



INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES



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To Link this Article: <http://dx.doi.org/10.6007/IJARBSS/v8-i15/5100>

DOI: 10.6007/IJARBSS/v8-i15/5100

Received: 03 Nov 2018, **Revised:** 11 Dec 2018, **Accepted:** 25 Dec 2018

Published Online: 31 Dec 2018

In-Text Citation: (Shaharuddin, Abd.Rahman, Aziz, & Kassim, 2018)

To Cite this Article: Shaharuddin, N. A., Abd.Rahman, A., Aziz, Y. A., & Kassim, S. (2018). Determinant of Web-Technology and e-Business adoption among SMEs Travel Agencies in Malaysia. *International Journal of Academic Research in Business and Social Sciences*, 8(15), 178–200.

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Special Issue: Hospitality Management Dynamics and Consumer Engagement, 2018, Pg. 178 - 200

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Determinant of Web-Technology and e-Business adoption among SMEs Travel Agencies in Malaysia

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Abstract

This empirical study investigated the relationship between Innovational, Organizational and Environmental (IOE) with web technology & e-business adoption among small and medium (SMEs) travel agencies in Malaysia. This paper presents a conceptual consideration on the role of Malaysia SMEs travel agencies internal and external SMEs characteristics in encouraging the adoption of web technology & e-business adoption. This study is an ongoing research which a theoretical argument was developed, and research methodology has been tested through regression analysis. We introduce e-resources, data secrecy & confidentiality and training & human capital investment as the predicting variables that influence the web technology & e-business adoption. A structured questionnaire was distributed to the owner/s-managers of travel agencies listed in the Ministry of Tourism and Culture of Malaysia (MOTAC) webpage from five regions throughout Malaysia. 341 respondents have been selected as the sample of the study based on multi stage cluster sampling procedure. The data analysis was carried out using quantitative analysis software of Statistical Program for Social Science (SPSS) version 23. The results revealed the Innovational characteristics (ICs) and Organizational characteristics (OCs) were the important predictors in shaping web technology & e-business adoption. In contrast, the Environmental characteristics (ECs) was found as not significantly associated to web technology & e-business adoption among Malaysian SME's travel agencies.

Keywords: Web technology & e-business adoption, SMEs, Travel Agencies

Introduction

SME's have played a significant role in growing the economy in all countries, and measured as the backbone for industrial development (Poorangi et al., 2013; Guriting et al, 2006; Ramayah et al, 2003, Alam, Kamal 2009; Moghavvemi et al., (2012). The tourism industry has been found to be largely dominated by SMEs, and among them are travel agents, which are typically classified as small

businesses (Standing et al., 1999; Gammack et al., 2004; Karanasios, 2008). As the Malaysian tourism industry is comprised of a high proportion of small businesses, it faces greater challenges than some of other major industries in the country (Set, 2013).

The presence of Information, Communication & Technology (ICT) has transformed travel agency business into a new platform in which the Internet offers a new distribution channel for unlimited travel and tour products to the widely world. Industry players are aggressively moving towards online business practice with the application of ICT and e-business facilities. The travel agencies services contributed 1.6 % of the Gross Value Added (GVATI) of Tourism industry in 2016 (TSA, 2016). The lucrative income is usually generated from the collection of travel & tour services and sales of flights tickets. The online travel agencies markets remain significant role in developing the global business.

However, in the growing markets of travel and tour segment, small and medium-sized tourism enterprises (SMTEs) are either not aware, or do not possess or have ready access to resources needed to make the most of the Internet opportunities available as an effort to boost the company's performances (Karanasios, 2008). The future development and growth of the tourism industry depends largely upon the management practices at the enterprise level and other internal as well as external factors that underpin the performance of tourism enterprises (Set, 2013).

Generally, business transactions via the Internet (e-commerce and e-business) are still rare among SMEs in Malaysia with little emphasis on the use of ICT, (Tan & Eze, 2008); (Chin, 2010). Compared with large organizations, SMEs are relatively weaker at various levels (i.e., organizational, managerial, technological, individual and environmental). About 70% of SME owners are IT illiterate; out of total 90% SMEs firms, less than 15% have adopted e-business; SMEs sector has not reached the mark yet as the biggest obstacle that hampers the growth and progress is funding; more than 50% of SMEs collapse within first five years of operation (Alam, 2009; Tan & Eze, 2008; Chin, 2010; Hashim, 2007). Only 30% of SMEs have a web presence and use IT extensively in business which reflects a poor rate of IT adoption among local SMEs; ICT is facing big challenges due to the slow adoption of technology (Hashim & Wafa, 2002; Muhammad et al., 2010; Lee, 2004; Reiss, 2006; and Ahmad & Seet, 2009). In Malaysia scenario, previous researchers mostly concluded that Malaysia SMEs is at the disadvantage stage. SMEs only utilize ICT technologies to communicate, promotional and marketing purposes but have yet to utilize ICT to increase their competency to compete in global markets.

For travel agency business segment, there are countries which are experiencing a lower ICT adoption, absence of website facilities, failure to display any interactive Internet marketing features, severely underutilizing Internet facilities, lagged behind for Internet penetration, and cases of traditional travel agents whom are reluctant to fully utilize ICTs; (Intrapairot & Shivihok, 2003; Tatoglu, 2003; Egyptian Travel Agents Association; Vrana et al, 2006, Dorji, 2011; Law & Leung, 2000; Usoro, 2007). ICT adoption among Malaysia SME is still low and there are still lower usage of ICT facilities among SMEs (Khuja , 2012; Mazhatul, 2000; Alam et al., 2009; Set, 2014).

The crucial contribution of this study focused on rectifying the main determinants for current web-technology & e-business adoption among SMEs travel agencies. The results may be useful to encourage Malaysia SMEs to embark for a bigger coverage of internet penetration as well as providing a new platform to conduct online competitive business using high technology facilities. This study aims to provide an assessment of the potential of ICT from the innovational, organizational and environmental perspectives as a way to assist local SMEs TAs to further strategize their future business in the global market.

As an effort to improve SMEs travel agencies performances at various managerial, organizational and technological level, it is worth investigating into the internal and external determinant factors that contribute to web technology & e-business adoption among SMEs perspectives. A Diffusion of Innovation (DOI) theory was employed as the basic in explaining the relationship between the IOE characteristics and web technology & e-business adoption. The outcome of this study provides an input for the key players in travel agencies segment such as the government institutions to update and review the current policy related to web-technology & e-business implementation in Malaysia. In fulfilling the needs to address the industrial gaps, this study also provides inputs to assist owner-manager to recognize the strength of inner and external factors from IOE contexts in developing ICT investment decisions. It is hoped that this study can suggest an idea to inspire Malaysian entrepreneurs to generate income and become competitive in the global market.

Literature Review

This section provides a comprehensive review of ICT adoption background and the main purpose of this chapter is to re-examine the direct relationship between Innovational, Organizational and Environmental characteristics and web-technology & e-business adoption among SMEs travel agencies in Malaysia. To fit the current framework in explaining web-technology & e-business adoption from IOE perspectives, the main framework of the study was governed by the Diffusion of Innovation Theory (DOI) by Rogers (2003) and assisted by Technology, Organizational & Environmental Theory by Tornatzky and Fleischer's (1990), Resource Based Theory by Caldeira and Ward (2003); Penrose (1959) and The Institution Intervention Theory by Damsgaard and Lyytinen (1996); King et al. (1994) and Network Theory by Abrahamson and Rosenkoff (1997).

The components of the ICT family in this study are referring to the network facilities of the Internet, the World Wide Web, and e-business. In line with the objective of the study; to investigate the ICT adoption among businesses from the customer's perspectives, the basic ICT facilities such as e-mail, users interface application and intelligence are excluded from this research.

| Category | Micro | Small Enterprises | Medium Enterprises |
|--------------------------|---|--|--|
| Services & other sectors | Sales turnover of less than MYR300,000 or full-time employees less than 5 | Sales turnover from MYR300,000 to less than MYR3 million or full-time employees from 5 to less than 30 | Sales turnover from MYR3 million to not exceeding MYR20 million or full-time employees from 30 to not exceeding 75 |

Source: SME Corp (2014)

According to SME Corporation (2014), SME TAs are referred to the firms with sales turnover from MYR300,000 to less than MYR3 million or having full-time employees from 5 to less than 30 people. To compete globally, this study is relevant to assist the SME TAs groups to rectify the current ICT adoption in firm's operation and to focus on investing in specific web technology & e-business facilities to excel in their business.

Innovational Characteristics Context

Most of the previous study found mixed findings on the contribution of relative advantage, compatibility, complexity, social influence, location, e-resources, top management support to significantly contributed to ICT adoption. Innovational characteristics of relative advantage, compatibility, complexity, social influences and location were indicated to be significant in most of previous studies (Jeyaraj et al 2006; Thong, 1999; Agarwal & Prasad, 1997; Kwon & Zmud, 1987; Tornatzky & Klien, 1982; Van Skyle et al, 2002; Khemthong & Roberts, 2006; Migiro & Ocholla, 2005). Previous studies found relative advantage as one of the strong predictors and positively related to ICT adoption (Premkumar et al, 1994; Tan & Teo, 2000; Doolin & Troshani, 2007; Alam et al, 2007). However, Kilangi (2012) found insignificant relationship between relative advantage and ICT adoption.

Relative advantage dimension in this study refers to the degree of acceptance of possible advantages that web-technology & e-business can contribute for travel agencies SME's firms in Malaysia. Among the benefits discussed are to enhance communication effectiveness, to reduce costs and time, to increase firm's distribution channels and to have the ability to reach new markets, to generate competitive advantage, to improve business efficiencies, to increase firm's profitability and to compliment the current way of conducting business by relying on latest web technology. We strongly believed that, with the adoption of web-technology & e-business facilities, SMEs travel agencies will have the capabilities to improve today's business performance to a greater level with the proper allocation of managerial, financial and technological resources. Hence, based on the inconsistent findings of previous studies and due to the literature, that exemplified the contribution of ICT to the construction of the development of SME's travel agencies, this study examined relative advantage as the determinants for web technology & e-business adoption context.

Arts et al., (2011) defined compatibility to the degree as the innovation that matches the potential adopter's needs and value. This study refers compatibility to the four elements of highly compatible of the web-technology & e-business application which are the firm's values, believes, and

business needs, compatibility with the suppliers and partners, the fitness with existing firms information system and distribution channels (Roger, 2003; Kilangi, 2012; Kendall et al., 2001; Moore & Benbasat, 1991; Thong, 1999; Saffu et al, 2008; Black et al, 2001, Lockett & Littler, 1997; Lee, 2004). Recent studies also confirmed that compatibility is significantly associated to web adoption as mentioned by Kilangi (2012), Grandon and Pearson (2004) and Betty et al (2001). In contrast, Hussein et al (2012) found that compatibility is not significantly associated with innovation adoption. This variability results may be due to the differences of the particular nature of innovation contribution to the scope of business or the context between the studies.

Complexity is the degree to which ICT adoption are perceived as relatively difficult to understand and use, (Rogers, 2003). In this study, the adoption of network information technology system via web technology & e-business poses greater difficulty as it requires stakeholders in the business process to learn, adopt and use the system. Previous studies have significantly proved that the complexity of information system is negatively related to innovation adoption (Cheung et al., 2000; Thong, 1997; Frambach et al., 1998; Houghton & Winklhofer, 2002). Only few studies have showed a non-significant relationship (Premkumar & Roberts, 1999; Sultan & Chan, 2000; Khemthong & Roberts, 2006). Poorangi (2013) found no relationship between complexity and e-commerce adoption. It is expected that the more difficult the web technology & e-business adoption is perceived to be, the less likely the firms are to adopt it.

Social influence refers to the “social status gained in one’s reference group as a function of web technology & e-business adoption”. According to Lee and Runge (2001) there is a need to conduct further investigation of social influences on networked technology. Malaysian shared their holiday experiences via social media platform such as Facebook, Twitter, blog, and bring along gadgets as their traveling companion. It is believed that good social influences will cause a greater adoption of web technology & e-business among SMEs TA’s which responds to an increase in online orders and enquiries for travel packages, ticketing and tour activities. Drawing upon these empirical evidences combined with literature review and theoretical discussion above, collectively all of the discussed variable proposed this study hypothesized:

- | | |
|--|-----------------------|
| <i>Innovational characteristics of relative advantage, compatibility, complexity, social influence and location is significantly associated to web-technology & e-business adoption among SME’s travel agencies.</i> | <i>H₁</i> |
| <i>Relative advantage is significantly associated to web-technology & e-business adoption among SME’s travel agencies.</i> | <i>H_{1a}</i> |
| <i>Compatibility is significantly associated to web-technology & e-business adoption among SME’s travel agencies.</i> | <i>H_{1b}</i> |
| <i>Complexity is significantly associated to web-technology & e-business adoption among SME’s travel agencies.</i> | <i>H_{1c}</i> |
| <i>Social influence is significantly associated to web-technology & e-business adoption among SME’s travel agencies.</i> | <i>H_{1d}</i> |

Organizational Characteristics Context

This paper re-evaluated three existing organizational characteristics of location, e-resources and top management support in its contribution to develop SME's business. This study focuses on selling travel packages and ticketing activities online and it is parallel with the objectives that is to rise the SMEs travel agencies performances. We introduced three new variables which are e-resources, data secrecy and confidentiality, and training & human capital investment as the new variables influencing web-technology & e-business activities in SME travel agencies firms in Malaysia.

Location refers to the geographical location of SME's TA's firms, either in urban or suburban areas which can be relatively important in supporting the adoption of web technology & e-business infrastructure and supporting services (Kilangi, 2012). Malaysia has a well-established ICT infrastructure, which provided a stable Internet connection throughout the country. The policy makers have made efforts by promoting ICT diffusion throughout the country, introducing the provision of new incentives by the government, upgrading *bumiputra* skills in business management, the development of R&D activities (Ramasamy, 2004; Karanasios et al, 2008; EPU, 2014). We strongly believed that a strategic location is associated to the rise for web-technology & e-business adoption among SME's travel agencies in Malaysia.

E-resources refer to human, technological and business properties that influence ICT adoption (Molla & Liker, 2005). Recent studies suggest that e-resources has significantly determined web technology adoption (Kilangi, 2012; Ramdani et al, 2009). Mihajlovic (2012) stressed on the importance to cost reduction. Buhalis (2000) mentioned that innovative tour operator has to relocate resources and knowledge to maximize compliance with the demands of tourist's added values for realized transactions. It is proposed that, the greater the firms have the ability to provide e-resources, the more likely they will adopt web technology & e-business.

Top Management support (TMS) is defined as the degree to which an individual believes that an organization and technical infrastructure exist to support the usage of the system (Venkatesh, Morns, Davis & Davis, 2003). The direct support from TMS group can be done by positioning the information system in the organization for planning and development effort while indirect support by TMS group is in the form of hiring vendors and consultants to undertake efforts in developing the system in the organization. Recent studies provided evidence that TMS significantly improved ICT adoption and use in SMEs (Ghobakhloo et al., 2012). However, some prior studies provided evidence of insignificant relationship between the TMS and ICT adoption (Kilangi, 2012; Thong et al, 1997; Thong et al, 1993).

Data secrecy & confidentiality refers to the immature electronic payment methods, internet security and limitation of legal framework (Ng, 2000). Previous study viewed that data secrecy & confidentiality was one of the main reasons for innovation adoption (Tan et al, 2008). It is argued that, the low percentage of ICT adoption among SME's could be attributed to inadequate laws. In Malaysian context, due to a rise need for ICT involvement in business setting for SMEs, thus, this study investigated legal issues of e-commerce set up, e-commerce laws, domain name disputes, infringement copyrights, and trustworthiness aspects.

Human capital refers to the collection of intangible resources that are embedded in the members of the organizations that are consisting of competencies (skills and know-how knowledge), attitude (motivation, leadership qualities of the top management, and intellectual agility (innovational and entrepreneurship (Yietman, 2011). Previous studied evidenced a positive relationship between human capital and ICT / innovation adoption (Swanson, 2010; Gono et al, 2009; Venkatesh & Bala, 2008; Bayo-Morionesa & Lera-Lopez, 2007; Dakhli & DeClercq, 2004). Therefore, the availability of trained employees to adopt web-technology & e-business, leads for a deeper understanding and informed perceptions of new ICT (Gono et al, 2009). Based on the above justification and arguments, it is hypothesized that:

| | |
|-----------------------|---|
| <i>H₂</i> | <i>Organizational characteristics of location, e-resources, top management support and data secrecy & confidentiality is significantly associated to web-technology & e-business adoption among SMEs travel agencies in Malaysia.</i> |
| <i>H_{2a}</i> | <i>Location is significantly associated to web-technology & e-business adoption among SME's travel agencies.</i> |
| <i>H_{2b}</i> | <i>E-resources are significantly associated to web-technology & e-business adoption among SME's travel agencies.</i> |
| <i>H_{2c}</i> | <i>Top management support is significantly associated to web-technology & e-business adoption among SME's travel agencies.</i> |

Environmental Characteristics Context

This study extended Shouk et al definition, which refers environmental characteristics as the forces that push travel agencies to adopt web-technology & e-business adoption to enhance their competitive and survival position in the global travel markets. Huang, Yang & Chuang (2011), investigated the drivers for ICT adoption for travel agents and concluded that they have not been investigated and documented thoroughly. This paper calls for the need to address to the access of the determinants for web-technology & e-business adoption based on the environmental perspectives. There is a wide agreement among researchers that suggested that drivers for ICT adoption among SME's are external pressures (Voges & Pulakanam, 2011; Gono et al, 2009), derived from customers, suppliers, competitors and business partners (Beekhuyzen, Hellens & Siedle, 2005; Poon & Joseph, 2001; Simpson & Docherty, 2004).

Competitive pressure refers to explicit and implicit pressures from leading firms to maintain existing channels structures and network or to refrain from participating in a new channel (Chong, 2006). Previous studies evidenced that competitive pressures influence the adoption of new technology or electronic commerce (Lertwongsatien & Wongpininwatana, 2003); Lavovou et al, 1995; Robertson & Gatingnon, 2000; Premkumar & Roberts, 1999). In contrast, few studies found that competition influences electronic commerce adoption to an insignificant degree. External support refers to the trusted networks as the sources of required resource to adopt and use ICT (Chaston & Mangles, 2000). Innovation adoption literature suggest that SMEs depend on external support from various

sources include formal (ICT suppliers, ICT consultants, ICT related government support) and informal sources (friends & relatives); vendor support (Bradshaw et al., 2012). Due to mixed finding and conclusion, thus, collectively due to the importance of the contributing variables it is hypothesized:

H₃ Environmental characteristics of competitive pressure, external support and government intervention is significantly associated to web-technology & e-business adoption among SMEs travel agencies in Malaysia.

Competitive pressures is significantly associated to web-technology & e-business adoption among SME’s travel agencies. H_{3a}

External support is significantly associated to web-technology & e-business adoption among SME’s travel agencies. H_{3b}

Governmental intervention is significantly associated to web-technology & e-business adoption among SME’s travel agencies. H_{3c}

Figure 1 measures the impact of the IOE predictors as the determinants for web-technology & e-business adoption among SME’s travel agencies.

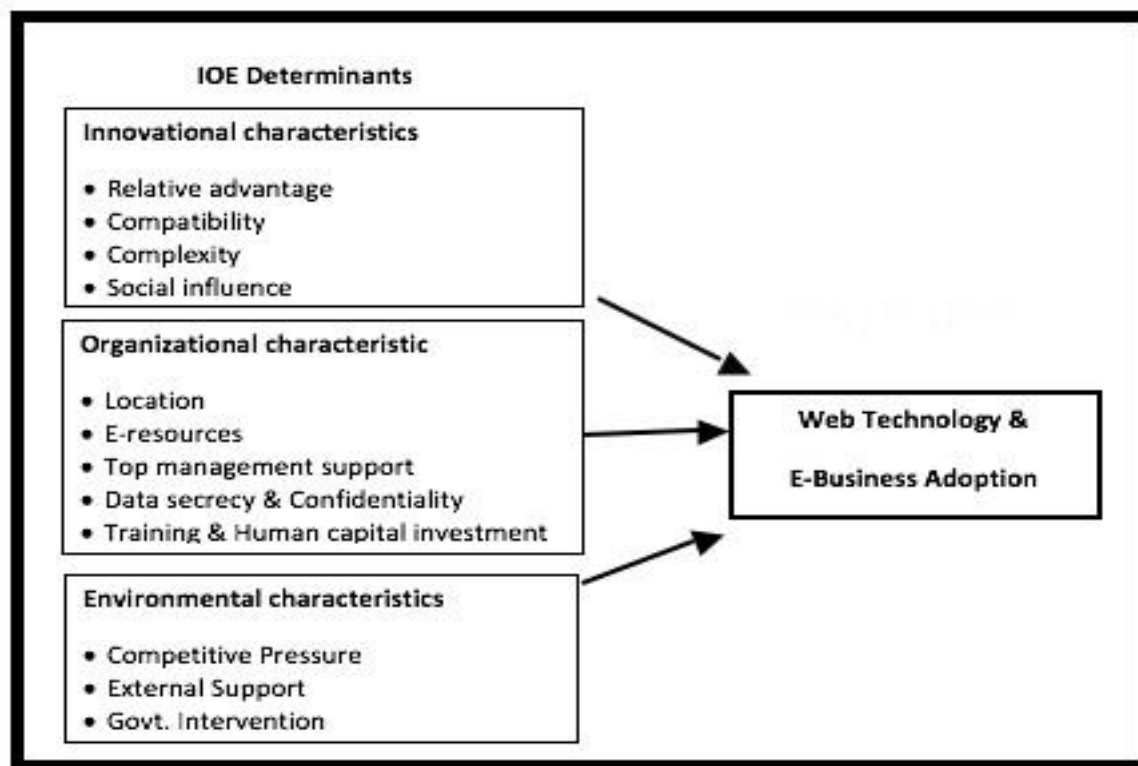


Figure 1: Theoretical Framework

Methodology

This study is a quantitative research design using a structured questionnaire as instrument. Structured questionnaires were adopted from Moore and Benbasat (1991), Rogers (2003), Kilangi (2012) and they were distributed to 341 respondents selected randomly based on the multi-stage cluster sampling procedure. Out of 3,066 listed travel agencies in MOTAC web page, the firms were

divided into 5 regions representing the central, south, north, east coast and west Malaysia. To meet the requirement of SME's scope, four criteria have been used in chosen the firms sample based on the company size (micro, small & medium category), web technology & e-business adoption status (both adopters & non-adopters) and the location of business (division by region). The response rate was 89.5%, which was good. The association between web technology & e-business adoption and four independent variables is depicted in Figure 1.

Independent variables

Relative advantage was measured by using seven indicators, most are adopted from Moore and Benbasat (1991) and Kilangi (2012). Four indicators for compatibility were **adopted** from Rogers (2003); and Kilangi (2012). Complexity was measured using four indicators from Tornatzky and Klien (1982) and Kilangi (2012). Location was measured by using three indicators from Kendall et al (2001) and Thong (1999). E-resources was measured by using six indicators, which adopted from Kilangi (2012) and Gono et al (2009). Meanwhile, top management support was measured using five indicators adopted from Gono et al (2009). Data secrecy and confidentiality involved four indicators adopted from Tan et al. (2008). For training & human capital investment, six indicators were adopted from Yietman (2011). The customer pressures elements measured five indicators adopted from Khemthong and Roberts (2006), while the external supports were measured using four indicators that was adopted from Brock (2000) and Yap et al. (1992). Lastly, the government intervention elements were measured by using six indicators that were adopted from Thong and Yap (1995), King et al. (1994) and Kilangi (2012).

Results

| Correlation (Probability) | IRA | ICOMPT | ICPX | ISI | OLOC | OER | OTMS | ODS | OTRN | ECP | EES | EGI |
|--|--------|--------|--------|-----|--------|--------|--------|--------|------|--------|--------|-----|
| Relative advantage (IRA) | 1 | | | | | | | | | | | |
| Compatibility (ICOMPT) | .713** | 1 | | | | | | | | | | |
| Complexity (ICPX) | .425** | .539** | 1 | | | | | | | | | |
| Social influence (ISI) | .523** | .640** | .551** | 1 | | | | | | | | |
| Location (OLOC) | | | | | 1 | | | | | | | |
| E-Resources (OER) | | | | | .494** | 1 | | | | | | |
| Top management support (OTMS) | | | | | .464** | .751** | 1 | | | | | |
| Data security & confidentiality (ODS) | | | | | .444** | .758** | .687** | 1 | | | | |
| Training & human capital investment (OTRN) | | | | | .485** | .779** | .759** | .792** | 1 | | | |
| Competitive Pressure (ECP) | | | | | | | | | | 1 | | |
| External support (EES) | | | | | | | | | | .719** | 1 | |
| Government intervention (EGI) | | | | | | | | | | .582** | .603** | 1 |

** . Correlation is significant at the 0.01 level (2-tailed).

Table 2 depicts that there is a significant correlation among independent variables and dependent variables. This study suggests that there is a medium positive relationship between IOE

characteristics and web technology & e-business adoption with minimum correlation of .425 at 1% significance level.

Reliability

To measure of the consistency of each item in the variables, the Alpha value (α) is used for the reliability test. Values of Cronbach's alpha above 0.7 is acceptable, however value of 0.8 is preferable (Pallant, 2011). Table 3 indicates the Cronbach's alpha value for each of the variable ranges from 0.78 to 0.942, suggesting a good internal consistency.

Table 3: Reliability Test

| Model | Final test (n=313) | |
|--|---------------------------|--|
| Variables | Number of Items | Cronbach's Alpha(α) |
| Dimensions of Innovational characteristics | | |
| Relative advantage | 5 | 0.921 |
| Compatibility | 3 | 0.904 |
| Complexity | 3 | 0.812 |
| Social Influence | 4 | 0.893 |
| Dimension of Organizational characteristics | | |
| Location | 3 | 0.780 |
| E-Resources | 5 | 0.895 |
| Top Management Support | 4 | 0.940 |
| Data Secrecy or Confidentiality | 4 | 0.854 |
| Training & Human Capital Investment | 5 | 0.872 |
| Dimension of Environmental characteristics | | |
| Competitive Pressure | 4 | 0.893 |
| External support | 3 | 0.879 |
| Government Intervention | 4 | 0.939 |
| Web Technology & E-business adoption | | |
| ICT usage | 8 | 0.917 |
| Level of adoption | 4 | 0.824 |
| Purpose of adoption | 11 | 0.942 |
| Frequency | 9 | 0.924 |
| Reason for no adoption | 4 | 0.872 |

Multicollinearity

An investigation on the possible multicollinearity effects were carried out as most of the independent variables were insignificantly related to web technology & e-business adoption. Table 4 indicates a multicollinearity diagnostic analysis involved the examination of the tolerances (TOLE) values and the Variance Inflation factor (VIF) values. The results show that location has a maximum tolerance rate of 0.723 and VIF of 1.383. The results of the Innovational, Organizational & Environmental characteristics are within acceptable VIF and TOLE limits. Therefore, the diagnostic testing indicates that multicollinearity assumption is not violated.

Table 4: Collinearity statistic

| DV | Model | Collinearity Statistic | |
|-----|-------------------------------------|------------------------|-------|
| | | TOLE | VIF |
| WEA | Relative advantage | .484 | 2.068 |
| | Compatibility | .373 | 2.678 |
| | Complexity | .637 | 1.570 |
| | Social influence | .524 | 1.907 |
| | Location | .723 | 1.383 |
| | E-Resources | .293 | 3.410 |
| | Top management support | .353 | 2.831 |
| | Data security & confidentiality | .319 | 3.132 |
| | Training & human capital investment | .260 | 3.841 |
| | Competitive Pressure | .449 | 2.228 |
| | External support | .432 | 2.316 |
| | Government Intervention | .591 | 1.693 |

Table 5: Correlation Matrix of independent variables and Web-technology & e-business adoption

| Variables | Y ₁ | Y ₂ | χ ₁ | χ ₂ | χ ₃ |
|-----------------------------|----------------|----------------|----------------|----------------|----------------|
| Y ₂ (WEA_ADPT) | .526** | 1 | | | |
| χ ₁ (INNO_XTICS) | .775** | .449** | 1 | | |
| χ ₂ (ORG_XTICS) | .458** | .576** | .620** | 1 | |
| χ ₃ (ENV_XTICS) | .681** | .432** | .791** | .640** | 1 |

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Note: WEA_ADPT: - Web-technology & e-business Adoption; INNO_XTICS: - Innovational Characteristics; ORG_XTICS: - Organizational Characteristics; ENV_XTICS: - Environmental Characteristics.

Multiple Regression analysis summarized in table 6 show that the predictors variable of the relative advantage, compatibility, e-resources, competitive pressure and external support.

Table 6: Multiple linear regression analysis

| DV | Model | Std Coefficient | Sig. |
|-----|-------------------------------------|-----------------|-------------|
| WEA | Relative advantage | .230 | .000 |
| | Compatibility | .311 | .000 |
| | Complexity | .058 | .307 |
| | Social influence | .097 | .124 |
| | Location | .050 | .415 |
| | E-Resources | .288 | .003 |
| | Top management support | .059 | .499 |
| | Data security & confidentiality | -.030 | .743 |
| | Training & human capital investment | .097 | .339 |
| | Competitive Pressure | 3.054 | .002 |
| | External support | 3.574 | .000 |
| | Government Intervention | .743 | .458 |

H₁ Innovational characteristics of relative advantage, compatibility, complexity and location is significantly associated to web-technology & e-business adoption among SMEs travel agencies in Malaysia

As shown in Table 5, there is a significant medium and positive relationship between Innovational characteristics and WEA ($r = .449$, $p < .01$) collectively, so H1a is supported. The proposition indicated that, the higher the innovational characteristics of relative advantage, compatibility, complexity and social influences adopted by SMEs travel agencies in Malaysia, the higher opportunities for SME's travel agencies in adopting web-technology & e-business facilities in their business.

H₂ Organizational characteristics of competitive pressure, external support and government intervention is significantly associated to web-technology & e-business adoption among SMEs travel agencies in Malaysia.

Results in Table 5 indicate that there is a significant high and positive relationship between organizational characteristics and web-technology & e-business adoption ($r = .576$, $p < .01$) collectively thus, H1b is supported. This finding indeed revealed that higher web-technology & e-business adoption is associated with higher organizational characteristics employed by SMEs travel agencies in Malaysia due to direct relationship between the two variables.

H₃ Environmental characteristics of competitive pressure, external support and government intervention is significantly associated to web-technology & e-business adoption among SMEs travel agencies in Malaysia.

Lastly, the Pearson correlation analysis result shown in Table 5 indicates that there is a significant high and positive relationship between environmental characteristics and we-technology & e-business adoption ($r = .432$, $p < .01$) collectively, so, H1c is supported. The higher the focus of the SME's travel agencies in developing the environmental characteristics in their business, they have higher rate in adopting the web-technology & e-business facilities. This study is in line with previous study findings in Premkumar and Roberts (1999), Andreu, Bigne and Mattilla (2010), Gandon and

Pearson (2004), Gono et al (2009), Voges and Pulakanam (2011), Beekhuyzen, Hellens and Siedle (2005), Poon and Joseph (2001), Simpson and Docherty (2004) and Mihajlovic (2012).

Discussion and Conclusions

Determinant factors within Innovational context

The findings of this study show a significant medium and positive relationship between Innovational characteristics and web-technology & e-business adoption. A relative advantage is proven as a predictor for WEA among SME TAs business in Malaysia. The significant relationship can be explained by the fact that SMEs owners-managers have a greater understanding of the opportunities of web-technology and e-business practices for their business growth. The SMEs owners-managers among SMEs travel agencies in Malaysia are aware on the potential of ICT application, which this study referring to web-technology & e-business facilities.

The conclusion is supported by previous studies which have consistently proved that a positive relationship exists between relative advantage and innovation adoption (Agarwal, & Prasad, 1997; Kwon, & Zmud, 1987; Tornatzky, & Klein, 1982; Van Slyke et al., 2002; Kendall et al., 2001; Migiro & Ocholla, 2005; Migiro, 2006; Ramdani et al., 2009). Relative advantage is strongly related to the adoption of web technology & e-business among SMEs (Chong & Pervan, 2007).

The findings of this study reported that compatibility is significantly related to web-technology & e-business adoption which is to be highly compatible with the firm's inner and external values, believes, business needs. In Malaysia travel and tour business segment, MATTA has introduced alternatives of compatible systems as an effort to meet up with the demand and trends of the modern travelers. The compatibility comes in many versions of social media platforms such as the blogs, Facebook, Instagram, Twitter etc. Everyone can have a quick access to the designated web-pages and e-business function created by the IT experts provided by the travel providers worldwide. An example of such efforts is the introduction of a digital information kiosk at the travel fair which functions as an interactive tool to assist the travelers to find related travel and tour information and "Travel port Mobile Agent" system for the reservation and ticketing purpose (MATTA, 2014).

The finding of this study is in line with other previous studies such as Kilangi (2012), Khemthong and Roberts (2006), Lee (2004), Kendall et al. (2001), Moore and Benbasat (1991) and Thong (1999). The findings portrayed that SMEs owner-managers are concerned with web-technology & e-business adoption are consistent with business needs as well as the need to update the current technology based on the industry's requirements and current trends.

This study reveals that complexity is a significant determiner for web-technology & e-business adoption. Web-technology & e-business is a friendly system that encourage the staff to learn and use technology easily. For the Internet, the fast response gives a choice for consumers to get a fast and reliable information, to make a complete booking and to make an instant payment and confirmation. With one click, all traveling arrangement can be done accurately and efficiently via web assistance. Somehow for SMEs business, they found that lack of funding as one of the reasons that slowing them from using web technology and e-business application in their current business. This is because a

higher capital is needed to invest in buying the system and the need of training the staff consistently to enable them to update their knowledge on IT related matters and able to run the operation. There is a greater opportunity for the SMEs travel agencies to train and create IT post such as e-marketers, e-travel consultants, e-tour consultants and e-travel advisors to further develop the electronics and e-business functions.

Another factor that causes the respondents to perceive web-technology and e-business to be complex is due to difficulties to the owner/managers to learn and use the web technology and e-business system. A proper training with the assistance of a specialist ICT consultants is require in conducting web-based activities. Furthermore, a stiff competition exists in the open travel and tour market globally from the interaction of small, medium and big scale firms are competing by offering attractive and valuable tour and travel services to meet up the demand of the modern travelers.

Determinant factors within Organizational context

This study investigated three Organizational variables which are location, e-resources and top management support and their influences on web-technology & e-business activities. This study confirms that location is not a problem for SME TAs in Malaysia to conduct business at a global scale. The government of Malaysia is in a collaboration with multiple stakeholders and currently is aggressively promoting ICT initiatives for SMEs business development.

The availability of IT infrastructure such as network and online customer database allow firms to develop a sophisticated operating system that can offer a new version of virtual experience for their potential customers. With the availability of the relevant e-resources, travel agencies will be able to update on the latest development of the traveler's markets. This finding is also supported by previous authors for example Kuan and Chau (2001), Ramdani et al., (2009), Sheriff (2007), (Mihajlovic, 2012) and Kilangi (2012).

The result provides an insight to the top management, board of directors, and team members that web technology and e-business project the importance of user support. A specific IT projection and forest must be in line with firms' objectives, vision and mission. Long-term and short-term development projects must incorporate the objectives to equipped their sales and marketing activities with a user-friendly system for web-technology & e-business activities. A strong support from the management portrays that the SME's travel agencies management are committed to technology development which promotes strong back end support.

Other than that, there should also be a continuous support from HRD department by giving incentives and rewards to all levels of employees who successfully achieved target for online sales mission. This effort is supported by the previous authors suggesting HRD's activities provision to enrich staff motivation at workplace (Omar et al, 2008). These findings are in line with the previous authors who agreed that the top management support is a critical determinant for technology adoption (Bennett & Savani, 2011; Thiesse, Staake, Schmitt & Fleisch, 2011); Nathan et al., 2004; Tan & Teo, 1998; Seyal et al., 2003).

The forth determining variable, data secrecy or confidentiality, has a significant relationship with WEA as well. In Malaysia, it is safe for consumers to choose the online payment method for their traveling arrangements. The country banking institutions are claimed to have a stable and reliable online banking services which encourage customers to rely on web technology and e-business services. This is seconded by Tan et al. (2008), Bhimani (1996), Jeff Hoi (2003) and Ng (2000).

In a different view, Malaysian consumers also feel reluctant to use web technology & e-business services mainly because they are still lacking in confidence of the current web technology & e-business set, Becale (1999). From business providers point of view, an issue of protection right and safeguarding of the trade secrets over online interactions (Light, 2001; Bird, 1997); the inadequacy of e-commerce laws and limitation of legal framework (Jeff Hoi, 2003) are among reasons attributed to a low percentage of web- technology & e-business application.

The results of this study findings also depicted that training and human capital investment also has a significant relationship with web-technology in Malaysia. This is similar to the results by previous studies (Dakhli & De Clercq, 2004; Barczak & Wilemon, 2003; Vankatesh & Bala, 2008; Gono et al., 2009; Sharma & Yetton, 2007; Hollenstein, 2004; Mughal, 2011). Based on the statistical results, this study reveals that there is a necessity for training and human capital investment for web-technology & e-business system. It is evident that via web-technology & e-business activities, it allows the employees to apply knowledge that they have learnt in developing opportunities for the firm's growth and develop employee's competencies through the use of ICT. This finding is in line with previous authors such as Yietman (2011) found today's employees at work are occupied with online orders and writing to respond to online modern traveler's request and inquiry.

Determinant of WEA from the Environmental context

In assessing the environmental influences on web-technology & e-business activities, this study focuses on three identified constructs namely the competitive pressure, external support and government intervention which all have been proven as having significant relationship with web-technology & e-business activities among Malaysia SME TA businesses. In coping with the 21st century business challenge, it is necessary for Malaysian SMEs businesses to adopt new ways of conducting businesses to stay competitive in the open global market. The pressure in the market competition has a remarkable effect on improving networked technology activities thus, the local SMEs will be able to compete equally with the other giant TAs by diversifying and considering the potential of developing a niche market via technology advancement. The argument is also seen in a study by Porter and Millar (1985) who argued that the adoption of ICT tends to alter the position of the adopting firms and changes the industry structure. While Kilangi (2012) argued that SMEs are more sensitive to competitive pressure because they are not able to alter the market forces due to the small market segment.

This result provides an insight that a well planned and systematic usage of the web technology and e-business function would reduce the operational costs and improve the quality of services provided to the customers besides improving the firm's ability to respond to customer's request and order. The online presence (website presence) also has the possibility to increase the competition

and provides an alternative to customers to make a comparison before making any final purchase decision. This argument is also similar to Kilangi (2012). The stronger the competition, the higher the likelihood of adopting and using ICT among SMEs (Thong, 1999; Dholakia & Kshetri, 2000); Gibb & Kraemer, 2004a). Therefore, it is summarized that the competition in the industry leads to WEA (Lertwongsatien & Wongpininwatana, 2003).

The travel and tour associations, universities, business communities and agencies must aggressively provide technical support and assistance for an effective use of web-technology & e-business activities among SMEs. For instance, UiTM, UTM, OUM, Sunway College and Community College are among of the popular higher education institutions to study tourism management and related courses which provide a strong support for the provision of the skilled tourism workers in tourism field.

Interestingly, it was also found that the business partner and suppliers did not offer information and share resources though web technology & e-business activities. This finding indicated that the business partner and suppliers are not ready to share the e-resources with the usage of web technology & e-business in their business operation which limit the resource sharing capabilities. However, the result of this study is contradicted to Kilangi (2012); and Ramdani (2009) who found that the technological support has no significant relation to web-technology & e-business activities.

The results provide an argument that the government of Malaysia demonstrates a strong commitment in providing sufficient information, infrastructure, and knowledge and building capacity for web technology & e-business development. Somehow, the respondents of this study agreed on the statement that the government offer a high cost of domain and web technology & e-business registration.

Overall, it is observed that SME travel agencies invested at the very minimum capital investment for web technology and e-business initiatives, thus resulted in a lower income generation. Most small and medium travel agencies rely on the basic free Internet facilities provided by the government in performing the business operation. Majority of the SME TAs in Malaysia have the capabilities in expanding their business by investing into online business setting, provided they have the sufficient capital, knowledge-resources, human capital resources, networking and other supporting resources to meet the global challenge of the travel and tour business.

In terms of web-technology & e-business adoption, majority of SME travel agencies used WEA at a medium level which also indicates that Malaysian SMEs are moving from the conventional practice to transformation era of operating business via online transaction. The online application via e-business and e-commerce are claimed to offer growth opportunity for future business development. Hence, the results also reveal that one of the main reasons that stopping or slowing down the online business penetration is due to lack of the knowledge and skills in developing online business platform. A strategic business plan focus on the internal and external characteristics of the predictors of WEA will lead to stimulate the firm's performance to appear significantly at global

business opportunity. Nonetheless, the environmental factors reported that the external shareholders, i.e: the government, suppliers, and NGO contribute less to the development of online business initiatives.

This study covers 3 dimensions of IOE characteristics as the predictive factors for web-technology & e-business adoption activities among SME travel agencies in Malaysia. More studies can be conducted by focusing on other dimensions related to web technology & e-business adoption. Due to the importance of incorporating social media as a source of marketing and developing TAs, relevant studies may assist the entrepreneurs in developing strategies via the development of network technologies.

The theoretical and empirical implications drawn from the findings will enrich the web-technology & e-business explanation, which also provide a foundation for interaction between the industry players in travel and tour environment. IOE characteristics have been proven as the determinant for web-technology & e-business adoption for SMEs travel agencies that take advantage of technological progress in their business strategy, while agencies that systematically ignore new technologies and their benefits will undoubtedly have lagged in the competition.

Acknowledgements

Sincere appreciation to Associate Professor. Dr. Azmawani bt Abd. Rahman and Associate Professor Dr. Yuhanis Abd. Aziz of Universiti Putra Malaysia for their positive inputs and constructive comments in the process of completion of this paper. An appreciation also goes to the appointed enumerators and research assistants of UiTM and those involved in the completion of the data collection process for this research.

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