limited technological skills, knowledge and experience.

Table 1 Factors Influencing ICT Adoption at Organizational Level

Source	ICT Adoption Factors
Al -Somali et al. (2015)	relative advantage, compatibility, cost, security concern, language barrier, IT readiness, management support, learning organization, receptivity toward change, strategic orientation, formalization and decentralization, market force, economic downturn, competitive pressure, regulatory and legal environment and national e-readiness
Yang, Sun, Zhang and Wang (2015)	relative advantage, simplicity, compatibility, experience ability, IT infrastructure, top management support, competitor pressure and partner pressure.
Abdollahzadehgan et al. (2013)	relative advantage, complexity, compatibility, top management support, firm size, technology readiness, competitive pressure and trading partner pressure
Xin et al.(2014)	perceived benefits, perceived barriers, management style, top management support, organizational readiness, competitive pressure, customer power and government support
Pudjianto et al.(2011)	ICT skills, ICT infrastructure, top management support, organizational compatibility, extent of coordination, regulatory environment and competitive environment
Al- Somali et al.(2011)	technology readiness, top management support, strategic orientation, customer pressure, regulatory environment and national e-readiness
Oliveira and Martin (2010)	technology readiness, technology integration, security applications, perceived benefits, IT training programs, access to the IT system of the firm, internet, e-mail norms, website and competitive pressure
Low, Chen and Wu (2011)	relative advantage, complexity, compatibility, top management support, firm size, technology readiness, competitive pressure and trading partner pressure
Ramdani, Kawalek and Lorenzo (2009)	relative advantage, compatibility, complexity, trialability observability, top management support, organizational readiness, IS support, firm size, market scope, competitive pressure and external IS support

Table 1 Cont.

Teo, Lin and Lai (2009)	perceived direct benefits, indirect benefits, perceived cost, firm size, top management support, Information sharing culture and business partner influence
Pan and Jang (2008)	IT infrastructure and technology readiness, firm size and perceived barriers, production operation environment, enhancement of product and service, competitive pressure and regulatory policy
Lippert and Govindarajulu (2006)	security concern, reliability, deployability, firm size, business scope, technological knowledge, perceived benefits, competitive pressure, regulatory influence, dependent partner readiness and trust in web service provider
Zhu, Kraemer and Xu (2006)	technology readiness, technology integration, firm size, business scope, managerial obstacles, regulatory environment and competitive pressure
Xu, Zhu and Gibbs (2004)	technology competence, firm size, global scope, enterprise integration, competition intensity and regulatory environment.
Zhu, Kraemer and Xu (2003)	IT infrastructure, IT skills, e-business know how, technology competence, business scope, firm size, consumer readiness, competitive pressure, lack of trading partner readiness, internet penetration and consumer willingness
Scupola (2003)	benefits, barriers, IS knowledge, technology resources, financial resources, firm size, government intervention, public administration and external pressure
Waarts et al.(2002)	perceived advantages and disadvantages, compatibility, adopter attitude, availability of organizational IT resources, IT intensity, IT integration, dependence on parent company, industry competitiveness and supply side competition.
Kuan and Chau (2001)	perceived direct benefits and perceived indirect benefits, perceived financial cost, perceived technical competence, perceived industry pressure and perceived government pressure
Mehrtens, Cragg and Mills (2001)	perceived benefits , IT knowledge, organizational readiness and external pressure
Chau and Tam (2000)	benefits, migration cost, satisfaction with the existing computing system, IT human resource availability, degree of formalization and market uncertainty

Source: Current Study

The review of literature above indicated that there are a limited number of studies on ICT adoption having been found within the Malaysian context, specifically in the travel sector. Despite the Malaysian government's initiative to boost the development of ICT, its adoption among TTAs in Malaysia are still low (Datuk Hamzah, MATTA President., personal communication, September 22, 2016). The advancement in technology and the changes in the customer profile and behaviour has led to profound changes in the structure of travel distribution. In the last few years, a substantial number of tourist started to use electronic mediums for travel bookings bypassing the traditional travel agencies. Nevertheless, it has created an opportunity for VTAs which is much more powerful than traditional travel agencies to emerge and grow. Therefore, to remain relevant in the industry it is inevitable for TTAs to co-exist with technology. As such it is timely to assess the factors influencing ICT adoption to circumvent disintermediation. However, it is unclear if the rich set of factors identified and assessed for developed countries would apply equally to TTAs in Malaysia. Therefore, this study bridges the gap by developing ICT adoption model, using Malaysia as a research context to better understand the country-specific factors that might drive or inhibit ICT adoption among the TTAs in Malaysia.

## METHODOLOGY

This study utilizes multiple case study method using non-probability purposive selection criteria. The use of multiple case studies seems appropriate as it provides a holistic perspective of a complex phenomenon, i.e. the influence of ICT attributes for ICT adoption in the organization. According to Mehrtens, Cragg and Mills (2001) multiple case studies are highly relevant as it can capture 'reality' in substantial details and when the research focus is on contemporary events. This allows for an in-depth understanding of the ICT adoption drivers and inhibitors among the TTAs in Malaysia where existing literature may not be able to distinguish and explain. Consequently, the case firms were carefully selected to predict similar results (Yin, 2014), wherein within the selection criteria, the fourteen firms selected are SME TTAs which have been operating for more than 20 years.

In-depth two hours case interview was carried out with the chief executive officers (CEOs) from fourteen TTAs based in Malaysia. The interview protocol was designed based on the constructs and theories identified from past literature. Semi-structured interviews were used to elicit information on factors driving and inhibiting ICT adoption. The in-depth interview with the fourteen CEO-owner was deemed sufficient as they are the key decision makers in the organizations (Levy and Powell, 2002) and have implications for firm strategy (Glavas and Mathews, 2014). Moreover, Yin (2014) asserted interviews as one of the most important case study evidence as it is highly flexible and potentially yields data of great depth.

The qualitative data analysis emphasizes there is no one accurate method for organizing, analyzing and interpreting qualitative data. The data analysis in qualitative approach mainly focuses in the understanding of the research issue (Kaplan and Maxwell, 2005). To establish internal and external validity, within-case and cross-case analysis were adopted. In this study analytic technique such as pattern matching and explanation building was adopted to seek corroboration and causal links in the empirical data which are then presented in narrative form. Within-case analysis was conducted to gather a clear understanding of the organization's distinctive characteristics, wherein each TTAs was treated as a separate study. Subsequently, the cross-case analysis was carried out to ascertain the TOE attributes across the TTAs.

### Within-case analysis

Table 2 depicts the demographic information of the SME TTAs investigated, relatively matured sample with 30.5 being the average age of the firms. This age average is in line with the definition of "Traditional Travel Agency" who focuses on providing traditional travel services like arranging transportation, accommodation, meals, sightseeing, preparing individual itineraries, advising on the details pertaining to documentation and etc. for many years before ICT was introduced. In this study the name of the TTAs and its owner-CEO are not revealed due to confidentiality purpose hence the TTAs are collectively referred to as cases A-N.

Table 2 Demographic Information of Cases

Participant Case number	Job Role of the Respondent	Age of the Firm	Firms number of employees	Firms customer orientation	Firms descriptive type	Main Purpose for ICT adoption
CASE A	Owner and CEO	31	10	B2C	Inbound/ Outbound and ticketing	Communication and Create awareness
CASE B	Owner and CEO	29	50	B2C	Inbound/ Outbound and ticketing	Communication and Create awareness
CASE C	Owner and CEO	29	10	B2C	Inbound/ Outbound and ticketing	Communication and Create awareness
CASE D	Owner and CEO	22	55	B2C	Inbound/ Outbound and ticketing	Communication and Create awareness
CASE E	Owner and CEO	21	5	B2C	Outbound	Communication and Create awareness
CASE F	Owner and CEO	28	30	B2C	Inbound/ Outbound and ticketing	Communication and Create awareness
CASE G	Owner and CEO	27	30	B2C	Inbound and ticketing	Communication and Create awareness
CASE H	Owner and CEO	41	26	B2C	Outbound and ticketing	Communication and Create awareness
CASE I	Owner and CEO	41	33	B2C and B2B	Inbound/ Outbound and ticketing	Communication and transaction
CASE J	Owner and CEO	32	10	B2C and B2B	Outbound and ticketing	Communication and transaction
CASE K	Owner and CEO	21	60	B2C and B2B	Inbound/ Outbound and ticketing	Communication, transaction and as a strategy
CASE L	Owner and CEO	30	52	B2C and B2B	Inbound/ Outbound and ticketing	Communication, transaction and as a strategy
CASE M	Owner and CEO	28	70	B2C and B2B	Inbound/ Outbound and ticketing	Communication, transaction and as a strategy
CASE N	Owner and CEO	41	50	B2C and B2B	Inbound and ticketing	Communication, transaction and as a strategy

Source: Current study

A scrutiny on the size of employees in Table 2, revealed the TTAs fell in the category of small and medium-size establishments (SMEs) based on the classification for SMEs in the context of Malaysia. Furthermore, the finding also exhibited cases A-N varied in terms of customer orientation (focusing on both B2B and/or B2C activities), in their operations in terms of inbound and/or outbound tours, being or not being ticketing agents, and purpose for ICT adoption i.e. communication, creating awareness, transaction and as strategy. An analysis on the purpose of ICT adoption revealed the TTAs can be categorized into three ICT adoption stages i.e. (1) Communication stage (cases A-H), (2) Transaction or e-commerce stage (cases I-J) and (3) Strategy or e-business stage (cases K-N).

### **Cross-case analysis**

Table 3 below shows the three main variables categories that have influenced the ICT adoption among the SME TTAs in Malaysia i.e. technology, organizational and environmental variables. An examination on Table 3 revealed two technological factors (i.e. relative advantage and perceived trialability), one organizational factor (i.e. owner's attitude) and four environmental factors (i.e. competitive pressure, trading partner pressure, external technical support and Industry trend) to be the driving force for the SME TTAs operating at 'communication stage'. On the contrary the other TOE factors such as lack of compatibility, complexity of the technology, lack of IT knowledge and skill among the employees' and owners', lack of IT infrastructure, high cost, negative attitude, and lack of organizational readiness, firm size and perceived barriers turned out to be the inhibitors.

Whereas, at the 'e-commerce stage' four technological factors (i.e. relative advantage, perceived compatibility, perceived trialability and employees'/owners' IT knowledge/skills), one organizational factor (i.e. organizational attitude) and the same four environmental factors (i.e. competitive pressure, trading partner pressure, external technical support and Industry trend) seemed to have driven the ICT adoption. Conversely, four factors (i.e. lack of IT infrastructure, high cost, lack of organizational readiness and perceived barriers) were found to be the inhibitors.

Finally, as the organization progressed towards 'e-business stage', five technological factors (i.e. perceived advantages, perceived compatibility, perceived trialability, IT knowledge/skills and IT infrastructure) were found to have driven the ICT adoption. Besides, at e-business stage the firms are influenced by four organizational factors (i.e. organizational attitude, organizational readiness, strategic orientation and firm size) and the same four environmental factors. On the contrary, two factors (i.e. high cost and perceived barriers) turned out to be the inhibitors. The findings show the ICT adoption drivers and inhibitors identified among the TTAs operating in Malaysia do conform to the TOE framework.

Table 3 The Drivers and Inhibitors of ICT Adoption in Malaysian SME TTA

Purpose of ICT adoption	Case	Technology Factors		Organisational Factors		Environmental Factors	
Stages		Drivers	Inhibitors	Drivers	Inhibitors	Drivers	Inhibitors
Communication	Case A-H	Relative advantage, Perceived trialability	Lack compatibility, Complexity, Lack IT knowledge/skills, Lack of IT Infrastructure, High Cost	Owner's attitude and mind-set	Negative attitude, Lack of organizational readiness, Firm size, Perceived Barriers	Competitive pressure, Trading partner pressure External IS support, Industry trend	None
E-commerce	Case I-J	Relative Advantage, Perceived compatibility, Perceived trialability, IT knowledge/skill,	Lack of IT Infrastructure and High cost	Organisational attitude	Lack of organizational readiness, Perceived Barriers	Competitive pressure, Trading partner pressure External IS support, Industry trend	None
E-Business	Case K-N	Relative Advantage, Perceived compatibility, Perceived trialability, IT knowledge/skills IT Infrastructure	None	Org attitude, Org readiness, Strategic orientation, Firm size	Perceived Barriers	Competitive pressure, Trading partner pressure External IS support, Industry trend	None

Source: Current study

## DISCUSSION

First, on technology drivers, this study established perceived relative advantage as a key driving force influencing ICT adoption among the TTAs in Malaysia. This finding concurs with Tarofder et al. (2010) and Xin et al. (2014) that is if the technology is perceived to offer greater advantages, it is more likely the technology will be adopted. Next, perceived trialability was found to drive ICT adoption. The probable reason is that the TTAs in Malaysia value the opportunity to try out and experiment the software, hardware and the interactive features on the websites on trial basis before making the adoption decision as it provides the opportunity to test run the system and wither the teething problems (Setiowati et al., 2016; Tehrani and Shirazi, 2014). Then, perceived compatibility was found to foster ICT adoption. The CEOs of Malaysian TTAs found compatibility to be an important factor in technology readiness. Wherein, if the technology being adopted is compatible with the current system and process, the TTAs are more likely to adopt technology (Yang et al., 2015). Therefore, it is important to understand the new technology initiated must be compatible with the TTAs existing IT infrastructure. Finally, IT infrastructure and the owners' and employees' IT knowledge and skills was found to drive ICT adoption. It is noteworthy to mention that IT readiness in terms of IT skills/knowledge and IT infrastructure as a precursor for sophisticated ICT adoption. The lack of IT readiness in an organization may delay the adoption (Al-Somali et al., 2011, 2015; Zhu et al., 2006). However, it is interesting to note that some TTAs (cases A-H) did not find IT readiness (i.e. IT knowledge/skills and IT infrastructure) to be a crucial variable. A probable reason could be the technology adopted are simple and basic and do not require a high level of IT infrastructure and knowledge/skills to operate.

Subsequently, on technology inhibitors, this study found ICT adoption cost as an inhibitor. Extant literature has suggested if the technology is perceived to be low in adoption cost, most likely it will be adopted (Kshetri, 2007; Teo et al., 2009). In fact, the study conducted by Ramayah et al. (2016) found that cost of adoption has a significant relationship with internet adoption and continuance among the Malaysian SMEs. The high telecommunication cost, IT infrastructure cost, training cost, software development cost and implementation cost are among the obstacles inhibiting ICT adoption among the Malaysian SME TTAs. Past studies on ICT adoption had identified organizations are more likely to adopt technology when IT infrastructure and skills are available (Pudjianto et al., 2011; Xu et al., 2004; Zhu et al., 2003), the lack thereof however inhibit.

Consistently, this study revealed the lack of IT infrastructure to inhibit ICT adoption for some SME TTAs. This finding concurs with Chau and Tam (1997) who found the lack of IT readiness (i.e. IT infrastructure, IT skills/knowledge) as one of the key factor inhibiting technology adoption. In the context of Malaysian SME TTAs, the lack of IT readiness can be attributed to financial constraint and the high investment cost associated with the IT software and hardware. Consequently, lack of compatibility was found to inhibit ICT adoption by a handful of SME TTAs. This finding is similar with Abou-Shouk and Eraqi (2015). The resistance to changes and the absence of compatible IT infrastructure i.e. hardware, software and human resources for a new adoption seemed to be the reasons for this finding. Finally, the finding of this study revealed perceived degree of complexity as one of the obstacles for ICT adoption among the SME TTAs. The possible reasons are due to lack of understanding and awareness of the technology especially on the online platform had created the apprehension among SME TTAs. However, it is interesting to note that four SME TTAs (cases K-N) did not find technology factors to be inhibiting which is most likely due to the availability of external system support.

Next, on organizational drivers, this study revealed organizational and the owners' attitude towards ICT adoption to have a substantial effect on the adoption decision. This implies the CEO's and employees' e-vision and favorable mindset is crucial for a new ICT adoption. One probable reason might be they do not have any evidence of the technology being superior or successful. This finding concurs with Alford and Page (2015). Subsequently, organizational readiness that has the potential to provide significant competitive advantages and is the most important organizational characteristics affecting ICT adoption (Al-Somali et al., 2011, 2015; Xin et al., 2014) was found to drive ICT adoption among the SME TTAs in Malaysia. Besides, this study also found strategic orientation to be a driving force for ICT adoption. It is evident that TTAs need to have clear strategies in regard to technologies, products and new markets to embrace ICT more extensively. Finally, consistent with past researchers (i.e. Abdollahzadehgan et al., 2013; Pang and Jang, 2008; Pudjianto, 2011) firm size was found to drive ICT adoption for certain SME TTA (i.e. case I-N). This is probably because these TTAs have greater resource capability and flexibility to assign more resources.

Subsequently, on organizational inhibitors, this study found perceived barriers to be the key inhibitor. This finding concurs Pan and Jang, (2008) and Zhu et al. (2006). Malaysian SME TTAs which are susceptible to various internal and external challenges were impacted by their perceived barriers towards ICT adoption. The more a technology is perceived as barrier due to lack of IT skills, financial resources, IT human resources, IT infrastructure, high cost and etc., more adverse effect on ICT adoption among the TTAs. Next, the findings of this study revealed SME TTAs with CEOs who lack innovativeness and have unfavorable attitude or mindset towards ICT adoption are more likely to reject or delay the ICT adoption. Their negative attitude may have an adverse effect on the ICT adoption decision. This finding corroborates with Al-Qirim (2005) and Warts et al. (2002). Similarly, the lack organizational readiness (i.e. financial, IT and IT human resources) revealed to impact ICT adoption in a negative way (Al-Somali et al., 2011; Hung et al., 2010). In this study the lack of organizational readiness was identified as one of the reasons why SME TTAs (cases A-J) are hesitant to adopt ICTs. If the organization readiness is low, TTAs intention to adopt technology tends to be lower as it might exert constraint on the CEOs confidence on the adoption decision. Finally, it is noted that firm size was found to inhibit ICT adoption for certain TTAs (cases A-E). This is probably because these TTAs may not have enough resource capability and flexibility to assign more resources due to being a small size enterprise.

Finally, on environmental drivers, this study found external pressure (i.e. competitive pressure and trading partner pressure) as the key driving force. This finding concur with Al-Somali et al. (2015) and Yang et al. (2015). Factors such as availability of external technical support and industry trend as well appeared to have fostered ICT adoption among the SME TTAs in Malaysia. Travel agency business being too susceptible to ICT development and the fear of being disintermediated forces the SME TTAs to respond to the changes in environment to stay relevant in the industry. Moreover, the SME TTAs are pressured by their trading partners

such as airline companies, hotels and destination management companies to do so. Therefore, in order to secure partnership and business continuity, SME TTAs have no choice but to adopt ICT and to work on the same platform as their trading partners. Besides, when the TTAs see more of their competitors adopting technologies, they feel the need to adapt to remain competitive and relevant in the industry. It can be inferred that for a highly competitive industry like tourism, the SME TTAs need to constantly keep abreast with the technological development because the competition now has extended to the virtual world. Furthermore, the development of outsourcing activities and the role of external technology consultant are undeniably relevant for developing country like Malaysia that lacks IT talents (Al-Somali et al, 2015; Ramdani et al., 2009).

Whereas, on environmental inhibitors, the finding revealed these factors were not perceived to inhibit ICT adoption. These factors were considered as neutral that is the TTAs understands and acknowledges the challenges faced but rejected the adverse influence on the adoption decision. Though it has been found economic downturn to have a positive association with ICT adoption, this study revealed the economic turbulence will not foster or impede ICT adoption among the TTAs in Malaysia. This is possibly because technology adoption is a rapidly changing phenomenon, thus to stay relevant and competitive during crisis time the SME TTAs may take the approach to use ICT especially networking technologies and website to stay closer to customers. Nevertheless, regulatory environment was found to be a critical factor influencing ICT adoption by past researchers (Al-Somali et al., 2011, 2015; Wisdom et al., 2013), this study did not find support. This could possibly be because the regulatory and legal protocol in Malaysia such as e-commerce act and personal data protection act did not make it difficult for ICT adoption. Government support also was found to have no association with ICT adoption in SME TTAs in Malaysia. Chong (2004) and Ramayah et al. (2016) also found government support is negatively related to e-commerce adoption and website continuance respectively. This result suggests most SME TTAs would have achieved a higher state of adoption by themselves and tend to be more independent (Ramayah, et al., 2016). In addition, national e-readiness also was found to have no association with ICT adoption. The result is consistent with Al-Somali et al. (2011) who asserted it is important to look beyond national e-readiness i.e. IT infrastructure to examine how the regulatory environment in a country contributes or undermines the ICT adoption. Challenges such as low speed, low coverage and connectivity, high internet cost and lack of local skills did not inhibit the SME TTAs in Malaysia towards technology adoption and use. This implies regardless of stages/types of ICT adoption, the environmental factors such as economic uncertainties, regulatory environment, government support and national-readiness did not inhibit ICT adoption among the SME TTAs in Malaysia due to the nature of the business and the CEOs independent initiatives

## CONCLUSION

The study has investigated the ICT adoption drivers and inhibitors among the TTAs in Malaysia to discover if the drivers and inhibitors do conform to TOE framework using a multiple case study approach. TOE framework that integrates technology, organization and environment has been proposed. ICT adoption literature reviewed lacked country and industry specific factors (i.e. travel agencies) despite the fact that travel sector has been acknowledged as one of the country's economic enabler. The proposed model depicts the technological, organizational and environmental factors that foster or impede ICT adoption among the Malaysian SME TTAs. It also indicated that the ICT adoption among the SME TTAs in Malaysia are not impeded by the uncertain environmental condition.

Two research questions were answered. First, in terms of ICT adoption drivers and inhibitors among the SME TTAs in Malaysia, all case firms (TTAs) have found to either/or be driven/inhibited by various technological, organizational and environmental factors. Technology drivers and inhibitors (i.e. perceived relative advantages, perceived trialability, perceived compatibility, IT knowledge/skills, and IT infrastructure, high IT cost, lack of IT infrastructure, lack of compatibility, IT complexity and lack of IT knowledge/skills); Organizational drivers and inhibitors (i.e. attitude, organizational readiness, strategic orientation, firm size, perceived barriers, lack of organizational readiness and negative attitude); and environmental drivers (i.e. competitive pressure, trading partner pressure, external IS support and industry trend) have significantly influenced the way the SME TTAs see and adopt ICT. Second, in relation to conforming ICT adoption drivers and inhibitors to TOE framework. The study clearly indicated the ICT adoption drivers and inhibitors among the SME TTAs do conform to technology-organization-environment (TOE) framework (Tornatzky and Fleischer, 1990).

This study adds value to tourism literature, firstly by assisting in identifying the industry and country specific ICT adoption drivers and inhibitors among established SME TTAs, whom existed in the industry for more than 20 years. Secondly, this study provides empirical evidences on the applicability of TOE framework in explaining the drivers and inhibitors of ICT adoption in the context of Malaysia. Furthermore, one important implications for practice can be derived from the outcome of this study. For example, recognizing and understanding the ICT adoption drivers and inhibitors may assist the CEOs to device specific strategies for their business growth and sustainability according to their organization's resource capabilities. However, like any other research this study also have a number of limitations; (1) the enquiry of the study was limited to the perspective of single respondent, the CEO/owner of the TTAs, (2) this study focused on a single tourism sector, the SME TTAs and on a limited geographic area and (3) this study focused on TOE factors to investigate ICT adoption drivers and inhibitors, although these factors found supported additional factors suggested by other theories (i.e. TAM) might give a greater insight. It is suggested future studies should focus on investigating the drivers and inhibitors as a stage based phenomena to provide deeper understanding on the internal and external factors leading to ICT adoption among SME TTAs in Malaysia.

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