

An Empirical Study of Small and Medium Enterprises Website Continuance Intention Determinants in Malaysia

By

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TABLE OF CONTENTS

ACKNOWLEDGEMENTS	i
TABLE OF CONTENTS	ii
LIST OF TABLES	vii
LIST OF FIGURES	viii
ABSTRAK	ix
ABSTRACT	x
Chapter 1	1
1.1 Introduction	1
1.2 Background	1
1.3 Problem Statement	5
1.4 Research Questions	6
1.5 Research Objectives	7
1.6 Significance of the Study	7
1.7 Definition of Key Terms	8
1.7.1 Dependent Variable	8
1.7.2 Independent Variables	9
1.7.3 Moderator	10
1.8 Organization of Remaining Chapters	12
Chapter 2	13
2.1 Introduction	13
2.2 Review of the Literature	13
2.2.1 Phases of Internet Business Adoption	13

2.2.2	Online Presence Advantages/Reasons/Motivations	14
2.2.3	Small and Medium Sized Enterprises (SMEs) in Malaysia	15
2.2.3.1	Definition of Malaysian-based SMEs by Size	15
2.2.3.2	Characteristics of SMEs	16
2.2.3.3	Profile of SMEs by Sector	17
2.2.3.4	Contribution of SMEs to the Economy	20
2.2.3.5	SMEs Development Programmes and Support	21
2.2.3.6	Common SMEs Websites Development and Hosting Practices	22
2.2.4	Predictors of IT adoption by Organizations	22
2.2.4.1	Characteristics of CEO	32
2.2.4.2	Characteristics of the Organization	32
2.2.4.3	Characteristics of Technology/Innovation Itself	34
2.2.4.4	Characteristics of the External Environment	35
2.2.4.5	Extent of Technology Adoption Moderators	36
2.2.4.6	Summary of Relevant Technology Adoption Predictors	45
2.3	Theoretical Framework and Hypotheses	46
2.3.1	Characteristics of CEO	47
2.3.2	Characteristics of Organization	50
2.3.3	Characteristics of Technology/Innovation Itself	52
2.3.4	Characteristics of External Environment	56
2.3.5	Moderator: Web Adoption Level	58
2.3.6	Summary of Hypotheses	58

2.4	Summary	59
Chapter 3		60
3.1	Introduction	60
3.2	Research Design	60
3.3	Variables	60
3.4	Population/Sample	61
3.4.1	Accessible Population	61
3.4.2	Sampling Strategy	63
3.4.2.1	Sample Size	63
3.5	Procedure	65
3.6	Measurement of Variables	66
3.7	Development of Questionnaire	68
3.8	Data Analyses	68
3.8.1	Goodness and Correctness of Data Entry	69
3.8.2	Factor Analysis	69
3.8.3	Reliability Analysis	70
3.8.4	Descriptive Analysis	70
3.8.5	Correlation Analysis	70
3.8.6	Regression Analysis	71
3.9	Summary	72
Chapter 4		73
4.1	Introduction	73

4.2	Profile of Respondents	73
4.3	Goodness of Measures	78
4.4	Reliability of Measurement	81
4.5	Revised Research Framework and Hypothesis	82
4.6	Descriptive Analyses	85
4.7	Hypotheses Testing	86
4.7.1	Correlation Analysis	86
4.7.2	Multiple Regression Analysis	87
4.8	Summary of Results	90
Chapter 5		91
5.1	Introduction	91
5.2	Recapitulation of the Study Findings	91
5.3	Discussion of Findings	92
5.4	Implications	101
5.5	Limitations and Future Research	103
5.6	Conclusion	104
REFERENCES		106
APPENDICES		113
Appendix A: Questionnaire (in word document)		113
Appendix B: Questionnaire (online version)		118
Appendix C: Sample Email of Online Survey Invitation		122
Appendix D: Sample Email of Online Survey Reminder		123
Appendix E: Respondent Profiles		124

Appendix F: Factor Analysis	128
Appendix G: Reliability Analysis	136
Appendix H: Descriptive Analysis	140
Appendix I: Correlation Analysis	141
Appendix J: Multiple Regression Analysis	142

LIST OF TABLES

Table 1 Independent Variables and Definition	9
Table 2 Web Adoption Level and Definition (Teo & Pian, 2004)	11
Table 3 Online Presence Benefits and Sources	14
Table 4 Definition of SMEs by Size in Malaysia (SMIDEC, 2008)	15
Table 5 Summary of Organizational Technology Adoption Predictors	23
Table 6 Predictors of Technology Adoption based on CEO Characteristics	32
Table 7 Predictors of Technology Adoption based on Organizational Characteristics	33
Table 8 Predictors of Technology Adoption based on Technological Characteristics	34
Table 9 Predictors of Technology Adoption based on External Environmental Characteristics	35
Table 10 Summary of Review Technology Adoption Articles	37
Table 11 Summary of Hypotheses	58
Table 12 Total SMEs from SMIDEC (2008)	61
Table 13 Required Sample Size Based on Industry Group	64
Table 14 Measurement and Sources of Constructs	67
Table 15 Frequencies Analysis of Research Variables	74
Table 16 Factor Analysis of Research Variables (Internal Factor)	79
Table 17 Factor Analysis of Research Variables (External Factor)	80
Table 18 Reliability Analysis of Research Variables	82
Table 19 Revised Research Hypotheses	84
Table 20 Descriptive Analysis of Research Variables	85
Table 21 Correlation Matrix for Website Continuance Adoption Intention	86
Table 22 Multiple Regression Results using Web Adoption Level as a Moderator in the Relationship between Website Continuance Intention and Independent Variables	87
Table 23 Summary Results of Hypotheses Testing	90

LIST OF FIGURES

<i>Figure 1.</i> Web adoption model (Teo & Pian, 2004).	11
<i>Figure 2.</i> Evolution phases of e-Business adoption.	13
<i>Figure 3.</i> Characteristics of SMEs.	17
<i>Figure 4.</i> Distribution of SMEs by sector, 2005.	18
<i>Figure 5.</i> Distribution of SMEs in services sector, 2005.	18
<i>Figure 6.</i> Distribution of SMEs in manufacturing sector, 2005.	19
<i>Figure 7.</i> Distribution of SMEs in agriculture sector, 2005.	20
<i>Figure 8.</i> Contribution of SMEs to gross domestic product, employment and export by sector.	20
<i>Figure 9.</i> Technology adoption determinants category by organizations.	22
<i>Figure 10.</i> Research framework.	46
<i>Figure 11.</i> Data sampling process.	63
<i>Figure 12.</i> Profile of web adoption level of responding SMEs.	78
<i>Figure 13.</i> Revised research framework.	83

ABSTRAK

Penyelidikan faktor yang menyebabkan penggunaan teknologi Internet telah menjadi topik tinjauan yang popular sejak kebelakangan, terutamanya dari sudut pandangan pengguna. Namun demikian, kajian selidik seperti ini jarang didapati di peringkat organisasi, khasnya bagi industri kecil dan sederhana. Justeru itu, matlamat tesis ini adalah untuk mencari unsur yang menyumbang terhadap penggunaan laman Internet yang berterusan bagi industri kecil dan sederhana di Malaysia. Ini akan membantu kerajaan untuk merancang polisi dan program demi meninggikan kadar penerimaan dan penggunaan teknologi maklumat yang berterusan. Tambahan pula, peniaga, samaada pemilik mahupun pembekal laman Internet dapat memperoleh ilham yang baik daripada hasil tinjauan ini. Kajian ini dibangunkan berdasarkan ciri-ciri unik industri kecil dan sederhana, teori-teori penyelidikan terkini mengenai teknologi dan inovasi yang merangkumi perspektif pemilik peniagaan, teknologi, organisasi dan persekitaran serta faktor berkesan. Model kajian ini meninjau inovasi pemilik, ilmu teknologi maklumat pemilik, sikap penggunaan teknologi maklumat pemilik, saiz organisasi, ilmu teknologi maklumat pekerja, kelebihan, kesesuaian, kos dan keselamatan teknologi laman Internet, sokongan and desakan persekitaran sebagai punca yang akan mempengaruhi penerimaan dan penggunaan teknologi laman Internet yang berterusan. Kaedah penyelidikan yang digunakan adalah soal selidik Internet dengan email sebagai media jempunan tinjauan. Persampelan stratifikasi telah digunakan dan meliputi organisasi kecil dan sederhana yang berdaftar dengan Perbadanan Pembangunan Industri Kecil dan Sederhana (SMIDEC) pada tahun 2008. Hasil kajian mendapati sikap penggunaan teknologi maklumat pemilik dan kelebihan teknologi laman Internet sebagai sebab penting bagi penggunaan laman Internet yang berterusan. Anehnya, ciri persekitaran tidak memberi sebarang kesan. Selain itu, peringkat penggunaan laman Internet juga didapati tidak memainkan peranan penyederhana. Tesis ini diakhiri dengan perbincangan mengenai kesan kajian selidik, kekurangannya dan cadangan untuk penyelidikan masa depan.

ABSTRACT

The study of Internet technology adoption antecedents has been a popular research topic in recent years, especially from the consumer market research domain. However, there seems to be lack of empirical studies that examine organizational level of website technology adoption, particularly for small and medium enterprises (SMEs). In view of this, the purpose of this dissertation is to discover critical determinants of SMEs website continuance intention in Malaysia. A competent small to medium businesses websites continuance intention model would help government to devise appropriate policies and support programmes on promoting information technology (IT) acceptance and extension. Likewise businessman, either the website owner or solution provider could gain considerable value from a better insight into key determinants of businesses website retention intention. The theoretical framework of this study was built from the fundamental understanding on SMEs distinct characteristics, theories from technological innovation literature that comprises of CEO, technological, organizational and environmental characteristics and cohesive significant predictors from existing researches. This model posited on CEO innovativeness, CEO IT knowledge, CEO attitude towards IT adoption, firm's size, employee IS knowledge, innovation relative advantage, compatibility, cost, security, external pressure and support affect the continuance of website adoption. The empirical data of this study was derived from online survey, using email as survey invitation and reminder channel. It sought data from a stratified sample of all small and medium sized organizations registered under Small and Medium Industries Development Corporation (SMIDEC) in year 2008. Findings revealed that small businesses web presence continuity appears to be driven by the relative advantage gained and supported by the key owner's attitude towards information technology adoption. Interestingly, environmental characteristics had no direct effect on SMEs businesses websites continuance adoption decision. Likewise, the moderating effect of web adoption level was found to play an insignificant role in this study. Finally, the implication of the result to researchers and practitioners, limitations and suggestions for further research had been discussed.

Chapter 1

INTRODUCTION

1.1 Introduction

This chapter provides an outline of this research study. This chapter illustrates the background, problem statement, research objectives, research questions, definition of key terms, significance of the study and organization of remaining chapters.

1.2 Background

The Internet is an excellent medium and has been widely used as market space where buyers and sellers exchange information, goods, and services without the hindrance of time and geographical constraints. The Internet is redefining the relationship between businesses and consumers, for the first time in history a small to medium sized company manage to compete at lower levels of commitment in markets around the world, having access to same consumer base. This is crucial because SMEs make substantial contribution to economics and are estimated to account 80 per cent of global economic growth (Jutla et al., 2002, as cited in Stockdale & Standing, 2006).

The ultimate success of Internet is its intense business where a website allows business transaction all over the world, twenty-four hours a day, and seven days a week. In Malaysia, firms have been hoping on this website technology, having an encouraging and increasing website adoption rate year by year. The total number of registration of Malaysian Internet domain names, which carrying .my as part of their URL was only 100 registrations prior to year 1995, 151 in year 1995, 10743 for the year 2000 and reached 50792 for the year 2004 (Goi, 2008). However, there were a total of 78,618 registrations until October 2008 based on online database from Malaysian Network Information Centre (MYNIC). From this grand total registrations, 74% (58,250 registrations) are found using .com.my (i.e. commercial organization or activities) as their domain names.

On the other hand, acceptance of website by consumers in Malaysia too is increasing year by year. From a mere number of 90 Internet users in 1992, the Internet crazes to get connected increased to a vigorous 50,176 in 1996, then 100,103 at the end of 1997 (Hassan, 1997, as cited in Adeline, 2008), and later at a staggering two million (out of Malaysia's population of 22.2 million people) in March 2002 (Nua, 2002, as cited in Adeline, 2008). In year 2004, the number of subscribers was 2.9 million. In year 2005, it increased to 3.5 million subscribers, and in the following year 2006, the number of subscribers in Malaysia was close to five million. According to Euromonitor International, as of second quarter of year 2008, Malaysia already had 9.4million Internet users, nearly 175,000 broadband subscribers.

In fact, commercial Internet in Malaysia had begun since 1990 with the introduction of first Internet Service Provider (ISP) JARING by the Malaysian Institute of Microelectronic Systems (MIMOS Berhad). Malaysia's second ISP, TMNet, launched in 1995. Since then, the market for both commercial and residential Internet access has grown steadily. There are now seven ISPs within Malaysia, including JARING, TMNet, TimeNet, CelcomeNet, MaxisNet and DigiNet which offers both dial-up and broadband connectivity. With more Internet service providers, increased competition had brought to better services at lower cost which wider the Internet usage. For example, recent Streamxy Combo package from TMNet, sell at only net RM60 service charge monthly, had successfully increased Malaysian subscription. Thereby, subscribers can access websites at a much higher speed as compared to previous low dial-up access rate.

There were numerous evidences found supporting Internet activities in Malaysia. The Malaysian government has been an enthusiastic supporter of Internet technology since the early nineties. It has employed a range of measures and policies to encourage Malaysian businesses to venture online. To achieve this goal, the Multimedia Super Corridor (MSC) Malaysia – the Malaysian Silicon Valley, was mooted since 1996 to provide a platform for high value added industries to take root, in particular advanced technology and knowledge-based industries. According to Malaysian Communications and Multimedia Commission (MCMC) Industry Report 2007, MSC Malaysia has

accommodated 1,594 companies by year 2007 across six technology clusters namely, creative multimedia (10%), mobility, embedded software and hardware (21%), Internet based business (11%), shared services and outsourcing (8%), Institutions of higher learning (IHLs) and incubators (5%) and application software (45%) . Additionally, official support measures for companies introduced in recent years include several venture-capital funds, tax incentives for venture capital for technology firms and other high-risk investments as well as ongoing expansion of the high technology MSC Malaysia (Country Commerce Malaysia, 2008).

The Malaysia government too has actively sought to protect online intellectual property rights. Among them (Country Commerce Malaysia, 2008) are the 1997 Computer Crime Act, passed in late April 1997, covers crimes such as fraud, computer “hacking” and virus distribution, The Copyright (Amendment) Act 1997 which give multimedia developers full intellectual property protection through online registration of works, licensing and royalty collection, the 1998 Multimedia Convergence Act to facilitate the growth of telecommunication networks in a multimedia environment and the Malaysian Communications and Multimedia Commission Act 1998 provides for the establishment of the Malaysian Communications and Multimedia Commission, a single regulatory body for an emerging and converging communications and multimedia industry. More specifically on e-commerce are the 1997 Digital Signature Act to recognize the legal standing of digital signatures² and certificates, and the pending Personal Data Protection Act. On taxation, the government has so far decided not to extend existing laws on income, sale and service taxes to transactions over the Internet, effectively leaving e-commerce a tax-free area. (Le & Koh, 2002).

On the other hand, steps had also been taken by Malaysian government to tailor for a greater Internet user objective. For example, incentives for individuals like tax deduction of RM 3,000 to buy personal computer that can be claimed every three years. This is to encourage more users to join in the Information and Communication Technology (ICT) community and thus increasing the overall e-readiness of the population. There is also evidence of free or low-cost ICT training provided by the government.

All these efforts, together with relatively strong domestic economy, form a convincing groundwork for business website development locally in Malaysia. The Internet is particularly important for small to medium sized enterprises locally, having SMEs represent over 99% of business establishments, contribute 32% to Malaysia's gross domestic product (GDP), account for 56% of total employment and 19% of total exports of the nation (Malaysia SME Annual Report, 2007). However, despite all the remarkable advantages of online businesses and high e-readiness structure, Malaysian SMEs businessmen have been relatively slow in website adoption as compared to larger organization. SMEs don't seem to be in the forefront of e-business movement (Karkoviata, 2001). Khairul & Maisarah (2005) had examined all existing Malaysian public listed companies and found that 67 percent of their sample studied has company URL. However, there are only about 30 percent of SMEs in Malaysia had a web presence (Lee, 2005, as cited in Alam & Ahsan, 2007). Besides, the functional potential of website application in Malaysia is still underutilized. Most website owners apply a narrow band of features, operate at low levels of feature use, and rarely initiate extensions of the available features. For instance, Karanasios & Burgess (2006) commented that web presence for tourism sector in Malaysia as a "simple generic presence", which use Internet as a communication tool and information publishing medium. Many of the firms in their study were not being exploited into transaction space because of some confusion of how transactions could be performed online, especially the security concern.

Hence, to ensure SMEs can move up to the global business value chain and adopt this leading edge technology, Internet need to be successfully implemented by tailor different supports based on SMEs in Malaysia. Eventually, success of website implementation requires firms to at least continue retain their business web presence. Therefore, an investigation of Malaysian SMEs website continuance intention would then shed some new light on the process of promoting business Internet technology use. Thus, this study will examine the critical factors which will influence the continuance adoption of website in Malaysia small to medium enterprises context.

1.3 Problem Statement

Having an online presence is no longer a luxury but a necessity for business, driven by the encouraging surge trend of 244.7% world Internet usage growth from year 2000 to 2007 (Internet World Stats from SMI Business Directory, 2008). More and more people are getting acquainted with purchasing products and services online and e-commerce is growing so rapidly that it's impossible to ignore. In addition to existing brick and mortar set-ups, businesses can actually boost their revenues tremendously via online activities. SME owners and managers have to acknowledge and hence, embrace its presence.

Surprisingly, despite significant effort and investment from Malaysian government, SMEs business website activity remains at the inception stage and remain on the wrong side of digital divide. Sustainability and continuance of existing business website related activity are critical at this stage to establish a firm foundation and footing to encourage future exponential growth for business web-based activity in pursuit for the country's developed nation vision by 2020. Ultimately, effectiveness of website deployment is determined by companies' continuance intention to retain their web presence.

The emergence of other forms of electronic mediums, for example mobile technology adds to the competitiveness landscape for business websites. While Internet access has become a reality for many businesses and public institutions and individuals with higher education and income level, for the vast majority of low-income population mobile telephony (e.g. simple messaging service) is likely to be the sole tool connecting them to the information society in short to medium term. Consequently, if an alternative efficient distribution channel is found, the advantages provided by Internet could be easily eroded. Thus, there's a need to identify and critically examine significant determinants that contributes to sustainability of SMEs business based websites in Malaysia to allow its continuous growth despite the challenging competitive landscape.

In specific to SMEs, role of the Internet for businesses development has been researched to be necessary, particularly for strategic business development and discovery of new business opportunities. Only visionary SMEs owners believe that they can change their business through the

use of the Internet (able to see the value of the Internet to their growth strategy) (Levy & Powell, 2003). Hence, promoting continuance usage of website for SMEs in Malaysia is crucial for future growth in order for SMEs to stay relevant in the dynamic and changing environment (increased competitiveness, internationalization and sophistication of markets, the globalization of manufacturing make website continuance and improvement more important). At the very least, recognizing the Internet importance and website continuance bridges the opportunities closer to firm's total development for future.

1.4 Research Questions

SMEs website continuance depends on business decisions and driven by consumer confidence. Limited studies had been done on information system continuance intention, especially in Malaysia SMEs perspective. Most of existing journals are concentrated on technology acceptance and adoption. While adoption is crucial, overall effectiveness of business website activities depends on the long-run continuity. In this respect, this study focuses on determinants of Business-to-Consumer (B2C) website continuance from the Malaysian SMEs website owners' perspective. Specifically,

1. What's the current level or extent of website usage by Malaysian SMEs?
2. Will internal and external factors of SMEs affect their website continuance adoption decision?
3. What are the promising determinants based on characteristics of SMEs CEO and characteristics of organization in which SMEs operates?
4. What's the impact of external factors such as the innovation and external environment characteristics on SMEs intention to continue their website adoption?
5. Would current level of web adoption moderate the effect on the relationship between internal and external factors and SMEs' website continuance intention?

1.5 Research Objectives

This paper aims to examine the state of use of website and factors that may influence or hinder B2C website continuance in SMEs Malaysia. In view of this, the main objectives of this research are to study the website setup motivations among Malaysian SMEs and to landscape the critical factors that explain variance in small and medium-sized companies' behavior to continue their web services. Specifically the research objectives are to delineate the level or extent of website usage by Malaysian SMEs, to identify the key determinants of Malaysian SMEs website continuance intention and also to reveal the potential internal factors of SMEs website continuance intention from the CEO and organizational perspectives. The objective of this research also includes studying the effects of external organizational variables, i.e. innovation and environmental characteristics on SMEs website sustainability as well as to examine the influence of existing level of web adoption as a moderator in small to medium firm website continuance intention.

1.6 Significance of the Study

This research paper will help to address prescription and identify the gap for extended usage of web technology in small and medium industries in Malaysia. The Internet has been touted as global medium and users' response to this technology has opened opportunities for many businesses including SMEs – the backbone of industry development in Malaysia. With encouraging growing trends of Internet usage in Malaysia, this suggests a positive outlook to create sustainability Internet business strategy from a better understanding of companies' website continuance intention. Online buying and selling is growing so rapidly that it's impossible to ignore. For businesses, having an online presence is no longer a luxury but a necessity. Hence, study of SMEs website services continuance intention factors would definitely provide useful insight for business owners, especially in their strategic comprehensive web and business planning to face intense globalization competition and new challenges. As understanding the dimensions of web site development is critical for a firm's

competitive positioning, it's important for a firm to identify its extent of web adoption (Teo & Pian, 2004).

Besides, the research will have implications for IT consultants, vendor and government agencies responsible for promoting innovation adoption and utilization. With the expected study outcome, IT consultants and vendors, for instance, may able to tailor their services based on business owners' website continuance factors and would allow them a greater opportunity of increasing the level of ICT adoption. They can then target their marketing with best actions having identified businessmen further intention to host their website determinants. From government perspective, SMEs business website continuance will also be a vital catalyst to encourage Government-to-Business (G2B) development in Malaysia.

1.7 Definition of Key Terms

1.7.1 Dependent Variable

Website Continuance Intention

According to Microsoft Bookshelf 98, "web site" is any group of related documents, images, databases, and other information accessible as closely linked Web pages on the World Wide Web (WWW). Meanwhile, "information systems continuance" behavior is defined as continued usage of IS by adopters, where a continuance decision follows an initial acceptance decision (Kim et al., 2007). Gemino et al. (2006) defined "website adoption" as the establishment of a company website to share business information, maintain business relationships, and conduct business transactions through telecommunications networks. Thereby, "website continuance intention" is defined as the intention of continuance establishment of a company website to share business information, maintains business relationships, and conduct business transactions through telecommunications networks.

1.7.2 Independent Variables

The following table depicts the definition of each independent variable in this study:

Table 1
Independent Variables and Definition

Variable	Characteristic	Definition
CEO Innovativeness	CEO	The degree to which a firm is relatively consistently continues in adopting web-based technology than other small to medium sized companies (Thong, 1999).
CEO IT knowledge	CEO	The degree of CEO's innovation knowledge like the necessary skill and technical knowledge related to web-based technologies (Thong, 1999; Hussein et al., 2007).
CEO Attitude towards IT Adoption	CEO	Refer to a small firm CEO's perception of the adoption of IT and his/her favorable and unfavorable attitude towards the company website (Kula & Tatoglu, 2003; Seyal & Rahman, 2003; Lin, 2006).
Size	Organizational	Refers to as considerable extent and amount of a company's resource like financial and human capital (Lertwongsatien & Wongpinunwatana, 2003; Al-Qirim, 2005). Measured by number of employees of SMEs (Thong, 1999).
Employee IS Knowledge	Organizational	The degree of employees' innovation knowledge like basic IS knowledge and technical skills (Thong & Yap, 1995; Thong, 1999; Lawson et al., 2003).
Relative Advantage	Technological	The degree to which a web-based innovation is perceived as being better than the idea it supersedes (Premkumar et al., 1994; Lee, 2004; Chong & Pervan, 2007).
Compatibility	Technological	The degree to which a web-based innovation is perceived as

Variable	Characteristic	Definition
		consistent with exiting values, past experiences and needs of potential adopters (Lee, 2004; Chong, 2004; Al-Qirim, 2005).
Cost	Technological	Cost covers web site development cost and ongoing maintenance cost (Karanasios & Burgess, 2006). Cost of SMEs website adoption, maintenance and support in terms of money and time invested is compared to the benefits gain after website adoption. (Thong, 1999; Al-Qirim, 2005)
Security	Technological	The degree of small to medium firm's security issue with web presence (Ainin, 2000; Alam et al., 2007).
External Pressure	Environmental	Refers to "push" influences from the external organizational environment like from competitors, clients and trading partners, and other characteristics of the marketplace such as legal requirements (Iacovou et al., 1995; Mehrtens et al., 2001; Al-Qirim, 2005).
External Support	Environmental	The availability of support (community agencies, vendor or third party) for implementing and using an information system. (Thong, 1999; Al-Qirim, 2005)

1.7.3 Moderator

Web Adoption Level

Adopted from Teo & Pian (2004) web adoption model, there're five level of web adoption according to different business objectives of web sites as shown in following figure. This study defines level 0 to level 2 as basic website and level 3 and level 4 as more advance website, based on their study. The details is depicted in the following table and figure:

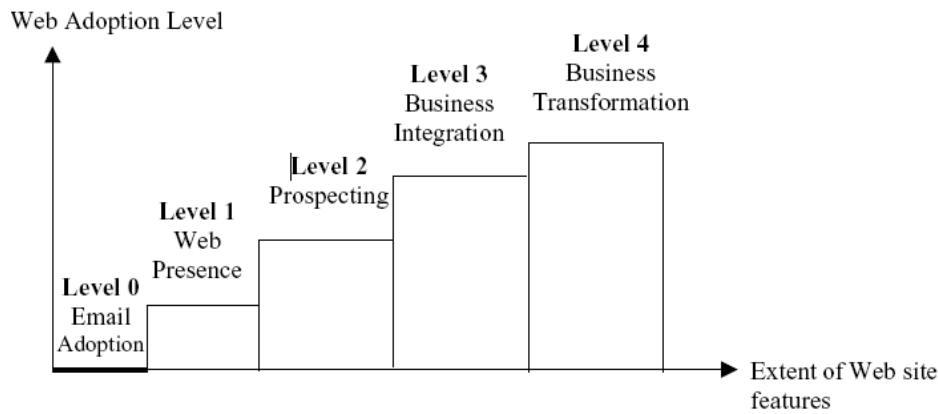


Figure 1. Web adoption model (Teo & Pian, 2004).

Table 2
 Web Adoption Level and Definition (Teo & Pian, 2004)

Level	Name	Description
Level 0 (BASIC)	Email Adoption – No Web site, only e-mail account	A firm in the Web adoption level 0 has not actually adopted the Web.
Level 1 (BASIC)	Web Presence	Firms have made the adoption decision but the implementation is still in process. The purpose may be to occupy a domain name or simply to have presence. Generally, Web sites at this stage provide information and brochures and tend to be non-strategic in nature
Level 2 (BASIC)	Prospecting	This involves limited use of the Internet. Usually, Web adoption initiatives at this stage are spearheaded by individual departments. Thus, they are not tied to business strategy. Most firms at this level establish Web sites to provide customers with product information, news, events, interactive content, personalized content, e-mail support, etc. This provides potential customers with access to the

Level	Name	Description
		firm's products with minimal distributing cost.
Level 3 (ADVANCED)	Business Integration	Web adoption is incorporated into the business model and integration of business processes is taking place. There are cross functional links between customers and suppliers and Web strategy is integrated with the firm's business strategy.
Level 4 (ADVANCED)	Business Transformation	This is the highest level of Web adoption. It will transform the overall business model throughout the organization. The focus is on building relationships and seeking new business opportunities.

1.8 Organization of Remaining Chapters

This research paper is organized into five main chapters. Chapter 1 begins with an introduction to the topic of interest, giving an overview of the research background. The problem of the study is defined along with key objectives and research questions. The remaining of this thesis is organized in such a manner that the review of the relevant literature to this study, research model and hypothesis are presented in chapter 2. Chapter 3 explains the methodology used in this study in a detailed discussion. There includes research design, measures, population and sampling strategy, questionnaire development, data collection procedure and data analysis. Meanwhile, chapter 4 illustrates the results of this thesis. Finally, chapter 5 summarizes the research findings, implications, limitation and future research of the study.

Chapter 2

LITERATURE REVIEW

2.1 Introduction

Chapter two presents the results of review of relevant literature and research conducted to support this study. In particular, the chapter focuses on discussing research done on website or Internet business, information pertaining to SMEs in Malaysia and related organizational innovation adoption determinants. Subsequently, the theoretical framework and hypotheses are developed.

2.2 Review of the Literature

2.2.1 Phases of Internet Business Adoption

In view that website serves as the fundamental platform to enable online business, this section review the major phases of Internet business evolution. According to book entitled “Service Computing” year 2007, in the book section of “e-Business Evolution”, Internet business has been developed over the last ten years through a six-stage process (depicted in the following figure):

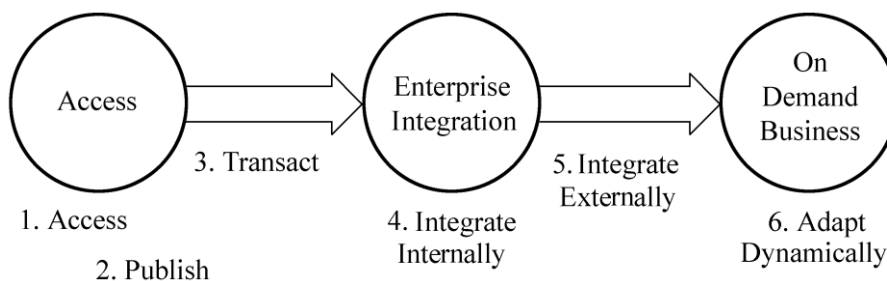


Figure 2. Evolution phases of e-Business adoption.

In order to enable global access, most firms initially focus on establishing a Web presence by having Hypertext Markup Language (HTML) homepages that distribute static company and product information in one-way, publishing fashion. Publishing product information only utilizes part of website capability. Companies can further utilize the website as a new business medium to conduct

business activities or transaction. This exposure leads them to the “transact” stage like Internet banking and shopping.

At the later information revolution, enterprise-internal information transformation has great importance in facilitating more effective and efficiency resource management and utilization. Enterprise integration normally starts from internal integration and moving towards the external integration with suppliers and clients. Lastly, the highest level of e-Business is “on-demand business”. In this stage, enterprises are synergistically integrated with each other to form a sophisticated enterprise service chain that adapt dynamically.

For Malaysia, Le and Koh in year 2002 had revealed that overall online business was still in its formative phases. Majority of firms in their survey sample have progressed beyond “access” stage into the “interactions” phase; few have reached the “e-commerce” phase but many are planning to.

2.2.2 Online Presence Advantages/Reasons/Motivations

Getting into electronic business has many advantages. Business websites and technologies operated on web site platforms like e-commerce and e-business are made available to all over the world, twenty-four hours a day, and seven days a week. According to small to medium industries business directory in year 2008, website-based businesses have numerous advantages as depicted in Table 3.

Table 3
Online Presence Benefits and Sources

No	Online Presence Advantages
1	Expands global and local market
2	Allow interactive customer relationship/better customer service
3	Instills confidence in customers that they are dealing with a company that’s on the cutting edge of IT
4	Cost reduction- printing, preparing and mailing sales expenditure
5	Remain online on line for customers to view 24 hours a day, 7 days a week, 365 days a year

No	Online Presence Advantages
6	Attract targeted buyers, i.e. customers who are already interested in the products and services, and are using the Internet to locate a merchant
7	Competitive advantage
8	Efficient transactions - e-commerce provides increased speeds of communication (e.g. delivery time is expedited)
9	Able to inform customers of any changes to marketing and promotional materials as often and as frequently
10	Strengthening business relationship

2.2.3 Small and Medium Sized Enterprises (SMEs) in Malaysia

2.2.3.1 Definition of Malaysian-based SMEs by Size

Malaysia adopted a common definition of SMEs to facilitate identification of SMEs in various sector and subsectors. According to Small and Medium Industries Development Corporation (SMIDEC), SMEs in Malaysia can be divided into two broad categories based on annual sales turnover or number of full-time employees as shown in the following table.

Table 4
Definition of SMEs by Size in Malaysia (SMIDEC, 2008)

	Micro-enterprise	Small enterprise	Medium enterprise
Manufacturing,	Sales turnover of less	Sales turnover between	Sales turnover between
Manufacturing-	than RM250,000 OR	RM250,000 and less	RM10 million and
Related Services and	full time employees	than RM10 million OR	RM25 million OR full
Agro-based industries	less than 5	full time employees	time employees
		between 5 and 50	between 51 and 150
Services, Primary	Sales turnover of less	Sales turnover between	Sales turnover between

	Micro-enterprise	Small enterprise	Medium enterprise
Agriculture and	than RM200,000 OR	RM200,000 and less	RM1 million and RM5
Information &	full time employees	than RM1 million OR	million OR full time
Communication	less than 5	full time employees	employees between 20
Technology (ICT)		between 5 and 19	and 50

Based on the Table 4 above, the first listed group from manufacturing, manufacturing-related services and agro-based industries are enterprises with full-time employees not exceeding 150 or with annual sales turnover not exceeding RM25 million. Meanwhile, the latter services, primary agriculture and ICT group are companies with full-time employees not exceeding 50 OR with annual sales turnover not exceeding RM5 million.

2.2.3.2 Characteristics of SMEs

Refer to Thong (2001), small businesses have very different characteristics from large businesses; notably, small businesses suffer from resource poverty. These fundamental differences had made large firm IT adoption studies difficult to generalize to SMEs. The distinctions of SMEs are depicted in the following figure:

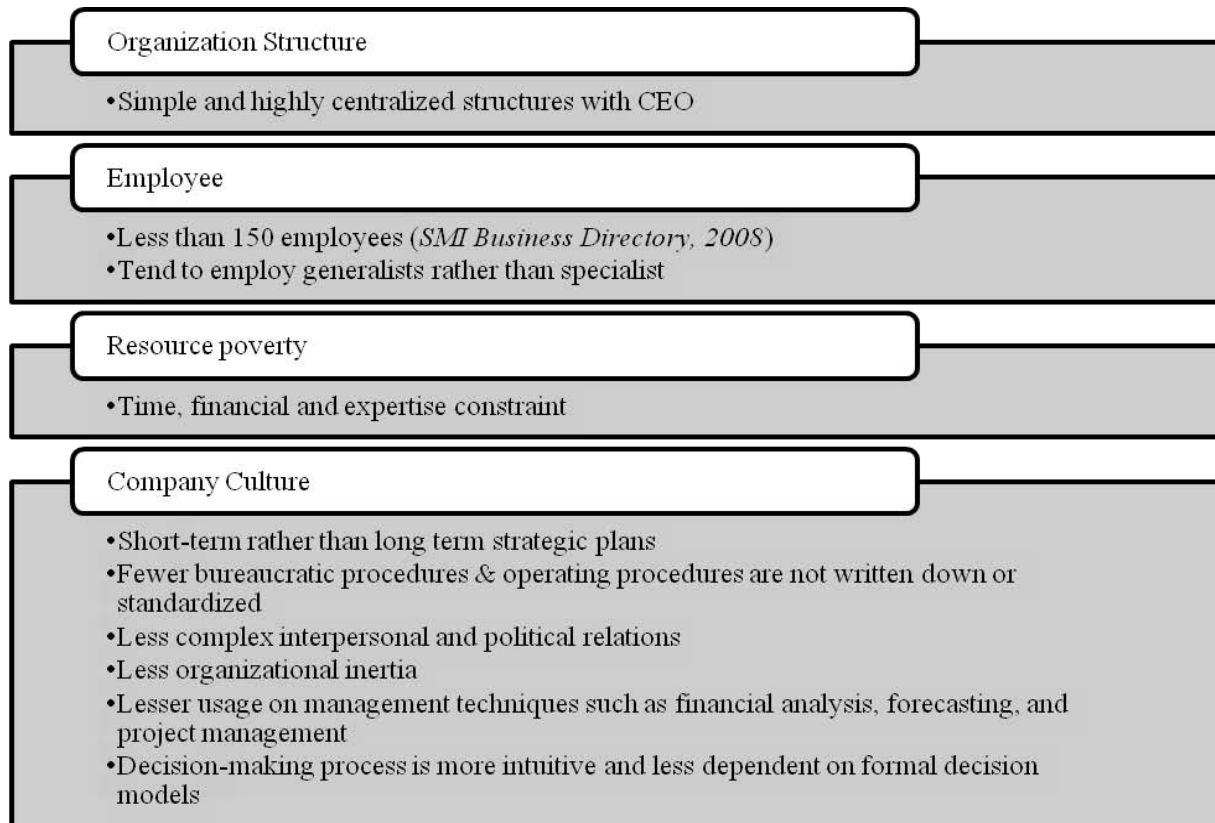


Figure 3. Characteristics of SMEs.

Because of the distinct characteristics of SMEs, technology adoption level of SMEs is much lower as compared to large corporations. For instance, Lim Say Thean, organizing chairman of Malaysia's National Internet Literacy Campaign, a government-sponsored program, commented that Malaysian SMEs don't understand the need for or intricacies of the Internet and don't see the immediate benefits (Karkoviata, 2001). SMEs short-term rather than long-term strategic plans for example will influence the sustainability decision of company online business activities.

2.2.3.3 Profile of SMEs by Sector

Based on Census on Establishments and Enterprise 2005 from SMIDEC website, there are a total of 552,849 companies in operations. Out of this, a total of 548,307 or 99.2 per cent were defined as Small and Medium Enterprises (SMEs). The services sector comprise 474,706 (86.6 per cent), followed by 39,376 (7.2 per cent) in the manufacturing sector and 34,225 (6.2%) in the agriculture sector.

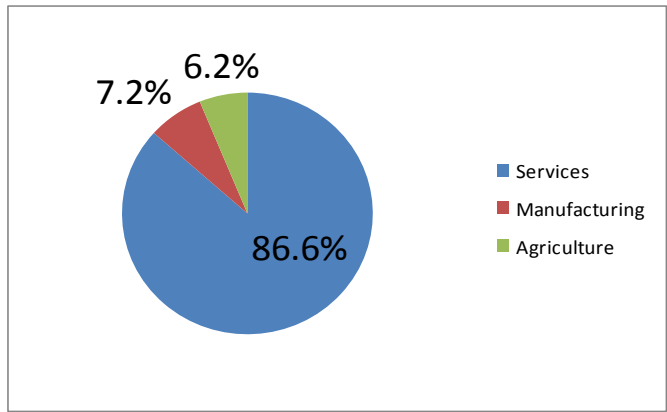


Figure 4. Distribution of SMEs by sector, 2005.

SMEs in Services Sector

Majority of SMEs in the services sector were in retail, accounting for 46.4 per cent of total SMEs followed by restaurants (14.2 per cent), wholesale (9.1 per cent), transport and communication (6.5 per cent) and financial intermediaries (4.1 per cent).

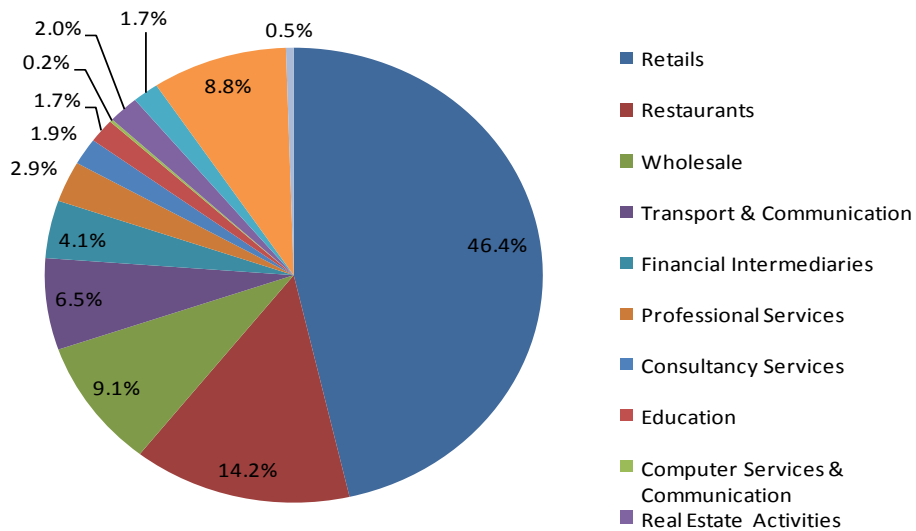


Figure 5. Distribution of SMEs in services sector, 2005.

Selected services include rental services, advertising, research and development, business activities (labor recruitment, building cleaning, packaging services, and duplication services), recreation, cultural and sporting activities (motion picture projection, recreation clubs). Health includes hospital, medical, dental and veterinary services, herbalist, homeopathy and foot reflexology.

SMEs in Manufacturing Sector

In the manufacturing sector, textiles and apparels was the largest sub-sector at 23.4 per cent, followed by food and beverages (15.0 per cent), metal and metal products (13.0 per cent), and paper and recorded media (7.2 per cent). The details are shown in the following figure.

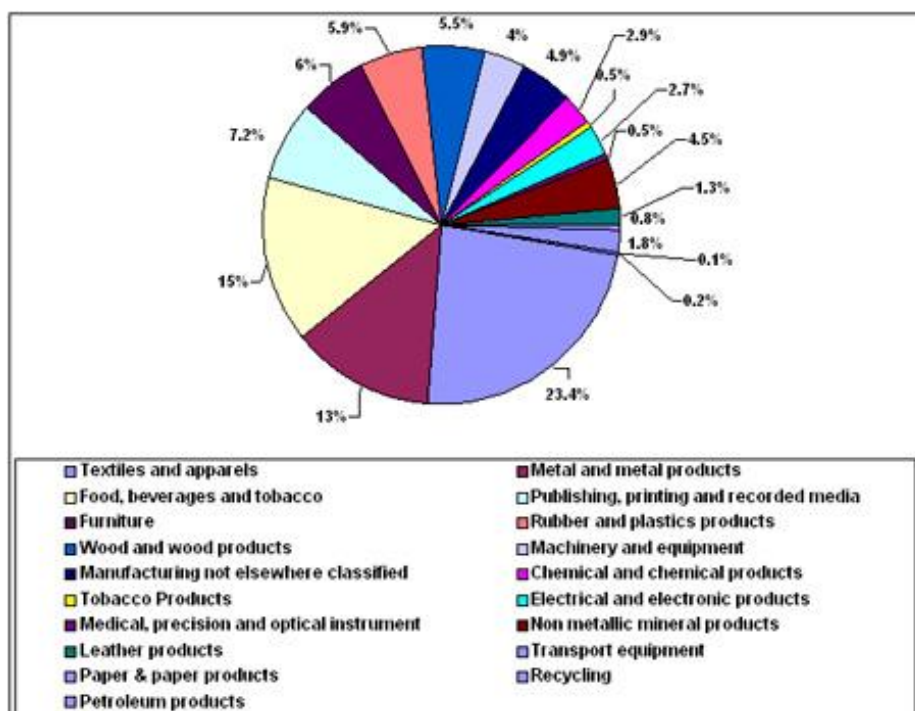


Figure 6. Distribution of SMEs in manufacturing sector, 2005.

SMEs in Agriculture Sector

SMEs in the primary agriculture are mainly in planting, market plantation and horticulture, accounting for 65.6 per cent followed by fisheries at 20.8 per cent and poultry farming (7.0 percent).

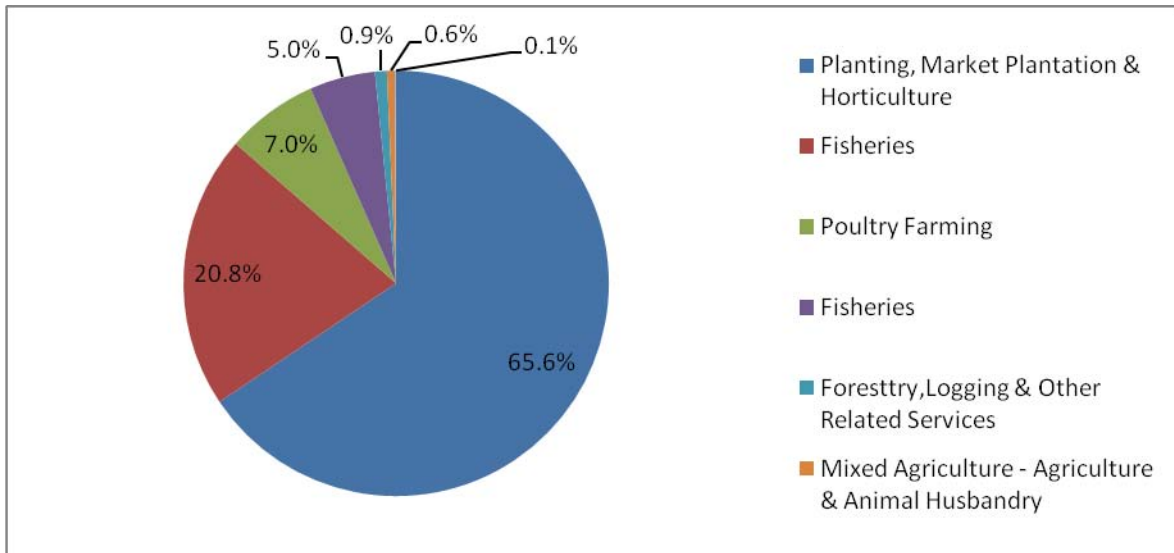


Figure 7. Distribution of SMEs in agriculture sector, 2005.

2.2.3.4 Contribution of SMEs to the Economy

SMEs make substantial contribution to economics and are estimated to account 80 per cent of global economic growth (Jutla et al., 2002, as cited in Stockdale & Standing, 2006). According to Malaysia SME Annual Report 2007, SMEs already represent over 99% of business establishments, contribute 32% to Malaysia's gross domestic product (GDP), account for 56% of total employment and 19% of total exports of the nation.

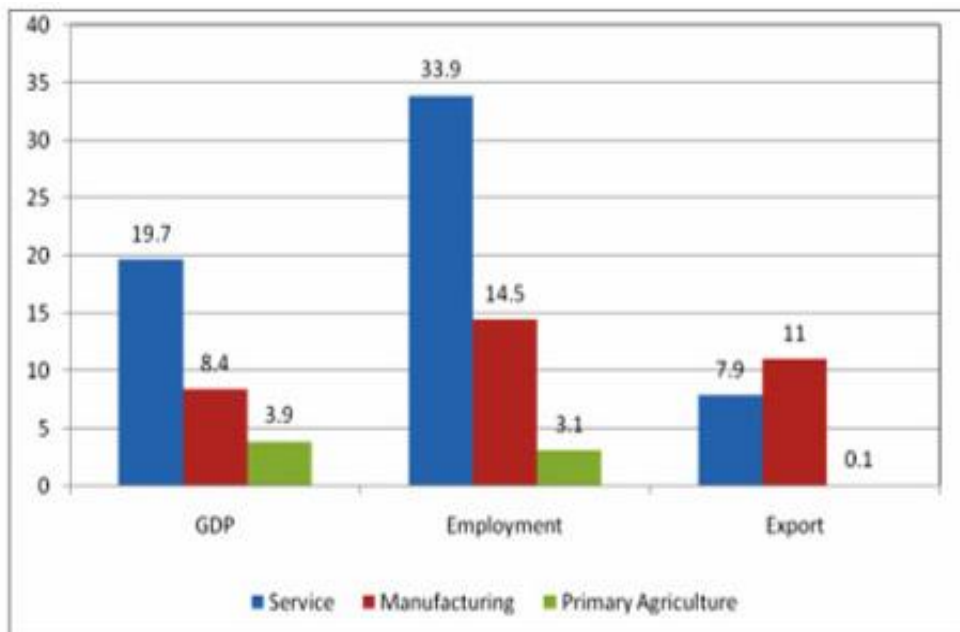


Figure 8. Contribution of SMEs to gross domestic product, employment and export by sector.

2.2.3.5 SMEs Development Programmes and Support

In view of the important role played by SMEs, the Malaysian Government continues to stand committed towards the development of a robust and competitive SME sector as a key national development strategy. Components for supporting the small and medium-sized sector at fostering e-business readiness climate includes 1) regulatory like the National SME Development Blueprint, 2) knowledge-based economy 3) e-government leaderships 4) financial help and 5) various information and communication technology infrastructure. For example, SMIDEC serve as the national focal point for the overall development of SMEs in the country. SMIDEC strives to create resilient and efficient SMEs, able to compete in a liberalized market environment. Specific developmental programmes have been formulated and implemented by SMIDEC to enhance the capacity and capabilities of SMEs and these includes Industrial Linkage Programme (ILP), Global Supplier Programme (GSP), SME Expert Advisory Panel (SEAP), Skills Upgrading Programme and Enterprise 50 Award Programme. Besides, Malaysia also has embarked on a major push to convince SMEs to adopt the Internet as the new and efficient way for doing business. Funding supports to SMEs from SMIDEC, Multimedia Development Corporation (MDC) and the Malaysia Technology Development (MTD) including training, technology acquisition, consultancy fees or e-commerce activities.

Malaysian government will continue to provide strong support in developing SMEs, especially against the backdrop of increased globalization and liberalization. Greater integration into the global economy provides opportunities for SMEs to participate in the global supply chain. Only enterprises that are capable of harnessing technology and knowledge to develop into high value-added products and services, professionally managed, excellent in process and customer service management will be able to compete globally. Specifically, as the Internet industry grows, competition and new challenges inevitably present themselves. SMEs owners and managers have to acknowledge and hence, embrace its web presence.

2.2.3.6 Common SMEs Websites Development and Hosting Practices

A mixture of approaches was used to develop the web sites: using family members or friends, developed by the owner, or using an external web developer (Karanasios & Burgess, 2006). These approaches can yield significant result for going online at lower website development and maintenance cost. It seems hiring family or friends is a cultural experience in developing countries (Gartner, 2004, as cited in Karanasios & Burgess, 2006). There are evidences showing that SMEs prefer to use free web hosting services initially and will moved onto paid hosting with an Internet Service Provider (ISP) once the benefits of website have been materialized (Karanasios & Burgess, 2006). In Malaysia, there're a number of web service provider like Starvision Information Technology Sdn Bhd which is responsible for website creation services, web page creation and design, domain name registration and website hosting.

2.2.4 Predictors of IT adoption by Organizations

Prior empirical work on IT innovations has basically identified four groups of technology adoption, diffusion or assimilation determinants. These predictors can be categorized into 1) characteristics of the environmental in which the organization operates, 2) characteristics of the organization, 3) characteristics of the organization decision makers and 4) characteristics of the technological innovation itself (Lefebvre et al., 1991; Thong, 1999; Raymond, 2001). See *Figure 9* below.

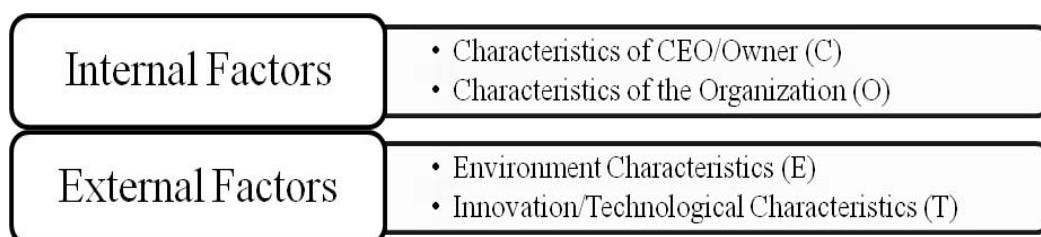


Figure 9. Technology adoption determinants category by organizations.

Basically, SMEs are hindered in adopting the technologies by impediments that arise as a result of the internal (organization and owner/manager) and external (technological and environmental) barriers (Chong & Pervan, 2007). Based on prior studies, technological and

organizational characteristics consistently revealed as strong predictors of IT adoption by organizations among the four clusters (Jeyaraj et al., 2006).

In 2006, Jeyaraj et al. highlighted a diverse body of seminal theories had been used to examine the organization adoption of IT innovations. These included innovation diffusion theory (Rogers, 1983, as cited in Jeyaraj et al., 2006), diffusion/implementation model (Kwon and Zmud, 1987, as cited in Jeyaraj et al., 2006), technology acceptance model (Davis, 1989, as cited in Jeyaraj et al., 2006), theory of planned behavior (Ajzen, 1991, as cited in Jeyaraj et al., 2006) and tri-core model of IS innovations (Swanson, 1994, as cited in Jeyaraj et al., 2006). It was generally believed that organizations progress through several innovation stages. For instance, Kwon and Zmud (1987, as cited in Jeyaraj et al., 2006) proposed that organizations experience the stages of adoption, adaptation, acceptance, routinization, and infusion, whereas Rogers (1995, as cited in Jeyaraj et al., 2006) proposed the stages of initiation and implementation, both involving sub-stages. Nevertheless, these theories too suggests three different classes of IT adoption determinants from the perspectives of technological/innovation (T), organizational (O) and environmental (E) characteristics. Thereby, Table 5 below summarizes the literature review of major studies of technology adoption and the extent of adoption determinants at the organizational level. Only significant independent variables are listed.

Table 5
Summary of Organizational Technology Adoption Predictors

Source	Dependent Variable	Independent Variable	Group
Ainin (2000)	Barrier to EC	Security (T)	Adoption
		Cost of Setup (T)	
		Sales & Marketing Require High Interaction (O)	
Alam et.al. (2007)	EC Adoption	Relative Advantage (T)	Adoption
		Compatibility (T)	
		Complexity (T)	
		Observability (T)	
		Security/Confidentiality (T)	

Source	Dependent Variable	Independent Variable	Group
Al-Qirim (2005)	EC Adoption of Extended Adopters	CEO's innovativeness (C) Size (O) Compatibility (T) Competition (E) Support from Technology Vendors (E)	Extent of Adoption
Al-Qirim (2005)	EC Adoption of Starters	CEO's innovativeness (C)	Adoption
Al-Qirim (2005)	EC Adoption of Adopters	CEO's innovativeness (C) Compatibility (T) Size (O)	Adoption
Brand & Huizingh (2008)	Intention to (further) Adopt EC	Potential Value (T) Implementation Level (T)	Extent of Adoption
Brand & Huizingh (2008)	Intention to (further) Adopt EC	Satisfaction (O) Knowledge (O) Moderator: Adoption Level	Extent of Adoption
Chong & Pervan (2007)	State of EC deployment	Perceived Relative Advantage (T) Observability (T) Triability (T) Communication Amount (O) Variety of Information Sources (O) Competitive Pressure (E) Non-Trading Institutional Influences (E)	Adoption
Chong (2004)	State of EC Adoption	Complexity (T) Compatibility (T) Age of Firm (O) Communication Channel (O) Communication Amount (O) Customer Pressure (E)	Adoption