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ICT Adoption in Malaysian SMEs from Services Sectors: Preliminary Findings

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Abstract

The purpose of this research was to investigate the extent to which small and medium size businesses in the southern region in Malaysia are prepared for ICT adoption. Most of the businesses have now accepted ICT as an important tool to increase its business in the domestic as well as global market place. In future ICT will grow more rapidly in the Malaysian SMEs sectors. In order to increase the effectiveness of ICT, companies can use Internet to present almost unlimited information about their products and services in cyberspace. Through judgment sampling SMEs from service sectors of northern region was selected as the research area for this study. This study investigates the rate of usage of ICT by the SMEs. The survey was conducted by mail and the findings are summarized herein.

Keywords**: ICT, Adoption, Southern region, Malaysia**

INTRODUCTION

Small and medium enterprises (SMEs) play a vital role in the Malaysian economy and are considered to be the backbone of industrial development in the country (Saleh and Ndubisi, 2006, Ramayah et. al., 2002). Small and medium sized enterprises (Hashim, 2000) are defined as firms employing full-time employees 150 or with annual sales turnover not exceeding RM25 million, and play a significant role in the country's economic development, particularly in the manufacturing sectors (Ramayah et. al., 2002). As of December 2005, a total of 600,000 SMEs were registered in Malaysia (SME bank). They contribute 27.3 per cent of total manufacturing, 25.8 per cent to value-added production, own 27.6 per cent of fixed assets, and employ 38.9 per cent of the country's workforce (SMIDEC, 2002). There are 192,527 establishments in the services sector, and 186,728 (or 96.7 per cent) of these are made up of SMEs in Malaysia (DOS). According to Yusoff (2004) the services sector grew by 6.8% in 2004, driven by higher consumer spending and a record level of tourist arrivals. Growth emanated from strong expansion in all sub- sectors with transport and communication in the lead at 8.4% followed by wholesale and retail trade, hotels and restaurants (7.1%) and finance, insurance, real estate and business services (6.5%). Together with new growth areas in information and communications technology (ICT), the services sector was able to maintain its premier position in terms of its share of GDP at 57.4%.

Malaysian businesses, small and medium-sized enterprises (SMEs) have been relatively slow in web adoption. According to Lee (2005) there are about 30 per cent of SMEs in Malaysia have a web presence and use IT extensively in their daily operations. This reflects a poor rate of IT adoption among the estimated 600,000 local SMEs. Most SMEs perceived the barriers of implementing IT into their business operations as expensive initiative, risk, complex procedure, technical expatriate, and customer services (Yeung et al., 2003; Chong et. al., 2001; Pires and Aisbett, 2001). According to Soh et al. (1997) if SMEs in Malaysia adopted theWWW, the potential commercial functions that could be performed include, marketing themselves both locally and globally, gathering business information and consumer feedback, providing customer support and conducting electronic transactions. On the other hand, if world wide web (WWW) implementation were successful, it would have severe repercussions on small businesses with their limited resources (Chong et. al., 2001).

According to Lim (2006) most SMEs in Malaysia realize that ICT is critical to the productivity and performance of their companies. But, implementation and maintenance of these ICT systems is restricted due to inability to handle, owing to high staff turnover and lack of ICT project management expertise. He also stresses that, many Malaysian family-based SMEs are still operating their business the conventional way. Consequently SMEs which have invested in ICT systems fail to implement and maintain these systems successfully. Similarly, Tan (2006) argues that ICT in Malaysia is facing big challenges due to the slow adoption of technology by SMEs in Malaysia. He also suggests that SMEs must learn to adopt technology to increase their global competitiveness.

This paper aims to present an empirical study of the adoption and use of ICT among small and medium scale enterprises (SMEs) in service industries of southern region of Malaysia. The data collected has been analyzed to understand the perception of various ICT perspectives. Most of the empirical research is based on large companies, and SME in fact are characterized by the lack of knowledge about the real advantages of ICT could add to their business (King and Teo, 1994; Palvia et al., 1994). After the discussion of ICT usage, conclusion is drawn along with significant recommendation to improve ICT utilization amongst SMEs.

The article is structured as follows. Section 1 is the introduction. Section 2 presents the definitions of SMEs in Malaysia. The research design and the data collection process is presented in section 3. Section 4 presents an analysis of the results. Section 5 presents the limitation. Section 6 provides managerial implication, while section 7 discusses some conclusions.

SMES DEFINITIONS

There is no common definition of small and medium enterprises (SMEs) in Malaysia. Different Agencies define SMEs based on their own criteria; it can be defined to annual sales turnover, and number of full-time employees or shareholders' funds (NSDC).

According to the National SME Development Council has, on 9 June 2005, approved the common definitions of SMEs across economic sectors, for adoption by all Government Ministries and Agencies involved in SME development, as well as financial institutions. An enterprise is considered to be an SME based on the annual sales turnover or number of full-time employees, as indicated in Table I, below.

Table I Definition of SMEs in Malaysia

	Category	Micro-enterprise	Small enterprise	Medium enterprise
1.	Manufacturing (including agro-based) and MRS	A micro enterprise in manufacturing (including agro-based) and MRS is an enterprise with full-time employees of less than 5 or with annual sales turnover of less than RM250,000	A small enterprise in manufacturing (including agro-based) and MRS is an enterprise with full-time employees of between 5 and 50 or with annual sales turnover of between RM250,000 and less than RM10 million	A medium enterprise in manufacturing (including agro-based) and MRS is an enterprise with full-time employees of between 51 and 150 or with annual sales turnover of between RM10 million and RM25 million.
2.	Services, primary agriculture and information and communication Technology (ICT)	A micro enterprise in services is an enterprise with full-time employees of less than 5 or with annual sales turnover of less than RM200,000	A small enterprise in services is an enterprise with full-time employees of between 5 and 19 or with annual sales turnover of between RM200,000 and less than	A medium enterprise in services is an enterprise with full-time employees of between 20 and 50 or with annual sales turnover of between RM1

			RM1million	million and RM5 million

Source: National Small and Medium Enterprise Development Council (NSDC).

RESEARCH METHODOLOGY

A survey instrument was formulated to obtain feedback from SMEs in Malaysia, assessing their awareness, receptivity and adoption of ICT in their business. In order to focus on SMEs, lists were sought from the Small and Medium Industries Development Corporation (SMIDEC) in Malaysia web site. As such, the surveys sent out were personally addressed to the owner and or manager of each of SMEs. Due to the exploratory nature of this study, a cross sectional approach was undertaken to measure firms' responses regarding adoption of ICT.

Data Collection

The population of this study comprises of all SMEs from service sectors in Melaka and Johor in Malaysia. These are registered under Small and Medium Industries Development Corporation (SMIDEC). Data were gathered based on mail and personal administered questionnaire. A packet of 400 survey instruments, enclosing a return envelop were sent to randomly selected from insurance, banking and finance, health and medical, education, tourism, logistics, professional management, IT related service and advertising sector. The respondents for this study were targeted to be the owner or manager of the organizations because they always had the chance to deal with ICT in their working position.

To maximize the return rate, three subsequent reminders were sent over telephone and the mail lists maintained by SMIDEC after the initial surveys were mailed. Telephone inquiries were conducted only three weeks later as a last resort for those SMEs that had not responded. The response rate for the survey was 48.25 per cent (193 responses). Due to missing values for at least two sections of the responses 13 samples were discarded from this research and finally 180 samples were then processed and analysed by using SPSS.

RESULTS

Types of Business

Out of the 180 SMEs responding to this survey the majority (47.78% or 86) were in wholesale and retail business is the largest of the service sectors, with 170,046 companies and covering 88.8 per cent of all enterprises (Saleh and Ndubisi, 2006). Selected service sectors are the second highest respondents for this contribute 37 respondents or 20.55%. This groups were involved in a wide range of services includes hotels and other lodging places, travel agencies and tour operator services, foreign exchange brokers, bureau de change, real estate agents, and video CD rental services. The third highest contributors of 25 professional firms or 13.89% of the sample were involved in services including legal, architectural, engineering, surveying and drafting (Saleh and Ndubisi, 2006). Some other service businesses represented in the sample

were involved in the transportation and communication services (19 respondents or 10.55%). The education and health services found in this survey were only 08 respondents or 4.44%. Only 03 or 1.66% of the respondents were computer industries services provider. The size of the firm (economy of scale0 is a crucial factors in the telecommunication services sector, and thus only 02 or 1.11% respondents were found as the SME in this study.

Ownership of the company

Table I presents the types of ownership in respondents' company. Most of the respondents' company in this study was from local ownership which was 88.3 percent or 159 out of 180 respondents. On the other hand, foreign ownership company only constituted 21 companies which were 11.7 percent. .There are only few foreign companies participated in this study because most SMEs from service industries in this sample were locally-owned.

TABLE I GENERAL INFORMATION

No	Demographic Variables	No. of Respondents	%	Cumulative %
1.	**Types of Business**			
	Wholesale and Retail	86	47.78	47.78
	Selected Services	37	20.55	68.33
	Professional firms	25	13.89	82.22
	Transportation and logistics	19	10.55	92.77
	Education and health	08	4.44	97.21
	Computer industries	03	1.66	98.87
	Telecommunication	02	1.13	100.00
2.	**Ownership of the Company**			
	Local	159	88.3	88.3
	Foreign	21	11.7	100.0
3.	**Respondents position**			
	Owner, CEO	10	5.6	5.6
	Manager	23	12.8	18.4
	Mid level manager	97	53.8	72.2
	Executive	50	27.8	100.0
4.	**Computer Ownership**			
	Yes	103	57.22	57.22
	No	73	42.78	100.0
5.	**Internet Access at business**			
	Yes	86	83.5	83.5
	No	17	16.5	100.0
6.	**Length of Internet Access**			
	Less than 5 years	59	57.28	57.28
	Above 5 years	44	42.72	100.0
7.	**Operating systems usage**			
	Windows XP	69	66.99	66.99
	Windows 2000/1998	27	26.21	93.20
	Mac OS X	02	6.80	100.0
8.	**General usage**			
	E-commerce	21	11.7	11.7
	E-Government	22	12.2	23.9
	E-Procurement	16	8.9	32.8
	E-Business	45	25.0	57.8

	Never use	76	42.2	100.0

Respondent's Position

As it can be seen from Table I middle manager and below represents higher percentage (53.9 percent) amongst all respondents which were 97 respondents. However, executive became second highest in this study, which was 27.8 percent, followed by Manager, 12.8 percent. In addition, top level management such as CEO, and owner of the company was least participate in this study which only contribute 5.6 percent and 10 out of 180 respondents. In formerly, questionnaires were frequently answered by lower level management because top level management always lack of time in answering questionnaire. Beside this, lower level management such as IT workers from IT department, officers from purchasing department or data analyst from R&D department are more actively in ICT implementation.

Computer ownership and Internet Access

Majority of the SMEs (103 firms or 57.22%) have owned a computer. Of them 86 firms or 47.8% respondents had Internet access to their business and 17 respondents were not connected to the Internet. In terms of length of Internet access, 59 SMEs (57.28 per cent) had been connected to the Internet for 5 years or less and the remaining 44 (42.72 per cent) had been connected to the Internet for at least 5 years and more. This result show that internet usage amongst SMEs in Malaysia was still low in level and SMEs rarely use internet for business function were common. Poon (1996) and Reynolds (1994) stated that small businesses often have difficulty in obtaining financial resource. Internet may consider too expensive to many SMEs because of their lack of financial resources (Poon and Swatman, 1999). The findings also suggest that ICT were not well-established within SMEs.

Operating systems used

As it can be seen in Table I, most of the companies adopt Windows XP for their computer system. There were 69 out of 103 companies using Windows XP which carried 66.99 percent and 27 companies were using Windows 2000/98 for their operating system on respondents' work computer. The Mac OS X was using in some organization but their usage was lower which accounted for 6.8 percent only. The main reason most organization choosing Windows XP as their operating system might be the user-friendly of this system.

General usage of Internet

As it can be seen from Table I, that 42.2 percent or 76 respondents' company never used electronic business program in their company. The percentage also gives insight that E-commerce was not common or popular amongst SMEs. This is because from the analysis, only 21 out of 180 companies which were 11.7 percent involve in E-commerce business. Turning to other electronic program, just 25 percent of respondents' company adopted E-business followed by E-government which was 12.2 percent. The result reflects that most companies were not emphasized in doing business over E-government. They might prefer traditional government department since government

procedure always known as complicated and time consuming. E-business became the most popular electronic business program when compared with others because it accounted for 25 percent.

Level of ICT adoption

This section discusses respondent's practices toward ICT adoption in their business's daily operation. It is crucial for researcher to find out the investment and level of ICT utilization in an organization in order to contribute for further analyses. In this respect ,there were five question asked relevant to the development of ICT in respondent's company such as ICT training, business's web site ,internet-use or participation in ICT related program.

As can be seen from Table II, most of the respondents' companies were not actively participate in the development of ICT in their business's operation. There were 133 out of 180 companies never develop formal ICT training plan for their employees. The result indicates that most of the companies in SMes are lack of trained personnel in IT implementation. Next, up to 163 companies never develop a website for their business and the embracing of ICT is considered low. This may because most of the SMEs from service industries have limited financial budget with smaller structure of business and even smaller number of employees. This may threaten SMEs in the investment of ICT which could also lag them behind MNC, those have sufficient budget to allocate in ICT implementation.

Notably, there are 143 companies ask by their trading partners or customer to use e-mail when dealing with business matters. It can believe that a significant portion of these companies used e-mail as a communication channel. As a result, e-mail can be the most effective electronic communication method between companies in small business. However, majority of the respondents adopted electronic business program. But, most of the respondents were not required by their trading partners to participate in E-business program. There were only 38 companies requested by their business counterparts to use internet in business process. For instance the involvement of internet transaction across sample size was relatively low, because only 42 companies were involved their business transactions with internet. ICT service sectors are rarely use IT communication technologies which reflect that many SMEs still maintain the traditional and manual way in doing business.

TABLE II LEVEL OF ICT ADOPTION

No	Variables	No. of Respondents	%	Cumulative %
1.	**Develop formal ICT training plan**			
	Yes	47	26.11	26.11
	No	133	73.89	100.0
2.	**Develop business web site**			
	Yes	17	9.44	9.44
	No	163	90.56	100.0
3.	**E-mail usage for business purposes**			
	Yes	143	79.44	79.44
	No	37	10.56	100.0
4.	**E-business practices**			
	Yes	38	21.11	21.11

	No	142	78.89	100.0
5.	**Internet Transactions**			
	Yes	42	23.33	23.33
	No	138	76.67	100.0

LIMITATIONS

As in all empirical research, the characteristic of this study has certain limitations in the applicability of the findings. Firstly, the empirical evidence was limited only to SMEs from service industries in southern region of Malaysia is particularly small. Since SMEs cover large portion of Peninsular Malaysia, researcher only able to collect data from southern region. This is because due to distance problem and time constraint, its limit researcher to collect data. Due to small sample size, it is harder to find significant relationships from the data and it has a greater probability that observation just happened within small area. So it may be difficult to generalize the findings to other states in Malaysia due to social, infrastructural and/or economic differences. Secondly, a cross sectional analysis was applied for exploratory purposes about the characteristics of the SMEs according to their ICT adoption intentions. Nevertheless, a longitudinal study could be more useful in explaining whether or not these SMEs follow the process described. Thirdly, a more detailed questionnaire with more specific questions could be more helpful to gain a better description of the stages of web site adoption. Finally, the data was obtained from a questionnaire sent and returned by mail, and hence the information obtained may have significant deficiencies.

MANAGERIAL IMPLICATIONS

This paper has some relatively important managerial implications. The findings of the research may have implications for IT consultants, vendors and government agencies responsible for promoting innovation adoption and utilization. Therefore IT consultants and vendors are advised to target their marketing at SME with positive attitude towards innovation adoption.

In addition, it would be useful to study managers from SMEs in different geographical areas. This would provide some interesting information allowing them to see if the adoption and utilization of the ICT is influenced by geography, and if that geographical influence is significant, this would allow IT consultants and vendors to tailor their service and products based on geographical issues, and would allow them a greater opportunity of increasing the level of ICT adoption.

CONCLUSION

This study has examined the preliminary online experiences by the SMEs in Malaysia, focusing specifically on the adoption and use of ICT, the demographic characteristics of adopters, and the level of ICT use. The outcomes of this study reveal that the investment of ICT in Malaysia's SMEs is relatively low. Since this study is mainly focus on ICT integration on service industries, it is important to distribute the survey to the right respondents. Nevertheless, most of the respondents from this study are not able or unwilling to adopt ICT in their business due to several reasons. Conversely, government support as seen to be the most important factor which could influence an organization to

adopt ICT. Understanding the important of ICT adoption, manager's ICT knowledge and skills could be the most important factor that organization must consider before implement ICT. Overall, ICT integration amongst SMEs can be improve and enhance in future by cooperation across various parties. Besides government, SMEs should diversify their current business's activities through uptake of broadband Internet and bring the digital divide into organization. If SMEs hope to compete with MNC from foreign, they should develop strongest capabilities which could fend-off competitions from foreign and become major market player. In order to do so, they should continue to innovate and adopt suitable technologies' services especially in terms of ICT facilities. With a better understanding of the potential benefits that ICT can bring, managers should develop a more favorable attitude and become more receptive to the idea of adopting the Web.

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