

ORGANISATIONS
and MARKETS
in emerging economies

Organizations and Markets in Emerging
Economies

ISSN: 2029-4581

vincas.grigas@leidykla.vu.lt

Vilniaus Universitetas

Lituania

Koe, Wei-Loon; Afiqah Sakir, Nurul
The Motivation to Adopt E-commerce Among Malaysian Entrepreneurs
Organizations and Markets in Emerging Economies, vol. 11, núm. 1, 2020, pp. 189-202
Vilniaus Universitetas

Available in: <https://www.redalyc.org/articulo.oa?id=692374307011>

- How to cite
- Complete issue
- More information about this article
- Journal's homepage in [redalyc.org](https://www.redalyc.org)

[redalyc.org](https://www.redalyc.org)

Scientific Information System

Network of Scientific Journals from Latin America, the Caribbean, Spain and Portugal

Non-profit academic project, developed under the open access initiative

The Motivation to Adopt E-commerce Among Malaysian Entrepreneurs

Wei-Loon Koe (Corresponding author)

Senior Lecturer, Universiti Teknologi MARA, Cawangan Melaka, Malaysia
koewei516@uitm.edu.my; koeweiloan@yahoo.com
<https://orcid.org/0000-0003-3977-1884>

Nurul Afiqah Sakir

Universiti Teknologi MARA, Cawangan Melaka, Malaysia

Abstract. *E-commerce is important in creating a knowledge society and cashless business environment in the era of the fourth industrial revolution (IR 4.0). However, not all Malaysian entrepreneurs are ready for this digital way of performing business. The e-commerce ecosystem is still less matured, and the e-commerce adoption rate is still low among entrepreneurs of small and medium enterprises (SMEs). Therefore, this study was conducted to determine the factors that influence the entrepreneurs' motivation to adopt e-commerce. Self-determination theory (SDT) was employed in determining the factors that influence the motivation to adopt e-commerce. This study employed a quantitative research method and surveyed 273 entrepreneurs through self-administered questionnaires. It used multiple regressions analysis to analyse the data and test the hypotheses. Based on the results obtained, it concluded that competence, relatedness and autonomy positively and significantly influenced entrepreneurs' motivation to adopt e-commerce. Relatedness was found to be the most important factor, followed by autonomy and competence. This study contributed to entrepreneurship literature by applying SDT in understanding entrepreneurs' motivation in e-commerce adoption. It also shed light on the importance of individual psychological factors in decision making among entrepreneurs. The study suggested that building a strong connection among the entrepreneurs, providing freedom to business operations and developing knowledgeable entrepreneurs are some crucial steps in motivating entrepreneurs to adopt e-commerce, especially in a developing country like Malaysia.*

Keywords: *adoption, e-commerce, entrepreneurs, motivation, small and medium enterprises*

Received: 1/7/2019. **Accepted:** 7/10/2019

Copyright © 2020 Wei-Loon Koe, Nurul Afiqah Sakir. Published by Vilnius University Press. This is an Open Access article distributed under the terms of the Creative Commons Attribution Licence, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

1. Introduction

The number of entrepreneurs has grown tremendously in recent years. The competition platform has also changed from traditional-based to digital-based, through utilization of modern technological facilities to capture a bigger market share. For example, electronic-commerce, or e-commerce, is a digital way of doing business. It also serves as an important alternative of entering the world of cross-border business. Indeed, the fourth industrial revolution (IR 4.0) has also highlighted the importance of digitization and the Internet of things (IoT) to businesses.

Knowing that digital business is the future way of doing business, Malaysian government initiated the Digital Free Trade Zone (DFTZ) in 2017, with two main objectives, namely: (i) to establish Malaysia as a regional e-commerce e-fulfilment hub and, (ii) to drive export of Malaysian small and medium enterprises (SMEs) via e-commerce (MDEC, 2018). In the same year, the government also established Malaysia's National E-Commerce Strategic Roadmap (NESR) with the aim to double the e-commerce growth rate in Malaysia from 10.8% in 2016 to 20.8% by 2020 (MDEC, 2017).

Although Malaysian government has a clear direction in digital business development, several issues remained unresolved. For instance, the country's e-commerce ecosystem is still in its infancy stage. The situation has held back the e-commerce market and caused the low adoption rate. Although the Internet penetration was as high as 70% in 2015, the presence of online business was merely five percent (Handley, 2016). Specifically, Malaysian small and medium travel agencies are still using the conventional methods in their business, with only 28% involved in e-commerce (Shaharuddin et al., 2018).

E-commerce provides various growth opportunities to business because it makes the selling and buying process easier and allows the offer of full package services to the customers. However, not all businesses would gain benefits from those opportunities because connecting the online and offline world remains as the prime challenge for Malaysian businesses (Kumar, 2016). On top of the above, businesses that wish to embark on e-commerce are facing several challenges, for example, issues of product originality, warranty, cheated images, false claimed price, fraud transaction and privacy and security (Mukhtar et al., 2016). These issues could simply drive businesses away from adopting e-commerce, even though they understand the importance of e-commerce for business survival in the future competitive landscape. Specifically, the issues are crucial to SMEs because they are small in size and possess limited resources. SMEs appear to face significant and unique challenges in new technology adoption (Astuti & Nasution, 2014).

One of the six prime objectives in NESR is "to increase seller adoption of e-commerce". Prior to achieving that objective, research on entrepreneurs' tendencies to adopt e-commerce is highly needed. Adopting a new technology in traditional business requires mental preparation. Specifically, the decision to adopt e-commerce begins with the leader of a venture (Alos-Simo et al., 2017). As such, understanding an individual's

self-realization is crucial in helping the individual to seek and grab good opportunities. However, studies that focused on scrutinizing innate personal psychological needs and technology adoption are scarcely available. The question such as “what are the individual psychological factors that influence e-commerce adoption” still remains unanswered. As such, this study was carried out with the aim to determine the factors that influence motivation of e-commerce adoption among Malaysian SMEs entrepreneurs.

2. Literature Review

2.1 Overview of E-commerce Adoption

E-commerce can be simply defined as a process of buying, selling, exchanging, or trading items, services and/or data utilizing computer systems such as the Web, Internet and Intranets (Turban et al., 2010). It can also be further defined as the utilization of electronic systems with the objective to ease and affix all stages of commerce, from the production of goods to their sale and delivery (Barsauskas et al., 2008). As Lim et al. (2016) explained, researchers have tried to define e-commerce to suit their studies. Thus, they further identified that e-commerce consists of two important elements, namely: (i) business activities through electronic medium and; (ii) technology application. Although various definitions of e-commerce are found in the literature, it can be described as the use of the Internet to perform business transactions. It is important to note that e-commerce is essentially not the same as “e-business” because it is a sub-component in e-business (Kabugumila et al., 2016).

Studies have confirmed that using electronic devices and adopting electronic functions such e-marketing (Chong et al., 2018) and e-business (Soto-Acosta et al., 2016) could bring positive influence on the performance of businesses. For instance, e-commerce could reduce the cost of information searches, cost of the transaction and time of business processes to achieve greater efficiency (Astuti & Nasution, 2014). E-commerce has proven to bring immense benefits to the businesses in developed countries, but not in developing countries (Lim et al., 2016). However, the research results obtained from developed countries could not be generalized to developing countries due to significant differences between their country contexts (Hussin et al., 2017). Most importantly, adoption of e-commerce by SMEs in developing countries was very far behind developed countries (Rahayu & Day, 2015).

2.2 E-Commerce in Malaysia

E-commerce is not a new business practice in Malaysia because AirAsia, which was established in 2001, could be deemed as the most well-known example of e-commerce success (Mukhtar et al., 2016). In recent years, e-commerce has become an important nation’s agenda in creating a knowledge society and cashless business. For this purpose, the government has launched several initiatives; one of the initiatives was the establish-

ment of National E-Commerce Strategic Roadmap (NESR) in 2017. The main purposes of this initiative are to accelerate adoption of e-commerce and e-procurement, lift non-tariff barriers, realign existing economic incentives, make strategic investments and promote national brands (MDEC, 2017).

Apart from that, the Digital Free Trade Zone (DFTZ) was also launched by the government in the same year. DFTZ is an activity to capitalize on the conversion and exponential development of the web economy and cross-border e-commerce exercises. Specifically, DFTZ is there to drive local SMEs' export, attract foreign investment, develop Malaysia as a regional fulfilment hub for global brands, and to drive innovation in e-commerce and internet economy (MATRADE, 2017). Changes brought by IR 4.0 are rapid, unpredictable and full of challenges. Current businesses are further challenged by the recent development of 5G. Although both IR 4.0 and 5G have caused various challenges to businesses, they do provide various opportunities. Malaysia as a developing country and emerging economy has to react to the changes and grasp the opportunities brought by IR 4.0 and 5G.

Although Malaysians have elected another political coalition as the new government in the 14th General Election on 9 May 2018, the effort to develop Malaysia as an e-commerce hub has never been terminated. However, research showed that the development of e-commerce among SMEs in Malaysia was slow (Kartiwi et al., 2018). Thus, the motivation level of adopting e-commerce business model among Malaysian entrepreneurs needs to be elevated. As Hussin et al. (2017) pointed out, Malaysian SMEs still resist to use ICT in their daily business operations, and e-commerce in Malaysia is still in its infancy stage. Lim et al. (2016) found that SMEs in Malaysia were rather passive on e-commerce adoption and they used fundamental e-commerce technologies such as email, website and portal. It should be mentioned that SMEs are still lagging behind in using the Internet for their business, especially in the context of developing countries such as Malaysia (Amin et al., 2016; Hussin et al., 2017). As Hussin et al. (2017) urged, there are too many studies concentrated on the e-commerce adoption in the developed countries, there is a need for closer scrutinization in specific developing countries. Specifically, such studies could help the country to predict e-commerce usage rate and evaluate the future growth of e-commerce among SMEs.

2.3 Self-determination Theory

As mentioned earlier, this study aimed to determine the factors that influence the motivation of e-commerce adoption among Malaysian entrepreneurs. This study employed self-determination theory (SDT) proposed by Deci and Ryan (1985) as the underpinning theory because it is deemed suitable for understanding one's motivation. The theory explains that a person needs to satisfy his/her psychological needs in the pursuit and attainment of his/her goals. Simply, it means human motivation is affected by innate psychological needs of competence, autonomy and relatedness. It is believed that needs

provide a great basis for energization and direction of action. Furthermore, needs also “specify innate psychological nutriment that are essential for ongoing psychological growth, integrity, and well-being” (Deci & Ryan, 2000, p. 229).

Innovation process in a business begins with the leader of the business (Alos-Simo et al., 2017). In most cases, SMEs are owned by individual entrepreneurs or a team of entrepreneurs who own and make strategic decision for the ventures. This means that entrepreneurs enjoy a greater decision authority in determining the direction and attributes of the firm such as technology adoption. Therefore, entrepreneurs’ psychological conditions play an important role in recognizing and taking advantages of the opportunities (Ganotakis & Lindsay, 2016; Sarmah et al., 2017). In the literature, Ganotakis and Lindsay (2016) pointed out that many e-commerce adoption studies have focused on the organizational-level factors, using the resource-based theory (RBT) and technology organization environment (TOE) framework. However, very few studies have examined the effects of individual factors such as a decision maker’s capabilities of the adoption of e-commerce. Indeed, individual psychological conditions and the ICT adoption decision still remains unexplored. As Sarmah et al. (2017) urged, studies pertaining to SMEs should acknowledge the role of owner-managers because they are in control of the SMEs, and understanding their psychological factors such as attitudes, values, motivations and behaviour is important. Astuti & Nasution (2014) mentioned that it is important to focus on individual entrepreneurs because they are the IT users, and factors such as their IT skills are worth researching. Rahayu and Day (2015) also supported the idea that it is reasonable to examine the influence of individual contexts on e-commerce adoption because most of the strategic decisions in SMEs were centralized and highly dependent on the owner-managers.

It can be said that existing entrepreneurship literature has not fully explored the influence of an individual’s psychological factors on decision making among entrepreneurs, especially for technology adoption in developing countries. Thus, it leaves a lacuna in the literature for further exploration. This study attempted to fill the gap by examining the relationships between innate psychological factors and motivation for e-commerce adoption.

2.4 The Innate Psychological Needs and Motivation to adopt E-Commerce

Competence is a process of seeking to control and encounter mastery of results (David, 2014). Competence is much related to feedback. As Deci and Ryan (2000) described, positive feedback provides the satisfaction of the need for competence and enhances motivation; whereby negative feedback produces reverse results such as dissatisfaction of the need of competence and decreases motivation. According to Lewis (2003), the competence model encompasses four key concepts, namely resources, strategic resources, processes and performance advantages. The application of competence model in e-commerce practices should focus on organizational operating systems and processes.

Competence is very much associated with knowledge that a person has. Competence has been found as one of the most powerful influences on intrinsic motivation (Deci & Ryan, 2000). Indeed, studies conducted by previous researchers have also successfully demonstrated that competence influenced the motivation of technology adoption. Awa et al. (2015) postulated that the education level of SME decision maker would determine the adoption of e-commerce because education influenced the decision maker's innovativeness. As supported by Ahmad et al. (2015), SME owner-manager's knowledge and expertise affected the e-commerce adoption among SMEs in Malaysia. Panayiotou and Katimertzoglou (2015) also concluded that knowledge with regard to Internet proved to be significantly correlated to the Internet adoption status among the micro-firms from the jewellery industry in Greece. The finding was confirmed by Al-Somali et al. (2015) who found that information technology (IT) knowledge was an important organizational characteristic that affects innovation such as e-commerce. Rahayu and Day (2015) also concluded that SMEs owner-manager's IT knowledge positively influences e-commerce adoption in SMEs. Similarly, Poorangi et al. (2013) found that Malaysian SME managers who understood e-commerce well and had good knowledge on e-commerce would have a high confidence level with e-commerce. This would then influence the adoption of e-commerce in their businesses.

Autonomy could be simply described as the universal urge to be causal agents of one's own life and act in harmony with one's integrated self (David, 2014). Providing choices and acknowledging feelings are among the possible strategies that could result in satisfying intrinsic motivation. Thus, it is believed that when people feel autonomous, they would have higher intrinsic motivation and be more engaged in an activity. Similar to competence, autonomy is also regarded as a powerful influence on intrinsic motivation (Deci & Ryan, 2000). As most entrepreneurs are owner-managers of their own businesses, they certainly have the freedom and full autonomy to manage the businesses. Mohammed et al. (2013) identified that a manager's willingness recorded a very significant relationship with e-commerce adoption among SMEs. In addition, Sivathanu (2018) found that "value of openness to change", which constitutes the dimension of autonomy, positively influences the elderly people's adoption of IoT-based healthcare wearables.

Relatedness is the need to be associated with others and caring for others (David, 2014). Deci and Ryan (2000) explained that relatedness is implicit in attachment theory. It is the requirement to feel associated and upheld by imperative individuals, such as a supervisor, parents, teachers, or colleagues. Relatedness is an association inclination in animate life such as humans, in which they arrange themselves for a bigger social element (Ryan et al., 1997). Relatedness has been considered as a more distal influence than competence and autonomy in the maintenance of intrinsic motivation (Deci & Ryan, 2000). Over the years, researchers have studied the relationship between relatedness and motivation for ICT adoption. For instance, Wanyoike et al. (2012) showed that the adoption of e-commerce among small formal enterprises in urban Kenya was

influenced by efficient coordination among various value chain partners. Al-Bakri and Katsioloudes (2015) supported the opinion that the external organizational factor such as external pressure from local and global trading partners and competitors affected the adoption of e-commerce systems by SMEs in Jordan. The factor was also important in achieving maximum benefit from e-commerce adoption. Likewise, Al-Somali et al. (2015) found that organizational context such as support from management was crucial for successful e-commerce adoption for businesses. Ahmad et al. (2015) found that management characteristics affect e-commerce adoption within Malaysian SMEs. In addition, Ahmad et al. (2018) identified that factors such as top management support, communication, government support and influence of trading partners supported the intention to adopt electronic publishing among Malaysian publishers. Sarmah et al. (2017) found that social pressure influences e-business adoption intention and suggested that spreading of information related to e-business to the whole social system helped to increase potential users.

2.5 Research Model and Hypotheses Development

Based on the discussion above, the theoretical framework which consists of three innate psychological factors, i.e., competence (CO), autonomy (AU) and relatedness (RL), and their influence on motivation to adopt e-commerce (MEC) was developed (Figure 1).

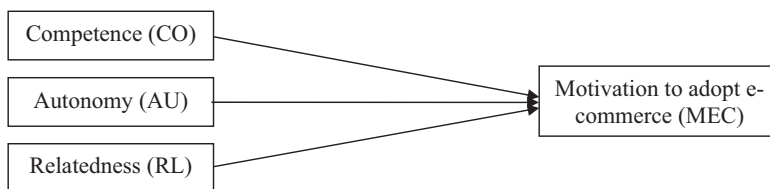


FIGURE 1. **Research framework**
(adapted from Deci and Ryan, 1985)

Based on the discussion in the previous section, motivation to adopt e-commerce is posited to be influenced by three innate psychological factors, namely competence (Awa et al., 2015; Ahmad et al., 2015; Panayiotou & Katimertzoglou, 2015; Rahayu & Day, 2015; Poorangi et al., 2013), autonomy (Mohammed et al., 2013; Sivathanu, 2018) and relatedness (Wanyoike et al., 2012; Al-Bakri & Katsioloudes, 2015; Al-Somali et al., 2015; Ahmad et al., 2015; Sarmah et al., 2017). Thus, three hypotheses (H1 to H3) were also suggested to guide this study:

- H1:** *There is a significant relationship between competence and motivation to adopt e-commerce.*
- H2:** *There is a significant relationship between autonomy and motivation to adopt e-commerce.*
- H3:** *There is a significant relationship between relatedness and motivation to adopt e-commerce.*

3. Research Methodology

3.1 Research Design

This study adopted a quantitative method because all the variables were measurable. As the variables could be operationalized, a survey questionnaire was developed and used for data collection purposes. The unit of analysis in this study was an individual entrepreneur. For the data collection, this study employed a cross-sectional time-horizon in which the data were collected just once. All data were collected with minimal interference from the researchers.

3.2 Population and Sample

The population comprised SME entrepreneurs who registered in the directory of Ministry of International Trade and Industry (MITI) under the Digital Free Trade Zone (DFTZ) initiative. The entrepreneurs owned and operated full- or semi-digitalized businesses from both manufacturing and service sectors. Thus, they were generally the owner-managers of SME, which means that they are the main decision makers of ventures. This study used a simple random sampling method in selecting the appropriate sample. Based on the population size, a total of 273 SME entrepreneurs were selected as the sample of this study (Krejcie & Morgan, 1970). In fact, there are a number of studies that have used SME owner-managers (Astuti & Nasution, 2014; Rahayu & Day, 2015; Amin et al., 2016; Lim et al. 2016; Kartiwi et al., 2018).

3.3 Research Instrument

As mentioned earlier, since all variables could be operationalized, a self-administered questionnaire was developed to collect the desired data. It consisted of 21 closed-ended questions. All questions were adapted from previous studies (Sørenbø & Hæhre, 2012; Gagné et al., 2010; Baard et al., 2004; Black & Deci, 2000; Roca & Gagné, 2008), with a slight modification to suit the respondents and context of Malaysia. For each question, respondents were asked to indicate their degree of agreeableness/disagreeableness based on a Likert-type scale ranging from 1=strongly disagree to 5=strongly agree. Prior to the mass distribution of the questionnaires to the respondents, a pilot test was performed to determine the reliability of the questions. Finally, the questionnaires were distributed to the respondents personally or through mail.

4. Findings and Discussion

4.1 Profile of Respondents

It was found that the majority of the entrepreneurs were female (n=165; 60.44%), aged 30 years old or below (n=200; 73.26%); 34.07% (n=93) registered a sole-proprietor-

ship business, 63.00% (n=172) operated a business in the service sector, and 44.69% (n=122) employed between five to 75 full-time employees.

4.2 Descriptive analysis and Pearson correlation analysis

TABLE 1. Mean, Standard Deviation and Pearson Correlation Coefficient

	α	m	sd	CO	RL	AU	MEC
CO	0.63	3.56	1.05	1			
RL	0.62	3.64	0.95	0.60**	1		
AU	0.82	3.78	0.83	0.29**	0.59**	1	
MEC	0.87	3.95	0.83	0.47**	0.63**	0.52**	1

The Cronbach's alpha values for all variables were well above the 0.60 threshold; thus, they were deemed acceptable (Sekaran & Bougie, 2013). From Table 1, MEC obtained the highest mean score (m=3.95) and CO recorded the lowest (m=3.56). As for the Pearson correlation coefficients (r), all pairs of variables showed positive and significant associations (Table 1). The highest r-value was recorded between RL and MEC (r=0.63), while the lowest was found between AU and CO (r=0.29). Since all r-values were well below 0.70, the issue of multicollinearity did not exist.

4.3 Multiple Regressions Analysis and Hypotheses Testing

Pearson correlation coefficient values in the previous section showed that multicollinearity was not found; it was proven again from the small variance inflation factor (VIF) values (<10) and tolerance values (>0.10) (Table 2). Thus, multiple regressions analysis was deemed suitable to test the hypotheses.

TABLE 2. Results of Multiple Regressions Analysis

Independent Variables	Standardized Beta	T-value	Sig.	VIF	Tolerance
CO	0.18	3.12	0.00	1.32	0.43
AU	0.26	4.52	0.00	1.76	0.55
RL	0.37	5.48	0.00	2.53	0.31
F-statistics	73.72 (<0.01)				
R-squared	0.45				

Dependent Variable: MEC

The results of regressions analysis were summarized in Table 2. The F-statistics obtained was 73.72 (sig.<0.01), which indicated that the model was statistically fit. The R-squared value was 0.45, which indicated that 45% of the motivation to adopt e-commerce was explained by CO, AU and RL. The rest 55% could be explained by other

variables. The highest standardized beta value was recorded by RL ($\beta=0.37$; sig.<0.01), followed by AU ($\beta=0.26$; sig.<0.01) and CO ($\beta=0.18$; sig.<0.01). This showed that RL was the most important factor in influencing MEC, followed by AU and CO. The results further depicted that all three hypotheses (H1-H3) were supported.

4.4 Discussion

This study found that competence, autonomy and relatedness significantly influenced motivation to adopt e-commerce. It supported the previous studies which concluded that competence, autonomy and relatedness influenced one's motivation (Deci & Ryan, 1985; Ryan & Deci, 2000). Specifically, the finding was also congruent to the studies which showed that relationships among stakeholders of a business (Wanyoike et al., 2012; Al-Bakri & Katsioloudes, 2015; Al-Somali et al., 2015; Ahmad et al., 2015; Ahmad et al., 2018), autonomy in managing a firm (Mohammed et al., 2013; Sivathanu, 2018) and IT competence (Poorangi et al., 2012; Panayiotou & Katimertzoglou, 2015; Ahmad et al., 2015; Al-Somali et al., 2015; Rahayu & Day, 2015) were positively related to IT adoption motivation.

Transforming a traditional business into an e-commerce business is indeed important for the businesses to stay competitive. IR 4.0 has also reshaped the business competitive landscape from off-line orientated to on-line orientated and digitalized. Indeed, the power of digital technologies should not be underestimated because they could enhance a business' efficiency, increase market access and expansion, and enable new innovation (Carayannis & Hanna, 2016). Amin et al. (2016) found that SMEs could gain business values from their e-business engagement. Most importantly, e-commerce could generate handsome profits for businesses (Omar & Anas, 2014). Furthermore, a study performed by Krishnan et al. (2017) found that as many as 91% of the shoppers in Kuala Lumpur made online transactions. As such, businesses should really redesign their strategies in facing the challenges in the digital world.

The findings supported the first hypothesis, whereby a significant relationship was found between competence and motivation to adopt e-commerce. Malaysia education system emphasizes on providing ICT knowledge to the students since small. As most of the entrepreneurs in this study were young (below 30 years old), it was not surprising that they agreed their IT competence motivated them to adopt e-commerce. As a result, developing competitive entrepreneurs through extensive training and development courses is important, especially since young. This can be done through enhancing the current technical and vocational education and training (TVET) to provide part-time IT-related courses for the practicing entrepreneurs. The schools and universities could also redesign their curriculum to equip the students with greater IT-related knowledge so that they will be prepared for the IT world. In addition, banking institutions and telecommunication companies could provide relevant e-commerce information such as contents, processes, procedures etc. to enhance the entrepreneurs' knowledge on

e-commerce. Of course, the role of government in promoting the use of e-commerce in businesses should not be neglected (Astuti & Nasution, 2014). Specifically, government efforts such as establishment of relevant frameworks, initiatives, programs, grants and agencies to promote and govern e-commerce are playing an important role in developing e-commerce in Malaysia (Omar & Anas, 2014).

The result further supported the second hypothesis, i.e., there is a significant relationship between autonomy and motivation to adopt e-commerce. As most entrepreneurs in this study registered for sole proprietorship ventures, they possessed greater freedom in making strategic decision for their ventures. As such, entrepreneurs should be given more freedom or simply, less intervention from the governmental agencies in their business operations and management. This is because e-commerce is closely related to being creative and innovative in conducting business; however, intervention from the government, too many red tapes, rules and regulations could easily suppress the entrepreneurs' creativity and innovation and further prevent them from adopting e-commerce. Thus, autonomy in managing one's business is crucial in encouraging e-commerce adoption.

This study also supported the third hypothesis in which relatedness and motivation to adopt e-commerce recorded a positive and significant relationship. Entrepreneurs in this study were selected from MITI directory, in which they registered for programs in MITI. This has served as a good platform for entrepreneurs to build up network and interact with each other. Such interaction among themselves helped them to have a better understanding about e-commerce adoption. Therefore, in facing the wave of digitization and encouraging e-commerce adoption among entrepreneurs in Malaysia, building a strong and tight connection between the entrepreneurs is crucial. There are numerous trade associations in the country, and it is time for them to work together and build up a supportive environment to help and support each other in e-commerce adoption. Besides the formal trade associations, entrepreneurs could also develop informal networking circles among themselves to share the relevant information and guide each other. Sharing of successful stories among entrepreneurs could be useful because competitive pressure could be one of the influencing factors for e-commerce adoption (Hussin et al., 2017).

5. Conclusion

This study was conducted with the aim to identify the factors that affect the motivation of entrepreneurs to adopt e-commerce. Overall, it was proven that all factors such as relatedness, autonomy and competence have a positive and significant influence on motivation to adopt e-commerce. Thus, it can be concluded that the factors identified in SDT played an important role in influencing motivation to adopt e-commerce.

This study contributed to both literature and practice. Literally, it furbished the entrepreneurship literature by applying SDT in examining entrepreneur's innate psycho-

logical factors in e-commerce adoption. It also enriched the literature by supporting SDT as an important theory in studying human's motivation. It further explained the psychological factors that motivate entrepreneurs to adopt e-commerce. Practically, it helps to strategize for e-commerce adoption in developing countries. It showed that entrepreneurs should equip themselves with sufficient e-commerce competencies, maintain a good relationship with people inside or outside of business and build up confidence in carrying out one's own life. In order to achieve this, it is further suggested that specific bodies such as trade associations and government agencies should provide various assistance. Specifically, developing a supportive environment, providing funding, incentives or training courses to SME entrepreneurs could be deemed appropriate.

This study is not without limitations. For instance, it only investigated the three factors in SDT; thus, future research should integrate the factors from other theories or models to test the direct and indirect relationships. Furthermore, the sample of this study consisted of entrepreneurs registered in the directory of MITI only; therefore, future studies could enlarge the sample size.

References

- Ahmad, S.Z., Bakar, A.R.A., Faziharudean, T.M., & Zaki, K.A.M. (2015). An empirical study of factors affecting e-commerce adoption among small- and medium-sized enterprises in a developing country: Evidence from Malaysia. *Information Technology for Development*, 21(4), 555–572.
- Ahmad, Z. S., Sani, M. K. J. A., & Noordin, S. A. (2018). The intention to adopt electronic publishing: A case of Malaysian publishers. *International Journal of Academic Research in Business and Social Sciences*, 8(9), 396–413.
- Al-Bakri, A. A., & Katsioloudes, M. I. (2015). The factors affecting e-commerce adoption by Jordanian SMEs. *Management Research Review*, 38(7), 726–749.
- Al-Somali, S.A., Gholami, R., & Clegg, B. (2015). A stage-oriented model (SOM) for e-commerce adoption: a study of Saudi Arabian organisations. *Journal of Manufacturing Technology Management*, 26(1), 2–35.
- Alos-Simo, L., Verdu-Jover, A.J., & Gomez-Gras, J.M. (2017). How transformational leadership facilitates e-business adoption. *Industrial Management & Data Systems*, 117(2), 382–397.
- Amin, M.R., Hussin, H., Suhaimi, M.A., Kartiwi, M., & Razi, M.J.M. (2016). E-business capability and value among retail SMEs: Some empirical evidence from Malaysia. *2016 IEEE Conference on e-Learning, e-Management and e-Services (IC3e)*, Oct. 10–12, 2016, Langkawi, Malaysia.
- Astuti, N.C., & Nasution, R.A., (2014). Technology readiness and e-commerce adoption among entrepreneurs of SMEs in Bandung City, Indonesia. *Gadjah Mada International Journal of Business*, 16(1), 69–88.
- Awa, H. O., Ojiabo, O. U., & Emecheta, B. C. (2015). Integrating TAM, TPB and TOE frameworks and expanding their characteristic constructs for e-commerce adoption by SMEs. *Journal of Science & Technology Policy Management*, 6(1), 76–94.
- Baard, P. P., Deci, E. L., & Ryan, R. M. (2004). The relation of intrinsic need satisfaction to performance and well-being in two work settings. *Journal of Applied Social Psychology*, 34, 2045–2068.
- Barsauskas, P., Sarapovas, T., & Cvilikas, A. (2008). The evaluation of e-commerce impact on business efficiency. *Baltic Journal of Management*, 3(1), 71–91.
- Black, A. E., & Deci, E. L. (2000). The effects of instructors' autonomy support and students'

autonomous motivation on learning organic chemistry: A self-determination theory perspective. *Science Education*, 84, 740–756.

Carayannis, E.G., & Hanna, N.K. (2016). *Mastering Digital Transformation: Towards a Smarter Society, Economy, City and Nation*. West Yorkshire: Emerald Group Publishing Limited.

Chong, W.K., Man, K.L., & Kim, M. (2018). The impact of e-marketing orientation on performance in Asian SMEs: A B2B perspective. *Enterprise Information Systems*, 12(1), 4–18.

David L. (2014, July 16). *Self-Determination Theory (Deci and Ryan)*. Retrieved 10 August 2017, from <https://www.learning-theories.com/self-determination-theory-deci-and-ryan.html>.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic Motivation and Self-Determination in Human Behavior*. New York: Plenum.

Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: human needs and the self-determination of behaviour. *Psychological Inquiry*, 11(4), 227–268.

Gagné, M., Forest, J., Gilbert, M., Aubé, C., Morin, E., & Malorni, A. (2010). The Motivation at Work Scale: Validation Evidence in Two Languages. *Educational and Psychological Measurement*, 70(4), 628–646.

Ganotakis, P., & Lindsay, V. (2016). E-commerce adoption within an entrepreneurial context. *International Conference on Organization and Management (ICOM)*, pp. 1–39.

Handley, H. (2016, December 16). *An introduction to e-commerce in Malaysia*. Retrieved 14 July 2017, from <http://www.aseanbriefing.com/news/2016/12/16/an-introduction-to-e-commerce-in-Malaysia>.

Hussin, H.H., Jemari, M.A., Kasuma, J., Yacob, Y., & Panie, R. (2017). Factors influencing e-commerce adoption among Malay women entrepreneurs in Kuching Sarawak. *Journal of Borneo Kalimantan*, 3(1), 1–19.

Kabugumila, M.S., Lushakuzi, S., & Mtui, J.E. (2016). E-Commerce: An Overview of Adoption and Its Effective Implementation. *International Journal of Business and Social Science*, 7(4), 243–252.

Kartiwi, M., Hussin, H., Suhaimi, M.A., Jalaldeen, M.R.M., & Amin, M.R. (2018). Impact of external factors on determining E-commerce benefits among SMEs in Malaysia. *Journal of Global Entrepreneurship Research*, 8(18), 1–12.

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30, 607–610.

Krishnan, S., Sentosa, I., Nurain, S., Amalia, N., Syamim, S., & Hafizah, W.N. (2017). E-commerce issues on customer's awareness in Malaysia. *International Journal of Finance and Accounting*, 6(1), 8–12.

Kumar, A. (2016, June 21). *E-commerce Mistakes and Challenges facing Malaysian Companies Today: Interview*. Retrieved 8 February 2018, from <http://www.mis-asia.com/tech/internet/e-commerce-mistakes-and-challenges-facing-malaysian-companies-today-interview>

Lewis, M.A. (2003), Analyzing organizational competence: implications for the management of operations. *International Journal of Operations & Production Management*, 23(4), 731–56.

Lim, S.C., Baharudin, A.S., & Low, R.Q. (2016). E-commerce adoption in peninsular Malaysia: Perceived strategic value as moderator in the relationship between perceived barriers, organization readiness and competitor pressure. *Journal of Theoretical and Applied Information Technology*, 91(2), 228–237.

Malaysia Digital Economy Corporation (MDEC) (2017). *National eCommerce Strategic Roadmap*. Retrieved 24 May 2018, from <https://mdec.my/digital-innovation-ecosystem/ecommerce/nedr>

Malaysia Digital Economy Corporation (MDEC) (2018). *DFTZ Digital Free Trade Zone: Strategic initiative to intensify Malaysia in cross boarder e-commerce*. Retrieved 24 May 2018, from: <https://mydftz.com/>

Malaysia External Trade Development Corporation (MATRADE) (2017). *Digital Free Trade Zone (DFTZ)*. Retrieved 24 May 2018, from: <http://www.matrade.gov.my/en/digital-free-trade-zone-dftz>

Mohammed, J.A., Almsafir, M.K., & Alnaser, A.S.M. (2013). The factors that affect e-commerce adoption in small and medium enterprise: A review. *Australian Journal of Basic and Applied Sciences*, 7(10), 406–412.

Mukhtar, M.A.F., Ashaari, M.A., Rahman, A.R.A., & Husin, A.R.C. (2016). E-marketplace in Malaysia: Challenges and solutions. *Journal of Information Systems Research and Innovation*, 10(1), 1–7.

Omar, C.M.Z.C., & Anas, T. (2014). E-commerce in Malaysia: Development, implementation and challenges. *International Review of Management and Business Research*, 3(1), 291–298.

Panayiotou, N.A., & Katimertzoglou, P.K. (2015). Micro firms internet adoption patterns: the case of the Greek jewellery industry. *Journal of Enterprise Information Management*, 28(4), 508–530.

Poon, S., & Swatman, P. M. C. (1999). A longitudinal study of expectations in small business Internet commerce. *International Journal of Electronic Commerce*, 3(3), 21–33.

Poorangi, M.M., Khin, E.W.S., Nikoonejad, S., & Kardevani, A. (2013). E-commerce adoption in Malaysian small and medium enterprises practitioner firms: A revisit on Rogers' model. *Anais da Academia Brasileira de Ciências*, 85(4), 1593–1604.

Rahayu R., & Day, J. (2015). Determinant factors of e-commerce adoption by SMEs in a developing country: Evidence from Indonesia. *Procedia – Social and Behavioral Sciences*, 195(2015), 142–150.

Roca, J. C., & Gagné, M. (2008). Understanding e-learning continuance intention in the workplace: A self-determination theory perspective. *Computers in Human Behavior*, 24(4), 1585–1604.

Ryan, R. M., Kuhl, J., & Deci, E. L. (1997). Nature and autonomy: Organizational view of social and neurobiological aspects of self-regulation in behavior and development. *Development and Psychopathology*, 9, 701–728.

Sarmah, B., Sharma, S., & Gupta, S. (2017). Antecedents of e-business adoption intention: An empirical study. *International Journal of Innovation Science*, 9(4), 417–434.

Sekaran, U., & Bougie, J. R. (2013). *Research methods for business: a skill-building approach*. Chichester: Wiley.

Shaharuddin, N.A., Rahman, A.A., Aziz, Y.A., & Kassim, S. (2018). An assessment of web technologies & e-business adoption among SMEs travel agencies in Malaysia. *Journal of Academia UiTM Negeri Sembilan*, 6(1), 89–96.

Sivathanu, B. (2018). Adoption of Internet of things (IoT) based wearables for elderly health-care – a behavioural reasoning theory (BRT) approach. *Journal of Enabling Technologies*, 12(4), 169–185.

Sørebo, Ø., & Hæhre, R. (2012). Investigating students' perceived discipline relevance subsequent to playing educational computer games: A personal interest and self-determination theory approach. *Scandinavian Journal of Educational Research*, 56(4), 345–362.

Soto-Acosta, P., Popa, S., & Palacios-Marqués, D. (2016). E-business, organizational innovation and firm performance in manufacturing SMEs: an empirical study in Spain. *Technological and Economic Development of Economy*, 22(6), 885–904.

Turban, E., King, D., Lee, J., Liang, T.-P., & Turban, D. (2010). *Electronic Commerce: A Managerial Perspective 2010*. Upper Saddle River, NJ: Pearson Prentice Hall.

Wanyoike, D.M., Mukulu, E., & Waititu, A.G. (2012). ICT attributes as determinants of e-commerce adoption by formal small enterprises in Urban Kenya. *International Journal of Business and Social Science*, 3(23), 65–74.