

INNOVATING BUSINESS THROUGH E-COMMERCE: EXPLORING THE WILLINGNESS OF MALAYSIAN SMEs

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ABSTRACT

E-commerce adoption amongst SMEs has received much attention lately, as many believed that such a new way of doing commerce can open up endless opportunity for SMEs to be more competitive. In Malaysia, the government has introduced various initiatives to promote E-commerce adoption among businesses, however, the uptake is still slow. This study represents an empirical survey on the factors that influence E-commerce adoption amongst Malaysian SMEs in the manufacturing sector. An analysis was done on 107 responses from the CEOs/managers of Malaysian SMEs. The findings indicate that perceived relative advantage, perceived complexity, perceived observability of E-commerce influence such adoption decision. In addition, the study also provides evidence that CEO commitment to IT is a major influencing factor.

Keywords: IT and Small Business, E-commerce Adoption, E-commerce and Malaysia.

1. INTRODUCTION

Despite the high potential, Asian businesses are still reluctant to infuse EC into their business processes. One apparent explanation could be that many Asian countries tend to be less developed than Western countries. A more complete explanation of the lag, however, may include other related problems faced by Asian countries such as, lower personal computer penetration, inefficiently managed telecom monopolies, language barriers, hierarchical corporate cultures and bureaucratic governments.

In the case of small and medium-sized enterprises (SMEs), the interest shown by researchers witnessed a significant growth over the years, as shown by the numerous studies on E-commerce and SMEs [1], [2], [3], [4]. Most of past research focused on understanding readiness of SMEs towards e-commerce, and factors that drive or impede e-commerce adoption as perceived by SME owners in various parts of the world.

This paper reports a research which aims to understand further the factors that influence e-commerce adoption or willingness to adopt, amongst SMEs in Malaysia. Despite various IT and e-commerce initiatives introduced by the government, e-commerce penetration among Malaysian small firms is still low. This study attempts to seek empirical evidence on the issue.

2. LITERATURE REVIEW

2.1 Past studies on E-commerce Adoption Factors

Many past studies have explored e-commerce adoption factors in various context and countries. Ratnasingam [5], for example, presents the findings of research relating to EC adoption in Australia and New Zealand. The study indicates that respondents reported the perceived lack of security as one of the main barriers to the adoption of EC. Other barriers include customer readiness, organizational inertia and lack of knowledge.

Lee and Runge [3] explored three antecedent factors in IT adoption among small retailers, namely (i) the owner's perception of the relative advantage of using IT; (ii) the social expectations of IT use, and

(iii) the owner's innovativeness in managing their business. The study found that the firm's innovativeness is the strongest determinant for adopting traditional information systems. However, in adopting Internet-related technologies, the owner's positive perception of the relative advantage of using the technology plays the most critical role.

Mehrtens et al. [6] conducted a case study research to determine the significant factors that influenced their Internet adoption among SMEs in New Zealand. The study concluded that three factors significantly affect Internet adoption by small firms: perceived benefits, organizational readiness, and external pressure.

Another recent study was conducted by Kendall *et al.* [4] on the receptivity of Singaporean SMEs to the adoption of e-commerce. The study adapts Roger's model of innovation diffusion as the framework, and treats EC as a form of new innovation. The finding of the study support only relative advantage, compatibility and trialability as factors affecting the adoption of e-commerce by SMEs. The compatibility issue is important because it deals with their perception of the importance of EC on their business now and in the future. Finally trialability is related to compatibility, that is, the ability to engage in EC without incurring high start-up costs.

Riemenschneider and Mc Kinney [7] used The Theory of Planned Behavior in analyzes the differences in the beliefs of small business executives regarding the adoption of Web-based E-commerce. The findings of this study show that the adopters of E-commerce were influenced more by their social referent group than were the non-adopters. Previously, Lee and Runge [4], on the other hand, found social expectation only exhibits indirect influence on perceived relative advantage and therefore may not be an important factor in making e-commerce adoption decision.

Past studies indicate that factors which influence e-commerce adoption amongst SMEs vary and inconclusive. Hence, more research is needed to further enhance our understanding on the issue, especially in the context of developing economies.

2.2 E-commerce and SMEs in Malaysia

In Malaysian context, the studies on SME have not yet reached an in-depth analysis on the development of SME in many major areas especially concerning the issues of electronic endeavor [8]. Despite a number of small scale studies on the issue, the current level of adoption of Internet-based business among SMEs in Malaysia is still not clear. The SMI Association of Malaysia reported that ICT implementation among local SMEs is still at a very basic level [9]. According to the Secretary of the association, about 90% of the 100,000 local SMEs use PCs for simple operations such as basic accounting, financial data and word processing. Only about 30% of the local SMEs have some kind of web presence and use technology in their daily operations. In another study, it was found that, in 2000, about 50% of the SMEs have websites for online advertising, and 43% take orders on the Internet [10]. This finding indicates that SMEs in Malaysia are beginning to take up Internet-based business.

In their study of e-commerce in Malaysia's manufacturing sector, Sulaiman and Jani [11] found that although e-commerce is relatively new in Malaysia, companies in manufacturing have begun processing sales orders, procurement and goods tracking online. Liew [12] conducted a survey on 39 SMEs to investigate the factors that influence e-commerce adoption among Malaysian SMEs and found that the level of adoption is influenced by the extent of hindrances related to organization, infrastructure and technology. A study by Suraya [13] explores Internet diffusion and e-business opportunities amongst Malaysian travel agencies. The study reveals that the Malaysian travel agencies are very positive towards e-business, despite the slow rate of adoption of e-business practices. The

finding of the study also shows that cultural issues are important in explaining the adoption rate of the Internet in Malaysian travel agencies.

In conclusion, e-commerce in Malaysia is still in its infancy, but the future is bright. With the support from government in term of incentives, grants and development program, SMEs are supposed to be able to advance in EC technology. However, many SME are way behind in the involvement of e-commerce. This research attempts to fill up the gap in trying to understand e-commerce adoption by SMEs in the Malaysian context.

3. RESEARCH MODEL

The classical theory on diffusion of innovations introduced by Rogers [14] has been widely used in the past literature. It was highlighted that five of the perceived attributes of an innovation are the main determinants explaining 49-87% of the variance in the rate of the adoption. These five attributes are relative advantage, compatibility, complexity, trialability and, observability. Following past studies, this research has adapted a portion of Rogers's Model of Innovation Decision and e-commerce was treated as a new innovation [3];[4]. However, previous studies fail to analyze the other organizational factors that might as well affect the adoption, such as organizational readiness and CEO's characteristics. Hence, three main factors are included in this study, namely: (i) Perceived characteristics of E-commerce (ii) CEO's commitment to IT; and (iii) Organizational Readiness.

3.1 Major Variables

Based on Roger's Diffusion of Innovation Model, five dimensions under perceived characteristics of innovation are adopted to test the perception of SME towards the adoption of EC technology. Table 1 shows the definition of the dimensions as well questions asked in the questionnaire.

Table 1: Research Definition of Five Perceived Characteristics of E-commerce

Perceived Char. of EC	Definition
Relative Advantage	The benefit perceived by SMEs in adopting E-commerce to conduct business as measured by lower business cost, wider market coverage, etc.
Compatibility	How well SMEs think the new innovation will fit into their existing business process.
Complexity	The difficulty perceived by SMEs in adopting E-commerce.
Trialability	E-commerce is more trialable if business conversion can be carried out in phases and if grant is provided to cover high start-up costs.
Observability	The ability to see beneficial results of using E-commerce by other businesses..

Research conducted by [6] and [15] have identified the important role of CEO or owner-manager in influencing the adoption of E-commerce in SME. As key personnel, CEO has the authority in decision making and also recognizes the Internet marketing potentials and develops the strategy to adopt it. Thus, the decision whether to adopt or not to adopt will depend on CEO. High commitment from CEO is needed since the process of adoption typically occurs stage by stage. Hence, the characteristic of CEO was included as one of the variables.

Organizational readiness refers to the firm's readiness in term of knowledge of the key personnel and facilities to adopt the technology. In order to apply the E-commerce technology, a firm must have adequate computer systems within the firms to access and use the Internet without major problems. Studies by [6], [16] emphasize on organizational readiness as one of the factors that influences technology adoption. Technical knowledge and expertise are important aspect in the measurement of a success adoption of E-commerce. The more knowledge or expertise one has, the less complex E-commerce is perceived to be, thus the faster the process of E-commerce adoption. Other than IT

infrastructure and technical knowledge, firm's innovativeness also can be seen as a factor that may influence the adoption of E-commerce in an organization [3].

3.2 The hypotheses

H1: The more perceived relative advantage of e-commerce, the more likely e-commerce will be adopted by SMEs.

H2: The more visible the result of e-commerce adoption, the more likely e-commerce will be adopted.

H3: The more perceived complexity of e-commerce, the less likely e-commerce will be adopted.

H4: The more perceived trialability of e-commerce, the more likely e-commerce will be adopted.

H5: The more perceived compatibility of e-commerce, the more likely e-commerce will be adopted.

H6: The higher CEO commitment to IT, the more likely e-commerce will be adopted.

H7: The higher the organizational readiness, the more likely e-commerce will be adopted.

4. RESEARCH METHODOLOGY

The survey questionnaires were sent to CEO or senior executives of 700 manufacturing SMEs located in the West Coast of the Peninsular Malaysia. The manufacturing sector was selected as past studies indicated that IT use is most matured amongst SMEs in this sector. The sample was based on the West Coast since this region has the highest level of IT awareness and usage. The list of addresses of manufacturing firms was collected from several directories. The questionnaires were mailed out during the month of April 2004. The initiatives have been made to increase the response rate by providing cover letter and personalized address. In addition, a stamped reply envelope was provided with each questionnaire to facilitate the mailing process.

From 735 questionnaires distributed, 147 were returned after duration of five months, which yield about 20% response rate. The duration includes a follow-up on respondents. The response rate is acceptable as past studies on SMEs also yield similar response rate (Kendall et al, 2001). Final checking on the responses discovers that only 107 responses were useful for further analysis. Among the reasons for exclusion were responses from non-manufacturing sector, responses by other than company's decision maker, and incomplete questionnaires.

5. ANALYSIS

For the first stage of analyzing the data from the survey, descriptive analysis has been employed to study the scenario of the adoption of E-commerce among manufacturing SMEs. The SMEs will be analyzed in term of CEO's perception on the characteristics of E-commerce, CEO's commitments to IT, and company's profile and organizational readiness.

5.1 General Profile and Summary Statistics

It appears that the sample includes about 43% of the companies which are below 10 years of age and the rest are more than 10 years in operation. About half of the sample companies (49.1%) comprise of less than 50 employees; another 45.3% of the sample has the number of employees in the range of 50 – 150. To gauge on the financial performance of the companies in the sample, a question is asked on their turnover for the previous year. About 46% of the companies have below than RM1 million annual turnovers and about 30% has turnover in the range of RM1 million to RM5 million. The rest earned more than RM 5 million in the previous year.

On Internet use, the responses received indicated that about 95% of the SMEs have the Internet connection in their organization. The result indicated that the Internet was used mainly for email (94%) and seeking information (97%). Only 41% of the respondents use Internet to buy products and 35% use

Internet to sell products. 67% of the responding companies already have websites. The main reason of having the website (94%) was to 'provide information to customers'. Interestingly, only 13% of the respondents perceived that 'Pressure from competitor' as a reason for them to have a website. On whether or not the firm is perceived as innovative, the result shows that 65% of the respondents perceived their company as 'somewhat innovative' to 'very innovative'.

For the profile of respondents, all of them are holding managerial positions. This shows that the respondents who were involved in this study were qualified to answer the questionnaire, hence should lead to a more accurate finding for the study.

5.2 Factor Analysis and Reliability

Factor analysis was used to refine the measure of willingness to adopt E-commerce. The result in Table 2 shows that two factors appear significant in describing the data. This is consistent with the finding of the study by [4] on Singaporean SMEs.

Table 2: Willingness to Adopt E-commerce: Factor analysis summary

Component	Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.849	54.985	54.985	3.822	54.601	54.601
2	1.124	16.059	71.045	1.151	16.444	71.045

Table 3 presents factor-question correlation matrix as a result of running factor analysis on seven questions from Part C of the questionnaire. The result in Table 3 shows that Factor 1 correlates with Questions 2, 3, 4, 5, 6, and 7 (respectively, conduct sale through Internet, purchase supplies, replace sales function, replenish automatically, replace entire supply function and conduct all business transaction), while Factor 2 correlates only with Question 1 (have website).

Table 3: Factor-question correlation matrix (Extraction Method: PCA; Rotation Method: Varimax)

Component	PCQ6	PCQ7	PCQ5	PCQ4	PCQ3	PCQ2	PCQ1
Factor 1	.875	.859	.834	.798	.769	.627	4.318E-02
Factor 2	.141	.181	.133	-.178	-.253	.281	.952

Since two factors exist in explaining the adoption of e-commerce, a decision is needed on which Factor should be retained for further analysis. A closer inspection of the scree plot revealed that the Factor that is located on the sharp descent of the plot is Factor 1, hence, it was decided to retain Factor 1. Furthermore, Factor 2 which correlates with only the 'has website' item is thought to be inappropriate as this may not involve online transactions. Factor Analysis also enables exploration of how well the survey questions from Part B of the questionnaire correlate with the five characteristics identified by Rogers. This technique allows distillation of the nineteen questions into five dimensions or factors. These factors, then, serve as independent variables in the regression analysis.

Table 4: Roger's attributes: Factor analysis summary

Component	Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total (eigenvalue)	% of Variance	Cumulative %	Total (eigenvalue)	% of Variance	Cumulative %
1	4.963	26.122	26.122	4.963	26.122	26.122
2	2.577	13.562	39.683	2.577	13.562	39.683
3	1.818	9.568	49.251	1.818	9.568	49.251
4	1.474	7.758	57.009	1.474	7.758	57.009
5	1.098	5.778	62.787	1.098	5.778	62.787

(Extraction Method: Principal Component; Rotation method: Varimax; Observation; 107)

The result from Table 4 shows that the five factors counted for 62.79% of the variable variance. Four items were dropped since the factor loadings were associated with multiple factors. Two items were found to be deviated from the initial mapping of the items to particular factors, hence, it was decided to drop the items from further analysis. Table 5 presents factor-items correlation matrix for the final set of attributes.

Table 5: Factor-items correlation matrix; Final Included Items for Further Analysis

	Characteristics				
	Rel.Advan.	Observability	Trialability	Complexity	Compatibility
Lower business cost	.782				
Increase revenue	.763	.146	.294		
Lower human requirement	.732	.248			
Important for the business in the future	.558	.154	.510		
Result of trials by others can be observd	.292	.823			
Results by others help in decism. making	.252	.797			
Most of suppliers and customers use it*	.120	.685	.371		
Unsure returns in term of profit	-.340	.637			
Aware of the govern..'s grant/subsidies	-.154	.232	.674		-.137
Cross international boundaries*	.467	.162	.540	.154	.173
Information involved is not private	-.147			.799	
Virus might affect the Internet transactn		.115		.784	-.105
Concern about the security of payment			.390	.578	
Change company's policy		-.110			.887
Change company's structure	.146				.883

*These items do not directly match with the initial mapping, hence removed from further analysis.

In order to evaluate the internal consistency of the multiple items scales associated to the particulars factors, Cronbach alpha model was used through reliability analysis procedure. The result shows that the reliability estimates range from 0.60 to 0.79, which is strong enough to carry out further analysis.

5.3 Regression Analysis on Perceived Characteristics of e-commerce and EC Adoption

A multiple regression analysis was conducted to evaluate the relationship between the predictors of perceived characteristics of e-commerce and the adoption of e-commerce in SMEs. Table 7(i) through Table 7(iii) presents the results.

Table 7(i): Regression Model Summary on Five Characteristics of E-commerce

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.492	.242	.205	1.095

Predictors: (Constant), Trialability, Rel. Advantage, Complexity, Compatibility, Observability. Dep. Variable: EC Adoption

Table 7(ii) ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	38.718	5	7.744	6.463	.000
Residual	121.016	101	1.198		
Total	159.734	106			

Table 7(iii) Predictors Coefficients

Predictors	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	4.822	.786		6.131	.000
Relative Advantage	-.503	.118	-.393	-4.252	.000
Observability	.320	.112	.271	2.854	.005
Trialability	-.151	.078	-.176	-1.928	.057
Complexity	.207	.103	.180	2.000	.048
Compatibility	-4.129E-02	.080	-.046	-.516	.607

Based on the above tables, three out the five characteristics are found to be significant to the e-commerce adoption process. In total, the regression model showed about 20.5% (Adjusted $R^2 = .205$) of the SME's willingness to adopt e-commerce. The regression model has less explanatory power than previous work which the five characteristics of innovation used in the regression model would explain 36-87% of the adoption of innovation [4]. The linear combination of the perceived characteristic of e-commerce measures was significantly related to the adoption of e-commerce, $F(5, 101) = 6.46, p < .001$ as was shown in Table 7(ii). This result shows that SMEs perception on the characteristics of e-commerce will influence the adoption of e-commerce.

The analysis indicate that relative advantage showed the strongest influence over the adoption of e-commerce $t(105) = -4.25, p < .01$. The negative relationship between relative advantage and adoption of e-commerce mean that SMEs will consider the adoption if they perceived e-commerce as advantageous to their company. On the other hand, observability and complexity have positive relationship with the adoption of e-commerce which means the more perceived observability and complexity of e-commerce, the further in the future SMEs will adopt e-commerce.

5.4 Regression Analysis on CEO's commitment to IT and EC Adoption

Internet usage pattern and CEO's knowledge on e-commerce will be analyzed using regression analysis to see whether this variable has an influence on the adoption of e-commerce. The results are shown in Tables 8(i)-(iii).

Table 8(i) Model Summary

Model	R	R Square	Adjusted R Square	Std. Err of the Estimate
1	.371	.138	.130	1.145

Predictors: (Constant), CEO Commitments to IT

Table 8(ii) ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	22.035	1	22.035	16.802	.000
Residual	137.700	105	1.311		
Total	159.734	106			

Table 8(iii) Coefficients

Predictors	Unstandardized Coefficients		Stand. Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	5.573	.349		15.971	.000
CEO Commitment to IT	-.675	.165	-.371	-4.099	.000

From the Tables, CEO factor was statistically significant, $t(105) = -4.10, p < .001$, which means that the more committed the CEO's to IT, the more likely e-commerce will be adopted earlier. The regression model showed only about 13% (Adjusted $R^2 = .130$) to be accounted for CEO factor on the SME's willingness to adopt e-commerce. However, the result presented through factor analysis, reliability, and

regression model provides enough indication on the real relationship between CEO commitment to IT and the adoption of e-commerce.

5.5 Regression Analysis on Organizational readiness and EC Adoption

The relationship between firm’s innovativeness and the adoption of e-commerce was analyzed using regression analysis. The results are shown in Tables 9(i) – (iii).

Table 9(i) Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.079	.006	-.003	1.230

Table 9(ii): ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	.991	1	.991	.656	.420
Residual	158.743	105	1.512		
Total	159.734	106			

Table 9(iii): Coefficients

	Unstandardized Coefficients		Stand. Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.855	.462		8.354	.000
Firm Innovativeness	9.135E-02	.113	.079	.810	.420

Table 9(i) shows that the firm’s innovativeness measures was not linearly related to the adoption of e-commerce, $F(1, 105) = 0.66, p > .05$. Table 9(ii) and Table 9(iii) show that firm innovativeness was not statistically significant $t(105) = .81, p > .05$ which implies that firm’s innovativeness does not influence e-commerce adoption. In other words, even though SMEs has innovated their firms with other information systems and IT infrastructures, it does not necessarily mean the firm will adopt e-commerce.

6. DISCUSSION OF RESULTS

This study aims to examine the relationship between the adoption of e-commerce and the three influencing factors namely, perceived characteristics of e-commerce, CEO commitments to IT and organizational readiness. In this study, e-commerce adoption was measured as the time frame the SMEs willing to adopt certain stages of e-commerce technology.

Based on the previous analysis, three out of five hypotheses based on perceived characteristics of e-commerce were found to be significant predictors of e-commerce adoption. One of the significant predictors is relative advantage, which has the strongest influence on the adoption of e-commerce amongst Malaysian SMEs. This finding is consistent with the previous studies which found that the most prominent reason for an organization to adopt an innovation was the innovation’s relative advantage [6],[7]. The second factor which has an influence on e-commerce adoption amongst SMEs in the sample is observability. The relationship between observability and adoption of e-commerce is positive, which implies that, the more SMEs rely on the results of earlier adopter, the further in the future they will adopt e-commerce. The decision to delay the E-commerce adoption reflects the sign of uncertainty avoidance among most SMEs. Based on the concept of uncertainty avoidance in Hofstede’s cultural dimensions and the theoretical concepts in innovation decision model, it shows that the higher the uncertainty avoidance that exists within a society, the slower the rate of e-commerce adoption. The significance of observability also shows that a majority of manufacturing SMEs in Malaysia prefer to be late adopters of e-commerce. The third predictor which is also significant in explaining perceived characteristics of e-commerce is complexity. The circulation of various viruses lately creates more

anxiety to SMEs beside their concern on security of payment and privacy of information involve in e-commerce transaction. The descriptive data on barriers to e-commerce adoption also supports this finding where security of payment and virus were ranked highest in the list of barriers. SMEs' concern on unpredictable circumstances and risks is partly a reflection of a lack of relevant knowledge on the prevention and security of Internet and e-commerce technology in general.

The finding found that trialability and compatibility were insignificant in influencing the adoption of e-commerce in SMEs in the Malaysian manufacturing sector. This is in contrast to the findings of Kendal et al's study on Singaporean SMEs, where these perceived characteristics of e-commerce were found to be significant. Trialability relates to the ability of SMEs to engage in e-commerce without incurring high start-up costs, and thereby the availability and awareness of grants matters. In this case, the result implies that Malaysian SMEs generally are not aware of the grants provided by Government agencies. The result on the issue of compatibility, which relates to how well SMEs think e-commerce fit into their current business process, implies that managers of Malaysian SMEs do not find this as important. It could very well reflect the lack of strategic thinking amongst these managers or CEOs.

Another factor that was associated with the adoption of E-commerce in SMEs is the commitment of CEO or top management towards IT. This aspect is postulated to be related with e-commerce adoption because CEO has the most power of decision making in the company. The result of this study proved that there was a linear relationship between CEO's commitment to IT and e-commerce adoption. The role of CEO or owner-manager undoubtedly is very important in SMEs, especially in a developing country like Malaysia. This is because there is a large power distance in the Malaysian culture and therefore, according to Hofstede [17], the decision making will be centered on the CEO or owner-manager. A manager who is knowledgeable in e-commerce will be able to champion the adoption of an innovation such as e-commerce.

Organizational readiness is one of the factors that should be considered when studying about the adoption of innovation at organizational level. However, the result from this study implies that although firms perceive that they are innovative, it has no influence on the adoption of e-commerce. A possible explanation is that, manufacturing firms may perceive that they are innovative because they utilize advance manufacturing machines and equipment, but that does not necessarily imply that they also adopt e-commerce technology.

IMPLICATIONS AND CONCLUSIONS

The study has implication for both research and practice. For research, this study is one among a few which empirically test the organizational innovation model in the context of Malaysia. This study also reaffirms that the innovation adoption theory, widely applied in the United States and European countries, is also applicable in the Asian and developing country context. While this study explores a number of important e-commerce adoption factors, future research could expand the variables to cover other aspects of the phenomenon.

For practitioners, our study highlights the importance of the CEOs/managers' perception and knowledge on e-commerce. The results of the study show that SMEs with CEOs who perceive that e-commerce can offer relative advantage are more likely to adopt e-commerce. In addition, those CEOs with IT knowledge and skills are more likely able to appreciate and perceive positively on e-commerce technology. This implies that, in order to encourage higher adoption rate of e-commerce amongst SMEs, the government or relevant authority should focus on awareness and training programmes for the CEOs. The study also provides evidence that perceived complexity of e-commerce is an important barrier to e-commerce adoption amongst Malaysian SMEs. The perceived difficulty may reflect the technical knowledge of these SME managers. The descriptive findings support the contention that the

IT knowledge or e-commerce technology knowledge amongst Malaysian SME owners are still generally low. The less expertise/knowledge one has, the more complex the innovation is perceived to be. The findings of the study also indicates that Malaysian SME owner/managers expect to see beneficial results of using e-commerce by other SMEs before they commit themselves to this innovation. The fact that observability factor was found to be important indicates that perhaps not much success stories were publicized in the society.

Despite some limitations, such as, the sample size and representing just the manufacturing sector, the study has shed some light on the importance of the perception of the small business managers on e-commerce adoption. Although the study focused on Malaysian SMEs, it may very well applicable to other developing countries in the Asian region.

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