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An Exploratory Research of the Usage Level of E-Commerce among SMEs in the West Coast of Sabah, Malaysia

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Jetol Bolongkikit, Joe Henry Obit, Joyce Georgina Asing and Geoffrey H. Tanakinjal Labuan International Campus-University Malaysia Sabah

Correspondent author: Jetol Bolongkikit, Labuan School of Informatics Science, Labuan International Campus-Universiti Malaysia Sabah, P.O. Box 80594, 87015 Labuan Federal Territory. Tel: 087-460448. Email: jetol2000@yahoo.com

I am currently teaching in University Malaysia Sabah (UMS), Labuan International campus, Malaysia.

Abstract

Previous studies have indicated that e-commerce development offers a promising way for business to meet the challenges of the ever-changing environment. It provides effective and efficient ways, such as buyers can gather information rapidly about the availability of the products or services, evaluate, or negotiate with vendors. However, previous studies on Small and Medium Enterprises (SMEs) in Malaysia have shown that the application of e-commerce is still at its infancy. Thus, this study investigates the usage level of e-commerce application for the SMEs in West Coast of Sabah, Malaysia. This achieved by circulating a set of questionnaire to examine the awareness and adoption of e-commerce application by the SMEs, and recognize the impeding factors to adopt e-commerce and the perception of e-commerce benefits towards incorporating e-commerce in their business. The study found that the awareness and adoption level among the SMEs are still in its infancy, although the potential benefits were perceived to be important.

Keywords: Electronic Commerce; Usage Level; Small and Medium Enterprises

INTRODUCTION

For decades, firms have used various communication tools to conduct different kinds of business transactions. Banks have used EFTs to move customer?s money around the world, many kinds of businesses have used EDI to place orders and send invoices, and retailers have used television-based advertising to generate telephone-based orders from general public for various types of merchandise. It is increasingly and widely accepted that it is important for business to embrace e-commerce and adopt e-commerce applications. E-commerce applications include searching for products, services or information, advertising and the

buying, selling and paying for products and/or services. This is particularly important for small businesses. They may not have the sufficient fund and expertise to build a sophisticated web presence. But they need to adopt e-commerce applications because it is important for their on-going survival. It improves the ability to compete with the larger organizations and also enable them to operate on an international scale. In addition, e-commerce applications provide a cost effective approach for small organizations to market their business, launch new products, improve communications, gather information, and identify potential business factors.

There is now an interesting and growing study addressing the e-commerce adoption in specific context of small and medium enterprise (SMEs) (see for example Iacovou et al., 1995; Akkeren & Cavaye, 2000; Sathye & Beal, 2001; Tung et al., 2001; Mehrtens, 2001; Cloete et al., 2002; Danieal & Grimshaw, 2002). However, despite these interests in the effect of e-commerce adoption in small firms, only a few researches have been conducted in Malaysia and in Sabah particularly in relation to e-commerce adoption among the SMEs. Thus, this paper seeks to investigate the adoption level of e-commerce applications for the Small and Medium Enterprises (SMES) in West Coast of Sabah, Malaysia.

LITERATURE REVIEW

There is no universal accepted definition of e-commerce. Laudon and Traver (2002) defined e-commerce as digitally enabled commercial transactions between and among organizations and individuals. Schneider (2002) has defined e-commerce as business activities conducted using electronic data transmission technologies such as those used in the Internet and the World Wide Web to implement and enhance business processes. Malaysian External Trade Development Corporation (MATRADE, 2002) gives a broad definition of e-commerce as generally used to cover the distribution, marketing, sale and delivery of goods and services by electronic means. In this study, the definition by MATRADE is used.

The Internet has created a universal platform for buying and selling goods and services as well as driving important business process inside the organization. Small and large companies that are using the Internet can make product information, ordering, and customer support immediately available and also can help buyers and seller making contact (Laudon, 1999). Organizations are finding some of the greatest of the computer technology come from the e-commerce applications that significantly lower purchase transaction costs by eliminating intermediary in the distribution channel. In some categories such as information services and digital products, providers can potentially decrease the financial cost of distribution to zero (Jones, 1995; Hoffman et al., 1995). Low cost and ease of use (Timmers, 1999) has resulted in widespread adoption, high degree of interconnectivity between many parties (Shapiro & Varian, 1999) and the richness of information that can be exchanged between parties (Evans & Wurster, 1999).

Fewer studies have been carried out in the specific context of SMEs as majority of studies undertaken to date in e-commerce domain has addressed the specific context of large companies or those that are dot.com players. For the purpose of this study, SMES are defined as having an annual sales turnover not exceeding RM25 million and full-time employees not exceeding 150 and must be registered under the Companies Act 1965 (Malaysia). In addition, at least 60% of the equities in a company must be held by Malaysian and operating in an approved premise (SMIDEC, 1996). In Malaysia, SMEs play a significant role in the country? s economic development, particularly in the manufacturing sectors. SMEs performance in manufacturing sector in year 2002 and January ?June 2003 shows that SME?s output grew by 2.5%, an increase from RM60.9 billion in 2001 to RM62.4 billion (SMIDEC, 2003). It indicates the importance of SMEs sector that leading to a steady growth in studies of e-commerce adoption by such firms. A study of Poon and JEvons (1997) suggested that Internet create an unprecendented opportunity for small businesses to engage in national and

international marketing campaigns that previously would have been unaffordable. Findings by Sillince et al., (1998) indicated that the usage of email has resulted in efficiency gains and the ability to perform new tasks, such as sharing documents and working remotely. Poon and Swatman (1999) further support this in their study that SMEs are finding email useful for business communication and document transfer. Julta (2002) indicates the e-commerce can improve SMEs ability to compete with the larger organization and bring smaller suppliers to compete internationally or regionally from being lack of knowledge and expertise about international trade issues and foreign markets and thus upgraded a company to international scale. Hoi et al., (2003) also observes that increasing international exposure and enhancing customer service quality and responsiveness are considered as one of the perceived benefits of e-commerce to SMEs. Kleindle (2000) found that Internet technologies can help SMEs enter niche for e-commerce penetrate market with minimal cost compare to traditional business. This finding has been reinforced by other studies of the e-commerce adoption by SMEs such as by Tung et al., (2001). They found that e-commerce can open up the market for them, as well as lower their business costs. Some other benefits of e-commerce are improved information exchange with customers or suppliers, improved customer service, expanded business reach, access to international markets and reducing costs (Iacovou et al., 1995, Harrison et al., 1997).

There are many factors that influence the adoption of e-commerce applications among SMEs. Poon and Swatman (1999) found that perceived benefits are a key why organizations adopt and continue to use the Internet. The perception of long-term benefits and potential business opportunities is what driving small businesses to go online. Cloete et al. (2002) stated that, the adoption of e-commerce into SMEs is heavily reliant the people?s acceptance of the technology and its important to understand that factors lead to an individual?s acceptance of e-commerce technology. Technology Acceptance Model (TAM) (Davies, 1986) can be used to describe this situation (See Figure 1.). The potential user of e-commerce must not only be convinced of the relevant usefulness of e-commerce, but also have positive attitude towards it. The TAM Model further stated the user must be comfortable with the technology deployed, although expecting external variable factor affecting acceptance, which is beyond the user control. In determining why SMES e-commerce adoption is at a certain level, it is important to identify the affecting factors. Coutney and Fintz (2001), has identified the affecting factors are the owner?s business outlook as well as the organization?s characteristics which comprises of owner?s characteristics, organization?s characteristics and contextual characteristics. They also suggested that other additional issues that can have impact to the adoption of e-commerce are low use of e-commerce by customers and suppliers, the concern about security aspects, the concerns about legal and liability aspects, high costs of development in computer and networking technologies, limited knowledge about e-commerce and unconvinced of e-commerce benefits to the organization.

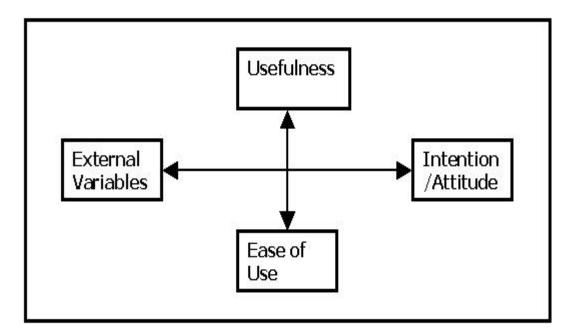


Figure 1.0: Technology Acceptance Model

METHODOLOGY

Given the lack of empirical research in this area especially in Sabah, an exploratory investigation was considered the most justifiable approach. In summary, data was collected using postal questionnaire. A total of 500 questionnaires were sent out to companies in which 300 responses were returned but only 175 of the returned responses are usable.

Survey instrument

Questionnaire was the main instrument or tool for this research, which was divided, into three sections; section I, section II, and section III. Section I collected information related to the company profile such as location, sectors, year of establishment, major product, and etc., and also information pertaining to awareness level of the companies toward e-commerce. Section II focused on the usage of the e-commerce applications and organization?s hindrances from adopting e-commerce application. Lastly, section III to collect information related to the perceived benefits of e-commerce by the SMEs.

The questionnaire was adapted from the one constructed and used by Dr. Ainin Sulaiman in a research on e-commerce applications in Malaysia in 1999 for National Productivity Corporation (NPC) with major modification to suite the industry environment especially in the West Coast of Sabah. Before the actual survey was started, prospect respondents were identified through multiple sources such as the relevant ministries and through yellow pages. The entire survey questionnaires were divided equally among six major towns, which constitute the West Coast of Sabah, Malaysia, namely Kota Kinabalu, Penampang, Inanam, Tuaran, Kota Belud, and Ranau with no constraint on the type of industry sectors. Statistical analysis was performed using SPSS program version 11.5. In this research, the analysis was focused on the various data tabulation, where frequency and percentage were displayed.

Population Definition

The population of this study was the SMEs in West Coast of Sabah and limited in the six major towns: Kota Kinabalu, Penampang, Inanam, Tuaran, Kota Belud, and Ranau, irrespective of whether they are using e-commerce applications or not. As discussed earlier, SMEs are defined as having an annual turnover not exceeding RM25 million and full-time workers not exceeding 150. Table 1.0 shows the response rate for the survey.

Table 1.0: Survey Response Rate

	Total Sample Size	Response Received	Usable Response	Response Rate (%)
			Received	
SME Survey	500	300	175	35

FINDINGS AND DISCUSSION

Companies Background

The total of reusable responses received was 175. These respondents were from six major areas in the West Coast of Sabah namely Kota Kinabalu (61.1%), Penampang (9.1%), Inanam (17.7%), Tuaran (5,1%), Kota Belud (3.4%), and Ranau (3.4%). Table 2.0 shows the sample distribution among the six major areas. The responses received were then categorized into sectors. Referring to Table 3.0, a total of 29.7% of the respondents were from tourist and leisure services sector, the second highest respondents, 19.4% was from the manufacturing sector, followed by 13.1% from the IT sector, and 12.6% from the retail sector. The remaining sectors are agriculture (1.1%), construction (9.1%), wholesaler (5.7%), transportation (1.7%), finance (3.4%), and education (4.0%).

Table 2.0: Companies Location

	Frequency	%	Valid %	Cumulative %
VALID				
Kota Kinabalu	107	61.1	61.1	61.1
Penampang	16	9.1	9.1	70.3
Inanam	31	17.7	17.7	88.0
Kota Belud Ranau	6	3.4	3.4	91.4
Tuaran	6	3.4	3.4	94.9
TOTAL	9	5.1	5.1	100
	175	100	100	

Source: SPSS 11.5 Output

Table 3.0: Organization Sector

	Frequency	%	Valid %	Cumulative %
VALID				
Agriculture	2	1.1	1.1	1.1
Construction	2	1.1	1.1	1.1
Constituction	16	9.1	9.1	10.3
Wholesaler				
	10	5.7	5.7	16.0
Retail	22	10.6	10.6	20.6
Manufacturing	22	12.6	12.6	28.6
Waliufacturing	34	19.4	19.4	48.0
Transportation				
	3	1.7	1.7	49.7
Tourist & Leisure Services	50	20.7	20.7	70.4
Finance	52	29.7	29.7	79.4
Timanee	6	3.4	3.4	82.9
Information Technology				
	23	13.1	13.1	96.0
Education	7	4.0	4.0	100
TOTAL	7	4.0	4.0	100
IOIAL	175	100	100	

Source: SPSS 11.5 Output

An interesting note for this research was the finding that a total of 9.1% of the respondents have not yet undertaken any IT investment in the last three years. 70.9% indicated they spent less than RM50,000.00 for IT in which this result could be from the respondents who are dependent on IT applications to perform their business activities such as Information Technology industries, Education, and Tourist and Leisure services. These findings were further strengthened by the fact that 64.0% of the companies rely on vendors as their system support provider and only 28.0% have their own IT department, and 0.6% practice selfmaintenance. In terms of number of IT personal, 27.4% of the companies responded that they do not have IT personal and only 28.0% send their staff for e-commerce training, whereas 68.6% do not send their workers for any training. This somehow shows that the level of awareness towards the importance of e-commerce is still low. This response was again reflected, as a total of 31.4% of the companies participating in this research do not have training program for their staff. Only 38.3% performed on-the-job training, local vendors to provide e-commerce training or in-house training respectively. For overseas training, only 3.4% pursue this activity followed by 1.1% conducts their e-commerce training with local institutions.

Adoption of Electronic Commerce Application

The result in relation to these questions indicates that the usage level among the companies in e-commerce applications is still quite low. In using Internet for marketing, a high percentage (40.6%) of the respondents adopted this application to do research on competitors, 37.7% used to do research and evaluate new suppliers, and 33.7% used to do research on consumer preferences. The figures shown here represented the current situation in West Coast of Sabah as strong competition between the SMEs does exist especially in this borderless era, each trying to have an edge against the others especially in terms of pricing and products. By doing research on their competitors and consumers, they would be able to learn more about them and this will help them in their marketing strategy. In advertising through Internet, 41.1% of the respondents display their company information and the products/services offered, whereas only 16% use e-catalogue as a form of online advertising. In terms of web hosting, 22% respondents have their Web site hosted by their own server, 21.7% opted to have their Web site hosted by another party and 17.7% of the respondents advertised on the third party Web site. These results indicated that in terms of e-advertising, high percentage of the respondents display company information and products or services offered, as this is the cheapest mean of advertising on the Internet. The adoption of e-catalogues requires high investment and expertise to some of the SMEs and this could be one of the barriers for them to implement these services.

As a means of giving customers support service on the Internet, it is noted that the use of personalized email for communication were 54.3% of the total respondents sample, while 35.4% handled customers feedback/queries online. For other applications, the percentages are fairly distributed with Online Product Update (51.0%), Online Application/Registration (25.1%) and Online Help-Frequently Asked Questions (23.3%) respectively. Email communication was popular as it is the easiest and simplest way of communicating in the online world. Low cost was another added advantage of email communication, whereas online help needs better IT infrastructure and advanced technology to be implemented. This finding is consistent with the studies done by Silience et al. (1998) and Poon & Swatman (1999). For products/services order and delivery, 21.7% of the respondents process sales order from customer online, and 17.1% co-ordinates procurement with suppliers online. Only 9.7% of the respondents use EDI application and 8.0% track income procurement with suppliers online. These figures indicated that the usage level of order and delivery online is quite low reflecting the current situation in West Coast of Sabah where logistic support and network infrastructure is quite depressing. Moreover, lack of expertise and high capital investment that needed to provide this kind of application impede the adoption to many SMEs. In relation with Web site availability question, 56.6% of the respondents do not have company?s Web site. This result shows that some of the respondents are not aware of the benefits gained in owning a Web site. On the contrary, 41.4% said that they do own a Web site.

Electronic Commerce Hindrance Factors

The respondents?feedback on the hindrance factors that will influence their adoption of e-commerce is shown in Appendix A. The information shows an inconclusive response. The only conclusive result is that 53.1% of the respondents felt that a major inhibitor to the adoption of e-commerce is the lack of security to prevent hacking and viruses. Other relatively significant limitations are:

?Company market needs high degree of human interaction (44.6%)

?E-Commerce implementation were perceived costly (44%)

?Lack of internal expertise to implement e-commerce applications (42.9%)

- ?Lack of industry standards/regulations from government on e-commerce (42.9%)
- ?Difficult to justify the cost with desired benefits (39.4%)
- ?Lack of funding to implement e-commerce applications (38.9%)
- ?Lack of knowledge about the potential applications of e-commerce (38.3%)
- ?Insufficient qualified vendors for developing applications (37.1%)
- ?Most suppliers do not have access to e-commerce (36%)

Benefits of Electronic Commerce

There are 12 benefits that have been presented to the respondents on how they perceived the potential benefits of e-commerce. Appendix B summarizes the responses by the respondent on the perceived benefits of e-commerce. It can be concluded that overall, the respondents have a positive outlook towards e-commerce and view the benefits of e-commerce as important to their business.

CONCLUSION

The use of e-commerce by SMEs in the West Coast of Sabah is still in its infancy despite of various government initiatives and encouragement. These include the establishment of Sabah Institute for Small and Medium Entreprises (IPICS) in which the purpose is to enhance the role of SMEs in the development of the state?s economy and also serves as a catalyst to produce more competitive and resilient entrepreneurs. Sabah government also has developed the Kota Kinabalu Industrial Park (KKIP), an industrial park project that is currently being developed by the State Government of Sabah, Malaysia as the premier growth center in the Brunei-Indonesi-Malaysia-Philippines East Asean Growth Area (BIMP-EAGA) region. The vast majority of the SMEs studied have the required technological capabilities in place. This infrastructure along with grants provided by the government can be used as a foundation on which to build more sophisticated e-commerce capabilities such as online ordering, payment, and transactions. The study found that the use of e-commerce to do research on competitors, displaying company information and the products/services offered and the use of email as a means of customer support service were the e-commerce applications currently used by most of the respondents. This result is supported by previous study carried out by Daniel and Grimshaw (2002). They found that the use of e-commerce for responding to competitors, providing enhanced customer services and improving relationships with suppliers was driving the uptake by smaller businesses. As the use of IT is becoming more critical to the operation of SMEs, it would therefore seem that SMEs indeed view e-commerce as an opportunity for improving their performance. The study also found that the potential benefits were perceived to be important, despite the perceived limitations of not adopting e-commerce applications. It is now up to the SMEs, with or without assistance from the government or other incentives to use this technological tool to improve their business scope. There has been lack of research undertaken in Malaysia and in Sabah particularly to determine SMEs perception of the benefits of e-commerce and the current level of e-commerce adoption. This study was performed in the West Coast of Sabah, and it is recommended that the future research can be extended to all the five divisions in Sabah in order to obtain a more representative results. The adoption attentions and benefits realized from e-commerce might be expected to vary according to the industry sector in which a firm operates, therefore future studies should be undertaken in order to understand the impact of e-commerce adoption and use on industry sectors.

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APPENDIX A

HINDRANCE FACTOR

NO.	APPLICATION	STRONG	LY	DISAGREE		MODERATE		AGREE		STRONGLY	
		DISAGREE								AGREE	
		Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
	Senior management										
	does not perceived					61.0	34.9		33.7		
1	e-commerce as	9.0	5.1	37.0	21.1			59.0		7.0	4.0
1	having	9.0	5.1	37.0	21.1						4.0
	economic										
	justification										
	Implementation of										
2	e-commerce is too	5.0	2.9	25.0	14.3	54.0	30.9	77.0	44.0	12.0	6.9
	costly										
	Difficult to										
3	justify the cost with	tify the cost with 6.0	3.4	30.0	17.1	65.0	37.1	69.0	39.4	4.0	2.3
	desired benefits										
	Information from										
4	Internet is not	54.0	30.9	81.0	46.3	22.0	12.6	13.0	7.4	5.0	2.9

	important/useful										
5	Our company market need high degree of human interaction	2.0	1.1	14.0	8.0	43.0	24.6	78.0	44.6	36.0	20.6
6	Lack of internal expertise to implement e-commerce application	4.0	2.3	37.0	21.1	47.0	26.9	75.0	42.9	9.0	5.1
7	Need additional staff to manage high degree of human interaction	4.0	2.3	23.0	13.1	42.0	24.0	89.0	50.9	17.0	9.7
8	E-Marketing is not as effective compare to traditional marketing	22.0	12.6	67.0	38.3	45.0	25.7	32.0	18.3	7.0	4.0
9	Most suppliers do not have access to e-commerce	7.0	4.0	38.0	21.7	49.0	28.0	63.0	36.0	17.0	9.7
10	E-Commerce will upset existing distribution channel	5.0	2.9	66.0	37.7	64.0	36.6	35.0	20.0	3.0	1.7
11	Lack of security for online transaction (credit card)	2.0	1.1	25.0	14.3	45.0	25.7	74.0	42.3	27.0	15.4
12	Lack of funding to implement e-commerce application	2.0	1.1	37.0	21.1	57.0	32.6	68.0	38.9	9.0	5.1
13	Lack of security to prevent hacking & viruses	2.0	1.1	33.0	18.9	25.0	14.3	93.0	53.1	22.0	12.6
14	Currently focus on Internet Enterprise System or new system implementation	3.0	1.7	21.0	12.0	73.0	41.7	64.0	36.6	8.0	4.6
15	Insufficient qualified vendors for developing applications	5.0	2.9	42.0	24.0	57.0	32.6	65.0	37.1	4.0	2.3
16	Insufficient qualified vendors for developing applications	5.0	2.9	42.0	24.0	57.0	32.6	65.0	37.1	4.0	2.3
	Lack of industry standards/regulations										

17	from	2.0	1.1	30.0	17.1	58.0	33.1	75.0	42.9	7.0	4.0
	government on e-										
	commerce										

APPENDIX B

PERCEIVED BENEFITS

NO.	APPLICATION	VERY		HIGH	HIGH		MEDIUM		LOW		VIRTUALLY	
		HIGH								NO BENEFITS		
		Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%	
1	Increase in market share	15.0	8.6	56.0	32.2	71.0	40.8	24.0	13.8	8.0	4.6	
2	Increase in profit	12.0	6.9	48.0	27.6	83.0	47.7	25.0	14.4	6.0	3.4	
3	Increase in productivity	15.0	8.6	69.0	39.7	62.0	35.6	20.0	11.5	8.0	4.6	
4	Reduce in cost	8.0	4.6	36.0	20.7	86.0	49.4	33.0	19.0	11.0	6.3	
5	Increase in Return of Investment (ROI)	3.0	1.7	44.0	25.4	83.0	48.0	32.0	18.5	11.0	6.4	
6	Improved of customer services	25.0	14.5	69.0	39.9	56.0	32.4	18.0	10.4	5.0	2.9	
7	Increase accessibility to end users	13.0	7.5	68.0	39.3	68.0	39.3	21.0	12.1	3.0	1.7	
8	Increase responses from end users	12.0	6.9	61.0	35.3	71.0	41.0	26.0	15.0	3.0	1.7	
9	Increase the efficiency dealing with suppliers	19.0	11.0	64.0	37.0	57.0	32.9	27.0	15.6	6.0	3.5	
10	Enhance company image and corporate image	34.0	19.7	72.0	41.6	51.0	29.5	14.0	8.1	2.0	1.2	
11	Increase customer loyalty and retention	8.0	4.6	46.0	26.6	83.0	48.0	28.0	16.2	8.0	4.6	
12	Improved business processes flow	20.0	11.6	64.0	37.0	62.0	35.8	20.0	11.6	7.0	4.0	