Investigating Internet Adoption and Implementation by Malaysian Hotels: An Exploratory Study

By
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This thesis is presented for the degree of Doctor of Philosophy (Marketing) of The University of Western Australia

THE UNIVERSITY OF
WESTERN AUSTRALIA

10 June 2008

Acknowledgements

The completion of this thesis would not have been possible without support from many people.

My deepest and sincerest thank you goes to my supervisor, Jamie Murphy, whom in him I found dedication and inspiration. Jamie's guidance, support and patience throughout the process of this research have been invaluable to me. Jamie challenged me to heights I never knew possible. To Jamie, I say thank you - you have transformed me into a new person over the past three years.

I also thank my secondary supervisor, Sharon Purchase, for her advice and insights in various aspects of my research. Thank you also to Doina who has been very kind helping me with the statistics.

I share this PhD journey with a bunch of wonderful colleagues - Nazlida, Aspalela, Siti and Chik - who was kind enough to hear me babbling and cheer me up with glorious foods each time I needed.

Thank you to my parents for the never-ending prayers. Finally, I share this dissertation with three most important men in my life, Hisham, Adam and Haris. It has been a long and tough journey, but the incessant support from you allow me to gather my strength to finish this task. To Adam and Haris, mum is back with no midnight stay up.

Statement of Candidate Contribution

This dissertation is an original composition and that of the candidate, unless specified acknowledged and referenced. The following publications are preliminary works for this dissertation. The co-authors of these publications have kindly given permission to use these works in the dissertation. The bibliographical details of the work and where it appears in the thesis are outlined below.

JOURNAL PUBLICATIONS

CHAPTER 2 and 5: Hashim, Noor Hazarina and Murphy, Jamie (2007) "Branding on the Web: Evolving Domain Name Usage among Malaysian Hotels" *Tourism Management*, 28(2), p. 621-624.

CHAPTER 2: Hashim, Noor Hazarina, Muhamad, Nazlida and Murphy, Jamie (2007) "Islam and Online Destination Images: Marketing Malaysian Destinations" Journal of Computer-Mediated Communication, 12 (3) (available online at: http://jcmc.indiana.edu/vol12/issue3/hashim.html).

CHAPTER 5: Murphy, Jamie, Hashim, Noor Hazarina and O'Connor, Peter (2007) "Take Me Back: Validating the Wayback Machine" Journal of Computer Mediated Communication, 13 (11)(available online at: http://jcmc.indiana.edu/vol13/issue1/murphy.html).

CONFERENCE PAPERS

(i) Referred international conferences

CHAPTER 3: Hashim, Noor Hazarina; Olaru, Doina; Scaglione, Miriam and Murphy, Jamie (2006) "A Theoretical Framework of Factors Relating to Internet Adoption by Malaysian Hotels" at ENTER 2006, Lausanne, Switzerland, 18-20 January.

CHAPTER 4: Hashim, Noor Hazarina (2007) "Internet Evolution: A Case of the Malaysian Hotel Industry" at The Council for Australian University Tourism and Hospitality Education (CAUTHE), Sydney, 14-17 February.

CHAPTER 2 and 5: Hashim, Noor Hazarina; Murphy, Jamie and Kassim, Azilah (2007) "Promoting Destinations: Website and eMail Use by ASEAN Countries " at The Council for Australian University Tourism and Hospitality Education (CAUTHE), Sydney, 14-17 February.

CHAPTER 4: Hashim, Noor Hazarina, Hofacker, Charles F., Sarjit Singh, Lu, Sharon and Md.Said, Shaharuddin (2007) "The Relationship between Business Strategy and Internet Evolution: Investigating the Miles and Snow Typology" ENTER 2007, Ljubljana, Slovenia, 24 -26 January.

CHAPTER 5: Hashim, Noor Hazarina, Murphy, Jamie and Law, Rob (2007) "A Review of Hospitality Website Design Frameworks" ENTER 2007, Ljubljana, Slovenia, 24 -26 January.

CHAPTER 5: Hashim, Noor Hazarina, Syed Ahmad, Sharifah Fatimah & Murphy, Jamie. (2008). "Evolving Internet Use by Malaysian Hotels".ENTER 2008, Innsbruck, Austria, 23-25 January.

CHAPTER 5: Hashim, Noor Hazarina, Kassim, Azilah & Murphy, Jamie "Investigating The Relationship Between Business Strategic Types And Website Use" accepted for the upcoming 6th Asia-Pacific (APacCHRIE) Conference, Perth, Western Australia, 21-24 May 2008.

CHAPTER 5: Hashim, Noor Hazarina, Syed Ahmad, Sharifah Fatimah & Murphy, Jamie "An Evaluation Of Email Use By Malaysian Hotels" accepted for the upcoming 6th Asia-Pacific (APacCHRIE) Conference, Perth, Western Australia, 21-24 May 2008.

(ii) Non-referred conferences

Hashim, Noor Hazarina and Murphy, Jamie (2005) "Muslim Images and Online Destination Marketing in Malaysia." at the 3rd International Conference on Tourism and Hospitality, Penang, Malaysia, 28-29 November.

Hashim, Noor Hazarina and Murphy, Jamie (2005) "The Diffusion of Websites and Email among Malaysian Hotels" at the 3rd International Conference on Tourism and Hospitality, Penang, Malaysia, 28-29 November.

INDUSTRY PUBLICATIONS

Murphy, Jamie and Hashim, Noor Hazarina (2006) "Domain Dilemmas" *EHLITE Magazine*, 13(April).

Hashim, Noor Hazarina, Murphy, Jamie and Muhammad, Nazlida (2006) “Tourism and Islam: Understanding and Embracing the Opportunity” *EHLITE Magazine*, 14 (September) .

Hashim, Noor Hazarina, Murphy, Jamie (2006) “Malaysia’s Many Holiday Festivities, Where Everyone Is Invited” *EHLITE Magazine*, 15 (December)

Abstract

Based on the growing importance of tourism to Malaysia's economy and the increasing use of the Internet in tourism, this study investigated the adoption and implementation of the two most popular Internet application, email and websites, by Malaysian hotels. Diffusion of innovations laid the theoretical foundation that drove this dissertation. Using two research streams, adoption and diffusion modelling, this dissertation addressed four research questions related to Malaysian hotels' Internet adoption and implementation. In addition, this study applied the Miles and Snow (1978) typology to investigate relationships between business strategic types with email and website adoption and implementation. The Miles and Snow (1978) typology classified hotels into one of four business strategic types: Prospector, Analyser, Defender and Reactor. Finally, this study validated a temporal variable, website age, to investigate evolving website use.

The literature review helped set up fifteen hypotheses. Using a triangulation approach to address the research questions, the dissertation began with an explorative study with 17 representatives from the Malaysian hotel industry. An empirical study using four independent data sources - mail survey, website features, email responses, and website age - tested the hypotheses.

The adopter study investigated relationships among hotel characteristics and business strategic types with Internet adoption. The results showed hotel characteristics - size, rating and affiliation - and business strategic types related positively with email and website adoption. Large, high rated, affiliated and Prospector hotels led the email and website adoption. This result supported the diffusion of innovation theory on the relationship between organisational characteristics and business strategic types with technology adoption.

The diffusion modelling study looked into hotels' implementation of email and websites by investigating the presence of 22 website and 13 email reply features, and investigating

evolving website use. Unlike the adoption stage, the results found hotel characteristics did not relate positively with the presence of website and email features. Similarly, the results found no significant differences between the four business strategic types in email and website implementation.

To investigate evolving website use, this study first validated the website age from the Wayback Machine, a third party tool that archives website. Clustering hotels based on the presence of website features showed Malaysian hotels' websites evolved in a non-linear fashion. The oldest cluster, based on website age, had the highest website feature presence. However, the next two oldest clusters had fewer features compared to the youngest cluster. Hotels in the youngest cluster seem to have leapfrogged other clusters in evolving website use. The results showed positive relationship between the cluster and email reply quality. Apart from having a good website, hotels in the feature-rich oldest cluster also provided a quality email reply to their guests.

The findings add to existing knowledge in four ways. Firstly, this study discovered a non-linear website evolution model that limits the generalisation of Internet diffusion literature suggesting websites evolve in a linear pattern. Secondly, this study was the first to develop a four-stage email evolution model. Thirdly, this study extended the application of the Miles and Snow (1978) typology to hotel industry, added to the limited Miles and Snow (1978) Internet studies, and was the first to apply the typology to investigate relationships between business strategic types and email use. In addition, this study was the first to validate website age from the Wayback Machine and later use the website age to investigate evolving website implementation. Finally, this dissertation expanded discussion on Internet use in developing countries, particularly in Malaysia. This dissertation concluded by noting the limitations and offering potential future research areas.

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Chapter 1 Introduction

This chapter presents the background, research questions, importance and potential contributions of the study. It concludes with the research design and organisation of the dissertation.

1.1 Background of the study

Few technologies have the scope and scale of impact on businesses as the Internet (Hanson & Kalyanam, 2007). The past decade witnessed the Internet become an important driver of change in many industries. The cost reductions in Moore's Law, value of networks in Metcalfe's Law, digitisation and convergence of technological devices have contributed to the explosive growth of the Internet (Hanson & Kalyanam, 2007). One industry greatly transformed by the Internet is hospitality (Kim & Kim, 2004). The Internet helps hotels provide better customer service (Nasution & Mavondo, 2008), improve future sales (Carvell & Quan, 2008; Dev & Olsen, 2000) and become an important distribution channel for hotels (O'Connor & Frew, 2003; Watkins, 2000).

A 2006 study by Market Matrix Hospitality Limited of 35, 000 guests found that hotels' websites provided a better reservation experience than popular travel websites (Barsky & Nash, 19 February 2007). The study found people shifting their bookings from central reservation telephone numbers and offline travel agencies to hotel websites. One factor that helped this changing preference is the improvement in hotels' website design. Potential guests found hotels' websites easy to navigate, full with useful information, and features that increase trust for conducting online transactions. In the United States today, 50% of online bookings come from hotel websites (Barsky & Nash, 19 February 2007). As a result,

hotels pay less to travel portals such as Expedia and Travelocity and can establish direct relationships with their guests. For example, since 2003, Best Western Hotel's online bookings grew from 10% to15% and at Choice Hotels nearly 60% of its reservations come from online bookings (Barsky & Nash, 19 February 2007).

The Malaysian government acknowledges the importance of the Internet to the tourism industry (*The Ninth Malaysia Plan, 2006-2010*). Tourism is a recent focus for Malaysia, introduced in the early 70s as a tool to unite its multi racial and religious society (Khalifah & Tahir, 1997). Today, tourism is Malaysia's top foreign exchange sector after manufacturing (*The Ninth Malaysia Plan, 2006-2010*). Malaysia depends on neighbouring countries for international tourists; Singapore, Thailand and Indonesia provide most international tourists (*The Ninth Malaysia Plan, 2006-2010*). Other important international tourist markets include Japan, the UK, South Korea and the Middle East. Key players in Malaysian tourism are the hospitality industry, airlines, travel agents and tourism operators. Accommodation accounts for 33% of tourist expenditures while the remaining 67% includes shopping, food, transportation, sightseeing and entertainment (*The Ninth Malaysia Plan, 2006-2010*).

Acknowledging the importance of the Internet to tourism activities, The Ninth Malaysia Plan (2006-2010) highlights government ambitions to upgrade the Ministry of Tourism websites into a one-stop portal for potential visitors to gather information about their destination, plan their visit and book their accommodation. To encourage Internet use among businesses, the government also provides tax exemptions for the purchase of computer equipment.

Despite the importance of tourism to the Malaysian economy, there is little industry or academic information relating to Malaysian hotels' Internet use, a vital component in Malaysia's tourism. Using diffusion of innovations (DOI) as the theoretical foundation (Rogers, 2003), this study helps fill this gap by investigating Malaysian hotels on the two most widely used Internet technologies, email and websites. For the industry, this study provides insights on present and potential Internet use by Malaysian hotels. Nonetheless, a limitation of this study is the generalisation of the findings to the hotel industry in other countries. The following section elaborates the theory and research questions.

1.2 Problem statement and research questions

The DOI is well known for explaining innovation adoption and implementation (Fichman, 2000; Rogers, 2003). Although different terms could be use, in most DOI literature, *adoption* generally refers to the acquisition while *implementation* refers to the assimilation of an innovation in an organisation (Fichman, 2000; Jeyaraj, Rottman, & Lacity, 2006). Non-domain specific, studies applied and tested this theory across fields such as education, agriculture, anthropology, sociology, medicine and marketing (Rogers, 2003). The rise of the Internet in the past decade broadens the application of DOI to the e-commerce field (Dinlersoz & Pereira, 2007; Zhu, Kraemer, & Xu, 2006)

The DOI has two research streams, adoption and diffusion modelling (Fichman, 2000; Rogers, 2003). For over half a century, the two diffusion of innovations (DOI) research streams – adoption and diffusion modelling – have explained factors related to individual and organisational technology adoption and use (Fichman, 2000). Adoption studies examine the presence of a technology in an organisation and diffusion modelling investigates how organisations implement the technology in their work processes. For

instance, diffusion research in e-commerce found organisational and environmental factors such as management support and industry pressure relate to e-commerce adoption (Premkumar, 2003; Zhu et al., 2006) while compatibility with the existing systems and technology effect the implementation rate of an innovation within an organisation (Cooper & Zmud, 1990; Fichman & Kemerer, 1999).

Hotel Internet studies use the DOI to explain relationships between hotel characteristics such as size, rating and affiliation with Internet adoption and implementation (Baloglu & Pekcan, 2006; Matzler, Pechlaner, Abfalter, & Wolf, 2005; Murphy, Olaru, Schegg, & Frey, 2003; Siguaw, Enz, & Namiasivayam, 2000). These studies measure adoption based on email and website presence while implementation includes following basic email reply guidelines and the presence of website features. The results show strong support on relationships between hotel characteristics with Internet adoption but are weak with Internet implementation. Large, high rated and affiliated hotels lead in Internet adoption but all hotels have implementation difficulties to provide quality email replies and good website designs.

For instance, a study of international upscale hotels found only one out of two hotels replied their customer's email in one day (Schegg, Murphy, & Leuenberger, 2003). Similarly, a study of Tunisian hotels found less than 50% of the hotels replied to customer emails (Gherissi Labben, Schegg, & Murphy, 2003). Studies also found hotels having problems with website implementation such as lacking interactivity, personalisation (Murphy et al., 2003) and travel related information (Baloglu & Pekcan, 2006).

Despite the proliferation of hotel Internet studies, most studies focus on developed countries, with only limited research on developing countries such as Malaysia (Hashim & Murphy, 2007). Given the important role by the hotel sector to the Malaysian tourism and few hotel Internet studies in Malaysia, this study extends hotel Internet diffusion research to Malaysian hotels. This study applies the DOI to investigate Malaysian hotels' Internet adoption and implementation. Using a similar approach to previous hotel Internet studies, *adoption* refers to email and website presence while *implementation* relates to the presence of website and email reply features. In summary, given the limited hotel Internet studies in Malaysia, the first research question investigates:

Research Question 1: How do hotel size, rating and affiliation relate to Internet adoption and implementation?

Most hotel Internet diffusion studies use hotel characteristics - size, affiliation and rating - as independent variables and investigate their relationship with Internet use. One variable given little attention in the Internet literature is business strategic types (Apigian, Ragu-Nathan, & Ragu-Nathan, 2005; Kearns, 2005). Besides hotel characteristics, this study investigates relationships between hotels' business strategic types with Internet adoption and implementation. Apart from receiving little attention, this study argues that it is valuable to include business strategy to understand how customer demand and stiff competition in the hospitality industry effect technology adoption and implementation by Malaysian hotels (Gursoy & Swanger, 2007).

The DOI notes top management and owner characteristics relate positively to technology use in an organisation (Premkumar & Ramamurthy, 1995; Smith, Mitchell, & Summer, 1985). Top management and owners decide the strategy and management of their

organisations (Gherissi Labben & Mungall, 2007), including how to utilise and benefit from adopted technologies (Bruque & Moyano, 2007; Oronsky & Chathoth, 2007). Studies show business strategy relates positively to the strategic use of technology (Croteau & Bergeron, 2001; Segars, Grover, & Kettinger, 1994). Research in strategic management investigates firms' strategic orientation within and across industries. The research classifies firms into strategic types based on environmental adaptation patterns (Moore, 2005) and examines links between firm strategic types and performance (Croteau & Bergeron, 2001).

Most studies use business financial performance as the dependent measure of organisational performance (Croteau & Bergeron, 2001; Raymond, Pare, & Bergeron, 1995). Few studies, however, investigate relationships between business strategic types and Internet adoption and implementation (Apigian et al., 2005; Auger, 2003; Kearns, 2005). Even less examine this in the hospitality industry. For instance, a study of Swiss hotels found, compared to chain hotels, independent hotels lagged in their website use and technology equipment (Gherissi Labben & Mungall, 2007). This study however, did not look at the hotels business strategic types.

A widely used theory by Miles and Snow (1978) classifies organisations into four business strategic types – Prospector, Analyser, Defender and Reactor – based on how organisations respond to three interrelated problems: product/market, engineering and administrative (see further description about Miles and Snow business strategic types in section 2.3.4). Using the Miles and Snow (1978) typology, this study classifies hotels into one of the four business strategic types and then investigates Internet adoption and implementation. This study adds to the limited hotel studies applying the Miles and Snow's (1978) business strategic types on website use. More importantly, to the researcher's knowledge, this may

be the first attempt to align a hotel's business strategy with email replies and the first to apply this typology in a developing country. Thus,

Research Question 2: How do Miles and Snow business strategic types relate to Internet adoption and implementation?

Fichman (2004a, p. 315) argued that studies of innovations adoption – the adopter studies – have reached maturity; most studies conclude that individuals and organisations with "greater innovation-related needs and abilities or the *Right Stuff* are more likely to adopt an innovation than those with less needs and abilities". In a meta-analysis of organisational IT diffusion studies, Jeyaraj et al (2006) concluded that extant research on actual IT use is "sketchy at best" (p. 14). Out of 55 studies, the review identified only four and eight studies respectively, with 'actual system use' and 'outcomes' as their dependent variables.

Most organisational diffusion studies measure perceptions of innovation adoption such as decision to adopt (Grover, 1993), intention to use (Agarwal & Prasad, 2000) and intention to adopt (Plouffe, Hulland, & Vandenbosch, 2001). A few studies however, have shown that perceived use did not correlate strongly with actual system use (Straub, Limayem, & Karahanna, 1995; Szajna, 1996). This phenomenon of using perceptions in diffusion studies is disturbing as actual behaviour may differ from perceived behaviour (Rosen & Purinton, 2004) and may affect other findings such as the independent variables associated with technology adoption (Jeyaraj et al., 2006).

Today, researcher call for more diffusion modelling studies to examine the outcomes of adoption such as the quality of innovation, performance impacts and benefits (Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004; Jeyaraj et al., 2006). Thus, while adopter

studies are important, diffusion modelling studies merit equal or more attention as they give insights into adoption outcomes. Related to modelling diffusion outcomes is the evolution of using technology (Fichman, 2004a; Murphy, Olaru, & Schegg, 2006).

Since at least 1994, academics have investigated evolutionary aspects of website use (Teo & Pian, 2004). Diffusion modelling studies suggest website use evolves from simple to advanced website features (Chu, Leung, Hui, & Cheung, 2007; Hashim, Olaru, Scaglione, & Murphy, 2006; Piccoli, Brohman, Watson, & Parasuraman, 2004). Most studies use sophisticated website use to reflect advancement. Yet, despite a proliferation of Internet evolution studies, most studies ignore the top Internet application, email, in their adoption model (Hashim, Syed Ahmad, & Murphy, 2008).

Being the most widely use and popular Internet technology (Coussement & Van den Poel, 2008; Murphy, Schegg, & Olaru, 2007), this study argues it is essential to include email for a comprehensive view of organisational Internet use. By including email, this dissertation adds to the limited diffusion modelling studies in two ways. Firstly, this study extends this research stream by including email in the adoption model and secondly, proposes a four stage email adoption model, which to the author's knowledge, no publish studies have explored.

Finally, despite the call for Internet diffusion modelling studies, research is inconclusive on how to measure evolving Internet use. Current practice evaluates Internet evolution based on the presence and complexity of features on a website based on single or multiple evaluations (Morrison, Taylor, & Douglas, 2004; Park & Gretzel, 2007). There are, however, problem related to these methods. For example, reliability is difficult to achieve in single evaluation and some websites might undergo a rapid change in their content or

even disappear for a longitudinal study and multiple evaluations (Murphy, Hashim, & O'Connor, 2007).

Another research stream uses domain name age as a temporal proxy to measure Internet evolution. Websites with older domain names should have evolved further in the Internet evolution than websites with younger domain name (Murphy et al., 2006). A domain name is the website address name such as Hilton hotels registering *Hilton.com*, while a domain name age provides the year an organisation registered its website address. Yet there are limitations related to this variable. The introduction of multiple and Shared Registration System in 1999 makes gathering the age for global domains such as *.com* or *.org* unreliable as companies may change domain registrars, therefore resetting the creation date (Murphy et al., 2006). In addition, businesses may buy a domain name and keep for months or years before hosting the website, or the business may sell the domain name.

Addressing the limitation of domain name age, this study validates a new metric, website age, to measure evolving Internet use. Using website age collected from the Wayback Machine, a part of the Internet Archive (www.archive.org) that archives website pages, helps overcome such limitations and establish the real date of site creation (see detail description about the Wayback Machine on section 2.4.3). Although a few studies have used the WM to investigate archived website content (Brock, 2005; Ryan, Field, & Olfman, 2003), infer website age (Vaughan & Thelwall, 2003), and study website evolution (Chu et al., 2007), to the researcher's knowledge no published literature has validate website age from the Internet Archive. Thus, the third and fourth research questions seek to answer:

Research Question 3: Does website age reflect evolving Internet use?

Research Question 4: Based on website age, how does Malaysian hotels' website and email implementation evolve?

In summary, this dissertation applies the DOI to investigate Malaysian hotels' Internet use. Findings from this study offer insights on how hotel characteristics and business strategic types relate to hotels' Internet adoption and implementation. In doing so, this dissertation investigates four research questions, which to the author's knowledge no published studies have explored. Besides answering the academic gaps identified above, this dissertation helps managers improve and develop their online presence.

1.3 Research design

Figure 1 illustrates the research plan. The literature review helps set up the hypotheses. This study applies a triangulation approach to address the research questions. Firstly, a qualitative study explores the relationships within the hypotheses and helps gain in-depth information about Malaysian hotels' Internet use. Due to the small size, findings of the qualitative study are of limited generalisibility. To increase the generalisibility and to answer the research questions, an empirical study follows. This quantitative study involves a census of the 540 hotels registered with Ministry of Tourism Malaysia and uses four independent data sources – mail survey, website features, email responses, and website age – to test the hypotheses. Data from the quantitative study are analysed using SPSS 12 software. Finally, this study discusses the results and summarises the main findings.

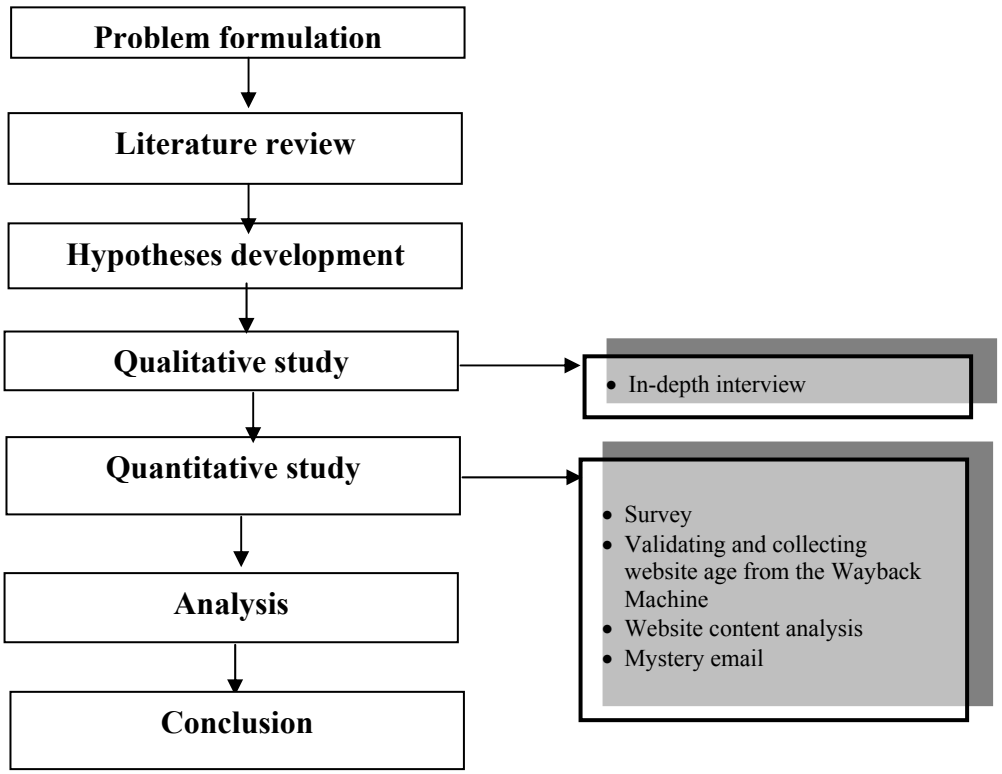


Figure 1 Research plan

1.4 Structure of the dissertation

This dissertation consists of six chapters. Having introduced the background, problems, and research questions in this chapter, Chapter 2 reviews literature related to the research questions. Following the literature review, Chapter 3 presents the hypotheses. Chapter 4 presents the findings of the qualitative study. Chapter 5 outlines the methodology and reports the results of the quantitative studies. This dissertation concludes with Chapter 6 discussing the findings, offering academic contributions and managerial implications, and then identifying limitations and future research areas.

Chapter 2 Literature Review

This chapter describes the background and discusses the concepts and theories related to the study. The literature review begins with an overview of Malaysia's tourism and hospitality industry followed by discussions of the Diffusion of Innovation theory and Miles and Snow's (1978) business strategy typology. This chapter closes with review on Internet evolution studies.

2.1 Malaysia's tourism industry

2.1.1 Malaysia: An overview

Malaysia lies just north of the equator in southeast Asia. Physically divided into West (or the peninsula) and East Malaysia, the South China Sea separates these two portions. West Malaysia comprises the states of Perlis, Kedah, Penang, Perak, Kelantan, Terengganu, Pahang, Selangor, Negeri Sembilan, Melaka, and Johor, and two federal territories, Kuala Lumpur (the capital city) and Putrajaya. East Malaysia includes the states of Sabah and Sarawak and one federal territory, Labuan island. Thailand lies north and Singapore on the south of the West Malaysia border. Kalimantan (Indonesia) borders the south and west of East Malaysia. Malaysia covers 330,000 km^2, slightly larger than Poland or New Mexico in the USA, and has a population of 26 million (Population and Housing Census 2000, 2001). Figure 2 shows a map of Malaysia and its 14 states.

Source: www.virtualmalaysia.com

Figure 2 The map of Malaysia

Islam is the official religion, but Malaysians may practice any religion. Over 60% of Malaysians are Muslims, followed by Buddhists (19%), Christians (9%), Hindus (6%), and Confucians (6%). Myriad religious buildings, festivals, rituals, and lifestyles are important Malaysian tourist attractions for casual visitors as well as for religious followers (Din, 1989). Malaysia supports multiculturalism through celebrations such as Hari Raya Aidilifitri for Muslims ending Ramadhan, Chinese New Year, Christian's Christmas, and *Deepavali* for Hindus (Din, 1982).

After achieving independence in 1957, Malaysia's economy was commodity-based and heavily dependent on rubber and tin (Khalifah & Tahir, 1997). The 1980s world economic recession caused the collapse in the price of rubber and tin. In response, the government instituted major economic reforms by privatising the public sector and encouraging manufacturing (Khalifah & Tahir, 1997). Manufacturing became the fastest growing sector with a growth rate of 10% per annum (Economic Planning Unit, 2006). For the first time in

1987, returns from manufacturing surpassed the agricultural sector and contributed 23% of Malaysia's Gross Domestic Product (Economic Planning Unit, 2006).

Until the Asian economic recession in 1998, Malaysia was one of Asia's most prosperous countries with the economy growing by an average of 9% annually and per capita income estimated at 15,200 *Ringgit*[1] ($AUD5320)(Economic Planning Unit, 2006). Malaysia has a well-developed physical infrastructure, particularly in Peninsula Malaysia, with well-maintained highways that link major cities to seaports and airports (Economic Planning Unit, 2006). While the well-developed infrastructure, communications and educated labour force attract investors to Malaysia, the melting pot society attracts tourists to Malaysia (Hamzah, 2005; Khalifah & Tahir, 1997).

2.1.2 Tourism in Malaysia

In May 1969, serious clashes between Chinese and Malay ethnic groups in Malaysia resulted in the suspension of the constitution until 1971. This racial tension led to calls for stronger socio-cultural integration and a greater sense of unity (Musa, 2000). As a result, the Malaysian government saw tourism as a key to promote a greater understanding of the diverse cultures and lifestyles of Malaysia's multi-ethnic population (Musa, 2000).

The Government introduced tourism to Malaysia in the early 1970s (Musa, 2000). Serious efforts in developing and promoting tourism begin with the establishment of the Tourist Development Corporation Malaysia in 1972 (Khalifah & Tahir, 1997; Musa, 2000). Its aims were to foster unity as well as to increase employment and income levels (Khalifah &

[1] Ringgit (RM) is the Malaysia currency. One ringgit is equivalent to AUD 0.33 (as at 10 March 2008)

Tahir, 1997). During this period, the government concentrated on basic tourism infrastructures such as highways, airports and tourist sites in each state (Musa, 2000).

In the 1980s, the government encouraged private sector participation to promote the tourism industry and provided incentives for companies building accommodation, visitor centre facilities or providing manpower (Khalifah & Tahir, 1997). To assist with the tourism planning and development, the government established The Ministry of Art, Culture, and Tourism (MOCAT) in1987 (Musa, 2000). In April 2004, MOCAT became two separate ministries, the Ministry of Tourism (MOT) and the Ministry of Art, Culture and Heritage, to allow the former to focus on tourism. Today, tourism is Malaysia's top foreign exchange sector after manufacturing (*The Ninth Malaysia Plan, 2006-2010*).

MOT promotes Malaysia to the world via marketing activities such as trade exhibitions, meetings, conventions and promotional campaigns. One of the biggest promotional events is the Visit Malaysia Year campaign, a year round promotion to market and promote the country as a major international tourist destination and to stimulate domestic tourism. The Visit Malaysia Year includes myriad events and festivals to encourage tourists, particularly international tourists, to stay longer and spend more during their stay in Malaysia. The Visit Malaysia Year has run in three editions. It was held for the first time in 1990 followed by the second edition in 1994 and the latest in 2007. Visit Malaysia Year 2007 is special as it coincides with Malaysia's 50th year of independence. The increasing importance and popularity of the Internet, witnessed MOT extends their marketing into online as the first Malaysian tourism official website launched in 1996 (*The Seventh Malaysian Plan, 1996-2000*).

Prior to the first Visit Malaysia Year campaign in 1990, tourists visit to Malaysia were part of a wider trip to the neighbouring countries of Thailand, Singapore and Indonesia (King, 1993). Many tourists spent only part of their holiday in Malaysia; a relatively new entrant into tourism compared to its neighbours. Malaysia faced the problem of selecting a distinct tourism product or image to reflect the country (King, 1993; Musa, 2000). For example, the Singapore Girl and city of entertainment are synonymous with Singapore, Thailand is the Land of Smiles, and Bali is picturesque views, culture, arts, dance and music (Musa, 2000).

Since 1990, Malaysia's tourism slogan evolved from 'Beautiful Malaysia' to 'Only Malaysia' followed by 'Fascinating Malaysia'. The latest 'Malaysia, Truly Asia' in 2001, reflects Malaysia's diversity and plural lifestyles (Amran, 2004). Tourism promotion materials, from billboards to brochures, often portray Malaysia's multi-cultural images representing the Malay, Chinese, Indian and other ethnic groups dressed in their traditional costume. An analysis of 15 Malaysian destination-marketing organisations' showed they portrayed a consistent image, 'Truly Asia' and a multicultural society as the main tourism product (Hashim, Murphy, & Muhamad Hashim, 2007).

The various festivals, religious events, languages, architecture, cuisine and lifestyles are a strong selling point of Malaysian tourism, particularly for international tourists. Apart from the multicultural and multireligious society, other selling points include ecotourism, agricultural tourism and homestay activities (*The Ninth Malaysia Plan, 2006-2010*). Recent initiatives under the Visit Malaysia 2008 campaign try to promote sport and recreational tourism, and encourage film activities in Malaysia. The Malaysian government, via the Ministry of Tourism, plays a strong role in developing and planning tourism activities (*The*

Ninth Malaysia Plan, 2006-2010). Except in the hotel industry where foreign companies are involved, local companies play a large role in this sector.

In the nation's five-year development plans, the tourism sector received continuous attention from the government. During the Second Malaysia Plan (1971-1975), the government allocated 17.2 million ringgit (RM) for tourism (Khalifah & Tahir, 1997). In the Sixth Malaysia Plan (1991-1995), the allocation increased to RM 533 million, which later, during the mid-term review, grew to RM 719 million. This allocation was mainly for the improvement and expansion of facilities and infrastructure (*The Sixth Malaysia Plan, 1986-1990*). The latest Ninth Malaysia Plan allocated 1.8 billion, an increase of 0.8 billion from the Eighth Malaysia Plan to support the increase number of international and domestic tourists as described in the following section (*The Ninth Malaysia Plan, 2006-2010*).

International tourist arrivals

Tourist arrivals in Malaysia have no seasonal pattern due to stable weather throughout the year. In 2006, Malaysia received 17,546,863 international tourists (Tourism Malaysia, 2008). Table 1 and 2 show the tourists arrivals from major markets and receipts from 2000-2006. Tourist arrival to Malaysia have increased steadily from 2000-2006 except in 2003 when the Severe Acute Respiratory Syndrome epidermic hit the Asian region (*The Eighth Malaysia Plan, 2001-2005*).

Major international tourists markets for Malaysia include Southeast Asia, East Asia, Australia and the United Kingdom. Singaporeans make up the largest number of visitors with more than nine million visitors or 55% of total international tourists to Malaysia in 2006 (Tourism Malaysia, 2008). Tourists from China form the largest group of international tourist from the East Asia, around four million visitors and the United

Kingdom tourists form the largest group of European tourists at two million visitors (Tourism Malaysia, 2008).

The Ninth Malaysia Plan (2006-2010) named Europe, India, China, Taiwan, Hong Kong, United Kingdom, Australia, United States and the Middle East as strategic markets and targets for promotion in 2007. The Government is also discussing with a few low-cost carriers such as Tiger Airways from Singapore, Cebu Air from Philippines, Bangkok Air of Thailand and Jetstar from Australia to fly to Malaysia's major tourist destinations (*The Ninth Malaysia Plan, 2006-2010*).

Another growing market of international tourists to Malaysia is the Middle East. The September 11 event lead to tight security and travel regulations imposed by some western countries such as the USA and UK on Muslim travellers particularly from the Middle East. Today, Middle Eastern tourists choose to holiday in Muslim countries such as Malaysia (Al-Hamarneh & Steiner, 2004; Amran, 2004). The Government recognises the importance of this growing market and provides more facilities and information for this market (*The Eighth Malaysia Plan, 2001-2005*). In 2002, the Malaysia Airline Systems launched new destinations in Beirut, Dubai and Jeddah, and Tourism Malaysia opened it branch offices in the United Arab Emirates and Saudi Arabia. In a nutshell, the September 11 event, opening of new airline routes and tourism offices in the Middle East helped more than double visitors from the Middle East, from 53,370 in 2000 to 131,000 in 2002 (Gee, 2002).

Country of Residence	2000 *(mil.)*	% annual change	2001 *(mil.)*	% annual change	2002 *(mil.)*	% annual change	2003 *(mil.)*	% annual change	2004 *(mil.)*	% annual change	2005 *(mil.)*	% annual change	2006 *(mil.)*	% annual change
Singapore	5,420	**11**	6,951	**28**	7,547	**9**	5,922	**-22**	9,520	**61**	9,634	**1**	9,656	**0.2**
Thailand	940	**89**	1,018	**8**	1,166	**15**	1,152	**-1**	1,518	**32**	1,900	**25**	1,891	**-0.5**
Indonesia	545	**77**	777	**43**	769	**-1**	621	**-19**	789	**27**	962	**22**	1,217	**26**
Brunei	195	**4**	309	**59**	256	**-17**	215	**-16**	453	**110**	486	**7**	784	**61**
Japan	455	**59**	397	**-13**	354	**-11**	213	**-40**	301	**41**	340	**13**	354	**4**
China	425	**122**	453	**7**	557	**23**	350	**-37**	550	**57**	352	**-36**	439	**25**
United Kingdom	237	**74**	262	**10**	239	**-9**	125	**-48**	204	**63**	240	**17**	252	**5**
Australia	236	**76**	222	**-6**	193	**-13**	144	**-25**	204	**41**	265	**30**	277	**4**
Taiwan	213	**56**	249	**17**	209	**-16**	137	**-35**	190	**38**	172	**-9**	181	**5**
USA	184	**121**	145	**-21**	127	**-12**	131	**3**	145	**11**	151	**4**	174	**15**
India	132	**184**	143	**9**	183	**28**	145	**-21**	172	**19**	225	**31**	279	**24**
South Korea	72	**74**	66	**-8**	64	**-3**	46	**-28**	91	**97**	158	**73**	189	**20**
West Asia	53	**145**	114	**44**	131	**15**	80	**-55**	126	**57**	147	**36**	180	**22**
Germany	74	**72**	70	**-6**	54	**-22**	41	**-25**	53	**31**	59	**10**	66	**12**
Total	**9,181**		**11,176**		**11,849**		**9,322**		**13,286**		**15,091**		**15,939**	

Source: Tourism Malaysia (2008)

Table 1 International Tourist Arrivals by Major Markets from 2000-2006

Year	Tourist Arrivals *(mil.)*	% annual change	Tourists Receipts (RM millions)
2000	**10,221**	**29**	**17,355**
2001	**12,775**	**25**	**24,221**
2002	**13,292**	**4**	**25,781**
2003	**10,576**	**-20**	**21,291**
2004	**15,703**	**49**	**29,651**
2005	**16,431**	**5**	**31,954**
2006	**17,546**	**7**	**36,271**

Source: Tourism Malaysia (2008)

Table 2 Total Tourist Arrival and Receipt from 2000-2006

Domestic travel

The depreciation of *Ringgit* from RM2.50 to RM 4.88 against US$1 during the 1998 Asian economic crisis made travelling overseas more expensive for locals and helped grow domestic tourism (National Economic Action Council, 2007). The number of domestic tourists increased by 30% from 12 million in 2000 to 16 million in 2005 (*The Ninth Malaysia Plan, 2006-2010*). Domestic tourism, however, is a relatively new focus by the government (*The Ninth Malaysia Plan, 2006-2010*).

It was only in September 1999 that the Malaysian government launched the *Cuti-Cuti Malaysia* (Holiday in Malaysia) campaign. The main objective was to improve domestic economy that was badly hurt by the 1998 economic crisis and to inculcate a holiday culture amongst Malaysians (Bernama, 18 February 2004). It also aimed to create a planned holiday culture amongst Malaysians, especially tour packages (Bernama, 18 February 2004).

There were two major markets targeted in this campaign: those who considered tourism as unimportant and a waste of money and times, and visiting their hometowns as tourism activities. The Government provided tax exemptions for profits earned by tour operators and travel agencies that sold domestic tour packages to at least 1200 locals annually, as well as declaring the first and third Saturday of each month as a holiday for public sector employees (Treasury Malaysia, 1999). The following section describes the hotel industry, a vital component in Malaysia's tourism, and the focus of this dissertation.

2.1.3 Malaysia's hotel industry

Unlike in developed countries, the hotel industry in Malaysia is 'relatively very young' (Ong, 2004, p.39). To this point, there is limited academic or industry research discussing the history and development of Malaysia's hospitality industry. The limited information about the history and development of hotel industry in Malaysia may be due to the lack of official or private records (Ong, 2004).

Studies Malaysian hotel industry

Research on Malaysia's hotel industry is limited. A search of Google Scholar (Jacsó, 2006) and research databases discovered only four studies since 1994 until 2005. The studies were descriptive and exploratory.

The first two studies discussed training hotel personnel to meet the demand of the expanding tourism industry (Goldsmith & Mohd Zahari, 1994; Sellah & Micheal, 1994). The third study found significant differences between Asian and Western evaluations of hotel quality (Poon & Low, 2005). Asian travelers were more concerned with value for money while Western travelers regarded security, safety, food and beverages as important factors related to staying and revisiting the hotel.

The fourth study investigated the expectation and perceptions of service quality among Malaysia's four - and five - stars hotels using a modified Service Quality (SERVQUAL) model (Lau, Akbar, & Fie, 2005). The study suggested that hotel's service quality oftentimes failed to meet guests' expectation by failing to address customers' enquiries appropriately, lack of personalised service and unfriendly staff.

However, the Malaysian Association of Hotels 30th Anniversary handbook included an article titled *'The Malaysian Hotel Industry: A Brief Perspective'*, which discussed the history and development of Malaysia's hotel industry. It was not until after the independence in 1957 that hotels played a significant role in the country's economy. Prior to that, in the British colonial days, budget inns and government rest houses dominated the hotel industry.

Budget inns, cheap hotels usually in town centres, have basic facilities - a wooden bed with a hard thin mattress, cheap bed linen, a wooden wardrobe, bedside drawers, a small towel and a tiny cake of soap. The government rest houses, primarily for civil servants, are better than budget inns. The rest houses, made of timber, are located outside town and managed by private individuals. They usually have a small bar or restaurant that serves breakfast, lunch and dinner (Ong, 2004).

The hotel industry took wings when Malaysia achieved independence from the British in 1957. Three days before the Independence Day, Tunku Abdul Rahman, the first Prime Minister launched the first hotel, The Federal Hotel in Kuala Lumpur. The 90-room, 9-story hotel hosted VIPs, foreign dignitaries and diplomats who came to witness Malaya (Malaysia's name before independence) celebrate its independence on 31 August 1957. After Independence, Malaysia's hotel industry expanded. Home grown brands such as Faber Merlin, Shangri - La, Equatorial, City Bayview and other smaller chain, dominated the scene until the arrival of the first international brand, Hilton International on 6 July 1973 (Ong, 2004).

The 1980s witnessed the beginning of intensive competition in the hotel industry as Malaysia opened its economy to tourism and foreign investment (Khalifah & Tahir, 1997; Ong, 2004). Tourism began to draw tourists from around the world. The influx of tourists encouraged the growth of local hotels and resorts, and top international brands like *The Regent*, *Renaissance*, *Sheraton*, *Holiday Inn* and *JW Marriott* (Ong, 2004). The supply of hotels and rooms grew steadily over the 1990s. Table 3 shows the hotel and room supply in Malaysia from 1999 to 2006.

Year	Number of hotels	% annual growth	Number of rooms	% growth
1999	1,404		109,413	
2000	1,492	**6.3**	124,413	**13.7**
2001	1,776	**19**	130,757	**5.1**
2002	1,878	**5.7**	136,542	**4.4**
2003	1,989	**5.9**	144,380	**5.7**
2004	2,224	**11.8**	151,135	**4.7**
2005	2,269	**2.0**	155,356	**2.8**
2006	2,336	**3.0**	157,251	**1.2**

Source: Tourism Malaysia (2008)

Table 3 Hotel and rooms supply in Malaysia from 1999 to 2006

Construction of new hotels overheated prior to the 1998 Economic Crisis. Hotel construction was everywhere, regardless of the potential (Ong, 2004). As a result, there was an oversupply of rooms and many hotels struggled to cope with bank loans and investment costs during the crisis. Some hotels closed and most struggled to survive. More hotels opened after the crisis. For example, as shown in Table 3, in 2006 there were 2336 hotels offering 157,324 rooms, an increase of 14% from 2003.

2.1.4 Internet use in Malaysia

The Internet is an urban phenomenon in Malaysia, with most users coming from major cities such as Kuala Lumpur, Putrajaya, Pulau Pinang and Johor (Le & Ke, 2002;

Ramanathan, 1999). Until December 2007, Malaysia's Internet penetration rate was 60% (Internet World Stats, 2007). One likely factor that facilitates Internet use in Malaysia is the high fixed telephone connection with 66 per cent of Malaysian households having phones. Malaysia had the second-lowest dial-up Internet cost among the ASEAN countries after Singapore (Internet World Stats, 2007).

The Malaysian government acknowledges the important role of IT in meeting future challenges (Paynter & Lim, 2001). The launch of The National Information Technology Agenda in December 1996 indicated the government's seriousness to establish a strong IT mindset in the country, while The Multimedia Super Corridor (MSC) aimed to make Malaysia the Asia Pacific regional IT hub (*The Seventh Malaysian Plan, 1996-2000*). MSC aims to attract multimedia and communications products, services, research and development companies by providing attractive tax exemptions and world-class facilities for business such as high speed internet and first-class logistics networks (The Multimedia Super Corridor, 2007). Since 1996, MSC Malaysia has attracted more than 900 foreign and Malaysian-owned companies (The Multimedia Super Corridor, 2007).

Despite the successful MSC project, Internet transactions within Malaysia accounted just for 4% of Malaysia's travel and tourism receipts in 2005, a growth of 184 % from RM66 million in 2004 (Euromonitor International, 2006). The accommodation and air travel lead the Internet transactions which account over 90% of total Internet sales (Euromonitor International, 2006). A major driving force in online sales is ticket sales from budget airlines on the Internet. In addition, more local hotels are promoting their hotel on the Internet and providing special Internet discounts. The selling of airline ticket from budget

airlines that primarily operates online and hotels online promotions helped increase awareness and the acceptance of online purchases by Malaysians (Euromonitor International, 2006).

Although Malaysia is advanced in Internet regulations and framework, consumer Internet use in Malaysia was primarily for gathering information (Le & Ke, 2002) and for communications via email (Sulaiman, 2000). For example, a study of electronic banking preferences found Malaysians were reluctant to change from conventional to electronic banking (Sohail & Shanmugam, 2003). Similarly, a study found the use of e-commerce payment applications such as smart cards and prepaid cards was used by only seven percent of the organisations (Sulaiman, 2000). Malaysians were concerned over privacy and security issues such as email phishing, identity theft, computer viruses and unauthorised access to credit data (Euromonitor International, 2006; Jantan, Mohd Nasurdin, & Ahmed Fadzil, 2003).

Studies on Malaysian hotels' Internet use

Hotels' Internet use started in 1996, mostly by international-affiliated hotels (Anonymous, 1996). In 1996, Sheraton Penang became the first hotel in Malaysia to offer high-speed Internet access in every room (Anonymous, 1996). Since then, there was a continuous demand for high-speed Internet connections by the hotels. Within five years, high-speed Internet connection became indispensable, at least for five-star hotels (Jin, 2002). Following Sheraton to provide their guests with high-speed Internet connections was the Nikko Hotel (Anonymous, 2000), Dorsett Regency (Rosario, 4 July 2000), Equatorial (Sani, 6 July 2000), Ritz Carlton and JW Marriott (Muhtar, 17 August 2000), Prince Hotel and Residence Kuala Lumpur. In 2000, hotels attempted to provide high-speed wireless

hotspots. However, there was a slow take-up by the hotels on this feature due to expensive infrastructure such as a base station (Mok, 24 Jun 2002).

An emerging hospitality research area is Internet use. Research has examined tourism and information technologies in developed nations (Frew, 2000) but studies on Malaysia's hotels are limited. The absence of research on Malaysian hotels' Internet use may be partly due to Internet use being at an infant and formative phase in this country (Le & Ke, 2002). To author's knowledge there are even fewer studies on Internet use by Malaysia's hotels (Hashim & Murphy, 2007). This inaugural study on Internet use by Malaysian hotels demonstrated that hotel's Internet use evolved from email to websites, and from using non-branded to branded email and websites names (Hashim & Murphy, 2007). The results indicated that larger, higher-rated and affiliated Malaysian hotels lead in this implementation.

In-depth interview with 13 hotels general managers described the evolution of Internet use by the hotels from 1995 until 2006 (Hashim, 2007). Malaysian hotels' Internet use evolved from no adoption to using email and eventually to websites providing personalisation and loyalty features. The study concluded that Malaysian hotels used the Internet in a limited fashion, for disseminating information and taking online reservations.

The next study applied the Miles and Snow business strategy to describe the hotels' business strategic types (Hashim, Hofacker, Singh, Lu, & Md Said, 2007). The study suggested relationships between an organisation's business strategy with its level of Internet use. The Miles and Snow (1978) suggests four types of business strategy:

Prospector, Defender, Analyser and Reactor. Prospectors are market leaders and most innovative firms while Reactors at the other end, are the least innovative firms. Extending the typology to Malaysian hotels Internet use, the study showed that Prospector hotels lead in Internet adoption and have advance website features while Reactor hotels are at the other end of the continuum with no adoption (Hashim, Hofacker et al., 2007; Hashim et al., 2008). In fact, Reactors hotels that adopted the Internet have poor website design (Hashim, Hofacker et al., 2007; Hashim et al., 2008).

Summary

The hotel industry in Malaysia is new, yet it is critical to support growing tourism activities. There is limited academic discussion about the industry and even less on Internet use in this sector. The literature review of Malaysian hotels' Internet use shows large and chain hotels have started to offer Internet facilities at their hotels. However, no study has examined why these large and chain hotels lead in their Internet use and how these hotels use the Internet in their operation. The following section describes the diffusion of innovations (DOI) theory, which helps explain factors related to adoption and evolving Internet use for this study.

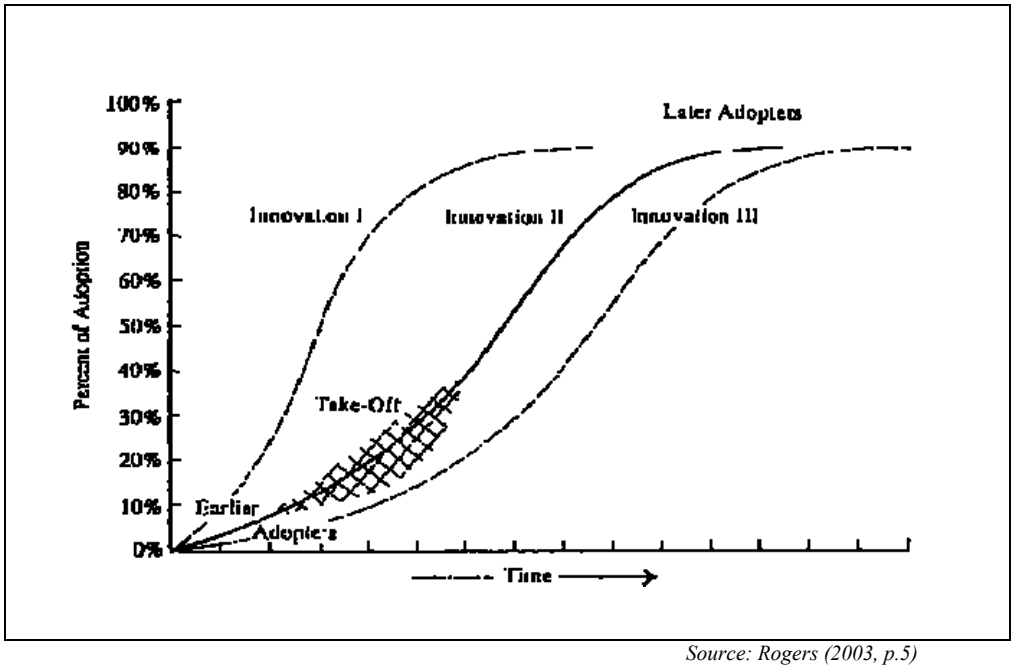
2.2 Diffusion of innovations

This section examines the DOI theory to explain the different level of Internet adoption by Malaysian hotels. It begins by describing the diffusion process, before explaining the individual innovation-decision process. Next, this section discusses the contributions and limitations of individual diffusion studies followed by discussion about organisational

diffusion, the focus of this dissertation. This section closes with discussion about diffusion of the Internet, bandwagon effects and assimilation gaps.

2.2.1 What is diffusion?

Diffusion is a process in which an innovation is communicated through certain channels over time among the members of a social system (Rogers, 2003, p.5). These four elements, the innovation, channels, time and social system, exist in every diffusion study and event (Rogers, 2003). Figure 3 illustrates the four elements in a diffusion process followed by a discussion of each element.



Source: Rogers (2003, p.5)

Figure 3 The four elements in diffusion process

a. The innovation

An innovation is an idea, practice, or object perceived as new by an individual or an other unit of adoption (Rogers, 2003, p. 12). The characteristics of an innovation, as perceived by the members of a social system, determine its rate of adoption (Rogers, 2003). The S-shape curve in Figure 3 shows the rates of adoption for three different innovations.

Individuals will adopt an innovation faster depending on the degree to which an innovation:

(a) is perceived as better than a previous idea (relative advantage);

(b) is perceived as consistent with the existing values, past experiences, and needs of potential adopters (compatibility);

(c) may be experimented with on a limited basis (trialability);

(d) has results that are visible to others (observability), and;

(e) is perceived as easy to understand and use (simplicity).

b. Communication channels

The second element in the diffusion of an innovation is the communication channel (Rogers, 2003). Communication is how members in the society create and share information with one another. A communication channel is how messages get from one individual to another. As reflected in Ryan and Gross' (1943) study, mass media channels are effective in creating knowledge of innovations, whereas interpersonal channels are effective in forming and changing attitudes towards a new idea, and thus influencing the decision to adopt or reject a new idea (Rogers, 2003, p. 18).

c. Time

The third element in diffusion studies, time, influences diffusion in three ways (Rogers, 2003, p.20). Firstly, time is part of the innovation-decision process, through which an individual (or other decision-making unit) passes from first knowledge of an innovation to a decision to adopt or reject the innovation (Rogers, 2003, p. 20).

Time also relates to the innovativeness of an individual or other unit of adoption. Innovativeness is the degree to which an individual or other unit of adoption is earlier in

adopting new ideas than other members of a social system (Rogers, 2003, p.22). Rogers (2003) listed five adopter categories based on their innovativeness: (1) innovators, (2) early adopters, (3) early majority, (4) late majority, and (5) laggards.

The third way in which time relates to diffusion is the rate of adoption, or the relative speed that members of a social system adopt an innovation (Rogers, 2003, p.23). The rate of adoption is usually measured by the number of members of the system that adopt the innovation in a given time period (Rogers, 2003).

d. The Social System

The fourth element in the diffusion is the social system, a set of interrelated units engaged in joint problem-solving to accomplish a common goal (Rogers, 2003, p.23). The members or units of a social system may be individuals, informal groups, organisations, or subsystems. The social and communication structure of a system facilitates or impedes the diffusion of innovations in the system (Ryan & Gross, 1943).

Three aspects of the social system relate to the diffusion of an innovation: norms, opinion leadership and change agents. Norms are established behaviour patterns of members in a social system (Rogers, 2003, p. 26). An innovation that is consistent with the norm of a social system norm is more likely to be adopted than an innovation that is incompatible with them. Opinion leadership is the degree that an individual, the opinion leader, influence informally other individuals' attitudes or behaviours (Rogers, 2003, p. 27). A change agent attempts to influence clients' innovation-decisions in a direction deemed desirable by a change agency (Rogers, 2003, p. 31).

The social system also influences the types of innovation decisions. The decision to adopt an innovation could be optional, collective or by authority innovation decisions (Rogers, 2003, p.28). Innovations could be adopted or rejected, (1) by an individual member of a system or (2) by the entire social system or (3) by relatively few individuals in the system who possess power, status, or technical expertise (Rogers, 2003).

Having introduced the main elements in a diffusion process, the following section provides background on the development of DOI studies since the first discussion in 1900 until present.

2.2.2 A history of diffusion research

The earliest work to explain DOI is by the French sociologist, Gabriel de Tarde in 1900 (Rogers, 2003). Tarde attempted to explain why a society accepts or ignores some innovations (Kinnunen, 1996). At the beginning of the twentieth century, Tarde witnessed the development of many new inventions, many of which led to social and cultural change. Written in French before translated into English in 1903, in his book, *The Law of Imitation* (1890), Tarde's hypothesised that the more interaction there is among individuals, the more likely an invention would be accepted in a society (Kinnunen, 1996). According to Kinnunen's (1996) reading of Tarde, inventions diffused by imitation. Peoples' imitated beliefs, desires and motives are transmitted from one individual to another. Tarde's observation on the diffusion of coffee consumption showed the S-shape diffusion curve in present diffusion research (Kinnunen, 1996, p.497-498).

Among the frequently referred work in diffusion of innovations field is by an Austrian economist, Joseph Schumpeter. Schumpeter believed new innovations caused economic changes (Scherer, 1986). Schumpeter proposed a three-stage model to describe

technological changing process: invention (conception of new ideas), innovation (development of new ideas) and diffusion (the process where new product spread across potential market) (Drejer, 2004; Scherer, 1986). He suggested investigating the diffusion stage to know the real impact of a new technology. However, research criticised Schumpeter three-stage model for ignoring the role of feedback and interaction between different stages (Scherer, 1986).

The next milestone in diffusion was the frequently cited study by Ryan and Gross (1943) that investigated the diffusion of hybrid seed corn among Iowa farmers between 1936 and 1939. Ryan and Gross (1943) explained how the new hybrid seed corn was adopted by a usually conservative group (farmers), and how mass and interpersonal communication channels led farmers to adopt the new seed corn. They found that each channel functioned differently. Mass communication through the sales agents functioned as the source of initial information while neighbours, an interpersonal network, influenced the farmers' decisions to adopt.

The study also found that the diffusion of hybrid corn among Iowa farmers followed an S-shaped pattern, and that there were four adopter types: early accepters, early adopters, the majority and late accepters. The study led to a growing interest in DOI studies. For example, the number of diffusion studies published increased from 27 in 1941 to 423 in 1959 (Katz, Levin, & Hamilton, 1963).

Research on DOI continued as a series of independent studies during the 1940s and 1950s (Rogers, 2003). Diffusion research surfaced in anthropology, education, public health and

medical sociology, marketing and management, communication, and general sociology (Rogers, 2003). For example, rural sociologists investigated the diffusion of agricultural innovations by farmers (Ryan & Gross, 1943), educational researchers studied the spread of new teaching ideas and technologies (Dalton, 1999; Dooley, 1999), and communication scholars studied the diffusion of news events (Deutschman & Danielson, 1960).

Diffusion research continued to interest academic fields in the 1960s. Much of the interest was influenced by Everett M. Rogers' book, *Diffusion of Innovations*, published in 1962, the most cited work in innovation research (Jeyaraj et al., 2006; Wellin, 2003; Zhu & Kraemer, 2005). Rogers' theory builds on the work of Ryan and Gross (1943) and Tarde's 'Laws of Imitation'. Comparing Rogers' DOI with 10 seminal theories, showed DOI as the only theory covering both individual and organisational adoption (Jeyaraj et al., 2006, p.4). Commenting on Rogers' work, Surry and Ely (2006) noted:

> *"The most widely cited and most influential researcher in the area of adoption and diffusion is Everett Rogers. Rogers' Diffusion of Innovations is perhaps the single most important book related to this topic and provides a comprehensive overview of adoption and diffusion theory (p. 105)."*

Rogers extended Ryan and Gross (1943) on adopter types to an overall social system. By refining Ryan and Gross' adopter types, Rogers produced the popular *Diffusion of Innovation Curve* and a new set of adopter types: innovators, early adopters, early majority,

late majority and laggards. Figure 4 and Table 4 illustrate Rogers' (2003) famous adopter characteristics innovation curve.

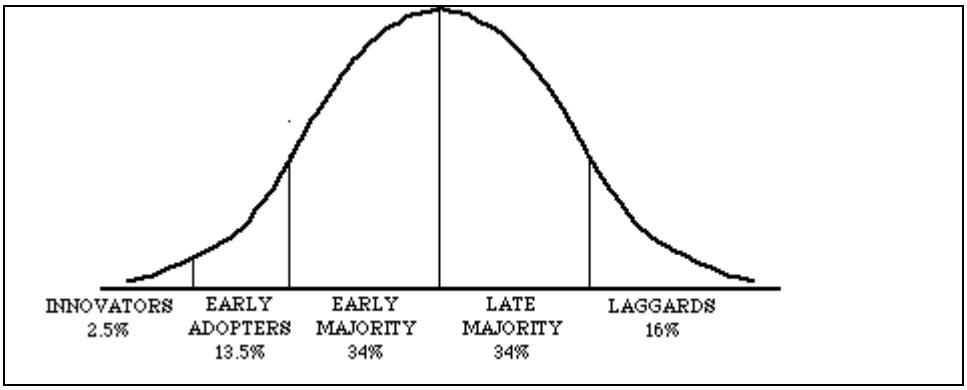


Figure 4 Rogers (2003) innovations adopters categories

Adopter Category	Characteristics
Innovators - first 2.5% of individuals to adopt an innovation	▪ Venturesome and eager to try new ideas ▪ Educated ▪ Higher social status ▪ Substantial financial resources ▪ Able to cope with high degree of uncertainty ▪ Contacts outside peer group ▪ May or may not be respected by peers
Early Adopters - next 13.5% of individuals to adopt an innovation	▪ Respected by peers ▪ Integrated in the local system ▪ Opinion leaders - potential adopters look to them for advice and information ▪ Change agents ▪ Role models for other members of social system
Early Majority - next 34% of individuals to adopt an innovation	▪ Deliberate before adopting new idea ▪ Adopt new ideas just before the average member of a system ▪ Interact frequently with peers ▪ Rarely hold positions of opinion leadership ▪ Provide interconnectedness in the system's interpersonal networks.
Late Majority - next 34% of individuals to adopt an innovation	▪ Approach innovations with caution and scepticism ▪ Adopt new ideas just after the average member of a system ▪ Adoption may be due to economic necessity or peer pressure ▪ Unwillingness to risk scarce resources ▪ Uncertainty about innovation must be removed before adoption
Laggards	▪ Hold on to traditional values

- last 16% of individuals to adopt an innovation	▪ Resistent to innovations ▪ Last to adopt an innovation ▪ Near isolates in the social networks of local system ▪ Suspicious of innovations and change agents

Source: Rogers (2003)

Table 4 Adopters Characteristic

The publication of Rogers' influential book, *Diffusion of Innovations* (1962), helped launch a rich and growing body of research on diffusion of innovations (Jeyaraj et al., 2006). One of the famous applications is the New Product Growth Model by Frank Bass (1969) that helped to estimate the adoption of new innovation based the interaction of current and potential users.

One of the famous applications is the Bass New Product Growth model with formula to estimate the adoption of new innovation through the interaction of current and potential users. Reflecting this diverse body of research, Rogers (2003) noted eight types of diffusion research, listed in Table 5.

Type	Main Dependent Variables	Independent Variables	Unit of Analysis	Examples
1. Earliness of innovation	Earliness of knowing about an innovations by members of a social system	Characteristics of members (e.g. cosmopoliteness, communication and channel behaviours	Individuals of a social system	Dalton (1999), Eder and Igbaria (2001), Jeffres, Atkin, Bracken and Neuendorf,(2004)
2. Rate of adoption of different innovations	Rate of adoption of different innovations in a social systems	Attributes of innovations (e.g. complexity, compatibility as perceived by members of a system)	Innovations	Teo and Pian (2004), Scharl, Dickinger and Murphy (2005), Kim, Chan and Gupta (2007)
3. Innovativeness	Innovativeness of members of a social systems	Characteristics of members and system-level variables	Individual or organisation	Ryan and Gross (1943), Attewell (1992), Frambach and Schillewaert (2002)
4. Opinion leadership	Opinion leadership in diffusing innovations	Characteristics of members, system-level variables, communication channel behaviour	Individual	Leonard-Barton (1985), Gherissi Labben and Mungall (2007)
5. Diffusion network	Diffusion Network	Patterns in the network links between two or more members of a system	Network links connecting individuals or	Premkumar (1995), Flanagin (2000), Lai (2001)

			organisations in a system	
6. Rate of adoption in different social systems	Rate of adoption of innovations in different social systems	Systems norms, characteristics of social system, change agent variables, types of innovation-decisions	Social system	Hargittai (1999), Walcott, Press, McHenry and Goodman (2001), Kiiski and Pohjola (2002), Loch, Straub and Kamel (2003), Zhu and Kraemer (2005)
7. Communication channel use	Communication channel use	Innovativeness and other characteristics of members of a social system, systems norms, attributes of innovations	Members of systems	Ryan and Gross (1943), Rogers (2003), Bargh and McKenna (2004)
8. Consequences of innovations	Consequences of innovations	Characteristics of members, the nature of social systems, the nature and use of innovations	Members or social systems	Brannback (1997), Bonfadelli (2002), Rogers (2003)

Source: Rogers (2003, p. 96-98) with additions

Table 5 Eight Types of Diffusion Research

Among the eight types of diffusion research streams, almost two-thirds of all empirical diffusion studies dealt with individual innovativeness (Jeyaraj et al., 2006; Rogers, 2003). The individual diffusion studies examined the individual decision making process and factors influencing individuals to adopt technologies (Rogers, 2003). Organisational diffusion studies, the focus of this study, investigated organisational characteristics and technology assimilation (for further discussion of individual and organisational DOI, see section 2.2.3 and 2.2.4 of this chapter).

Summary

Reviewing the history of DOI studies suggests that the adoption of an innovation is a socially motivated process. While knowledge and awareness of an innovation are important, the influence of social networks on the decision process such as in the case of the Iowa farmers (Ryan & Gross, 1943), leads to an individual or organisational decision to use the innovation.

Individuals are usually the unit of analysis in diffusion studies, although studies on organisational innovativeness began in the 1970s. Rogers'(2003) book reflects this tendency, where the first nine chapters discuss individuals and DOI and only chapter ten discusses the organisational innovation process.

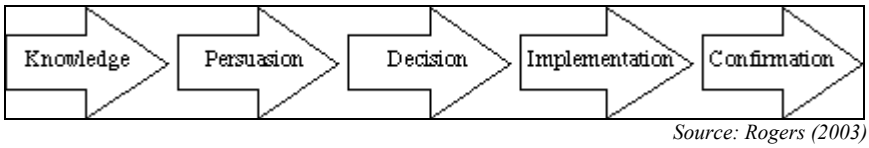
A crucial point in the innovation-decision process at the individual level is the decision to adopt an innovation (Rogers, 2003). How does adopters evaluate an innovation's efficacy, safety and other factors? The following section discusses individual diffusion, the contributions and limitations before proceeding into organisational diffusion of innovations, the focus of this study.

2.2.3 Individual diffusion studies

a. Innovation-decision process

An individual goes through the innovation-decision process before adopting an innovation as shown in Figure 5 (Rogers, 2003). This process allows individuals to seek information that helps reduce their uncertainty about the advantages and disadvantages of an innovation (Karahanna, Straub, & Chervany, 1999). Ryan and Gross (1943) first conceptualised the innovation-decision process in their Iowa hybrid seed corn study. They found that the decision to adopt the new seed corn was not an impulse decision. Instead, the farmers first learned about the innovation (new seed corn) from mass and interpersonal channels of communication. The farmers then tried the new seed on few acres before completely adopting the new seed corn a few years later.

A popular model by Rogers (2003) describes innovation-decision process consists of five-stages: Knowledge, Persuasion, Decision, Implementation and Confirmation. In the first stage, potential adopters learn about the innovation and its benefits before they adopt the innovation (Rogers, 2003). Figure 5 illustrates the process followed by discussion on each stage.



Source: Rogers (2003)

Figure 5 Individual decision-making process

Stage 1: Knowledge Stage

At this stage an individual learnt about the innovation and gains some knowledge and understanding of how the innovation functions (Rogers, 2003). Individual characteristics and social systems influence knowledge seeking and gathering (Gatignon & Robertson, 1989). Compared to late knowers, early knowers of an innovation tend to have high (1) education level, (2) social status, (3) exposure to mass and interpersonal channels, (4) contact with change agents, and (5) social participation (Rogers, 2003). For instance, Ryan and Gross (1943) in their hybrid seed corn study discovered that, compared to later adopters, earlier adopters had larger-sized farms, higher income, were more cosmopolitan, and had more formal education. Later studies found socioeconomics status, psychological factors (Greenhalgh et al., 2004), education, habits of information seeking, extent of media exposure, perception of risk (Featherman & Pavlou, 2003; Jarvenpaa, Tractinsky, & Vitale, 2000), network contact, network size and gender (Venkatesh & Morris, 2000) influenced an early knowers characteristics.

However, early knowers may not be early adopters (Rogers, 2003). Knowing about an innovation does not guarantee an individual adopts the innovation, as individual may find the innovation to be irrelevant and not useful (Rogers, 2003). In second stage, persuasion, the individual forms a favourable or unfavourable attitude towards the innovation.

Stage 2: Persuasion Stage

At this stage, the individual becomes more active in seeking credible information about the innovation before interpreting the message and forming an attitude toward the innovation (Rogers, 2003). Besides knowledge, factors such as beliefs, attitude and social system also influence an individual's decision to adopt an innovation.

Attitude is an individual's belief about an object that leads to an action (Ajzen, 1991). Studies suggest perceived usefulness and perceived ease of use help form a positive attitude to encourage an individual's to use a system (Davis, 1989). Similarly, opinion leaders, change agents and norms in a social system may influence the decision to adopt an innovation (Rogers, 2003). For instance, experts influenced individuals' attitudes and decisions to adopt controversial technologies (Leonard-Barton, 1985).

Although DOI stemmed from studies on general innovations, researchers extended the application of DOI and subsequent seminal theories to examine individuals' adoption behaviour on computer and IT related innovations (see Table 6). These theories generally propose that beliefs affect attitudes, which in turn affect intentions and later, behaviour (Jeyaraj et al., 2006). Table 6 describes major findings on factors persuading individual innovation adoption decisions.

Author(s)	Methodology and Sample Size	Theory	Objective	Independent Variables	Major findings
1. Leonard-Barton and Deschamps (1988)	Questionnaire, 93 salespeople.	Diffusion of innovations (Rogers, 2003)	Adoption of an expert system by sales personnel	• Personal characteristics: Innovativeness, job determined importance, subjective importance of task, task related skill, software use skill, sales performance • Managerial influences: perceived management support, management urging	• Subordinates did not equally perceive managerial influence. • Employees who score low in personal innovativeness, subjective importance of task, task related skill and sales performance perceived their management encouraged them to adopt an innovation. • Employees with high score in the four attributes adopted an innovation even without management support/ urging.
2. Davis (1989)	Questionnaire, 120 white collar workers and 40 MBA students	Technology acceptance model (Davis, Bagozzi, & Warshaw, 1989)	Diffusion of mainframe productivity software	• Perceived technology characteristics: Perceived usefulness and perceived ease of use	• Perceived usefulness and ease of use as highly correlated with current and future use.
3. Davis, Bagozzi and Warshaw (1989)	Questionnaire, 107 students	Technology acceptance model (Davis et al., 1989)	Current and future use of word processing	• Perceived technology characteristics: perceived usefulness, perceived ease of use • Expectations of salient referents • Attitudes • Behavioural intentions	• Perceived usefulness and ease of use have a significant direct effect on behavioural intention. • Attitude partially mediated the effects of beliefs on intentions.
4. Igbaria (1993)	Questionnaire, 519 managers	Technology acceptance model (Davis et al., 1989) and Theory of planned behaviour (Ajzen, 1991)	Adoption of micro computers	• User characteristics: user training, computer experience, age, education and gender • System characteristics: quality • Organisational support: management support • Belief: perceived ease of use and perceived usefulness	• Confirmed the effects of individual, organisational, and system characteristics on perceived ease of use and perceived usefulness.
5. Chau (1996)	Questionnaire survey, 97 system developers	Technology acceptance model (Davis et al., 1989) and Personal computer utilisation model (Thompson, C., & Howell, 1991)	Acceptance of Computer Aided Software Engineering (CASE)	• Ease of use • Near term usefulness • Long term consequences • Implementation gap • Transitional support	• Ease of use has the largest influence on CASE acceptance, followed by long-term consequences. • Both transitional support and near-term usefulness have no significant effect on acceptance. • The implementation gap had a small and negative effect on CASE acceptance through its influence on ease of use, near-term usefulness, and long-term consequences.
6. Agarwal and	Questionnaire, 73	Diffusion of	Adoption of	• Innovation characteristics: relative	• Innovation characteristics and external

	Prasad (1997)	students	innovations (Rogers, 2003), Theory of reasoned action (Ajzen & Fishbein, 1980)	information technologies	advantage, compatibility, ease of use, result demonstrability, image, visibility, trialability • External pressure: Perceived voluntariness	pressure explained acceptance behaviour.
7.	Compeau, Higgins and Huff (1999)	Questionnaire, 268 users	Social cognitive theory (Bandura, 1986)	Adoption and diffusion of computers	• Computer self efficacy • Outcome expectation (Performance) • Outcome expectation (Personal)	• Self-efficacy and outcome expectations affect an individual's affective and behavioural reactions to information technology.
8.	Agarwal and Karahanna (2000)	Questionnaire, 288 students	Social cognitive theory (Bandura, 1986) and Technology acceptance model(Davis et al., 1989)	Adoption of information technologies	• Cognitive absorption: Personal innovativeness, playfulness • Self-efficacy • Perceived ease of use • Perceived usefulness	• Cognitive absorption exhibited through the five dimensions of temporal dissociation, focused immersion, heightened enjoyment, control, and curiosity contribute to perceived usefulness and perceived ease of use.
9.	Moon and Kim (2001)	Questionnaire, not mentioned	Technology acceptance model (Davis et al., 1989)	Adoption and diffusion of WWW	• Perceived ease of use • Perceived usefulness • Playfulness	• Perceived ease of use and perceived usefulness influence user's perceptions of using the WWW. • Perceptions of playfulness also influence user's attitude toward using the WWW.
10.	Van Slyke, Lou and Day (2002)	Questionnaire, 186 users	Diffusion of innovations (Rogers, 2003)	Adoption and diffusion of groupware	• Innovation Attributes: complexity, trialability, compatibility, demonstrability and relative advantage	• Perceptions of relative advantage, complexity, compatibility and result demonstrability are significantly related to intentions to the groupware
11.	Oh, Ahn and Kim (2003)	Questionnaire, 211 Internet users	Diffusion of innovations (Rogers, 2003), Technology acceptance model (Davis et al., 1989), Theory of planned behaviour (Ajzen, 1991)	Adoption of Internet	• Perceived usefulness, • Perceived ease of use • Perceived resources: compatibility, trialability, visibility and demonstrability	• Innovation attributes, such as compatibility, visibility and result demonstrability, have an impact on perceived usefulness, perceived ease of use and perceived resources.
12.	Venkatesh, Morris, Davis and Davis (2003)	Questionnaire, 215 employees fro four industries	Unified theory of acceptance and use of technology (UTAUT) (Venkatesh et al., 2003)	Adoption of complex and sophisticated organisational technologies	• Performance expectancy • Effort expectancy • Social influence • Facilitating conditions • Computer self efficacy • Computer anxiety • Attitude towards using technology • Behavioural intentions	• UTAUT is unified model that integrates eight diffusion models. • Identified three direct determinants of intention to use (performance expectancy, effort expectancy, and social influence) and two direct determinants of usage behaviour (intention and facilitating conditions • Experience, voluntariness, gender, and

						age are significant determinants for intention to use and usage behaviour.
13.	Vishwanath (2005)	Questionnaire, 131students	Diffusion of innovations (Rogers, 2003)	Adoption of Internet-related technology	• Global Innovativeness: Tolerance for novelty, complexity and insolubility • Technological innovativeness: Prior technology ownership, cosmopolite, integrated social networks, information search strategies, media use	• Technological innovativeness found to be indirectly influenced by an individual's global innovativeness, through its impact on communication and media use behaviours
14.	Yi, Fiedler and Park (2006)	Questionnaire, 412 online buyers and 222 healthcare professionals	Diffusion of innovations (Rogers, 2003) and Technology acceptance model (Davis et al., 1989)	Online buying and PDA	• Personal Innovativeness: usefulness, Ttialability and ease of use	• Individual innovativeness has a direct effect on technology adoption
15.	Kim, Chan and Gupta (2007)	Questionnaire, 161 mobile phones users	Technology acceptance model (Davis et al., 1989)	Adoption and diffusion of Mobile Internet	• Perceived Benefits: Usefulness and Enjoyment • Perceived Sacrifice: Technicality and Perceived Fees	• Enjoyment and perceived usefulness contributed to the adoption of mobile Internet.

Table 6 Factors affecting individuals decision to adopt an innovation

Findings from the 15 studies indicate that individuals' characteristics and external support relate to decisions to adopt a technology. Individuals with high innovativeness adopted technology faster than individual with low innovativeness (Vishwanath, 2005). For instance, individuals with low task related skills and sales performance perceived managerial support as important in their decision to adopt an expert system (Leonard-Barton & Deschamps, 1988). Most importantly, the review identified individual perceptions on the innovation as the most common variable related to technology adoption.

A meta-analysis of 48 empirical studies on individual innovation adoption published between 1992 and 2003, found 67 independent variables (IVs) used to predict adoption by individuals (Jeyaraj et al., 2006). Of the 67 independent variables, Table 7 lists the top five independent variables and number of times each appeared.

Most Frequent	No of times appeared
Perceived Usefulness	29
Ease of Use	27
Relative Advantage	11
Complexity	9
Subjective Norms	9

Source: Jeyaraj et al. (2006)

Table 7 Most frequently used IVs for individuals innovation adoption

Nevertheless, Jeyaraj et al. (2006) highlighted that the most frequently used predictors may not be the best predictors. They set two guidelines to choose the best predictors. Firstly, the IV should be cited more than five times. Secondly, the IV should have been significant over 80% of the time. Out of the 67 IVs, only 15 variables had more than five citations and were significant over 80% of the time. Table 8 lists the top five predictors for individuals' adoption decisions.

Best predictors	No. of times examined out of 48 studies	No. of time found significant	% of times found significant
Top management support	7	7	100
Computer experience	8	8	100
Perceived usefulness	29	26	89
Behavioural Intentions	8	7	87
User Support	5	4	80

Source: Jeyaraj et al. (2006)

Table 8 Best predictors IV for individuals' adoption decisions

The meta - analysis lends similar findings to the review of 15 studies in Table 6. Individuals' perception of the innovation's characteristics and their experience are the most common variables in individual adoption studies. Once an individual is satisfied with information and has a positive perception about the innovation, the individual moves to the next stage, the decision stage.

Stage 3: Decision Stage

The decision stage leads to adopting or rejecting an innovation (Rogers, 2003). Adoption can be partial or full, probationary or complete. Similarly, rejection can be active (straightforward rejection) or passive (rejection after trying the product). Factors such as partial adoption, small-scale trial and change agents contribute to the decision to adopt the innovation (Rogers, 2003). Partial adoption or a small-scale trial allow the individual to evaluate and adjust their perceptions of the technology (Seligman, 2006). For instance, a low initial cost based on a 'pay-as-you-use' mechanism allowed for a high level of trialability before confirmation of adoption for the iMode telephone in Japan (Barnes & Huff, 2003).

Stage 4: Implementation Stage

Implementation occurs when an individual uses the innovation (Rogers, 2003). At this stage, adopters will use the innovation extensively. Cues from experience and peers insights may provide stimuli for mentally framing the innovation (Seligman, 2006). For instance, Morris and Venkatesh (2000) found that compared to younger workers, older workers' technology use decision were more strongly influenced by their peers opinion and perceived ability to use the innovation than their attitude toward using the technology.

Stage 5: Confirmation Stage

The decision to adopt or reject an innovation is often not the final stage in the innovation-decision process (Rogers, 2003). Confirmation happens when decision makers reconfirm their decision to adopt the innovation. At this stage, dissonance towards an innovation may happen, which may lead to discontinuance (Rogers, 2003). Discontinuance, the rejection of an adopted innovation, can be: (1) replacement, rejected for something better, or (2) disenchantment, rejected because of dissatisfaction with performance (Rogers, 2003). For example, lack of privacy led 40% of US consumers not to use mobile phones (Barnes & Huff, 2003).

In summary, this section discussed the in innovation-decision process at the individual level, which was the focus of diffusion studies before organisational diffusion studies took off (Rogers, 2003). Most individual diffusion studies seem to address the same research question: What factors facilitate or hinder the adoption and diffusion of innovation within a population of potential adopters? Despite vast research in this area, individual diffusion studies have limitations when applied to organisations diffusion studies.

b. Contribution and criticism of individual innovation diffusion studies

Discussion of individual diffusion has expanded across multiple disciplines from consumer behaviour and psychology (Ajzen, 1991; Fishbein & Ajzen, 1975) to technology (Davis, 1989; Venkatesh et al., 2003). For instance, studies expanded the application of Theory of Reasoned Action (Fishbein & Ajzen, 1975) and Theory of Planned Behaviour (Ajzen, 1991) to explain how individuals form positive behaviours and attitudes towards an innovation, which eventually leads to adopting the innovation. Similarly, the Technology Acceptance Model (Davis, 1989) and Unified Theory of Acceptance and Use of Technology (Venkatesh et al., 2003) describe how positive perceived attributes of an innovation relates to the innovation adoption decision.

Nevertheless, individual diffusion theory has limitations particularly in an organisational context. Fichman (1999), among others, argues that the individual model is less applicable to organisations. Organisational decisions are more complicated as companies make decisions authoritatively or collectively (Grover & Goslar, 1993; Premkumar, 2003). Individuals adoption decisions also differ from organisational decisions due to factors such as leader characteristics, organisational decision making style and influence from the external environment (Grover & Goslar, 1993; Premkumar, 2003; Scheepers, 2003). Structural considerations related to organisational adoption include organisational characteristics such as affiliation, age, size, type and location (Kimberly & Evanisko, 1981; Siguaw et al., 2000).

Most individual adoption and diffusion studies assumed that an individual made a 'yes/no' decision, to adopt or to reject, an innovation (DeSanctis & Poole, 1994). Organisational

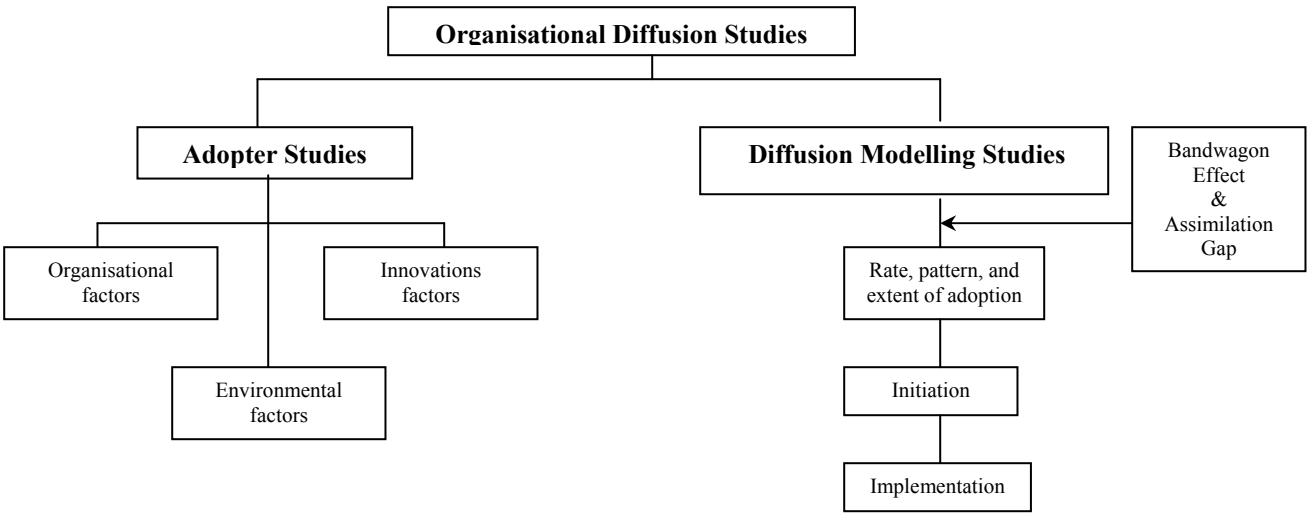
adoption of innovations however, often goes beyond the yes/no decision. Since organisations decide authoritatively and collectively (Premkumar & Roberts, 1999), the individual decision-process model may be less suitable to explain organisational adoption decisions. Similarly, organisational adoption requires distribution, sharing and pooling of knowledge (Raho, Belohlav, & Fiedler, 1987; Rogers, 2003). The Internet exemplifies an organisational technology that involves major decisions, changes and restructures (Rogers, 2003, p. 215).

This dissertation examines adoption and implementation of Internet by Malaysian hotels. The hotels range from large to small and include chain and independent hotels. Individual adoption decisions may apply to the small and independent hotels. However, for larger and chain hotels, organisational diffusion helps explain the innovation diffusion process.

2.2.4 Organisational diffusion studies

a. Categories of organisational diffusion studies

As shown in Figure 6, organisational diffusion studies comprises of two research streams, adopter and diffusion modelling (Fichman, 2000; Rogers, 2003). Adopter studies use either the time of adoption or the numbers of innovations adopted as dependent variables, and the innovations or organisational characteristics as independent variables (Rogers, 2003; Subramaniam & Nilakanta, 1996). The common methods used includes surveys, usually of top management, to gather data related to organisational characteristics (Rogers, 2003).



Source:Developed for this study

Figure 6 Categories of organisational innovation diffusion studies

Diffusion modelling studies investigate innovation implementation in organisations over time (Fichman, 2000; Rogers, 2003). Data for these studies are usually perceptions of key actors in the implementation process and written records about the adoption and implementation process (Rogers, 2003).

As noted in Chapter 1, this study applies both research streams. The adopter study looks at the relationship between hotel characteristics and business strategic types with email and website adoption while diffusion modelling study investigates email and website implementation. The following section reviews the two categories of organisational innovation diffusion studies.

Category 1: Adopter studies

Adopter studies investigate factors that potentially affect the adoption decision. This type of study examines associations between organisational characteristics and organisational innovativeness. Organisations that possess more of the 'right

variables' are more likely to adopt an innovation than those having little or none of the variables (Fichman, 2004b).

Adopter studies identified three factors - organisational, innovation and environmental - most related to organisational adoption (Jeyaraj et al., 2006) as discussed in the following section.

(a) Innovation factors

Innovation characteristics such as compatibility, complexity, relative advantage, cost, observability, trialability and potential adopters perceptions towards the innovation relate to its level of adoption in an organisation (Grover, 1993; Premkumar, 2003).

Compatibility is how receivers perceive an innovation as consistent with their values, past experiences and needs (Rogers, 2003, p. 240). An innovation that is consistent with an organisation's values, belief and work system has high chance of adoption in an organisation (Cooper & Zmud, 1990) and helps generate positive impact on organisational performance (Goodhue & Thompson, 1995). For instance, technology compatibility encourages the adoption of the Material Requirement Planning system (Cooper & Zmud, 1990) and the Computer Aided Software Engineering (Lai, 1999).

Relative advantage is a perception that an innovation is 'better than the idea it supersedes' (Rogers, 2003, p. 229). This variable has become the most popular and widely applied variable in innovation adoption studies (Premkumar, 2003), and shows a positive relationship with adoption (Moore & Benbasat, 1991; Premkumar, Ramamurthy, &

Nilakanta, 1994). Economics benefit, status and trends are some of the relative advantages perceived by adopters in adopting a new technology.

Studies also investigate the relationship between *complexity* and adoption. Complexity is the perception that an innovation is difficult to understand and use (Rogers, 2003, p. 257). Innovations perceived as complex, are less likely to be adopted (Rogers, 2003). For instance, the ease of use of a computer system positively relates to its adoption in an organisation (Moore & Benbasat, 1991; Premkumar et al., 1994; Rogers, 2003).

Trialability is "the degree to which an innovation may be experimented in a limited basis" (Rogers, 2003, p. 258). A trial period allows an individual or organisation to discover and learn about an innovation and helps eliminate uncertainty about the innovation (Rogers, 2003). The ability to try the innovation is more important to early adopters than later adopters as early adopters have no example to follow when they decide to adopt the innovation (Rogers, 2003).

Observability is the result of an innovation visible to others (Rogers, 2003, p. 258). Innovations that are easy to observe and describe to others have a faster rate of adoption than innovations that are difficult to observe and describe to others. For instance, highly observable, both 'visually and auditory', helped the rapid diffusion of mobile commerce(Khalifa & Cheng, 2002).

(b) Organisational factors

Among organisational factors that influence innovations adoption include top management support, individual characteristics, organisational size, role of champions and opinion leaders, infrastructure, communication channels, organisational structure and interconnectedness (Flanagin, 2000; Grover, 1993; Premkumar, 2003; Rogers, 2003). The relationship of organisational size found to be the most consistent in describing organisational technology adoption and implementation (Rogers, 2003, p.409). In general, the greater the size, the more innovative the organisation will be as more resources and capital can be allocated to adopt new information technology (Hwang, Ku, Yen, & Cheng, 2004). Studies also found that organisational size also serves as a proxy for other positively related variables, such as scale, wealth, specialisation, and slack resources (Bajwa & Lewis, 2003; Dholakia & Kshetri, 2004; Premkumar, 2003).

Literature also shows consistent results concerning support and top management's role in the adoption and implementation of innovations (Grover, 1993; Premkumar & King, 1992). Management commitment provides a positive environment for innovation. The greater the top management support is, the much easier it is for an organisation to adopt a technology as the management provides continuous support and adequate human and financial resources to use the innovation (Leonard-Barton & Deschamps, 1988; Premkumar & Ramamurthy, 1995; Sultan & Chan, 2000).

In every organisation, individuals may influence others' adoption decisions (Rogers, 2003). Two roles identified in diffusion research are opinion leaders and champions. Contact with opinion leaders may influence individuals' utilisation decisions. However, this might not

mean that an opinion leader always promotes a given innovation. Negative opinion leadership inhibits the diffusion of an innovation (Rogers, 2003). Leonard-Barton (1985) indicated that positive opinion leaders served both as role models and sources of information about a controversial dental innovation, the use of non-precious metals in dental restorations, while negative opinion leaders only provided information.

A champion, a charismatic individual with high interest to see the innovation implemented in the organisation, helps overcome resistance in an organisation (Rogers, 2003). Studies shown that champions have a positive influence in affecting the adoption of a new information technology by encouraging their associates and staffs to support their ideas (Premkumar, 2003; Premkumar & Ramamurthy, 1995). Champions help market and promote an innovation to the decision makers. For instance, studies found champions to be an important factor in the adoption of information system technologies (Beath, 1991; Grover, 1993) and data warehouse (Hwang et al., 2004).

An adequate infrastructure also relates to successful implementation of an innovation (Premkumar, 2003; Swanson, 1994). Organisations with adequate infrastructure perceive less risk and are more positive to adopt an innovation. For instance, the adoption of Electronic Data Interchange was more likely in organisations with adequate infrastructure than those with inadequate infrastructure (Premkumar & Ramamurthy, 1995). Similarly, the poor network infrastructure between companies has led to the slow implementation of e-procurement systems (Davilaa, Gupta, & Palmer, 2003).

Interconnectedness is the degree that interpersonal networks form the links in the social system (Rogers, 2003, p. 412). A high degree of interconnectedness allows new ideas about

an innovation to flow easily in the organisation and relate positively to innovation adoption in an organisation (Brancheau & Wetherbe, 1990; Rogers, 2003).

Organisational structure is the arrangement and interrelation of members in an organisation. It can take in many forms such as centralised and decentralised, formalised and integrated. Centralisation refers to centrality of organisational decision making while formalisation refers to formal job descriptions, policies and procedures for employees (Subramaniam & Nilakanta, 1996, p. 234). Studies found mixed results on the effect of these variables on technology adoption (Zmud, 1982). For instance, Kimberly and Evanisko (1981), found a negative correlation between centralisation and innovations adoption. Similarly, Zaltman et al. (1973) and Pierce and Delberg (1977) agreed on the negative association between formalisation and new innovation adoption. Instead, studies found joint interaction and sharing between individuals and groups positively related to innovation adoption (Sultan & Chan, 2000). These studies found that organisations with participative decision-making, less centralised and formalised are more innovative than highly centralised and formalised organisations.

Finally, organisational strategy can influence innovations adoption and implementation of innovations in an organisation (Croteau & Bergeron, 2001; Ettlie, 1983; Sultan & Chan, 2000). In general, there are two types of business technology strategies, Proactive and Reactive (Ettlie, 1983; Teo & Pian, 2004). Compared to Reactive organisations, Proactive organisations are more likely to innovate, create new wealth and concentrate on improving existing practices through technology adoption (Lefebvre, Mason, & Lefebre, 1997; Teo & Pian, 2004).

Proactive organisations are aware of technology developments and, therefore, would invest resources for adopting new technologies (Srinivasan, Lilien, & Rangaswamy, 2002). In contrast, organisations with a reactive technology strategy are conservative in adopting innovations (Ettlie, 1983). For example, proactive organisations lead in using computer-based information technology and are more advanced in their website use than reactive organisations (Lefebvre et al., 1997; Teo & Pian, 2004).

(c) Environmental factors

The opportunities and constraints in an organisation's external environment also relate to innovation adoption in an organisation. The environmental context constitutes the area in which the organisations conduct business (Tornatzky & Klien, 1982). Industry pressure, government, customer and trading partner readiness influence organisational innovation adoption (Flanagin, 2000; Grover, 1993; Jeyaraj et al., 2006; Premkumar, 2003; Zhu, Kraemer, & Xu, 2003). For instance, studies of Australian and UK SMEs indicated that government and industry associations played a vital role in innovation adoption by raising awareness, training and funding (Lawson, Alcock, Cooper, & Burgess, 2003; Simpson & Docherty, 2004). Industry and trading partner pressure may also force organisations to adopt an innovation, (Flanagin, 2000; Grover, 1993; Premkumar & Ramamurthy, 1995), or facing the risk of losing competitive advantage (Abrahamson & Rosenkopf, 1993).

In addition, a country environment could also determined the degree of technology diffusion. Diffusion studies on general information technologies (IT) found that IT diffusion occurs unevenly across countries with different environment such as between the developed and developing countries (Kraemer, Dedrick, Melville, & Zhu, 2006; Zhu et al.,

2006). For instance, studies higlighted significant barriers to e-business diffusion in developing countries (Zhu & Kraemer, 2005). Factor such as less-developed IT infrastructure, lack of managerial experience and inadquate legal protection decelerate e-business diffusion process in developing countries (Kraemer et al., 2006)

Category 2: Diffusion modelling studies

Unlike adopter studies, the study of diffusion modelling is less popular in diffusion research. A meta-analysis of organisational diffusion studies found only four out of 51 studies applied diffusion modelling (Jeyaraj et al., 2006). Diffusion modelling studies examine the implementation or the actual utilisation of innovations in an organisation (Fichman, 2000; Zaltman et al., 1973). In general, diffusion modelling study has two objectives. The first of objective look at the rate of implementation of an innovation in an organisation (Cooper & Zmud, 1990; Zaltman et al., 1973) and the second objective investigates the effect of innovation use on the organisation's performance (Brynjolfsson & Hitt, 2000; Zhu & Kraemer, 2005).

Diffusion modelling suggests that technology implementation generally occurs in two stages: initiation and implementation (Rogers, 2003; Zaltman et al., 1973). In the initiation stage, organisations plan and attempt to use the innovation. If the initial stage succeeds, there is likelihood for organisations to continue using the innovation. For example, Cooper and Zmud (1990) added routinisation and infusion as part of the implementation stage to describe heavy use and continuance technology use.

A common objective of diffusion modelling study is to investigate the effect of the innovation on the organisation performance. This diffusion modelling studies focus on the actual use and value of an innovation to the organisation (Zhu & Kraemer, 2005). Studies found actual use is an important link to apprehend the innovation's value (Devaraj & Kohli, 2000; Zhu & Kraemer, 2005). Organisations that successfully use the innovation are more likely to benefit and generate value. Nonetheless, depending on their characteristics, objectives (Cooper & Zmud, 1990) and strategy (Ettlie, Bridges, & O'Keefe, 1984), organisations vary in their degree of implementation and performance in using the innovation (Fichman, 2004a; Zhu & Kraemer, 2005).

Hotel Internet studies found hotels having problem with email and website implementation. For example, studies found poor response rate and email reply quality by hotels (Frey, Schegg, & Murphy, 2003; Gherissi Labben et al., 2003; Matzler et al., 2005; Schegg et al., 2003).Similar to email, studies also found problem with website use. Studies found hotels website full with animation and lack of advance and customer relationship features such as personalisation (Baloglu & Pekcan, 2006; Murphy et al., 2003; Zafiropoulos, Vrana, & Paschaloudis, 2006).

However, studies found decisions driven by pressure and following management fashion make it hard for organisations to use the innovation effectively (Abrahamson, 1991; Fichman, 2004a). A fashion forms a collective belief about an innovation and possibly leads organisations to adopt the technology without understanding the benefits from its use (Fichman, 2004a). In contrast, organisation mindfulness could lead to better implementation as the organisation's become critical, selective and focused on the quality

rather than the quantity of innovation in their adoption decision (Fichman, 2004a; Fiol & O'Connor, 2003).

Organisation mindfulness and bandwagon effect

Adopter studies assumed managers are well-equipped with information before deciding to adopt a technology (Fichman, 2000). Yet, this is not always the case as competitive pressure could lead organisations to join the bandwagon and adopt an innovation without a sound basis (Abrahamson, 1991; Fiol & O'Connor, 2003). The concept of *organisation mindfulness* describes organisations that make sound decisions in adopting and assimilating innovations (Fiol & O'Connor, 2003; Swanson & Ramilier, 2004). Since not all innovations are beneficial and suitable to any organisations, this concept helps understand how an organisation make choices without simply following existing trends and to assimilate the innovation into their organisation effectively (Swanson & Ramilier, 2004).

A mindful organisation has a tendency to adopt an innovation based on quality rather than the mere quantity of innovation (Fichman, 2004a). Fiol and Connor (2003) argued that mindful managers make relevant interpretations that will lead to wise decisions in adopting an innovation. As such, these organisations are less likely to follow the bandwagon or adopt innovations that have little or no value to their organisation.

2.2.5 Bandwagon effects and assimilation gaps

Two issues related to the innovation implementation process are the bandwagon effect and assimilation gaps. The bandwagon effect is joining an increasingly popular trend (McBride, 1997). As diffusion is a socially motivated process (Rogers, 2003), factors such as maintaining their competitive advantage, reluctance

to be perceived as technological laggards and competitive pressure lead organisations to join the technology bandwagon (Flanagin, 2000; Rainie & Horigan, 2005) even without any idea of the benefits or how to use the technology (Abrahamson, 1991).

Bandwagon effects often lead to the problem of assimilation gap (Fichman & Kemerer, 1999). An assimilation gap is the difference between the introduction and assimilation of new technologies in a market (Fichman & Kemerer, 1999). The assimilation gap explains why widespread acquisition of an innovation may not lead to 'widespread deployment and use by acquiring organisations' (Fichman & Kemerer, 1999, p. 256). Following adoption, an innovation needs to be accepted, adapted, routinised, and institutionalised into the firm. Lack of knowledge and misalignment between users and the new technology lead to assimilation gaps (Fichman & Kemerer, 1999).

For instance, despite wide adoption of Computer Aided Design technologies in the 1980s, after 12 years the usage was still limited (Liker, Fleischer, & Arnsdorf, 1992). Similarly, Cooper and Zmud's (1990) study on Material Requirement Planning (MRP) software reported out of 53 companies who adopted MRP, only 27% (14 companies) passed the Class C level, a low level of use. In another study, Fichman and Kemerer (1999) found among 42% of surveyed firms that adopted computer-aided software engineering, only 7% of the firms achieved widespread deployment.

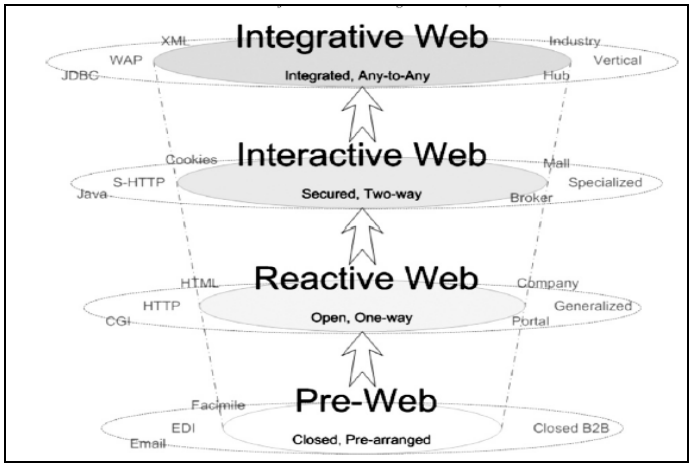
The bandwagon effect usually results in a large assimilation gaps since adopters do not utilise and understand the innovation appropriately (Fichman & Kemerer, 1999; Raho et al., 1987). For instance, although research in education is still inconclusive on the effect of computer technology on student achievement, schools already invested large sums of money equipping classrooms with computers (Hirschheim, 2005). Similarly, research of the hospitality and tourism industry reflects the bandwagon effects as hotels fail to use their websites effectively (Murphy et al., 2003) or provide responsive and proper email replies (Murphy & Tan, 2003; Schegg et al., 2003). Another example is the much slower than anticipated integration of e-procurement technologies by businesses who adopted the technology. Companies jumped into the e-procurement bandwagon found this technology as "more complex, more expensive, and more time consuming than they originally envisioned (Davilaa et al., 2003, p. 11)."

Hotels that jump on the Internet bandwagon lower their chance of successful implementation of websites and email as business tools. They tend to update their websites irregularly, add unnecessary animation, or provide insufficient information about the hotel (Murphy et al., 2003). Another example relates to hotels' email use. Problems such as bounced emails, low reply quality or worse, no reply to enquiries, harm the hotel's service quality (Murphy et al., 2003). An example of bandwagon effect is when the hotels having a poor website design despite the early adoption (Hashim et al., 2008).

2.2.6 Applying diffusion modelling study to investigate Internet evolution

Diffusion modelling study explains the evolving Internet use. Studies on Internet evolution use the complexity and sophistication of Internet use to reflect a high diffusion level (Chu

et al., 2007; Walcott et al., 2001). For instance, e-commerce websites has evolved from the 1990s to early 2000s from a limited function in the pre-web era to an integrative website era (Chu et al., 2007)(see Figure 7 and Table 9).



Source: Chu et al. (2007)

Figure 7 Evolution of e-commerce websites

	Pre-Web	Reactive Web	Interactive Web	Integrative Web
Time frame	Pre-1990	Early 1990s	Mid 1990s	Late 1990s to early 2000
Characteristics	Closed, pre-arranged	Open, one-way	Secured, two-way	Integrated, any-to-any
E-commerce activities	Sending, receiving	Browsing, information-searching, broadcasting, cataloguing, advertising, publishing, aggregating.	Shopping, personalising, brokering, customising, bidding, auctioning, buying, selling, paying, gaming.	Collaboration, supply chain management, procurement, customer relationship management and reengineering
Participants	One-to-one	One-to-one	One-to-many	Many-to-many; any-to-any

Source: Chu et al.(2007)

Table 9 Characteristics of four websites eras

During the pre-web and reactive web stages, websites were a one-way communication tool with information search, publishing, broadcasting and advertising as the primary activities. At the third stage, interactive web, websites use becomes sophisticated as online sales and marketing activities dominate website activities (Murphy et al., 2006; Teo & Pian, 2004).

At this point, the one-way communication and browsing activities has changed into a two-way interactive process (Chu et al., 2007). Table 10 shows the findings of ten Internet evolution studies.

Author s	Population and Sample size	Methodology	Internet Adoption Phases
Rayport and Sviokla (1996)	Online and traditional music companies, not mentioned	Case study	Visibility, Mirroring Capability and New Customer Relationship
Ho (1997)	40 industries, 1000 websites	Content analysis	Promotion, Provision and Processing
Nambisan and Wong (1999)	Not mentioned	Content Analysis	Information Access, Work Collaboration, Core Business Transaction
Walcott et al. (2001)	25 nations	GDI framework, interview, observation and secondary sources	None, Minimal, Conventional, Transforming and Innovating
Doolin et al. (2002)	26 websites from New Zealand Regional Tourism Organisations	EMiCa framework	Basic Information, Rich Information, Low Interactivity, Medium Interactivity, High Interactivity
Teo and Pian (2004)	159 Small Medium Enterprises	Mail Questionnaire	Email Adoption, Web Presence, Prospecting, Business Integration, Business Transformation
Dholakia and Kshetri (2004)	45 Small Medium Enterprises	Mail Questionnaire	Pre-adoption, Adoption, Routinisation
Piccoli, Brohman, Watson and Parasuraman (2004)	30 websites from Fortune 100 companies from 10 industries	Content Analysis and in-depth interview	Growth through experimentation Growth through value-creation Growth through focus Growth through differentiation Growth through relationship
Hanson and Kalyanam (2007)	60 websites	Content Analysis	Publishing Sites, Database Retrieval and Personalised interaction
Chu et al. (2007)	IT industry, not mentioned	Longitudinal content analysis of magazine articles on e-commerce	Pre-web, Reactive web, Interactive web and Integrative Web

Table 10 Research findings on the Internet evolution

Website evolution studies (as shown in Table 10) use different terms and number of stages to reflect evolving Internet use (Ngai, 2003). For instance, terms such as publishing sites and brochureware reflect early online presences with brief and static organisational information (Teo & Pian, 2004; Yuan, Gretzel, & Fesenmaier, 2006). Studies propose three (Dholakia & Kshetri, 2004), four (Walcott et al., 2001), five (Piccoli et al., 2004) and six-stage models (Corigliano & Baggio, 2006) to describe evolving websites. Most studies

however, limit their explanation of Internet evolution to websites, excluding the most popular Internet application, email (Hashim et al., 2008).

Summary

Studies use the diffusion of innovations theory to describe organisational technology adoption and implementation. Adopter studies suggests factors such as leader characteristics or internal and external structure influence organisational innovativeness and decision to adopt an innovation while diffusion modelling studies describes the implementation and the consequences of an innovation adoption to the organisation (Fichman, 2000; Rogers, 2003)

Similarly, studies suggest organisational orientation influences how firms compete and deploy technologies (Segars et al., 1994). Organisational diffusion studies identified business strategy as one of variables leading to different technology adoption and implementation level (Croteau & Bergeron, 2001; Teo & Pian, 2004). A widely used strategic management theory, Miles and Snow's (1978) business strategic types, is applied in this study to describe the hotels' Internet use.

2.3 Miles and Snow business strategy typology

2.3.1 Strategy

At least two perspectives define strategy: what an organisation intends to do, and what an organisation eventually does (Ginsberg, 1984; Stoner & Wankel, 1986). The first perspective views strategy as 'the broad program for defining and achieving an organisation's objectives and implementing its mission (Stoner & Wankel, 1986, p. 111).' In this definition, strategy provides a sense of direction for an organisation (Evered, 1983).

From the second perspective, strategy is 'the pattern of the organisation's responses to its environment over time (Stoner & Wankel, 1986, p. 111).' In this definition, every organisation has a strategy - although not necessarily an effective one (Evered, 1983). This view of strategy includes organisations whose managers' behaviours are reactive - responding and adjusting to the environment as the need arises (Stoner & Wankel, 1986).

The strategic management discipline defines three levels of strategy: corporate, business unit and functional (Aldag & Stearns, 1991; Stoner & Wankel, 1986). These three levels of strategy are equally important in determining an organisation's success (Aldag & Stearns, 1991; Stoner & Wankel, 1986). Table 11 summarises the characteristics of each strategy.

Strategy	Definition and Objectives	Major approach	Examples
Corporate	• Identifies a unified direction for the organisation. • Answers two major questions: (a) What kind of business the should the company engage in? (b) How to allocate resources among businesses?	• **Value based approach**: Consensus by organisational members. • **The portfolio approach**: Develop appropriate strategic role for each business unit to improve overall organisational performance. • **The grand strategies**: A broad plan to guide an organisation toward completion of its official goals.	• The BCG Matrix • The GE Matrix • Growth, Stability, and Retrenchment grand strategy
Business Unit	• Defines organisation's long-term plan. It includes a company's policies, plans and procedures that provide directions for business activities and explains how a business uses its resources to generate performance • Answers four major questions: (a) How will the business compete in the market? (b) What goods/services to offer? (c) Which customers does it seek to serve? (d) How to distribute resources within business?	• **Adaptation model**: Managers set up strategy that will adapt to environmental conditions. • **Competitive model**: Nature and degree of competitiveness in an industry determine the strategy	• The Miles and Snow (1978) business strategy • Porter (1980) Five Competitive Forces Model
Functional	• Creates a framework of management functions that	• **Marketing strategy** • **Production strategy**	• The 4P marketing

	conform to the business unit level strategy	• **Personnel strategy** • **Finance strategy**	mix (Kotler, 2003) • Training and motivation plans • Cash flow management

Table 11 Characteristics for the three levels of strategy

This study focuses on business level strategy to investigate Malaysian hotels Internet adoption and implementation. Four approaches operationalise a business strategy: *textual description*, *measurement of parts of strategies*, *multivariate measurement* and *typologies* (Hambrick, 1980).

Using textual description, researchers view strategy as the 'situational arts' best described through in-depth case studies (Hambrick, 1980, p. 569). This method treats strategy as a predictor, mediator, or outcome variable in a research design (Hambrick, 1980). For example, Kearns (2005) uses business strategy as a *predictor* in his case study of e-commerce strategic practices. With Miles and Snow (1978), business strategy was an *outcome* to describe the behaviour of 16 college text book publishers, 49 electronic and food processing companies and 19 hospitals. This method however has limitations. Firstly, it is difficult to generate a sufficient number of case studies to allow generalisability. Secondly, a case study generally does not include measurement that will allow reliable comparison across organisations and replication by other researchers.

The second approach operationalises strategies on one or more variables within a single functional area such as marketing and research and development (Hambrick, 1980). For instance, organisational marketing efforts may be a critical dimension of business strategy (Miller, 1988). The main advantage of the second approach is that it allows a relatively

precise strategy construct as it includes important variables to form the construct (Hambrick, 1980). Nevertheless, this partial operationalisation of strategy failed to capture the decision areas that constitute strategy (Hambrick, 1980).

The multivariate approach views strategy as a quantifiable relationship between a set of variables. Unlike the second approach that operationalises strategies on a single variable or variables within a single functional area, the multivariate approach takes a comprehensive view of the construct (Hambrick, 1980). Using multivariate techniques such as regression analysis (Dess & Robinson, 1984; Zaheer & Venkatraman, 1999), structural equation modeling (Croteau & Bergeron, 2001; Venkatraman, 1989) and cluster analysis (Galbraith & Schendel, 1983), studies use important variables, e.g., from marketing, manufacturing, R&D, financial and personnel to capture a strategy construct. Because multivariate modelling requires a large database for analysis, this approach may support the generalisibility of its result (Hambrick, 1980). A main limitation of the multivariate approach is questions on the logical linkages among the independent variables, even with statistically significant results (Hambrick, 1980).

The fourth method develops strategy using typology (Hambrick, 1980; Venkatraman, 1989; Venkatraman & Grant, 1986). Each strategic type has its own distinct pattern of characteristics (Hambrick, 1980). This approach, moves beyond univariate and limited descriptions in multivariate approach, captures the comprehensiveness and integrative nature of strategy (Hambrick, 1980, 1984). Popular business strategy typologies include those developed by Miller and Friesen (1977), Mintzberg (1978), Miles and Snow (1978) and Porter (1980). Among the earlier, Miller and Friesen (1977) developed ten strategic

archetypes six successful and four failure. The authors determined the ten types based on their assessment of 81 published cases of 31 variables. For instance, the *impulsive firms* (an unsuccessful strategic type) had low intelligence, high centralisation and a high risk-taking temperament. Miller and Friensen (1977) however, did not distinguish between corporate and business level strategy for the ten strategic types (Hambrick, 1980).

Used extensively in strategic management, the Miles and Snow typology (1978) proposed four strategic types of firms: Prospector, Defender, Analyser and Reactor. They viewed a firm as a complete and integrated system in dynamic interaction with its environment. An organisation adapts to the environment by simultaneously solving three critical strategic problems: the entrepreneurial, engineering and administrative problems. For example, organisations that rarely change their products or markets are defenders while those that readily and frequently alter their product are prospector (Hambrick, 1980; Slater & Olson, 2001). These strategic types continue to be one of the best-known, widely used, most enduring and comprehensive business strategy classifications (Apigian et al., 2005; Boulianne, 2007; DeSarbo, Di Benedetto, Song, & Sinha, 2005; Pinto & Curto, 2007).

Summary

This section introduced strategy and its importance to an organisation. In general, a strategy provides direction and explains how an organisation utilises its resources. As technologies such as the Internet becomes important to business operations to create competitive advantage (Porter, 2001), studies suggest that organisations will have a high chance of success if they aligned and complement the Internet use with their practices and strategy (Apigian et al., 2005; Kearns, 2005).

2.3.2 Aligning business strategy with organisations Internet use

Studies suggest that business strategy can influence an organisation's technology adoption and implementation (Boulianne, 2007; Osterwalder, Pigneur, & Tucci, 2005). Successful information technology (IT) implementation depends on aligning business and technology strategies (Grover & Saeed, 2004; Kearns, 2005; Ritter & Gemünden, 2004; Sabherwal & Chan, 2001; Zahra & Covin, 1993). Misalignment between business and Internet strategy can lead to business failure (Apigian et al., 2005; Kearns, 2005). As Kearns (2005) argued:

> *"Without alignment, e-business strategies might not reflect the company directions resulting in lower returns, marketplace confusion, and erosion of firms competitive positions (p. 1026)."*

Similarly, Apigian et al. (2005) suggested:

> *"The use of the Internet should not, however, adversely affect their existing business process (IT businesses) but rather incorporate and support them (p. 455)".*

Research into the relationship between strategy and Internet implementation, however, is limited. A review of 275 electronic commerce articles found that less than one in ten articles considered business strategy and none addressed IT alignment (Kearns, 2005, p.1024). As Internet use grows, research in this area merits further attention as firms that fail to integrate their Internet and business strategy "may not garner the appropriate resources to create the unique capabilities necessary to compete in the virtual world" (Chang, Jackson, & Grover, 2003, p. 671). A widely use business strategy typology, the

Miles and Snow (1978), explain the adoption and implementation rate across business strategic types.

2.3.3 Why Miles and Snow (1978)?

The Miles and Snow (1978) business strategy is appropriate for this study for four reasons. Firstly, due to the ability of the typology to provide a mutually exclusive and exhaustive description of an organisation's characteristics (Gupta, Jahangir, & Somer, 1997). The typology takes into account both internal and external aspects of organisational structure and their dynamic interaction with their environment (Aragón-Sánchez & Sánchez-Marin, 2005; Dent, 1990).

Secondly, the Miles and Snow (1978) typology, extensively used in various industries, has produced an internally consistent result in describing organisational behaviour (Kearns, 2005). Applications of the Miles and Snow business strategy typology include management (Cunningham, 2002; Zahra & Covin, 1993), marketing (McDaniel & Kolari, 1987; Slater & Olson, 2001), information systems (Boulianne, 2007; Sabherwal & Chan, 2001), and industries such as retailing (Moore, 2005), banking (James & Hatten, 1994) and health (Conant, Mokwa, & Varadarajan, 1990; Pinto & Curto, 2007; Shortell & Zajac, 1990). However, despite its wide application, existing studies only apply the Miles and Snow (1978) in developed countries.

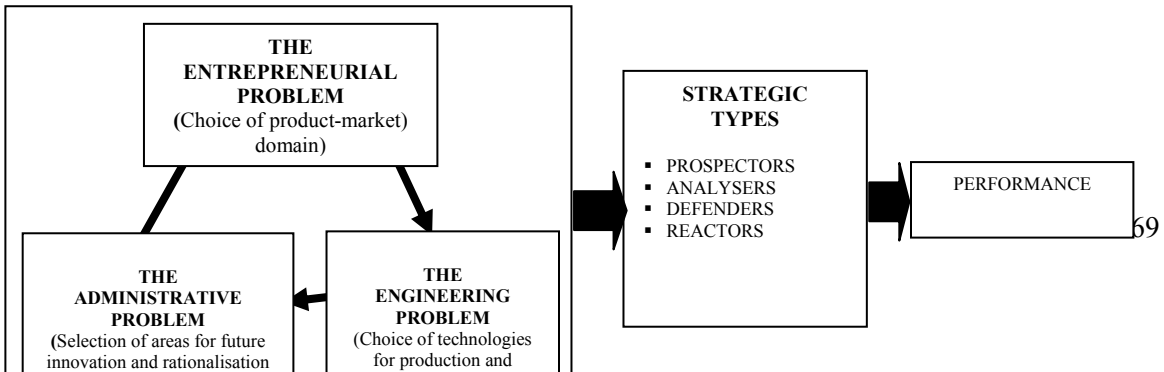
Thirdly, psychometric assessment supports the validity and reliability of this typology, with good codification and predictive strength (Hambrick, 1983; Shortell & Zajac, 1990; Snow & Hambrick, 1980). Shortell and Zajac (1990, p.830) concluded that 'a researcher can use

this typology with increased confidence in future work on organisations and their strategies'.

Lastly, most generic strategy typologies emphasise building competitive advantage, for example, Porter's (1980) generic strategy, but the Miles and Snow (1978) typology focuses on the adaptive capability of the firm and the rate at which an organisation changes its products or markets to maintain alignment with its environment. Their strategic types form a continuum ranging from relatively little to a high adaptive capacity. The focus of the Miles and Snow (1978) typology on adaptive capability suits studies on Internet-based business activities due to the Internet's dynamic nature. As Internet technology evolves, studies used the typology, as introduced in the following section, to examine how each strategic type differs in its Internet use and cope with the rapid changes [see for example Apigian et al., (2005); Kearns (2005); Auger (2003); Schegg et al.,(2007)].

2.3.4 The Miles and Snow business strategy typology

The Miles and Snow (1978) typology has three premises: an adaptive life cycle, four strategic types and organisational performance. Figure 8 illustrates the Miles and Snow (1978) typology.



The adaptive life cycle problems

Source: Hashim, Murphy, Olaru and Scaglione (2006)

Figure 8 Overview of Miles and Snow (1978) typology

The adaptive life cycle describes how organisations responded to three interrelated problems: entrepreneurial (product/market domain), engineering and administrative. Entrepreneurial problems deal with product-market domain. Product-market refers to goods or services and a target market or market segment. Secondly, engineering problems deal with organisation technology and technical system. Finally, administrative problems involved structure, process and management issues. Miles and Snow contended that organisations choose the appropriate strategy to fit themselves to their environment. Based on the chosen administration, technology and product-market category, they proposed four business strategic types: Prospectors, Defenders, Analysers and Reactors.

In terms of performance, Miles and Snow (1978) argued that Prospector, Analyser and Defender organisations, if properly managed, are equally likely to outperform Reactor organisations. Although a few studies reported conflicting findings (Hambrick, 1983, for example), most empirical studies confirmed this proposition (Apigian et al., 2005; Auger, 2003; Croteau & Bergeron, 2001; DeSarbo et al., 2005; Snow & Hrebiniak, 1980).

P*rospectors*, the innovators and market leaders, take risks and invest in new technology to explore new market segments (Miles & Snow, 1978). They constantly monitor the market and respond quickly to changes in market conditions. They take advantage of new opportunities and exploit the benefits of being a pioneer (Apigian et al., 2005; Slater & Narver, 1993). To maintain the innovator status, Prospectors have a high degree of technological flexibility (Thomas & Ramaswamy, 1996, p.250), a low degree of formalisation, decentralised structure and low top-down communication (Hambrick, 1983).

Defenders stress cost efficiency, focus on a narrow and stable market through a limited mix of products and customers, and aggressively protect their market from competitors (Miles & Snow, 1978,p.39). Defenders strive for low operating costs and seldom make major changes in their technology, structure or operations (Slater & Narver, 1993). Their research and development efforts centre on process improvements rather than product innovation. Defenders adopt a formal hierarchy and high degree of centralisation (Hambrick, 1983).

Analysers pursue a hybrid strategy of Prospector and Defender features (Miles & Snow, 1978). Analysers operate in at least two different product-market areas: one stable and one dynamic (Miles & Snow, 1978). They focus on efficiency and productivity in the stable market, while cautiously moving into new markets that are dynamic and turbulent. Analysers adopt technologies with both stable and flexible components. In a stable market, they operate routinely and efficiently through formalised structures and processes, but are flexible in turbulent markets (Hambrick, 1983).

Reactors follow no conscious strategy and often seem as a dysfunctional organisation type (Hambrick, 1983). Reactors fail to develop distinctive competencies and appropriate management structures. They seldom change until forced to do so by environmental pressure (Snow & Hambrick, 1980). Reactors do not attempt to maintain an already acquired market nor do they try to take new opportunities. Their unstable and short-term decisions yield a poor strategy (Slater & Narver, 1993). Table 12 summarises the characteristics of each strategic type (Miles & Snow, 1978).

Strategy	Characteristics
a. Defenders	*(i)* ***Entrepreneurial Problem*** • **Product - market domain**: Narrow and stable product market, engage in a little or no new products, focus on improving the efficiency of their existing operation and product. • **Success Posture:** Maintain prominence in chosen market. • **Surveillance:** Aim to minimise competition. • **Growth:** Grow by deeper penetration into existing market; the cost orientation makes them unlikely to innovate in new areas. *(ii)* ***Engineering Problem*** • **Technological Goal:** Focus on cost efficient technology, caters around improving processes and product quality. • **Technological Breadth:** Use a single core technology, updating of technology focuses on maintaining efficiency. • **Technological Buffers:** Standardise, maintenance programs. *(iii)* ***Administrative Problem*** • **Dominant coalition:** Finance and production, tenure of dominant coalition is lengthy. • **Planning:** Intensive, focus on problem solving precedes action. • **Structure:** Based on functional basis. i.e. marketing, finance, extensive labour division- according to department, has a long-looped vertical information system where employees from the lower level report to top management. • **Control:** High degree of formality centralised, coordination is uncomplicated and inexpensive and conflicts are handled through hierarchical channels.
b. Prospectors	*(i)* ***Entrepreneurial Problem*** • **Product-market domain:** Broad product lines and market, focus on product innovation, has a considerable amount of prototyping and innovative products. • **Success Posture:** Creator of change, most innovative firm in their industry, willing to take risks. • **Surveillance:** Explore new product and market opportunities. • **Growth:** Growth is by discovering new market and development of new products, employs sales-orientation.

	(ii) ***Engineering Problem*** • **Technological Goal:** Flexibility and innovation. • **Technological Breadth:** Use a single core technology, updating of technology focuses on maintaining efficiency. • **Technological Buffer:** Technical personnel skills and diversity *(iii)* ***Administrative Problem*** • **Dominant coalition:** Marketing and R&D, Dominant coalition is large, diverse and transitory, executives often hired from outside to obtain more ideas and expertise, tenure with dominant coalition is short to get more fresh ideas from newcomers. • **Planning:** Planning is broad, oriented to problem finding and contingent on feedback. • **Structure:** Structured on product basis. i.e. product 1, 2,3; low division of labour. • **Control:** Low degree of formality, control is result oriented, use horizontal feedback loops, coordination is complex and expensive since different products have different management and conflicts are resolved by coordinators.
c. Analysers	*(i)* ***Entrepreneurial Problem*** • **Product-market domain -** Segmented and carefully adjusted, operate in two product market - one stable and one changing/variable, in the stable market- efficiency is emphasised while in the variable areas innovation is emphasized, • **Success Posture:** Only moves into new product- market when viability is demonstrated. • **Surveillance:** Extensive market surveillance • **Growth:** Assertive market penetration, and careful market and product development. *(ii)* ***Engineering Problem*** • **Technological Goal:** Technological synergism • **Technological Breadth:** A dual technology core with flexible and stable components welded by an applied research unit. • **Technological Buffers:** Incremental and synergy *(iii)* ***Administrative Problem*** • **Dominant coalition:** planning staff from marketing, applied research and production. • **Planning:** Comprehensive with incremental changes. • **Structure:** Structured on matrix basis, i.e. product 1 x market 2. • **Control:** utilise several fundamentally different systems, careful risk calculation, sales contribution, coordination is both simple and complex.
d. Reactors	(i) ***Entrepreneurial Problem*** • **Product-market domain** - Inconsistent and reactionary response to environmental change, no distinct and viable strategy (ii) ***Engineering Problem*** • **Technological Goal:** Project development and completion • **Technological Breadth:** Shifting technological applications • **Technological Buffers:** Ability to experiment and provide solution (iii) ***Administrative Problem*** • **Dominant coalition:** Trouble shooters

	• **Planning:** Lack of consistent strategy-structure- culture relationship, Crisis oriented and disjointed, strategy has no link to technology, structure and process appropriately, management holds to strategy/structure until it becomes irrelevant to the environment.

Source: Conant et al. (1990)

Table 12 Miles and Snow business strategy typology and characteristics

Table 13 presents a review of studies using the Miles and Snow business strategy typology. In general, studies using Miles and Snow fall under two research streams: methodological discussion and measuring strategy-performance relationship. The first focuses on theoretical and methodological issues to achieve and improve the operationalisation of the strategic type. The second investigates the difference in organisations performance of the four strategic types.

Theme	Author	Research Types /Methodology	Sample and sample size	Main points relevant to the research problem
Research Stream 1: Methodological Discussion	Hambrick (1980)	Conceptual	N/A	• Suggest four methods textual description, typology, single and multivariate measurement. • No method is totally superior. • Deciding what method to use depends on the concept of strategy employed in the study
	Conant et al. (1990)	Empirical	150 health maintenance organisations	• Introduce a multi-item questionnaire to operationalise strategic types • Defenders, prospectors, analysers performed equally well in terms of profitability and outperformed reactors.
	Zahra and Pearce (1990)	Conceptual	N/A	• Provide a good critique on research methods and suggestions for future research to increase the validity and reliability of findings
	James and Hatten (1995)	Empirical	390 banks	• The self typing paragraph and multi-items questionnaire has reasonable convergent validity
Research Stream 2: Strategy-Performance Relationship	Snow and Hrebiniak (1980)	Self typing questionnaire	247 top managers from plastic, semiconductor, automotive and air transport industries	• Defenders, Prospectors and Analysers distributed equally and outnumbered Reactors. • Defenders' distinctive competencies are in general management, production, applied engineering and financial management. • Prospectors' distinctive competencies are in general management, market research and development, production, applied engineering and financial management. • Analysers' distinctive competencies are in general management, production, applied engineering and marketing/selling. • Reactors' have no consistent patterns in their distinctive competencies.
	Segev (1987)	Multi items questionnaire	133 students involved in fictitious game business	• Reactors adaptive strategy-making mode weakens firm performance
	Smith, Guthrie & Chen (1989)	Multi items questionnaire	47 electronic manufacturing firms	• Prospectors, Analysers and Defenders perform equally well and outperform Reactors. • Analysers are primarily large firms (>300 employees), Reactors are usually small companies (<100 employees). Defenders and Prospectors are usually smaller than Analysers and bigger than Reactors.
	Ibrahim (1993)	Self-typing questionnaire	220 small businesses	• Prospectors and Defenders are the most common strategy • The uniqueness of goods/services, quality, location, know how and pricing contribute positively to profit for Prospectors and Defenders
	Dvir et al. (1993)	Self-typing questionnaire	76 managers from electronics and computers	• The success of technology is greater and more fruitful for the Defenders in both the short and long terms.

			industries	
	James and Hatten (1994)	Self typing questionnaire, and secondary sources	408 banks	• Size and the competitive environment are strong forces apart from strategy type to determine performance
	Gupta et al. (1997)	Self typing questionnaire	213 managers from financial services	• Firms differ with respect to the degree of their IT management sophistication. • Defenders have a centralised control and vertical IT management, depend on single core technology and continuous improvements in technology. • Prospectors have a distributed control and rely on multiple, flexible and prototypical technologies
	Sabherwal and Chan (2001)	STROBE measure questionnaire	226 top level managers from pharmaceutical, banking, insurance and manufacturing	• Prospectors and Analysers outperform Defenders in technology adoption and aligning themselves to the environment
	Cunningham (2002)	Self typing questionnaire	155 division 1 athletic directors	• The Prospectors and Defenders outperformed Analysers in managerial effectiveness
	Auger (2003)	Self typing questionnaire	161 online business	• Businesses use the web consistently with their general orientation. • Prospectors placed high priority on market research and innovativeness • Prospectors have the most advanced website features compared with Analysers and Defenders
	Teo and Pian (2004)	Self-typing questionnaire	159 small medium enterprises	• Prospectors outperformed Reactors in terms of the website design. • Prospectors websites provides extensive information, transactions function, personalised service, ability to conduct online transaction.
	Desarbo et al. (2005)	Multi-items questionnaire	709 firms from three countries	• Suggest the empirically derived solution clearly explains the Miles and Snow (1978) typology
	Kearns (2005)	Case study	12 US companies	• Analysers displayed the highest alignment between EC and business strategies and the most profitable business followed by Prospectors and Defenders.
	Apigian et al.(2005)	Multi-items questionnaire	257 IT managers and professionals	• Prospectors used the Internet to expand the market channel and improved distribution, but had a hard time establishing in-depth relationships with customers • Analysers used the Internet primarily for enhancing distribution and internal operations. • Defenders placed a high level of importance on using the Internet for customers and suppliers interaction, and internal operations.
	Boulianne (2007)	Self typing	88 Canadian	• Prospector firms as future oriented and have a broad scope of in their

		questionnaire	business units	Accounting Information system use leading to high performance in their organisation.

Table 13 Studies using Miles and Snow typology

Methodological studies indicated no superior method in operationalising the Miles and Snow strategic types as researcher decides on the best method depending on the objective of the study.(Hambrick, 1980; Zahra & Pearce, 1990) (further discussion on operationalisation of Miles and Snow strategic types is in Chapter 5).

Empirical studies measure the association of the strategic types with firms performance (Hambrick, 1983; James & Hatten, 1994), technology adoption (Apigian et al., 2005; Dvir et al., 1993; Teo & Pian, 2004) and organisational characteristics (Smith et al., 1989). Studies found, depending on the nature of the environment, performance measure used and organisation characteristics, each strategic type differed in their performance. For instance, Hambrick (1983) found Defenders outperformed Prospectors in terms of current profitability and cash flow while Prospectors outperformed Defenders in market share gains in an innovative market. Finally, studies found Prospectors lead in technology adoption and use (Kearns, 2005; Teo & Pian, 2004). For instance, studies found Prospectors companies have the most advanced website features compared with Analysers and Defenders. Their websites provides extensive information, transaction function, personalised service, ability to conduct online transaction (Teo & Pian, 2004; Auger, 2003). The following section reviews the application of the Miles and Snow typology (1978) in hospitality and Internet studies.

2.3.5 Miles and Snow (1978) with hospitality and Internet studies

Despite wide cross industry application of the typology, research applying Miles and Snow (1978) in hospitality and Internet studies is limited and only began in 2000.

iles and Snow with Internet studies

Auger (2003) was the first to apply the Miles and Snow strategic typology to the online environment. The study found significant differences among the four strategic types in their website design, expenditure and marketing research activities. Prospectors had more advanced and sophisticated features than Analysers and Defenders. Similarly, Prospectors spent greater time and resources developing their website and conducting online marketing research compared to Analysers and Defenders. In line with previous studies [e.g. Conant et al. (1990), Smith et al. (1989) and Grover and Khawaja (2004)] and with Miles and Snow's proposition that all three strategic types can be equally successful within their environment, the study reported no significant differences between Prospectors, Analysers and Defenders in website performance. This study lent further support to the validity and usefulness of the typology. The study however, did not discuss Reactors.

Based on a study of business website use by 159 Singapore SMEs, Teo and Pian (2004) proposed that an organisation's size, competitive advantage and business strategy relate to an organisation's website use. The study however, used only two Miles and Snow strategic types, Prospectors and Reactors. Large, innovative and Prospector organisations led in business website use. Prospectors used websites for business integration and transformation purposes. Their websites included advanced features such as interactive marketing, sales, online communities, online ordering and integrating with key suppliers and customers for procurement and supply-chain activities (Teo & Pian, 2004, p.459). Reactors were still at the early stage and used the website for online presence and information dissemination. Common features on a Reactor's website included information about the company, products, feedback forms, email and simple search.

Apigian et al. (2005) argued that business Internet use should complement business strategy and process, and improve organisational performance. The study included 257 IT professionals and managers in the US from a wide range of companies and industries. Again, this study did not include Reactors' Internet use and performance. The study described five categories of business Internet use: Internet-driven market channels, Internet-enhanced distribution, customer interaction, supplier interactions and internal operations, with Internet performance measured via revenue expansion, relationship enhancement, cost reduction, and time reduction.

The results indicated that Prospectors used the Internet to expand the market channel and improved distribution, but had a hard time establishing in-depth relationships with customers due to their continuous entry into other market (Apigian et al., 2005). Analysers used the Internet primarily for enhancing distribution and internal operations. Because of the narrow customer and product base, Defenders placed a high level of importance on using the Internet for customers and suppliers interaction and internal operations.

Regarding performance, Prospectors, Analysers and Defenders indicated that the Internet helped to enhance customer's experiences, exploit new marketing opportunities, and achieved cost and time reduction through the effective internal operation and distribution, which improved their revenue (Apigian et al., 2005). However, compared to Defenders and Analysers, Prospectors had a harder time building strong and close relationships with customers (Apigian et al., 2005).

Kearns (2005) applied the Miles and Snow strategic typology to investigate businesses e-commerce (EC) strategic behaviour. Kearns posited that each EC business would vary in the extent to which it aligned business and EC strategies and profitability. The interviews and survey findings with 12 US companies suggested that EC alignment was positively associated with profitability. Analysers displayed the highest alignment between EC and business strategies and the most profitable business followed by Prospectors and Defenders. Lastly, Reactors exhibited the lowest alignment and were least profitable.

Miles and Snow with hospitality studies

To the author knowledge, only one study had applied the Miles and Snow typology in the hospitality industry, investigating the relationships between strategic types and hotels performance measures, profitability, growth, stakeholder satisfaction and total performance (Garrigós-Simón, Marqués, & Narangajavana, 2005). Using 189 Spanish hospitality firms, the results indicated that Prospectors, Analysers and Defenders did not differ significantly from one another on their performance. In contrast, Reactors showed a poor performance across the four performance measures.

2.3.6 The Gap: Miles and Snow (1978) on hotel and Internet studies

Hashim et al. (2006) highlighted the limited research using the Miles and Snow strategic type in hospitality and Internet studies. They proposed that each strategic type differs on the level of their website and email adoption. Prospectors tend to be at the advanced stage of website and email adoption stage followed by Analysers, Defenders and Reactors. The study however, provides only conceptual discussion for future research works. An

exploratory study on 13 Malaysian hotels supported Hashim et al.'s (2006) proposal on the relationship between business strategic and Internet use.

Another study applied the Miles and Snow strategic types to classify Internet success of 182 hospitality enterprises from six Alpine destinations (Schegg et al., 2007). Their eFitness model used four input factors - eMarketing, IT infrastructure, and website quality and email customer service - as Internet success measures. Similar to Auger's (2003) findings, the study proposed Prospectors hotels had the most marketing features on their websites followed by Analysers, Defenders and Reactors.

Summary

This study adds to the limited application of the Miles and Snow (1978) typology in hospitality and Internet studies. Miles and Snow argued that the four strategies - Prospector, Defender, Analyser and Reactor - arised from the way companies decide to address three fundamental problems: entrepreneurial, engineering and administrative problem. Review of studies found support for the typology and the general principle that Prospectors are advance in technology adoption and implementation than Defenders, Analysers and Reactors.

The focus on adaptive capacity - how organisations responded to three interrelated problems - makes Miles and Snow (1978) suitable for studying organisations' Internet use as it continuously evolves and organisations vary in their capability and reasons to adapt to the rapid changes. The following section reviews website and email evaluation literature to measure Internet evolution, and introduces the third independent variables, website age.

2.4 Measuring Internet evolution via website features

The diffusion of innovations (DOI) theory suggests organisations Internet adoption evolves from simple to complex use. Studies investigate evolving Internet use based on the complexity and sophistication of website features (Chu et al., 2007; Walcott et al., 2001). Often, studies evaluated websites before proposing the Internet evolution stage. This section reviews website evaluation studies, describes the emerging research area in website evaluation studies and finally, identifies existing gaps in this research area.

2.4.1 Types of website evaluation studies

Studies on website evaluation fall into two major categories of empirical and theoretical research (Law & Bai, 2006). Theoretical studies develop concepts or approaches, while empirical studies validate or verify with experimental findings (Law & Bai, 2006).

2.4.1.1 Theoretical studies

Theoretical studies used theories to evaluate a website (Law & Bai, 2006), often extending offline theories to the online environment. It analyses information and user behaviour to develop certain concepts (Law & Bai, 2006). For instance, Jeong and Lambert (2001) applied the Technology Acceptance Model to measure the attractiveness of the website. Similarly, Govers and Go (2003) extended the discussion of destination image to an online environment.

2.4.1.2 Empirical studies

Empirical studies, descriptive or hypothesis testing, validate or verify an evaluative technique with research findings (Benckendorff, 2006; Law & Bai, 2006). Descriptive studies list the frequency of features while hypothesis testing usually associates website

features with dependent variables such as website marketing and website effectiveness (Benckendorff, 2006). Empirical studies further divide into two subcategories, with or without user involvement (Law & Bai, 2006).

a. With user involvement

This sub category comprises most published articles on websites evaluation, usually surveys or interviews with users and practitioners to measure a website performance (Law & Bai, 2006). In addition, studies with user involvement seek opinions about the effectiveness of the websites such as to test and validate a conceptual framework. Studies describe users as the best source of information to evaluate a website (Benckendorff, 2006; Law & Hsu, 2005). These studies usually analyse respondents' opinion using Likert - scale ratings on the relative importance of a set of selected website features. For example, Law and Cheung (2005) surveyed travellers' perceived importance of difference hotel website attributes and Vich-i-Martorell (2004) examined the effects of the Internet on hotel and airline companies in the Balearic Islands.

In addition, Wong and Law (2005) investigated the relationship of customers' perceptions on website quality with intention to purchase using hotel websites. Based on 638 survey responses, they identified three dimensions of motivation to purchase: information quality, sensitivity of content, and time.

Another example is the study by Jeong and Lambert (2001) who had 250 conference attendees to evaluate the information quality of eight hypothetical lodging websites. The study hypothesised that perceived usefulness, perceived ease of use, perceived accessibility and favourable attitude towards the website led to purchase intention to stay at a hotel. Results of the experiment found perceived usefulness and attitudes as significant indicators to predict customers' purchase behaviour.

b. Without users' involvement

Studies in this sub category consist of three groups using content analysis approaches. The ***first group*** evaluates websites based on the frequency count of website features (Law & Bai, 2006). The coding involves either a single or multiple coders (McMillan, 2000). A review of 37 tourism and hospitality studies identified content analysis using a single coder as the most popular website evaluation technique without user involvement (Hashim, Murphy, & Law, 2007).

Perhaps the earliest study applying this technique was by Murphy, Forrest, Wotring and Brymer (1996). The study analysed 36 hotels websites and identified 32 websites features classified into four groups: promotion and marketing, service and information, interactivity and technology and management. Based on this study, Weeks and Crouch (1999) content analysed 20 sites from six Australian tourism and hospitality sectors. The study compared the presence of website features and found that hotel websites led in promotion and information search by having the highest proportion of site map and search function features.

A popular approach in this stream is a modified Balance Scorecard (BSC). Originally from the management field, the BSC is a tool for measuring organisational performance based on financial and non-financial measures in four perspectives: customer, financial, learning and growth, and internal business process (Kaplan & Norton, 1996). Morrison, Taylor, Morrison and Morrison (1999) first applied the modified BSC to a group of small Scottish hotels and found that most of the small hotels were not using their websites effectively. The modified BSC evaluated websites from four dimensions - customer, technical, marketing and internal - through a set of 25 critical success factors (CSFs) (see Table 14).

Perspectives	Critical success factors
Technical	○ Currency of links ○ Effective use of HTML ○ Reciprocal hyperlinks ○ Registration with search engines ○ Traffic monitoring and analysis
Marketing	○ Positioning approach ○ Market segmentation and target market ○ Marketing research and database marketing ○ Relationship marketing ○ Partnerships ○ Tangibilising hotel services ○ Marketing evaluation
Internal	○ Ease of site maintenance ○ Schedule for site maintenance and updating ○ Skills to maintain site
Customer	○ Attractiveness ○ Availability and reservations ○ Content and organisation ○ Currency of information ○ Interactivity ○ Needs of special customer groups ○ Response verification and speed ○ Security and purchases ○ User friendliness

Table 14 CSFs for effective websites from Morrison et al. (1999)

This approach however, has limitations (Morrison et al., 2004). Some CSFs such as user friendliness, attractiveness, and effective use of HTML are subjective and difficult to measure. Similarly, it may be difficult for researchers to access variables such as schedule

for site maintenance and updating and availability of skills to maintain site (So & Morrison, 2003). Thirdly, Likert-scales introduced a high level of subjectivity to the evaluation (Ismail, Labropoulos, Mills, & Morrison, 2002). Other criticisms include, the final score of the four perspectives was unbalanced, failing to incorporate hoteliers' views into the development of the research instrument, using only a single coder to evaluate the website and using a snapshot approach, that is, only one evaluation of the websites (Feng, Morrison, & Ismail, 2003; So & Morrison, 2003).

Later studies tried to address limitations of the modified BSC approach. For instance, to reduce subjectivity, Ismail et al. (2002) used a dichotomous scale to indicate the presence of specific features. Their study evaluates the extent to which EU members market culture through their National Tourism Organisation (NTO) websites. This study amended Morrison et al. (2004) CSFs to include more culturally related items. The modified BSC approach for this research consisted of the following four dimensions: technical, site visitor relationship (user friendliness), marketing effectiveness, and cultural. The results showed Denmark as the country that makes the most effective use of culture in designing and marketing its NTO website.

To increase reliability, Feng et al. (2003) used three qualified coders and introduced four different dimensions: marketing strategies, web page design, marketing information, and technical quality. The study found US destination management organisation (DMO) websites to be superior to those in China in terms of marketing strategies and information.

So and Morrison (2003) evaluated the websites of 14 NTOs in East and South East Asia twice in two years. Their study used the four dimensions from Feng et al. (2003) study. The results indicated that all of the NTOs in the East Asia region were not fully utilising their websites particular not very effective in using their websites in the marketing role.

Another study content analysed 200 Swiss hotels websites, adapting Shoemaker and Lewis' (1999) loyalty triangle, into a four-dimension website evaluation framework: process, value creation, database management and communication and trust (Murphy et al., 2003). The findings supported the diffusion of innovations theory, as larger and higher rated hotels had more website features than did smaller, and lower rated hotels.

The ***second group*** of studies evaluates websites based on performance. Generally, the researchers evaluated a website and assigned scores to the website based on web design quality (Law & Bai, 2006). For example, Au Yeung and Law (2006) used a modified heuristics evaluation to compute website Usability Hazards Indices, based on five dimensions with 24 attributes (see Figure 9). The study found that usability performance of chain hotels were significantly better that of independent hotels, supporting the diffusion of innovations theory on the positive effect of organisation size to technology adoption and use.

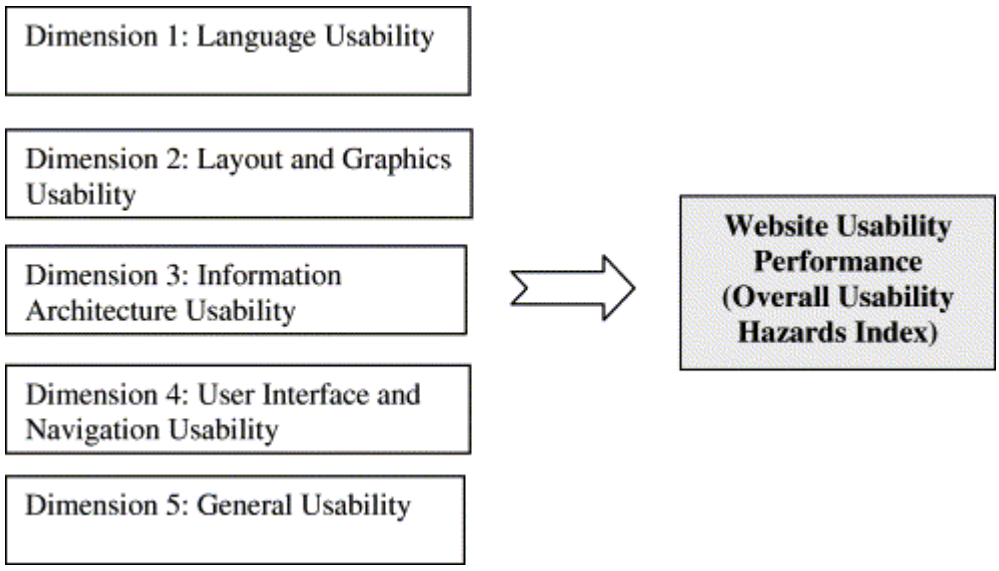


Figure 9 A usability performance framework of hotel websites from Au Yeung and Law (2006)

Drawing upon internet marketing literature, Zafiropoulos, Vrana and Paschaloudis (2006) proposed a six-dimension websites evaluation framework with 63 features: facilities information, guest contact, price information, surrounding area information, website management and company profile. The study compared the performance of 25 top brands and Greek hotels websites[2]. The findings showed that the top hotels led in features related to facilities, guest contact, price and surrounding area information.

The ***third approach*** assesses websites automatically, using software robots. For example, Scharl, Wöber and Bauer (2004) used their WebLyzard software to evaluate 328 hotel sites in the German speaking Alpine region based on four measurements: ease of navigation, interactive elements, volume of textual and graphical layout. Their findings indicated the hotels emphasised different aspects of their websites' content. Schegg, Steiner, Frey and Murphy (2002) used automated coding to analyse over 200 website features in 125 Swiss

[2] The study did not mention about the affiliation status of these hotels.

hotels. The results indicated that Swiss hotels were still at the first and second stage of website evolution (Hanson & Kalyanam, 2007), using the web to broadcast static information and provide limited transactional features.

Chan and Law (2006) used an automated website evaluation tool to evaluate website usability of 61 Hong Kong hotels websites usability. The tool used information of web features on HTML tags and then classified the websites into five groups: use of background colour, details of text, multimedia, number of tables and length of front page. The study found that websites of hotels in Hong Kong performed well in three features; multimedia, background colour and using table and length of front page.

Automated assessment helps increase the reliability of the coding (Scharl et al., 2004). Nevertheless, these studies failed to address the reliability and validity of their third party tools. Failure to validate measures raises trust issues on the research findings (Straub, 1989).

Summary

The review identified two methodologies to evaluate a website, empirical versus theoretical, without versus with user involvement. Given different methods, there is no agreed method for evaluating websites performance (Law & Bai, 2006; Morrison et al., 2004). Each method would have its advantages and disadvantages. For instance, studies involving users would allow researcher to obtain first hand information about the websites performance but could face problem related to users' perception biases in answering surveys (Murphy et al., 2003). Although able to analyse the websites directly, researcher

applying content analysis may experienced problems related to coding such as using dichotomous vs. likert scale (Morrison et al., 2004) and to establish reliability (Scharl et al., 2004).

In addition, there is little consensus on the important features and dimensions of a quality website (Aladwani & Palvia, 2002; Morrison et al., 2004) raises questions on the comprehensiveness, reliability and validity of the website evaluation measurements (Hashim, Murphy, & Law, 2007). The following section identifies, reviews, and summarises techniques for website evaluations.

2.4.2 Evaluating websites: How and what to consider?

Websites with good content and design lead to repeated visits by customers (Yen, Hu, & Wang, 2007). As the Internet becomes important for hotels' distribution and marketing activities (O'Connor & Frew, 2003), routine website evaluations help ensure hotels' websites are appropriate and useful to customers (Baloglu & Pekcan, 2006). Yet despite the Internet's increasing role, website evaluation studies particularly in the hospitality industry, seem lagging and require further effort (Morrison et al., 2004).

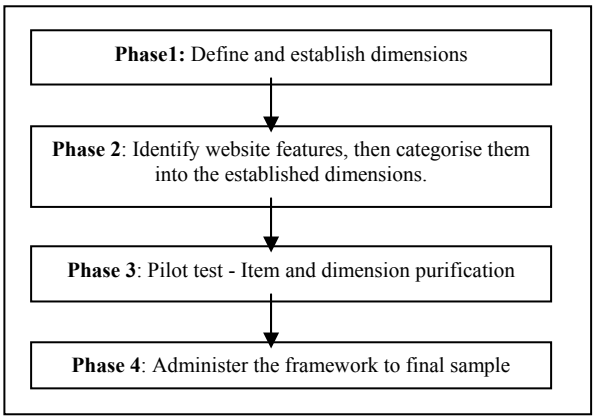
Studies have proposed various frameworks to evaluate websites, from using an automated approach to a heuristics approach to evaluate websites (Corigliano & Baggio, 2006; Morrison et al., 2004). Some studies focused on specific criteria such as accessibility and search engine ranking performance (Shi, 2006). Others have focused on developing a website evaluation framework for a particular industry such as retail, health and government sector (Barnes & Vidgen, 2001; Kim & Stoel, 2004; Smith, 2001; Tsai & Chai, 2005).

Despite the proliferation of evaluation methods, there is little consensus on what dimensions and features a website evaluation framework should encompass (Hashim, Murphy, & Law, 2007). *Dimension* refers to broad evaluation criteria while *features* are specific item on the website representing the dimensions (Hashim, Murphy, & Law, 2007). For example, Hong and Kim (2004) proposed a three dimensions website evaluation framework of structural robustness, functional utility and aesthetic appeal. Their study evaluated structural robustness through two features, internal reliability and external security. Alternatively, Chen and Wells (1999) identify three dimensions for evaluating websites: entertainment, informativeness and easy to use and understand.

In the case of the hospitality industry, studies are still inconclusive on what to include in a website evaluation framework (Morrison et al., 2004). A website evaluation framework should capture online activities from the beginning to the end of transactions, including information search, website navigation, ordering, customer service interactions, delivery and satisfaction with the ordered product (Wolfinbarger & Gilly, 2003, p. 183). Morrison et al. (2004) added that holistic website evaluations should assess technical details; poor technical performance can undermine good website content and sound marketing.

There is little consensus on what makes a good website evaluation framework (Hashim, Murphy, & Law, 2007). Research requires valid and reliable instruments, yet website evaluation studies often fail to verify or discuss dimension identification and measurement issues (Aladwani & Palvia, 2002). A sound conceptual and theoretical basis of the construct must precede the development of a website evaluation framework (Tsai & Chai, 2005).

Hashim et al. (2007) proposed a five - phase websites evaluation framework (see Figure 10). The framework defined dimensions for, and features of, a website evaluation framework. In the first and second phases, both theory and understanding build a foundation for deciding website dimensions and features. The third phase deals with reliability and discriminant validity. The fourth stage pre-tests the features on a few websites before the final step of coding features present in the final sample. This pre-test helps researchers refine and purify the framework before administering to the final sample (Hashim, Murphy, & Law, 2007).



Source: Hashim et al. (2007)

Figure 10 Proposed website evaluation framework development and validation rocess

The study consolidated website evaluation studies and described how to build a valid and reliable website evaluation framework. While website studies identify dimensions and features for evaluation, emerging studies use age-related variables such as domain name age together with website features to measure Internet evolution (Murphy et al,. 2006). The following section discusses an emerging research area in website evaluation, using website age as a proxy to measure the Internet evolution.

2.4.3 Emerging research area: Using temporal variables to measure Internet evolution

This new area of website evaluation studies uses temporal variables such as domain name age to measure Internet evolution (Chu et al., 2007; Murphy et al., 2006; Scaglione, Schegg, Steiner, & Murphy, 2004b). Compared with earlier website evolution studies that evaluated websites on their features, this area of research validated the Internet evolution with temporal variables. Studies suggest positive relation of age with website features (Chu et al., 2007; Murphy et al., 2006; Scaglione et al., 2004b).

Review of literature identified two limitations on present studies using temporal variables to measure website evolution. First, using snapshot approach and second using the domain name age to measure on the evolution. By their very nature, websites evolve (Morrison et al., 2004). Thus, a single evaluation at a single point in time may fails to capture such evolution. While longitudinal studies would let researchers track changing relationships, multiple evaluations are difficult and cumbersome (Chatterjee, Grewal, & Sambamurthy, 2002). Furthermore, some websites may no longer exist and some changes are ephemeral. For instance, a study of over one thousand websites across six categories found that only about two - thirds of the sites still functioned at the same URL five years later (McMillan, 2002).

A few studies rely upon an organisation's domain name age as a proxy of Internet evolution [for example Murphy et al., (2006); Scaglione et al.,(2006)]. Domain name age, based on when an organisation originally registered a domain name - such as Hyatt hotels registering *Hyatt.com* - provides a temporal measure of Internet adoption (Adamic & Huberman, 2000). In line with the diffusion of innovations theory, research using domain name age

showed a positive relationship between domain names age with organisational characteristics and advanced Internet use (Murphy et al., 2006). For instance, a study analysing 3000 Swiss domain names by Swiss hotels, found larger, affiliated, and higher rated hotels adopted Internet technology faster than the smaller, non-affiliated and lower rated hotels (Scaglione et al., 2004b). Similarly, Murphy et al. (2006) found that hotels with older domain name had a significantly more website features.

Yet establishing the age of names in global domains such as *.com* or *.org* is problematic. For names registered in the most common domain, *.com,* changes in registrars can render the age invalid (Murphy et al., 2006). On 30 November 1999, the Internet Corporation for Assigned Names and Numbers shifted from a sole domain registrar to the Shared Registration System (SRS) and multiple registrars in the *.com*, *.ne*t, and *.org* global domains. SRS makes gathering a valid global domain name age unreliable as companies may change domain registrars, thus 'resetting' the domain name creation date (Murphy et al., 2006). Furthermore, organisations may buy a domain name but wait months or years before hosting a website at that name. Thus, domain name age as a measure of website evolution suffers several limitations.

2.4.3.1 Website age as a new temporal measure

A 2007 study proposed and validated website age from the Wayback Machine (WM) on the Internet Archive (*www.archive.org*) site as an alternative and complementary measure of website evolution (Murphy, Hashim et al., 2007). Researchers in information sciences have increasingly used the WM to help track and measure web content development (Chu et al., 2007; Hackett & Parmanto, 2005). The WM allows user to view the original version of

each site, the dates the website went online, and frequency of websites updates (see Figure 11and 12 below).

The WM forms part of the Internet Archive at *www.archive.org*, which amasses websites, moving images, texts, audio and recently, educational resources (FAQs, 2007). Drawing upon the results from the Alexa webcrawler, this US-based non-profit organisation permanently stores publicly accessible websites in an enormous digital archive. By preserving human knowledge and artifacts, and making its collection available to all, the Internet Archive envisions resembling ancient Egypt's legendary library of Alexandria (FAQs, 2007).

The archive contains snapshots of over 55 billion web pages - more information than in any library including the US Library of Congress - even though archiving only began in 1996. The archive adds about 20 terabytes (10^{12} bytes) of digital content monthly (FAQs, 2007), with each sweep of the estimated 16 million archived websites taking over two months (Howell, 2006).

To call up archived websites, users type the URL of the desired site into the address box on the WM homepage. The Machine then returns the date of original site creation, of site updates and links to those archived sites. Figure 11 shows the WM homepage and Figure 12 shows the results for a Malaysian hotel, the Timotel in Mersing. The WM also provides information on the number of site updates. An asterisk beside the dates in Figure 12 indicates changes of more than 50% changes to the website since the last visit.

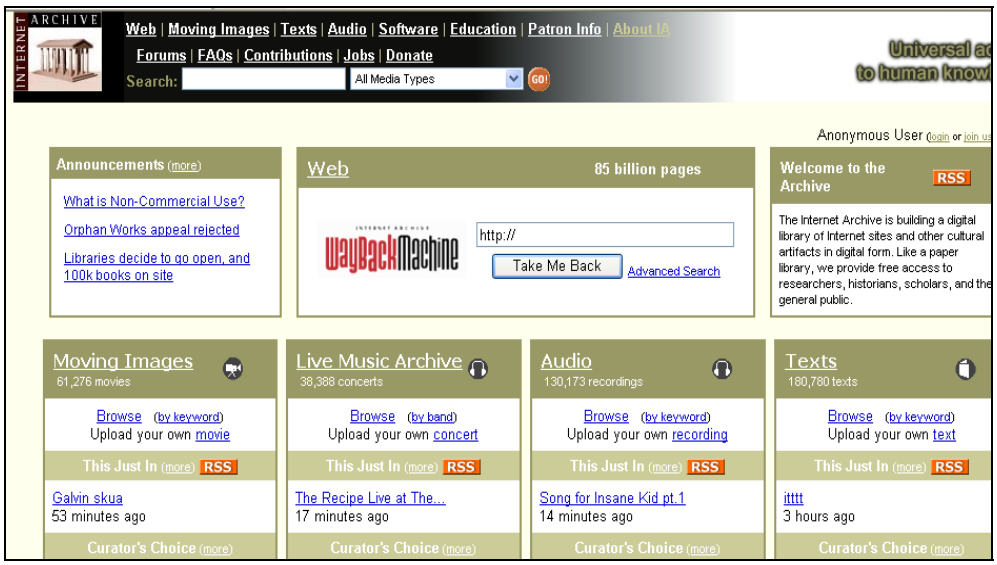


Figure 11 Homepage of the Internet Archive

Figure 12 Wayback results for www.timotel.com.my

Summary

Emerging studies use a time series data or temporal variables to describe Internet evolution (Chu et al., 2007; Murphy et al., 2006). As a new research area, there is still much to improve particularly the limitation of existing temporal measures used i.e. domain name age to measure the website evolution (Murphy, Hashim et al., 2007). This study proposed and validated the use of website age from the Internet Archive website (www.archive.org). The following section reviews another Internet feature included in this study, email.

2.5 Measuring Internet evolution via email use: A road less travelled

2.5.1 Email use in the hospitality and tourism industry

Email is an example of technology that meets Rogers' (2003) criteria for rapid adoption (e.g. relative advantage, compatibility, simplicity, trialability and observability). Despite wide email adoption, findings reflect poor email implementation in the hospitality industry (Gardini, 2007; Schegg et al., 2003). For instance, studies on Swiss (Frey et al., 2003), Tunisian (Gherissi Labben et al., 2003) and luxury chain hotels (Schegg et al., 2003) found most hotels gave sloppy and inadequate replies. Table 15 describes nine email studies from the hospitality and tourism industries.

Authors	Sample size	Major findings
Schegg et al. (2003)	491 hotels from 13 international hotel chains	• The five-star hotels had difficulty providing prompt, accurate and timely email response to their customers
Frey et al. (2003)	200 Swiss hotels	• Guests had less than a one in ten chance of receiving a prompt, polite and personal reply. • Reply quality differed across hotel size, category, presence of online relationship marketing tools and linguistic region.
Gherissi Labben et al. (2003)	260 Tunisian hotels	• Guests had one chance in ten of receiving a reply within a day and even less chance to have their inquiry answered professionally, promptly, politely and personally. • Larger and affiliated hotels provide a higher quality email replies than smaller and non-affiliated hotels.
Murphy and Tan (2003)	200 Singaporean travel agencies	• Poor email customer service with seemingly high number of bounced emails. • Results indicated one in four chance of receiving a reply and three in 100 of receiving a response that followed suggested guidelines of proper email replies.
Matzler et al. (2005)	1643 Austrian hotels	• Significant differences in response rate, response time and reply quality across hotel size, rating, location and between off

		and high season. • Large, high rated, and urban hotels performed better in their email replies than small, low rated and rural hotels. • Response behaviour was better during off-season than during high season.
Fux et al. (2006)	65 Swiss and Austrian DMOs	• One in three DMOs never responded to customer emails and those that did respond, responded poorly
Schegg et al. (2006)	195 three - and four-star hotels in four Swiss and Austrian regions	• The study hypothesised the attitude towards a language affected hotel responses to the email enquiry. • The findings supported the hypothesis, hotels in German speaking areas provided better responsiveness and quality to emails in German than emails in English.
Hashim, Murphy and Kassim (2007)	12 ASEAN National Tourism Organisations (NTOs)	• Poor email management by the ASEAN NTOs. Less than one quarter, only 12 of the 46 email addresses replied. • Out of the 12 replies, ASEAN NTOs had difficulty in providing a polite and professional reply.
Gardini (2007)	111 German, Swiss and Austrian four - and five - star hotels	• Non-chain hotels appeared more attentive and customer oriented whereas chain hotels were more technical and formal in their email reply.

Table 15 Hospitality and tourism email studies

Studies assessed the quality of hotels' email replies based on five P's - Prompt, Polite, Personal, Professional and Promotional - to profile proper email responses (Murphy et al., 2003; Murphy & Tan, 2003). Prompt means answering an email quickly (within 24 hours). Polite includes using courteous openings such as 'Dear', thanking the person for their interest, using please and a formal closing such as 'Sincerely' or 'Best Regards'. Personal refers to addressing the sender by name, giving personalised answers and closing with the sender's name and title. Professional replies use proper grammar. Promotional replies use a

branded email address and signature file. The signature file may include the sender's name and title, company name, website and email address, physical address, fax, phone and company slogan.

Table 15 summarised the findings of email use by hospitality and tourism organisations. Results from the studies help illustrate the two stages of organisational technology adoption, initiation followed by implementation (Rogers, 2003; Zaltman et al., 1973). Though the overall response quality was poor, the large, high rated and affiliated hotels may have passed the initiation stage, demonstrated by their higher response rates and email reply quality. The quality of email replies differed across organisation size, category, location and linguistic regions.

In addition, studies suggested that organisations with poor email reply reflects the bandwagon effects - adopting the technology without clear objectives and ideas of the benefits (Murphy et al., 2003) while organisations with proper email reply has gone to a higher stage of Internet evolution (Murphy et al., 2006). The following section reviews email use in Internet evolution studies.

2.5.2 Measuring Internet evolution via email use

Studies on Internet evolution often referred to websites [for example, Chu et al., (2007) and Hanson and (2007)] and ignore the most popular Internet application; email. Email is the top hospitality and tourism application (Nysveen, Methlie, & Perdersen, 2003) and "the number one activity and time consumer for the vast majority of Internet users (Rainie & Horigan, 2005, p.63)." Email continues to be the most popular Internet application adopted by hotels at least among Malaysian hotels (Hashim, 2007). It provides one-to-one

interactions that influence service quality and customer opinions (Marinova, Murphy, & Massey, 2002).

Email, effective for acquiring and retaining customers, is strategically important for hotel industry (Schegg et al., 2003). Siguaw, Enz, Namiasivayam (2000) contend that guest service technologies are crucial for hotels seeking a competitive advantage. Email adds a customer service channel that is ubiquitous, cheap, digital and asynchronous. It offers a powerful one-to-one interaction that influences the customer's assessment of service quality (Strauss & Hill, 2001). For instance, Mattila and Mount (2003) discovered that customers satisfaction with problem handling and repurchase intentions are directly related to the time taken to respond. Moreover, the study found technology enthusiast customers were more demanding of an immediate response than customers who are less responsive to advances in information technology.

A review of Internet evolution studies found five studies that include email in their Internet evolution framework. Walcott et al. (2001) first incorporated email and website use in their Internet evolution model. Their research suggests a four-stage of Internet evolution model. As shown in Table 16 below, similar to website use, organisations' email use evolved from limited and interpersonal to wide and for official purposes. Descriptive and explanatory, this research did not use any temporal measure and or evaluated websites and emails for the classification.

Stage	Organisational Email and Internet Use
Stage 0- None	• No Use of Internet
Stage 1 - Minimal	• Email is available but it is not used as an alternative to traditional interpersonal communications • Website consist of a small number of static pages reflecting a "minimalist brochure"
Stage2 - Conventional	• Email is widely used for both official and unofficial communication. • Websites are largely static but extensive and provide customers with in-depth information about products and services and comparative information. The content is more than an advertisement.
Stage 3 - Transforming	• Websites are interactive, dynamic and becoming an alternative distribution channel. Online ordering becomes possible.
Stage 4 - Innovating	• Change the fundamental structure of businesses and relationship with other businesses. • Business-to-Business vertical exchange continues to add more value as it integrates with enterprise information system.

Table 16 Internet evolution stage by Walcott et al. (2001)

Based on questionnaire replies from 159 SMEs, Teo and Pian (2004) proposed a five-stage Internet evolution model. This model suggested that organisations' Internet use began with email adoption before progressing in to a website. The study however, did not elaborate its discussion on email at the later stage as it described about websites use. A study of 494 Malaysian hotels found the hotels' Internet use began with email, branded website and matched domain name but did not discussed how the hotels use their email and website in each stage (Hashim & Murphy, 2007)

The first study to cluster email reply quality was by Murphy et al. (2007). Based on a service quality model, SERVQUAL-P , the study clustered 24 email response variables based on email responses from 491 luxury hotels into four clusters; tangible reply, process, personalisation and reliability. This study adds to the existing knowledge by identifying dimensions of email service quality. Preliminary and exploratory, this study did not discussed the hotels' profiles nor use any temporal measure to describe the each cluster profile.

The review identified the gap of existing Internet evolution studies. Despite its wide use, there are limited studies incorporating email use in the Internet evolution model. The following section concludes this literature review chapter.

Conclusion for the literature review

This literature review comprised of five parts. The literature review begins by highlighting the increasingly importance role of tourism to the Malaysian economy (section 2.1.2). As tourist comes to Malaysia from across the globe, information over the Internet becomes essential to Malaysian hotel industry. DOI becomes the theoretical foundation for this study. It applies both, adopter and diffusion modelling research, to investigate the adoption and implementation of email and websites by the Malaysian hotels (section 2.2.4). The adopter study investigates the influence of hotel characteristics and business strategic types (section 2.3.3) while the diffusion modelling study examines the evolving Internet use through evaluation of their website features (section 2.4.2) and email reply quality (section 2.5.2). Having completed the literature review, Chapter 3 discusses this dissertation's conceptual model to address this dissertation's research questions.

Chapter 3 Hypotheses Development

This chapter builds on the preceding literature review to develop the hypotheses. The hypotheses draw upon the two Diffusion of Innovations research streams - adopter and diffusion modelling - to help address the four research questions related to the Malaysian hotels' Internet adoption and implementation. The adoption study investigates relationships between hotel characteristics - size, affiliation and rating - and business strategic types with Internet adoption. The diffusion modelling study investigates how hotel characteristics and business strategic types differ in their Internet implementation.

3.1 Internet adoption

This study begins by proposing three categories of Internet adoption before exploring relationships of hotel characteristics and business strategic types with email and website adoption and implementation. As noted in the literature review, most Internet adoption models have ignored the most widely adopted Internet feature, email (Coussement & Van den Poel, 2008). This study argues it is essential to include email while studying organisations' Internet adoption to provide a comprehensive view. Further, a 2007 study found Malaysian hotels generally begin their Internet adoption with email presence before extending to website (Hashim & Murphy, 2007). Thus,

Hypothesis 1: *Malaysian hotels' Internet adoption consists of three stages, (a) no adoption to (b) email adoption to, (c) email and website adoption.*

The first research question investigates the relationship between hotel characteristics and Internet adoption. Studies found size as the variable most often related to technology adoption in organisations (Jeyaraj et al., 2006; Rogers, 2003). Strong financial resources

and the pressure to maintain and support their market position accelerates technology adoption in large organisations (Frambach & Schillewaert, 2002; Premkumar & Roberts, 1999). For instance, large US hotels adopted more technology than small hotels did (Siguaw et al., 2000). Similarly, a study of global hotels found that large hotels hired external expertise to build their websites (Wei, Ruys, van Hoof, & Combrink, 2001).

Studies on technology adoption in the hospitality industry support that hotels' affiliation status (chain or independent) and star rating relate positively to technology adoption (Murphy et al., 2006; Murphy et al., 2003). For instance, US luxury and chain hotels were early adopters of technology (Siguaw et al., 2000). A Malaysian study on domain name branding found that high rated and affiliated hotels showed advanced Internet use by matching their website names and email addresses (Hashim & Murphy, 2007). Thus,

Hypothesis 2*: Malaysian hotels' email and website adoption relates positively with hotel (a) size, (b) rating and (c) affiliation.*

The second research question investigates a factor found influencing organisational innovativeness but given limited attention in Internet diffusion studies - business strategy. A business strategy provides directions for business activities and explains how a business uses its resources (Aldag & Stearns, 1991; Stoner & Wankel, 1986). Studies show that organisations with an aggressive and innovation-oriented market strategy are open to new ideas and technologies (Conant et al., 1990; Song, Nason, & Di Benedetto, 2008; Teo & Pian, 2004).

This study uses the Miles and Snow (1978) business strategy to investigate the relationship of hotel business strategy with Internet adoption and implementation. Miles and Snow

(1978) identified four business strategic types: Prospector, Analyser, Defender and Reactor. Each strategic type differs in its product-market domain, management characteristics and technology emphasis.

Prospectors - the most innovative firms in their industry - seek new market opportunities and stress product development (Dvir et al., 1993; Miles & Snow, 1978). Prospectors use multiple technologies, spend huge amounts on new technology, and emphasise innovation more than the other three strategic types (Conant et al., 1990; Shortell & Zajac, 1990; Smith et al., 1989; Zahra & Pearce, 1990). *Defenders* emphasise narrow product-market domains by controlling secure niches in their industries (Miles & Snow, 1978). They engage in little product development and emphasise production efficiency.

Analysers resemble both Defenders and Prospectors. In stable product-market domains, Analysers emphasise production and strive for efficiency. In unstable product-markets, Analysers monitor key competitors and adopt only those innovations with strong potential. Finally, *Reactors* follow no conscious strategy and often seem a dysfunctional organisation type (Conant et al., 1990; Zahra & Pearce, 1990). Extending the behaviour of each strategic type to an online environment,

Hypothesis 3*: Malaysian Prospector hotels will lead in (a) email and (b) website adoption followed by Analysers, Defenders and Reactors.*

3.2 Beyond adoption: email and website implementation

Following adoption, the third and fourth research questions apply diffusion modelling to investigate the implementation of email and websites by Malaysian hotels.

3.2.1 Email implementation

A limitation of Hashim et al's (2006) model is no discussion of evolving email use after the adoption. As websites evolve in their features and functionalities (Chu et al., 2007; Murphy et al., 2006), so does their email use. For instance, email use has evolved from an online communication medium to a marketing device and can include Web-like capabilities such as pictures and links (Hanson & Kalyanam, 2007; Kalyanam & McIntyre, 2002).

This study proposes a four-stage email evolution model from adoption, email that works, replying to email and finally, providing a quality email reply. Following adoption, the next stage of email use is a working email address, the first step to successful implementation. An email address that does not work or bounces indicates that the hotel failed to implement email effectively, which would frustrate recipients (Hashim & Murphy, 2007).

Once the email works, the next stage of evolving email use is to ensure that the hotel replies to incomings emails. Hotels with slow responses or worse, that fail to reply, suggest poor implementation of email technology (Murphy et al., 2003). Finally, effective email use in an organisation includes quality email replies to customers (Murphy et al., 2003; Schegg et al., 2003). A quality email response reflects evolving Internet adoption as a business successfully infuses email into its business processes (Murphy et al., 2006; Murphy et al., 2003). Compared to hotels that provide a poor quality email reply, hotels with high quality replies are at a later stage of email implementation. Thus, this study proposes:

> ***Hypothesis 4****: Malaysian hotels' email use will evolve from (1) adoption to (2) having a working email address to (3) replying to email and finally, (4) providing high quality email replies.*

Depending on the type of innovation (Kwon & Zmud, 1987; Swanson, 1994) and management style (Zhu & Kraemer, 2005), implementation rates differ among organisations. For example, the review of studies on hotels' email use in Section 2.5.1 found that high rated, affiliated and large hotels used email better in their internal and external communication than low rated, non-affiliated and small hotels did (Jogaratnam & Tse, 2004; Wei et al., 2001).

In terms of business strategic types, studies investigate how strategic types differ in their customer communication. Hambrick (1983) found Defenders tended to handle more of their own selling and preferred direct and personalised interaction with customers. Compared to the other strategic types, Defenders had superior relationship with their customers due to their narrow customer base and ability to concentrate on customer needs (Apigian et al., 2005; Song et al., 2008).

Studies also found Analysers worked closely with customers and had a high level of communication to retain customers loyalty (Apigian et al., 2005; Kearns, 2005; Slater & Olson, 2000). Prospectors may be reluctant to embrace customer relationships because of their continuing focus on product innovation and development (Apigian et al., 2005; Hambrick, 1983). Reactors may emphasise communication with customers the least (Apigian et al., 2005). Of the four types, Reactors provide incomplete information on their websites, which requires customers to make unnecessary follow ups for complete information (Kearns, 2005). The linked between business strategic types with business communication (Hambrick, 1983; Song, Nason, & Di Benedetto, 2008) lead to hypotheses on the relationship between business strategic types with email implementation.

Extending hotel Internet, and Miles and Snow (1978) studies to Malaysian hotels, this study proposes:

Hypothesis 5: *Small, low rated and non-affiliated Malaysian hotels will have a higher rate of bounced email than large, high rated and affiliated hotels.*

Hypothesis 6*: Malaysian Reactor hotels will have the highest rate of bounced email followed by Prospectors, Analysers and Defenders.*

Hypothesis 7*: Malaysian hotels' (a) email response rate and (b) email response quality relate positively with hotel (i) size, (ii) rating and (iii) affiliation.*

Hypothesis 8: *Malaysian Defender hotels will have the highest (a) email response rate and (b) email reply quality followed by Analyser, Prospector and Reactor hotels.*

3.2.2 Websites implementation

Studies indicate that websites add more features as they evolve (Chu et al., 2007; Doolin et al., 2002; Hanson & Kalyanam, 2007; Walcott et al., 2001). For example, business-to-consumer websites evolve from experimentation to value creation, to differentiation and building relationships (Piccoli et al., 2004). Business-to-business website use evolves from limited functions such as sending and receiving messages in a pre-web era to multiple collaboration activities such as integrated supply chain and customer relationship management in an integrative website era (Chu et al., 2007).

Hashim et al. (2006) proposed website adoption follows email adoption. Hotel Internet studies found large, high rated and affiliated hotels are early in their website adoption and advanced in their website use compared to small, low rated, and independent hotels (Hashim, 2007; Hashim & Murphy, 2007; Scaglione, Steiner, Schegg, & Murphy, 2005; Scharl et al., 2004). Many large, high rated and affiliated

hotel websites have advanced features related to personalisation and loyalty building (Baloglu & Pekcan, 2006; Murphy et al., 2006). Thus:

Hypothesis 9*: Malaysian hotels' website feature presence relates positively with hotel (a) size, (b) rating and (c) affiliation.*

Auger (2003) found similarities in the characteristics of each strategic types, offline and online. Few Internet studies supported Auger's (2003) comments (see for example, Apigian et al. (2005), Kearns (2005) and Teo and Pian (2004)). For instance, Prospectors as the innovator, leader and pioneer organisation in their industry led in website use compared to Analysers, Defenders and Reactors (Apigian et al., 2005; Auger, 2003; Kearns, 2005). Quoting Miles and Snow (1978, p. 73), Analysers are "avid followers of change" and adopt a "second-but-better" strategy. Because of their careful and cautious characteristics, Analysers are often the "second" following Prospectors with new goods or services (Song, Nason, & Di Benedetto, 2008). Defender organisations are usually not at the forefront of technology development and put little priority on investment in new product or market development (Song, Nason, & Di Benedetto, 2008, p. 7). Finally, Reactors typically lack long-term plans and are inconsistent in their strategy (Song et al., 2008). extending the characteristics of each strategic type to Malaysian hotels' website use, this study proposes:

Hypothesis 10: *Malaysian Prospector hotels will have the highest website feature presence followed by Analysers, Defenders and Reactors.*

3.2.3 Using website age to investigate the evolving website and email use

Section 2.4.3 of the literature review noted emerging studies using a temporal measure, domain name age, to reflect evolving website and email use (Murphy et al., 2006; Scaglione, Schegg, Steiner, & Murphy, 2004a; Scaglione et al., 2004b). These studies found strong and positive relationships between domain name age and website features. However, the review noted the difficulty of gathering valid domain name age particularly for global domains such as *.com*, *.net* and *.org* due to the multiple and Shared Registration System. Given the limitation of domain name, this study applies the website age from the Wayback Machine of the Internet Archive website and proposes that website age should relate to the presence of website features and quality email responses. Thus:

Hypothesis 11*: Website age relates positively to (a) quality email replies and (b) website features present on Malaysian hotels.*

Internet evolution studies use the complexity of a website to indicate a higher level of evolution (Doolin et al., 2002; Hanson & Kalyanam, 2007; Piccoli et al., 2004). Businesses first use the website to publish information (Teo & Pian, 2004). At this stage, businesses are uncertain of their technological goals, value of acquiring the technology, and try to minimise risk by following industry leaders. Later, businesses try to personalise services and raise the barrier to imitation through building relationships with customers and increasing switching costs (Piccoli et al., 2004). Combining DOI theory with structuration theory, Yuan, Gretzel and Fesenmaier (2006) illustrated the evolutionary nature of website adoption from a simple brochure-like website with limited information to a 'one-stop shopping' website with on-line transactions, interactivity and customised services.

Hashim et al. (2006) proposed hotel websites evolve in four stage. In the first stage, hotels have static sites with basic hotel information. In the second stage, the website offers features for interactive marketing such as online chat, question and answer sessions, simple search and interactive maps. At the third stage, hotels start to offer online sales and transaction features such as online bookings. Finally, the fourth stage offers personalised features for members such as room preferences, newsletters and discounts, to help build and create customer loyalty. Using the website age to reflect evolving website use, this study proposes:

> ***Hypothesis 12****: Malaysian hotels' website use will evolve from (1) simple online presence to, (2) interactivity, (3) to sales and transaction and to (4) personalised and loyalty building features.*

In line with the DOI theory, studies found positive relationships between website design and organisational characteristics or business strategic types (Schegg et al., 2007). Studies found large, high rated and affiliated hotels with sophisticated and feature-rich website. (Murphy et al., 2006; Zafiropoulos et al., 2006). Similarly, using website age as a temporal proxy to measure evolving websites use by 182 Alpine hotels, Schegg et al., (2007) found hotels classified as Prospectors led in their website use followed by Analysers, Defenders and Reactors. Thus, this study proposes:

> ***Hypothesis 13****: There is a positive relationship between hotel (a) size, (b) rating and (c) affiliation with evolving website use by Malaysian hotels.*
>
> ***Hypothesis 14****: Malaysian Prospector hotels will lead in evolving website use followed by Analysers, Defenders and Reactors.*

As hotels advance in their website use so should their email reply quality. Murphy et al. (2003) posit that hotels paying attention to email also pay attention to their websites. They

argue that hotels with professional email replies also lead in website use. Studies found hotels with advanced website features tended to have better quality email responses than hotels with simple website features, and the presence of certain features related to quality email replies (Murphy et al., 2006; Murphy et al., 2003). For instance, a 2006 study of 200 Swiss hotels found interactive website features and branded URLs related positively to proper email replies (Murphy et al., 2006).

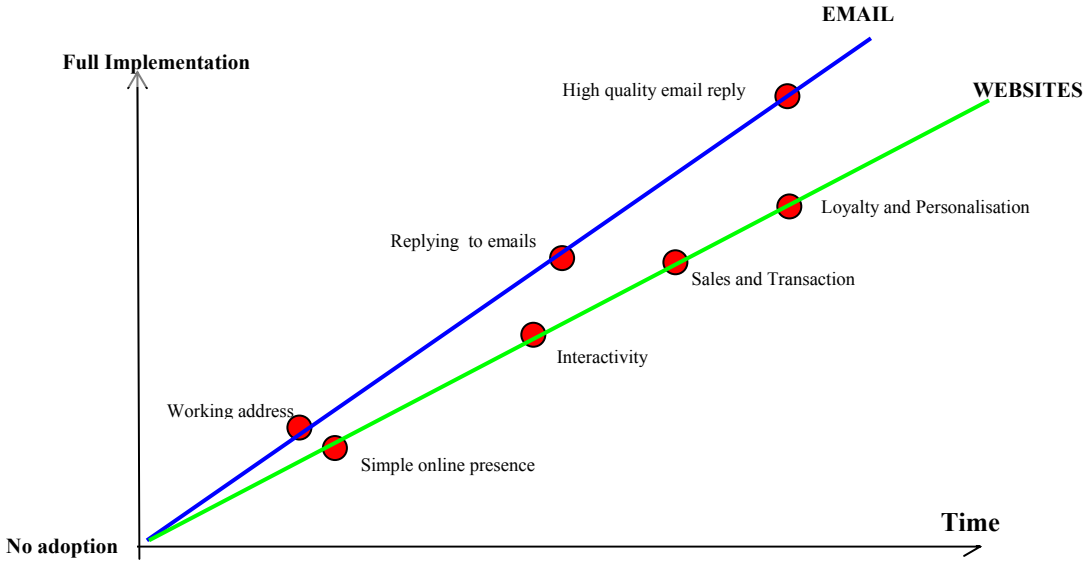


Figure 13 Internet evolution model

This study proposes an Internet evolution model that includes both most popular and widely use Internet features, email and websites. The graph in Figure 13 illustrates the evolution of email and websites use by Malaysian hotels. The x-axis represents time while y-axis represents the functionalities of the two features, email and websites. The graph proposes, over time, Malaysian hotels' websites evolve in their functionalities, so does their email reply quality. As such, Malaysian hotels at the final stage of website evolution, offering personalisation and loyalty, will provide better email reply quality than hotels at first stage, simple online presence. Thus,

***Hypothesis 15**: Malaysian hotels' website evolution stage will relate to email response evolution.*

In closing, this chapter developed the dissertation's hypotheses to answer the research questions. A key contribution of this dissertation, which this author believes no published studies have explored, is the four-stage email implementation model. Section 2.2.6 of the literature review indicates the gap on Internet adoption literature that most Internet adoption studies did not include email in their adoption model. Thus, this study helps close the gap by including email and proposes a four-stage email implementation model. Another contribution of this dissertation is to extend the application of the Miles and Snow (1978) to email use, which to the author's knowledge, no published studies have explored.

Having developed the hypotheses, this study begins with an explorative qualitative study to explore the relationships within the hypotheses using a sample of 13 Malaysian hotels, two website designs companies and hotel association, to test the hypotheses. The following chapter presents the explorative study and its results.

Chapter 4 The Qualitative Study

This chapter present the qualitative study results. It begins by describing the objectives and the interviews preparation. This chapter closes with the interviews findings and summary of the findings.

4.1 Objective

The purpose of the interviews was to validate the relevance of theories discussed in Chapter 2 and to explore the hypotheses developed in Chapter 3. Using snowball sampling, this study conducts semi-structured interviews with experts in hotels, tourism organisations and website development companies to obtain the required information.

4.2 The in-depth interview procedures

The interview protocol for the in-depth interviews outlined four procedures to prepare and guide the interview: (a) defining the required information, (b) deciding on the sampling procedure and size, (c) conducting the interviews, and (d) analysing the interviews.

a. Defining the required information

The first step in the interview process was to define the objectives and required information. As mentioned earlier, the objectives of the interviews were to validate the relevance of theories discussed in Chapter 2 and to explore the hypotheses develop in Chapter 3. In doing so, the in-depth interview gathered information related to two issues:

(a) Hotels' email and websites use in the past, presence and expectation in future;

(b) The influence of hotel characteristics and business strategic types on email and websites adoption and implementation

b. Sampling procedure and sample size

Using snowball sampling, no sample size was pre-determined for the in-depth interviews (Rao & Perry, 2003). Snowball sampling is appropriate when the research involves a small and specialised population (Aaker, Kumar, & Day, 2001; Malhotra, Hall, Shaw, & Oppenheim, 2002). Characteristics of snowball sampling include (1) emergent sampling, (2) serial collection of sample units allowing for variation of data, (3) continuous adjustment of the sample, and (4) data redundancy when there is no new information (Lincoln & Guba, 1985).

Snowball sampling helps achieve variation in the information (Lincoln & Guba, 1985). A key element of snowball sampling is the selection of informants (the interviewees) that should include those from different background. Ideally, each successive informant should extend the information already obtained (Lincoln & Guba, 1985; Patton, 2002). The researcher initially contacts a few potential respondents and then asks the interviewed persons to nominate other potential individuals with good knowledge about the topic (Malhotra et al., 2002; Patton, 2002).

To achieve heterogeneity, this research selected a small and diverse sample of experts from Malaysia's hospitality and tourism industry. Table 17 shows a brief profile of the 17 interviewees, of whom 13 were hotel CEOs or top-level managers, two were representatives from two Malaysian hotel associations and two were the directors of two website design companies. The 13 hotels include non-rated to five-stars, affiliated and non-affiliated hotels. Per the interview protocol, the interviewees' identities are anonymous.

Hotel	Profiles			Began using the Internet	Current Internet Use		
	Star Rating	Affiliation	Target market		Email		Website
					Internal	External	
PROSPECTORS							
D	Five	Chain	Business travellers	1998	Extensive	Extensive	Online reservation, promotion, email marketing, loyalty program
E	Five	Chain	Conference, meeting and teambuilding activities	1998	Extensive	Extensive	Online reservation, promotion, loyalty program
J	Five	Chain	Business travellers	1997	Extensive	Extensive	Online reservation, promotion, email marketing, loyalty program
DEFENDERS							
A	Two	Chain	Families and government agencies	1999	Minimal	Minimal	Brochureware
B	Three	Chain	Families and government agencies	2000	Moderate	Minimal	Online reservation, marketing and promotion
C	Four	Chain	Top level business travellers	1998	Moderate	Moderate	Online reservation, marketing and promotion
I	Three	Independent	Weekend travellers and privilege card holders	1999	Extensive	Moderate	Online reservation, marketing and promotion
ANALYSERS							
H	Three	Chain	Leisure travellers	1998	Moderate	Moderate	Online reservation, marketing and promotion
K	Four	Chain	Privilege card holders and leisure travellers	1998	Extensive	Moderate	Online reservation, promotion, membership and loyalty program
M	Five	Chain	Conference and meetings and families	1996	Extensive	Moderate	Online reservation, personalised marketing and promotion
REACTORS							
F	One	Independent	Leisure travellers and travel groups	No adoption	None	None	None
G	Two	Independent	Travel groups	No adoption	Minimal	None	None
L	Non-rated	Independent	Students	No adoption	None	None	None
Background information							
Hotels Association A			Executive Director	• Established on 1 March 1974 • This association represents 393 hotels in Malaysia			
Hotels Association B			Executive Director	• Established on 12 March 1998 • This association represents 60 Malaysian hotel owners.			
Websites design company A			CEO	• Designing and maintained clients hotel website • Owns two of Malaysian earliest hotels bookings website			
Websites design company B			Public Relations Officer	• Owns and developed the official tourism portal of Malaysia			

Table 17 Interviewees' profile

Conducting the interview

The interviews involved three steps as listed in Figure 14:

1. Contacting the respondent
2. The interview
3. Analysing interviews results
Malhotra et al. (2002); Rao and Perry(2003)

Figure 14 Steps involved in the in-depth interviews

Step one: Contacting the respondent

The researcher sent 25 personalised email invitations to potential respondents (see Appendix 1 for a sample email invitation). The email invitations yielded only one response. Two weeks later, the researcher sent a followed-up personalised invitation letter to the remaining 24 potential respondents (see Appendix 2 for a sample invitation letter). Participants could reply to the letter using a reply-paid envelope, fax or email to the researcher. However, the letters of invitation failed to garner any response. A phone call to the respondents' offices two weeks later garnered five responses. The interview started with six hotels and as per snowball sampling, the respondents in the first round suggested other experts. After three rounds, the interviews garnered another eleven responses.

Step two: The interview

Before the interview, the researcher introduced herself and briefly explained the purpose of the research. The researcher also informed the interviewee about confidentiality and asked for permission to tape record the interview. As the interview used a semi-structured format, the researcher prepared only few questions in advanced. The interview questions contained two sections. The first section related to the hotel's past, present and future Internet use. Examples of questions in this section are:

a. *What was the main influence that drove your hotel to adopt the Internet?*
b. *Please describe the changes in your hotel Internet use from the beginning till the present?*
c. *What are things that you like and dislike about using the Internet?*

In the second section, hotels described their business strategy. The interviewees described their services, major markets, competitiveness, view on new technologies and how they react to competitor and market changes. Examples of questions in this section are:

a. *How do you describe your hotel's competitive environment?*
b. *How fast does your hotel react to market and technological change?*

Based on the information, the researcher classified the hotels into the four Miles and Snow business strategic types (1978)(see more explanation on the operationalisation of Miles and Snow (1978) strategic types in Chapter 5). This method, called the investigator inference, allows the researcher to use the available information to identify the hotel's business strategy (Snow & Hambrick, 1980). Investigator inference resulted in four Prospectors, three Defenders, three Analysers and three Reactors The main advantage of this technique is combining the researcher's first hand information about the hotel, however, investigator's perceptual biases is a limitation of this method (Snow & Hambrick, 1980, p.532).

To overcome this limitation and increase the validity of the classification, this study employed a second method. At the end of the interview, the interviewees answered Conant et al's., (1990) 11 multi-items questionnaire to classify the hotel's business strategy. Once completed, the researcher classified the business strategy based on the response option

selected most often (Conant et al., 1990). This step validates the investigator inference classification. The final classification identified three Prospectors, four Defenders, three Analysers and three Reactors. For the four hotels with conflicting classifications, this study assumed the information from the multi items questionnaire was more valid than the investigator inference.

All interviews, face-to-face and tape-recorded took place in the interviewee's office and lasted from 50 to 90 minutes. Common to Malaysian business environment, the interviews were conducted in English and Malay. When the interviewee had little additional information to share, the researcher started to close the interview by inviting the interviewee to name key points or main issues from the discussion. In closing the interview, the researcher summarised the interviewee's points and then thanked the interviewees for their cooperation.

Step three: Analysing interviews results

Each interview was transcribed within a day of the interview. In analysing the interviews, the author seeks pattern and consistency in the data (Lofland & Lofland, 1995). The analysing process identifies and groups similar interview data on two issues: Internet use by the hotels and the relationship between hotel characteristics and business strategic types with their Internet use. Table 18 summarised and categorised the findings to show the patterns and themes raised from the interviews.

	Prospectors			Defenders				Analysers			Reactors			Hotel assoc A	Hotel assoc B	Website co. A	Website co. B
	D	E	J	A	B	C	I	H	K	M	F	G	H				
1. Factors leading towards Internet adoption • Government inducements encourage Internet adoption.	√	√	X	√	√	√	√	√	x	√	√	x	x	√	√	√	√
• Competition drives Internet adoption.	√	√	√	√	√	√	√	√	√	√	x	x	x	√	√	√	√
• Hotels have no proper plan on how to use the Internet.	x	x	X	√	x	x	x	√	√	√	x	x	x	√	√	√	√
• Hotels adopt the Internet to comply with existing trend.	√	√	√	√	√	√	√	√	√	√	x	x	x	√	√	√	√
• Small and local hotels tend to mimic the leading hotels to guide their Internet usage.	x	x	X	√	√	√	√	√	√	√	x	x	x	√	√	na	na
• The Internet is important for business activities	√	√	√	√	√	√	√	√	√	√	x	x	x	√	√	√	√
2. Email adoption and implementation • Internet adoption starts with email.	√	√	√	√	√	√	√	√	√	√	x	x	x	√	√	√	√
• Use email to communicate with the headquarters before using it with internal staffs.	√	√	√	x	√	√	x	√	√	√	x	x	x	na	na	na	na
• Use email to communicate with customers.	√	√	√	√	√	√	√	√	√	√	x	x	x	√	√	√	√
3. Website adoption and implementation • Websites begin with simple sites before evolving into complex websites.	√	√	√	√	√	√	√	√	√	√	x	x	x	√	√	√	√
• Branding becomes important	√	√	√	√	√	√	√	√	√	√	x	x	x	na	na	√	√
• Hotels add complex and advance features to satisfy users.	√	√	√	√	√	√	√	√	√	√	x	x	x	na	na	√	√
• Attitudes of Malaysian Internet users limit the advance website use.	√	√	√	√	√	√	√	√	√	√	x	x	x	√	√	√	√
• Hoteliers have limited knowledge about website design.	x	x	X	√	√	√	√	√	√	√	x	x	x	√	√	√	√
• Breach of privacy lead customers to reject online services.	√	√	√	√	√	√	√	√	√	√	x	x	x	√	√	√	√
• Online services could not																	

replace human touch and warmth.	√	√	√	√	√	√	√	√	√	√	x	x	x	√	√	√	√
4. Relationship of hotel characteristics with Internet adoption and implementation • The large, chain and high rated hotels set the trend for Internet use.	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
• Internet adoption is faster by international chain hotels due to the availability of IT expertise, funds and compulsory by the headquarters.	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
• The local small, low rated and non-affiliated hotels are cautious in their decision to adopt and use the Internet.	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
5. Relationship of business strategic types with Internet adoption and implementation • A hotel business strategic type relates to Internet adoption.	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
• Depending on the business strategic type, hotels differ in their email and websites use.	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
• Hotels business strategic types relate with the hotel characteristics.	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√

Notes: √ = interviewee agrees with the theme
x = interviewee disagrees with the theme
na = questions not raised

Table 18 Summary of results from the interviews

The following section report the interview results in detail. The quotations provide evidence of the patterns found in the data and the time in bracket is the approximate years based on the interviews.

4.3 Interview results

4.3.1 The evolution of Malaysian hotels Internet use

a. The past (1996-2000)

There was a strong consensus among the 13 hoteliers that their Internet use started with email. Early email communication was by executives with headquarters. Email then became available for other staff and later, hotels provided their email address on the website as an alternative customer communication channel.

External inducements from the government such as the tax exemption on computer equipment, rapid Internet infrastructure development and pressure to keep up with competitors drive the hotels to the next stage - online presence. Their early websites provided brief and general hotel information, became a valuable tool to deliver information and promote their hotel to potential customers worldwide. As the general manager of Hotel E explained, *"The Internet allows us to open our rates and promote our hotel to the whole world…if we can capture even less than 0.0001 percent of the world population, can you imagine our guest patronage?"*

The general manager of Hotel M called the early days the *'computerisation'* era, with a loud call from the industry and the government to use the Internet - *"but very few of us could visualise the benefits. We thought that this 'Internet' was another duplication of phone, fax and mail."* Hoteliers were slow in using the Internet. Fear of investment losses, lack of awareness and IT expertise hindered adoption. Managers were uncertain about their decision to adopt the Internet and tended to mimic the leading hotels to guide their Internet usage. For example, the general manager of Hotel C, *"there was a massive Internet adoption especially among the big chain hotels, most followed the model of their sister hotels in developed countries."*

The general managers also reported no definite plan or strategy to promote their Internet use. There was only a vague understanding of the Internet. For instance, the general manager of Hotel K explained*, "We adopted the Internet because of the trend…the Internet is something that we knew was going to be here to stay. But the usage was not a focus until a few years later when we realised it could help our business."*

Both hotel associations described a gap of Internet use in the early days. The trend of adopting and providing Internet facilities to guests was particularly apparent by urban and international chain hotels, supporting the literature of Malaysian hotels' Internet use (see section 2.1.4). Compared to the local chain hotels, Internet adoption was faster by international chain hotels due to the availability of IT expertise, funds and even mandated by the headquarters. Awareness, knowledge and costs to set up the Internet were major impediments for local hotels, particularly the small and independent, to provide Internet facilities.

Observing the success of Internet marketing in the overseas market inspired website company A to learn about website design and Internet business before launching its own and Malaysian's first, Internet booking website.

b. The present (2001-2005)

This century, the hoteliers added functions and information on their website to meet customers' needs. Hotels also started to use email to communicate with customers, particularly overseas customers. Websites functionality departed from publishing sites to sites with extensive hotel information and value-focused tools such as Internet only offers, images and videos of their rooms. Internet use, particularly website design, became market

driven and imitation remained common. For instance, the Hotel E's general manager noted that their newly updated website with an *e-magazine*, *e-news* and *animation* became common on competitors' sites within a few days.

Major changes during this phase included providing transactional support and online reservations - through booking engines or from the hotel's website. According to the hoteliers, apart from information dissemination, online reservation was the most successful feature that contributed to the hotels sales. For instance, to encourage customers to use the online reservations, Hotels B and H provided discounts for online bookings.

The hotels also started to purchase domain names to match their brand name such as Hotel ABC buying *hotelabc.com* or *hotelabc.com.my* for its website address. Hotels C, D, E, and G extended the domain names to their email address, such as the hotels hoped these branded domain names would increase trust and encourage more customers to book rooms online. As the general manager of hotel H said*, "We have a strong brand name in other products, so we believed extending the brand name to our hotel's website gave us a higher chance to attract guests and make them feel confident".* At this phase, the hotels' website design and functionality included online reservations, feedback forms, 360^{o} panoramic room views, flash animation and newsletters.

As websites became standard, hotels faced pressure to differentiate their services. The hotels started to seek niche areas to extract value from their website. Customers requested more personalised and convenient tools such as email newsletters, language options, currency converters, redeem points and weather information according to the general manager of

Hotel M. Forward-looking managers began to provide complementary functionalities such as information about nearby attractions and simpler transactions such as one-click reservations and cancellations.

However, some general managers remain sceptical, as Malaysian customers still hesitate to engage in advanced Internet activities. The managers predicted online reservations would remain the main online activities until Malaysian are open to other advanced features. Trust and lack of confidence among customers were the main barriers to online activities. For instance, the Sales and Operations Manager at Hotel C said, *"Of course being in Malaysia, we still lag hotels in America and Europe in Internet marketing. Few hotels talk beyond online reservation. It is not that we do not want to change… but my customers still prefer to call and fax their reservation".*

Both hotel associations' directors noted increased awareness of Internet use among Malaysian hotels. The international chain hotels lead the trend with well-designed website and marketing features such as online reservation and special online promotions. However, compared to the international tourists, Malaysians are still resistant to use Internet service. When asked why, one of the directors replied, *"Well, I guess it is easier to call, and most government institutions are still using paper documentation in their procedures."*

Both website companies also agreed there was increased awareness by the local hoteliers about the potential benefits of Internet marketing. Both companies started to receive requests from hoteliers to develop their hotel's website. Their main clients were local and lower rated hotels. The objective of the websites was primarily to provide hotel information. When

asked about hoteliers' knowledge on website design, the companies agreed, it is probably very limited. For instance, some were keen to have a 'nice' website, full with graphic, animation and music, not knowing the effect these features have on site performance such as slow downloading time.

c. The future (2006 and after)

The hotels agreed that personalisation and relationships would dominate future trends. The higher rated and international chain hotels (Hotels D, E and J) have loyalty programs and email marketing on their website. Lower rated and independent hotels are still watching and taking a small step forward, considering permission email as a future tool to help build relationships with existing and future customers. As the general manager at Hotel H expressed, *"I do not want to confuse my staff. Therefore, I will use email marketing first and see whether it works or does not work. If it works, then we could think about creating a full fledged website."*

However, there were concerns among the managers about customer privacy, which could lead to rejection of the services. Some also questioned the value of the Internet to build relationships. Hoteliers claimed that the Internet could not provide the essential ingredients of their business, human touch and warmth. As the general manager at Hotel B summarised, *"I might be old fashioned; however, I still think that the monitor and keyboard are no match to our greetings and heart warming smiles."*

The Malaysian hotel industry can no longer ignore the Internet's importance and benefits, said the hotel association directors. Hotels should plan and learn how to use the technology before deciding to adopt the technology. As Director B said, *"If the hotels provide email,*

then they must plan on email management such as, who is going to handle the incomings and outgoing email, how frequent to check the incoming email, and the reply time."

In summary, Internet use by Malaysian hotels evolved from the simple and popular Internet application, email, and eventually to websites providing personalisation and loyalty features. The interview results indicated that some hotels are early in adoption while some are laggards. As described in the diffusion of innovation theory (Rogers, 2003), an organisation's characteristics such as the structure, management style and business strategy could lead to different adoption behaviour. The following section describes hotel's characteristics and business strategic type with their Internet use.

4.3.2 Relating hotels characteristics and strategic types with the Internet evolution

a. Prospectors

The three Prospectors were five-star international chain hotels, mainly targeting business travellers. These hotels, among the earliest to adopt email and websites, were trendsetters and advanced in their Internet use. Their Internet use has gone beyond providing static information and online transactions to establishing close communication with their customers. Their websites emphasised strengthening customer relationships through features such as personal logins, redeeming loyalty points, newsletters, email marketing, real time information and quick responses to emails.

For Hotel J, the head office mandated Internet adoption. The general manager recalled that, "*I remember during the early days, we were sent to a few Internet courses and learnt how to use and send email*." For Hotels J and D, the head office designed and maintained their

websites to ensure consistency and protect the corporate image. In addition, the hotel managers frequently contributed new Internet marketing ideas and evaluated the website's performance. Hotel E, which owned and maintained its website, had an informal approach that emphasised discussions with its IT experts. The Executive Director commented that, *"We monitor the trends of our website and make sure that latest information is included on the website on a daily basis."*

The Prospectors agreed that their IT experts and strong financial facilitate technology changes. The hotels also agreed on the need to update a website regularly. The manager of Hotel E noted that the best website updating schedule is daily and stressed that websites should only include relevant information as consumers scan for information quickly on the web.

b. Defenders

Defenders focus on a limited and narrow market, and follow trends to satisfy their customers (Apigian et al., 2005; Miles & Snow, 1978). Defenders were chain and individual hotels, ranging from two- to four-stars. They viewed the Internet as a cost efficient technology that improved sales and service quality. Fear of losing their customers influenced their decision to go online. As the general manager of Hotel I said, *"We have to follow the trend, otherwise we will lose our existing and potential customers as it is easier to find our competitors' hotels on the Net."*

The four Defenders viewed their websites as another advertising channel to disseminate promotional information. Hotel A's website was still at the publishing stage (Hanson & Kalyanam, 2007), providing basic information about rooms and facilities. None of the other

three hotels went beyond online reservations. According to the room division manager of Hotel B, *"Our online reservation generates less than 5% of our total reservation."* The four hotels used email moderately in their internal communication and minimally with their customers. When asked about the hotel email management policy, only Hotel C had a guideline and staff charged to handle incoming emails.

The minimal email and website use related to their main markets - government institutions and families - that may still prefer letters and faxes. When asked about future Internet use, the managers of Hotel A and B were unsure; it depended on their customers. If customers were happy with phone and faxes, there was little benefit investing much in websites and email. For example, the general manager of Hotel A commented that, "*We have a few loyal customers and know them very well… whenever they want to stay with us… they just ring and we handle the rest."*

c. Analysers

Analysers, three to five star chain hotels, assessed their competitors closely for new ideas and rapidly adopted those that appeared promising. Analysers were cautious in spending for their website. They balanced the risk and return by copying the leading hotels' most promising ideas (Miles & Snow, 1978). For instance, Analysers adopted online reservations after Prospectors had used the feature successfully. As the general manager of Hotel K said, *"We don't just shoot blind bullets, hoping that one will hit. We will do it stage-by-stage. We always look at the successful features adopted by leading hotels and evaluate whether or not it suits us."*

The three managers in this category agreed that the objectives of a website were to retain existing customers, build loyalty and expand new markets. The hotels however, kept their sites simple by providing only hotel information and avoiding unnecessary design costs such as animated introductory pages. Analysers, however, felt pressure from the changing market, mainly the younger generation, to provide advanced services online. The general manager of Hotel M commented that, *"Most of our new customers are looking for more features on the web. We need to address this; otherwise we are going to loose."*

d. Reactors

Reactors comprised low rated independent hotels and did not have email or websites. Two of these three hotels were family-businesses. Lack of IT expertise and most importantly, customer preferences, were the hotels' reasons to stay offline. They agreed that looking sophisticated and techno-savvy was not an objective. They were happy with their present business. New customers stemmed from referrals. When asked about future Internet adoption, the answer was negative. As the general manager of Hotel F explained, *"I don't think we are going to invest in the Internet within the next couple of years. Business has been very good so why do I have to change?"*

4.4 Summary

Figure 15 summarises the interview findings and illustrates the evolution of Internet use by Malaysian hotels and its relationship between hotels' strategic types. The results support the three categories of Internet adoption in hypothesis 1, Malaysian hotels Internet use begins with email followed by website. Similarly, the results support the diffusion of innovations theory and the hypotheses on the role of an organisation's characteristics, business strategy and change agent in influencing the adoption decision on technology adoption and use.

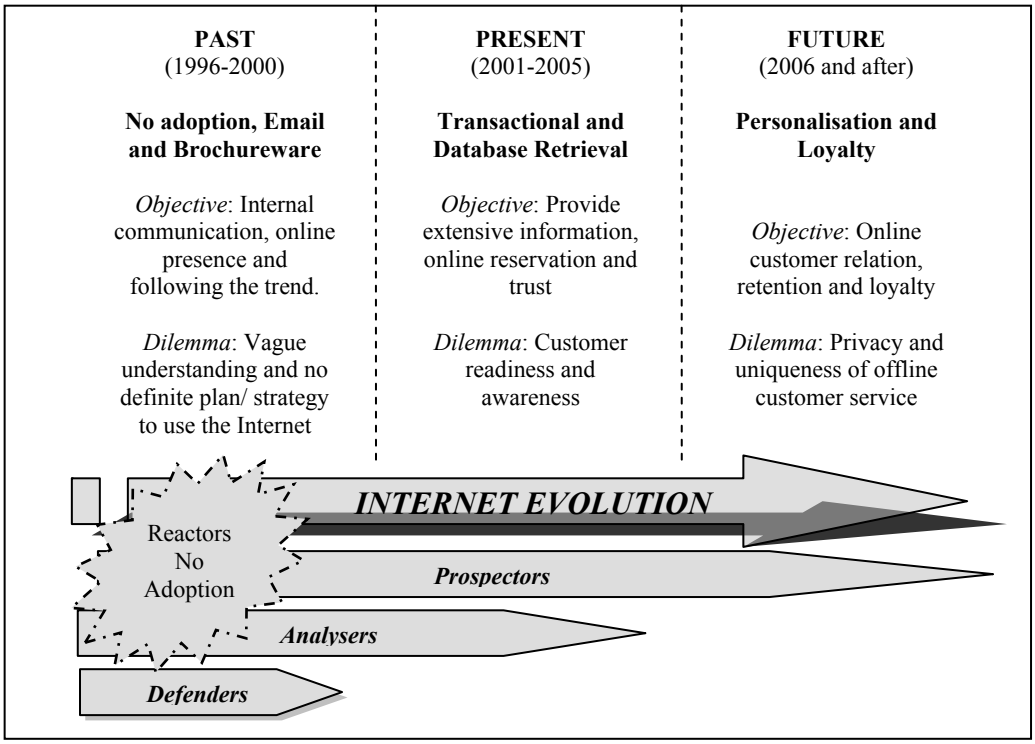


Figure 15 Strategic types and the evolution of Malaysian hotels Internet use

As reflected in the interview results, the large, affiliated and high rated hotels led in Internet adoption. Similar to studies in developed countries (Jogaratnam & Tse, 2004; Siguaw et al., 2000; Wei et al., 2001), large, high rated and chain hotels in Malaysia led the Internet use by using the Internet for advanced activities such as permission email marketing and loyalty programs. The small, low rated and independent hotels were still using the Internet in a limited fashion. They concentrated on exploiting the Internet for disseminating information and online reservation.

Prospectors led with advanced website features while Reactors at the other end of the continuum had no Internet adoption. Analysers took a 'safe approach' by copying the market leader. As Defenders operate in a relatively stable environment, online changes are slow. Prospector hotels acted as the change agent in Internet use by Malaysian hotels. Their Internet use set up the trend for the Analysers, Defenders and Reactors to follow.

The interview results also showed consistency with the hypotheses on evolving Internet use. Malaysian hotels Internet use started in the late 1990s. The interviews showed that in the past ten years, the Malaysian hotels' Internet use has evolved in three stages from to simple online presence, to websites providing transactional capabilities and eventually providing personalisation and loyalty features. At each stage, the hotels faced dilemmas and concerns regarding their Internet use. For instance, during the first five years, the hotels had a vague understanding of Internet use. As they progressed on their Internet use, customer readiness and security became a concern. Protecting customers' privacy became a concerned as the hotels provide personalisation and loyalty features on the web. Finally, the hotels also faced the challenge of extending their offline customer services to online.

The interviews also highlighted the potential of joining Internet bandwagon by the Malaysian hotels (Abrahamson, 1991; McBride, 1997), failure to use technology effectively as adoption was simply to keep up with trends and fashions, or to imitate their competitors. The interviews with website design companies and hoteliers revealed that some hotels adopted the Internet without knowledge or planning. Following the Internet bandwagon could lower their chance of successful implementation of websites and email as business tools (Murphy et al., 2003).

4.5 Conclusion

The interviews supported the proposed relationships in the hypotheses related to the diffusion of innovations (2003) and the Miles and Snow (1978) business strategic types. However, the small and unequal number of chain and non-chain hotels limits generalising the findings. To improve generalisation and to test on the hypotheses, this study conducted a

followed up study with 540 hotels registered with Ministry of Tourism Malaysia. The next chapter presents the quantitative study.

Chapter 5 The Quantitative Study

This chapter describes how the quantitative study addresses the research questions and hypotheses. It consists of four sections and begins with the description of the objectives followed by explanation for the data acquisition process. Then, this chapter presents the descriptive results and closes with the hypotheses testing results.

5.1 Objectives

This quantitative study complements and helps generalise the results in the qualitative study reported in Chapter 4, and addresses the four research questions related to Internet adoption and implementation by Malaysian hotels in Chapter 1.

5.2 Data acquisition

The data collection involved four procedures: mail survey, website features and email response analyses and collecting website age. The four procedures took place from April to November 2006. The following sub-sections discuss each procedure.

5.2.1 Mail survey

The population was a census of all 540 hotels registered with The Ministry of Tourism Malaysia in 2005. The questionnaire requested general hotel information such as year of establishment, size, rating, affiliation status and each hotel's business strategy type based on Conant, Mokwa and Varadarajan's (1990) multi-item scale. (see Appendix 3 for the questionnaire).

There are at least five methods to operationalise and classify a Miles and Snow (1978) business strategic type: investigator inference, self typing paragraph, multi-items scale, external assessment and objective indicators. Table 19 summarises the advantages and limitations of each method.

Measurement Approach	Measurement Description	Illustrative studies	Strengths	Limitations
1. Self typing	Respondents classify their organisation into a strategic types based on a paragraph description of the four strategic types	Snow and Hrebiniak (1980); McDaniel and Kolari (1987)	• Easy to complete and interprete • Captures the four strategic types • Useful with a large sample • The most widely used	• Single item scale. • Over simplification of archetypes - paragraph descriptions of the strategic types capture only two or three of the 11 adaptive cycle dimensions. • Description bias for Reactor.
2a. Multi items scale, complemented by investigator-specified decision rules	• Multi item, Likert scale • Classification of the four strategic types based on multi item scales developed to measure each strategy types • Some studies used cluster analysis to classify firms into strategic groups	Smith et al. (1989); Segev (1987b)	• Captures the four strategic types • Useful with a large sample	• Simplification of archetype scale items do not capture the 11 adaptive cycle dimensions. • Scale inconsistencies - number of items varies by strategic type (nine for Defender, eight for Prospector, seven for Analyser and four for Reactor).
2b. Multi items scale questionnaire	• Multi items, close-ended scale • Uses a 'majority rule' decision - the response selected most - to classify the organisational strategic type	Conant et al., (1990); Desarbo et al. (2005)	• Captures the four strategic types • Scale consistencies - one item for each strategic type	• Interpretation challenges. • Non convergence issue.
3. External assessment	• Expert panel assessment and typing	Meyer (1982)	• Impartial assessments. • Captures the four strategic types • Useful with large sample	• Time consuming. • Need to identify experts and develop classification decisions.
4a. Investigator inference	Investigator inference based on interviews with company executives	Ruekert and Walter (1987)	• Somewhat objective • Captures the four strategic types	• Time consuming. • Usefulness restricted to small samples.

				• May involve researcher's perceptual biases.
4b. Investigator inference tempered by external assessment and objective indicators	Interviews with company executives and industry experts and review of annual reports, government documents and press releases	Miles and Cameron (1982)	• Captures the four strategic types • In depth analysis • Multiple measurement approaches	• Expensive and time consuming. • Usefulness restricted to small samples.
5a. Objective indicators, external assessment and investigator inference	Quantifiable published data from industry sources, assessment by expert panels and investigator inference based on interviews with CEO	Hambrick (1982); Hambrick (1981)	• Use of multiple measures facilitates identification of strategic types	• Unidimensionality of objective indicator. • Time consuming. • Usefulness restricted to small samples.
5b. Objective indicators/ secondary data	• Percentage of sales derived from new products • Interval measure transformed into ordinal measure	Hambrick (1983)	• Useful with large samples • Easy to interpret	• Unidimensional conceptualisation.

Source: Conant et al. (1990) with additions

Table 19 Operationalisation of Miles and Snow (1978) business strategic types

There is no best classification method; each method has advantages and limitations (zahra and Pearce, 1990). Experts suggest choosing suitable methods depending on the sample size (Hambrick, 1980; Zahra & Pearce, 1990). Nonetheless, research method studies emphasise avoiding a single item scale and using multi-item scales to measure a construct (Peter, 1979; Zahra & Pearce, 1990). As mentioned by Peter (1979),

> *"Most constructs by definition are too complex to be measured effectively with a single item, and multi item scales are necessary for appropriate reliability and validity assessment (p. 16)."*

This study adapted Conant, Mokwa and Varadarajan's (1990) multi-item scale of the Miles and Snow business strategy types. Other scales such as those by Segev (1987b) and Smith et

al. (1989) are less comprehensive than Conant et al.'s (1990) scale in covering the 11 strategic dimensions in Miles and Snow's typology (Woodside, Sullivan, & Trappey 1999, p. 136). In addition, Conant et al.'s (1990) scale achieved 100% agreement on content validity by a panel of judges and an average test-retest reliability coefficient of 0.69 (Woodside et al., 1999, p. 136) above the 0.50-0.60 recommended coefficient level for basic research (Churchill Jr, 1979).

The Conant et al. (1990) scale has 11 questions from the Miles and Snow business strategy typology. Each question has four response options. In applying the scale, Conant et al. (1990) used a majority rule decision, classifying organisations as Prospectors, Analysers, Defenders or Reactors based on the response option selected most often. Ties involving Reactor response options result in the organisation classified as a Reactor and ties between Prospector, Defender and Analyser response options classify the hotel as an Analyser (Conant et al., 1990). This decision classification is based on Miles and Snow's (1978) conceptualisation that Analysers are a 'hybrid' type of organisation possessing the characteristics of Prospectors and Defenders and the unstable nature of Reactors. Reactors may react like Defenders when conducting environmental scanning, Prospectors when developing new products and Analysers when evaluating their performance (Conant et al., 1990).

DeSarbo et al. (2005) used a stricter classification, each organisation must have at least six of the 11 criteria before being classified into a strategic type and excluded organisations with less than six criteria While their method produces a more accurate classification to the organisation business strategy, it reduces the sample size. Thus, this method suits studies

with a large sample size. For example, DeSarbo et al.'s (2005) study begins with 2400 firms and ended with 709 classified firms. Given the exploratory nature and small sample size, this study follows Conant et al.'s (1990) method for classifying the hotel business strategy.

Questionnaire preparation

The questionnaire preparation consisted of testing the content validity and pre-testing the questionnaire. Modification or translation of a survey instrument, as in this study, required testing of content validity to ensure the instrument measured the item (Tricker, Luck, & Pocock, 2000). Originally developed for health organisations, this study modified the questionnaire to suit hotels. Terms related to health organisation departments such as paediatric or gynaecology were replaced with sales and marketing to suit the hotel environment. For accuracy, this study used The Malaysian National Institute of Translation service to translate the questionnaire into Malay.

Content validity ensures that an instrument includes an adequate and representative set of items that cover a concept (Sekaran, 2003). Expert judgement helps establish content validity. When experts agree that a measure provides adequate coverage of a concept, the measure has content validity (Sekaran, 2003). The process involved marketing academicians and PhD students at The University of Western Australia (UWA) to comment on the clarity of the questionnaire. Later, the researcher contacted Professor Jeffrey S. Conant, the developer of the questionnaire for his feedback. These steps yielded modifications on some statements, wordings and layout of the questionnaire before the pre-test.

A pre-test preceded the final data collection. Pre-testing should be extensive, use the research instrument in its intended form and respondents from a similar population as the final survey (Malhotra et al., 2002). As such, a pre-test took place in January 2006 with 50 Malaysian hotels that were not part of the final sample. Fifteen of the 50 hotels (30%) responded to the survey. The pre-test required the respondent to complete the questionnaire and note any problems they faced. There were no suggested changes from respondents, thus, this study proceeded with data collection.

Data collection

The data collection used postal and online questionnaires and followed guidelines from research method experts to boost the response rate (Dillman, 1978; Falconer & Hodgett, 1999; Fox, Crask, & Kim, 1988). A three-wave survey ran from April to July 2006 with a personalised cover letter using the UWA university letterhead to the 540 hotels. The cover letter indicated the purpose, instructions and included a link to the online questionnaire for respondents to answer online. The researcher and her supervisor hand signed the letter and thanked the respondents in advance for participating in the study.

Eight questionnaires came back due to hotels no longer operating and two hotels declined to participate. The questionnaire yielded 246 replies with four were incomplete questionnaires, and later dropped from this study, leaving the sample to 242 hotels. The effective responses rate was a moderate 45% (Baruch, 1999). The response enabled the researcher to update the information on hotel profiles and identify hotel business strategic types. The second data collection process, website content analysis followed.

5.2.2 Website analysis

An objective of this study is to investigate the implementation of Internet use via website features and email reply quality. This study uses content analysis to investigate the presence of website features. Content analysis determines the presence of words or concepts within texts. It is an unobtrusive method, suitable for unstructured and symbolic forms, and can cope with large volumes of data (Krippendorff, 1980). These capabilities are an advantage for web analysis (McMillan, 2000; Weare & Lin, 2000).

Content analysis preparation

The content analysis started with website features listed in Hashim et al.'s (2007) meta-analysis of website evaluation studies. The study reviewed over 60 studies on information systems, Internet marketing, electronic commerce, and tourism and hospitality websites studies, and identified five website dimensions with 250 features related to hotel website. *Dimension* refers to broad evaluation criteria while *features* are specific items on the website representing a dimension.

The study applied a data consolidation technique that emphasised thematic similarity and structural conceptualisation to group the 250 variables into five dimensions (Trochim & Linton, 1989; Zafiropoulos et al., 2006). Consolidation of the 250 features yielded 98 features common in website evaluation literature, classified under five dimensions and 15 sub-dimensions (see Table 20). The dimensions and features resemble the literature discussing the evolution of websites (Piccoli et al., 2004) and website evaluation (Park & Gretzel, 2007), from providing information at the beginning to providing personalisation and adding value as the website evolves.

Clarity of coding units, the content counted and scored in the content analysis, is essential for content analysis (Krippendorff, 1980; McMillan, 2000). Clear and mutually exclusive coding units are important for the content analysis process to avoid miscoding. A lengthy 98 coding units has a higher possibility of miscoding than a smaller set of coding units.

1. INFORMATION AND PROCESS	**2. VALUE ADDED**	**4. RELATIONSHIPS**
Sales or reservation	***Travel information***	***Loyalty/CRM***
Online reservation	External links to local sites	Personal login
Search capability	General information	Newsletter
Secure payment	Transportation	Guestbook
Reservation information	Events calendar	Frequent visitor program
Online cancellation	Exchange rate	Permission marketing
	Travel essentials	Membership/Club
Contact information	Interactive map	Data collection for profiling
Email	Climate/weather	Cookies
Phone	Mobile access	Special request
Physical address	Online itenary planning	Reward points
Map	Download and printables	
Fax		***Public Relations***
Contact Person	***Entertainment***	Comments/Enquiries/ Suggestions
	Video/flash/animation	News /Press release
Goods and services	Contest	What's new
Room description	Send an e-card	
Room facilities	Publication	***Personal interest***
Hotel facilities	Viral Marketing	Online community
In-room photo	Wireless capability	Brochure request
Technical information	Chatroom	Customised packages
View out of the room		Survey
	3. DESIGN AND USABILITY	
Sales promotions	***Navigation***	**5. TRUST**
Special promotions	Ease of Use	***Copyright and security***
Groups	Multilingual site	Privacy statement
Family/kids	FAQs	Corporate identity
Advertisement	Search function	Site usage term
Gift certificate	Sitemap	Copyright
Honeymooners	Consistent theme	Web design
Bonus/coupons	Management of the website	
Business travel		***Timeliness***
	Technical	Current and timely info
About the hotel	Loading time	Date of last update
Short description	Browser compatibility	Response to inquiries promptly
Photo of the hotel	Option of browser versions	
Employment	Text only version	***Branding***
Mission/purpose	ALT tags	Branded URL
Announcement and award	Page length	Branded email
Shareholder info	Frame title	Own URL
Opening period		Trademark
Organisation	***Success metrics***	
People	Popularity ranking	
	Number of incoming links	

Source: Hashim et al. (2007)

Table 20 Dimensions and sub-dimensions of the 98 features

Continuing from Hashim et al.'s (2007) study, this study reduced the coding units by selecting variables found significant ($p<.05$) in 15 tourism and hospitality studies involving hypothesis testing listed in Hashim et al.(2007). Selecting significant variables helps identify important and frequently studied features (Jeyaraj et al., 2006). Further, generalisation of findings on website evaluations could be improved by using a small set of relevant attributes (Benckendorff, 2006). This process reduced the coding units to the 44 features in five dimensions and 13 sub dimensions as in Table 21.

1. INFORMATION AND PROCESS	**2. VALUE ADDED**	**4. RELATIONSHIPS**
Sales or reservation	***Travel information***	***Loyalty/CRM***
Online reservation	External links	Personal login
Search capability	Local sites	Guestbook
Secure payment	Events calendar	Membership/Club
Reservation information	Exchange rate	
	Download and printables	***Public Relations***
Contact info		Comments/Enquiries/Feedback/ Suggestions
Physical address	***Entertainment***	News/Press release
Email	Audio/flash/animation	What's new
Phone		
Map	**3. DESIGN AND USABILITY**	***Personal interest***
Contact Person		Brochure request
	Navigation	Survey
Goods and services	Ease of Use	Online community
Room description	Multilingual site	
Room facilities	Management of the website	**5. TRUST**
Hotel facilities	FAQs	
In-room photo	Sitemap	***Copyright and security***
Photo of the hotel	Search function	Corporate identity
		Secured features to protect customers' info
Sales promotions		
Special promotions		***Timeliness***
Advertisement		Date of last update
		Response to inquiries promptly
		Branding
		Branded URL
		Branded email

Source: Developed for this study

Table 21 Dimensions and sub-dimensions with 44 significant variables

Data collection

McMillan (2000) suggested researchers note five issues when content analysing websites: research questions and hypotheses, sampling, data collection and coding, coders, and analysing and interpreting the data. While developing research questions and analysing data resemble offline content analysis, the other three issues present unique challenges in evaluating websites. Table 22 lists the recommended solutions and how this study addressed the three challenges.

Issues	Challenges	Suggested solution(s)	How this study addressed the issue
Sampling	▪ How to give an equal chance for each website? ▪ Does the use of different search engines result in different findings? ▪ What sample size is adequate? ▪ How to apply the traditional sampling techniques to the Web?	▪ Offline sources such as directories or lists maintained by industry groups ▪ Online sources such as search engine to generate the sampling frame	▪ A census of 540 hotels registered with the Ministry of Tourism Malaysia
Unit of analysis and coding units	▪ What is the unit of analysis? Homepage, entire site or the n^{th} level in the site hierarchy? ▪ What is the coding unit? ▪ What about sites that change rapidly? ▪ What about new sites added and old sites removed or changed? ▪ Coding an entire site could be extremely time consuming and introduce biases based on Web-site size	▪ Collect the data in a short time frame ▪ Evaluate the sites twice within 24 hours ▪ Download websites to capture the snapshot content ▪ Homepage would be ideal as visitors decide to continue based on the first impression of the homepage ▪ Have clear coding units	▪ Collect data in five days ▪ Limits the analysis to the homepage ▪ Clear and mutually exclusive coding unit ▪ Pre-test the coding units twice

Coders	▪ How to ensure the reliability of the coding?	▪ Train the coders ▪ If using more than one coder, check the inter-coder reliability	▪ Train the coder ▪ Check on the coders agreement ▪ Use the same Internet Services Provider and web browser version

Sources: McMillan (2000); Weare and Lin (2000)

Table 22 Issues related to website content analysis

a. Sampling

The Ministry of Tourism database did not provide website and email addresses. One source for the urls and email addresses was The Malaysian Accommodation Directory (MAD) 2003/2004, an official Ministry publication listing accommodation businesses in Malaysia. However, MAD did not provide urls for all hotels and some information was outdated. Another source for the urls comes from the survey response. To update and validate the MAD information, keying each hotel name into Google and Yahoo gathered 315 urls for the analysis.

b. Unit of analysis, coding units and reliability

This study limits the unit of analysis to website homepages. Although some features may be unavailable on the homepage, literature supports analysing just the homepage as it saves times, avoids bias based on website size and most users decide on browsing a site based on homepage impressions (McMillan, 2000; Weare & Lin, 2000). By selecting the significant variables, this list includes only the important and most studied variables (Jeyaraj et al, 2006). To increase reliability and to ensure the coding units are clearly defined, two coders conducted two rounds of pre-test with 10 hotels from Singapore, Brunei and Thailand
In the first round, the coders achieved 80% agreement, 176 out of 220 coding units. The coders then eliminated 17 variables that were difficult to code. The second round reached a

96% agreement (210 out of 220) with five variables reworded, reducing the list to 22 variables as in Table 23.

1. INFORMATION AND PROCESS	
Sales or reservation	***Description***
1. Online reservation	Link for online bookings
Contact info	
2. Physical address	List the complete address
3. Email	List the email address. Includes online form
4. Phone	List the phone number
5. Map	Link to a map
Goods and services	
6. Room description	Link about types of rooms offered
7. Hotel facilities	Link about facilities offered
8. Photo of the hotel	Presence of the hotel photo
Sales Promotion	
9. Special promotions	Link to special promotions
2. VALUE ADDED	
Travel information	
10. External links	Link to other websites
11. Download and printables	Features allowing users to print hotel information in document form
Entertainment	
12. Audio/flash/animation	Presence of flash/audio animation on the homepage
3. DESIGN AND USABILITY	
Navigation	
13. Multilingual site	Other language option
14. Sitemap	Link to sitemap
15. Search function	Presence of search function
4. RELATIONSHIPS	
Loyalty/CRM	
16. Personal login	Special login for members
17. Membership/Club	Invitation to join the hotel membership
Public Relations	
18. Comments/Enquiries/Suggestions	Link inviting users to leave their comments/feedback
19 News/Press release	Link providing news/press release about the hotels
5. TRUST	
Timeliness	
20. Date of last update	Homepage indicated the date for last update of the website
Branding	
21. Branded URL	The website url included the full or part of the hotel name
22. Branded email	Website URL as part of email address such as hotelabc@abc.com.my

Table 23 The 22 variables and description for the content analysis

Based on the reliability checks with two coders, the researcher was the sole coder for the analysis. A coding sheet helped record the details (see Appendix 4 for the coding sheet). The researcher analysed the 315 homepages from 6-12 November 2006. Next, the third data collection, the mystery email followed.

5.2.3 Email response analysis

Apart from website features, this study assessed email reply quality as a measure of implementation and evolving Internet use (Matzler et al., 2005; Murphy et al., 2003). Information from the Malaysian Accommodation Directory, survey response, Google and Yahoo search identified 359 out of 530 hotels with email presence. Fourteen hotels used the same third party email, a company that managed the hotels' websites and email. Because this did not reflect genuine email use by the hotels, this study excluded the fourteen hotels from the mystery email study, reducing the sample to 345 hotels.

Data collection

This study used a mystery email method to obtain the response. Similar to mystery shopping where a company sends mystery shoppers to evaluate their service, this study used a mystery email to hotels. Mystery shopping, used extensively in retail and hospitality sectors, helps companies monitor their service quality and identify areas needing improvement (Beck & Li, 2003; Wilson, 1998). The mystery email asked the hotels to respond to a short message asking about special rates and availability of a non-smoking room for two adults and two children during the 2006 end of year holiday season (see Appendix 5 for the email enquiry). A pre-test to 12 hotels in Thailand, Brunei, Singapore, Vietnam, Indonesia and the Philippines helped familiarise the researcher with the process.

The email was sent individually as studies using a mystery email technique suggest sending the email individually to avoid information overload and spam filters (Murphy et al., 2003). Further, to eliminate gender and country of origin biases, this study used a unisex English name and a Yahoo email address ending in a global domain, ashleigh_brown *@yahoo.com* instead of a country domain name such as ashleigh_brown *@yahoo.com.my.* The 345

personalised emails were sent from 31.10.2006 to 1.11.2006 between 9.00 am and 4.30 pm. Emails that failed to arrive due to server being down or spelling errors were sent again the following day.

Analysing and coding email reply

Similar to the website analysis, this study used content analysis to measure the quality of email responses. This study measured the quality of email response based on five Ps derived from hotels email studies - *Prompt*, *Polite*, *Personal*, *Professional* and *Promotional* - to profile proper email responses (Matzler et al., 2005; Murphy et al., 2003; Strauss & Hill, 2001). Table 24 lists the 13 features applied in this study to measure hotels' email responses.

Copying the responses into a Microsoft Word document allowed the researcher to investigate the presence of each feature in the response. Using Microsoft Word's search function, the researcher searched for words included in the 13 criteria such as 'Thank you', 'Dear' and any spelling or grammar errors in the reply. A coding sheet (see Appendix 6) helped the researcher record the presence of each features.

Features	Description
Prompt	1. Replied within 24 hours
Polite	2. Opened with 'Dear' 3. Thanked the recipient 4. Used 'Please' 5. Closed politely such as 'Best regards'
Personal	6. Greeted recipient by name 7. Closed with sender's name 8. Included sender's title
Professional	9. Answered question 10. Used proper English 11. Provided a provisional booking
Promotion	12. Signature file 13. Slogan or other promotional messages

Table 24 Features and descriptions of quality email reply

Two months later, a follow up email to the hotels noted the mystery email along with the summary of the findings. Having completed the mystery email process, the final data collection process, gathering the website age followed.

5.2.4 Validating and gathering website age from the Wayback Machine (WM)

As indicated in the Chapter 1, a methodological contribution of this study is validating the website age from the WM as a variable to investigate evolving Internet use. Validation is essential for new measures (Bagozzi, 1981; Hinkin, 1995). Failure to validate raises trust issues on research findings (Straub, 1989; Straub, Boudreau, & Gefen, 2004). Before collecting the website age, this study tested the:

(a) Face and content validity of three measures provided by the WM: archived web pages, website age, and website updates, and;

(b) Predictive, nomological, and convergent validity of two measures provided by the WM: website age and website updates.

Data preparation for the validity tests and preliminaryinformation

Keying in the 315 urls obtained from the Malaysian Accommodation Directory's (MAD) 2003/2004, survey response, Google and Yahoo search into the WM yielded 291 websites' ages and update frequency for the validity tests. The WM failed to give results for 24 sites due to trouble locating the site or the site declining indexing by the Internet Archive.

Of the remaining 291 websites, some chain hotels shared the same domain name, such as *hyatt.com* and *hilton.com* for all Hyatt and Hilton hotels in Malaysia. As duplication produced misleading results, this study excludes 116 affiliated hotels with the same domain

name and the same website age, leaving the sample for the validity test to 175 websites (see Appendix 7 for the list of hotels deleted). Of these 175 hotels, 96 hotels hosted their website in the global *.com* domain, and 79 hosted their website in Malaysia's country domain, *.my*. Table 25 shows the final sample for the validity test.

	Websites accessible via the WM	Sample without same domain name	Sample with *.my* domain	First website	Most updates from 1996-2005
Rating					
1-star	4	3	0	10.11.2000	35
2-star	50	31	12	3.11.1999	35
3-star	95	62	28	27.8.1997	63
4-star	71	48	24	22.12.1996	72
5-star	71	30	15	25.1.1997	60
Affiliation					
Chain	205	89	40	22.12.1996	72
Non-chain	86	86	39	27.8.1997	63
No. of Rooms					
1-99	70	53	16	1.12.1998	63
100-199	84	50	21	25.1.1997	33
200-299	55	35	22	25.1.1998	56
>299	82	37	20	22.12.1996	72
Total	**291**	**175**	**79**		

Table 25 Sample characteristics for validity tests

The results suggest that in line with diffusion of innovations research, high rated, chain-affiliated, and large hotels tended to lead in website adoption (Murphy et al., 2003; Siguaw et al., 2000; Wei et al., 2001). The first five-star hotel went online almost three years earlier than the first one-star hotel, early 1997 versus late 2000. The first chain hotel went online nearly a year earlier than the first non-affiliated hotel, late 1996 versus mid 1997. Finally, the first online hotel with over 300 rooms was about two years older than the first online hotel with under 200 rooms. This information related to the website age supported the

findings in the explorative study that Malaysian hotels started to adopt the Internet in the late 1990s and the large, affiliated and high rated hotels lead the adoption.

Similarly, high rated, chain-affiliated, and large hotels led in updating their websites. The five-star hotel with the most updates from 1996-2006 changed its site 60 times, compared to 35 times for the leading one-star hotel. Likewise, the leading chain-affiliated large hotel, which was also a large hotel, made 72 updates on its website versus 63 updates for the leading non-affiliated hotel that was also a small hotel. However, this discussion of website age and number of updates are just for one hotel—the leading hotel in each category—and not the entire sample of hotels.

Thus, the next section tests the validity of the Wayback Machine's website age and website updates using the entire sample. Three transformations were necessary prior to testing. A new variable called average update frequency was created, includes website age divided by the total number of website updates, to accommodate new websites. As update frequency and the number of rooms had an abnormal distribution based on a one-sample Kolmogorov-Smirnoff test, a logarithmic function transformed these two variables into a normal distribution.

a. Face and content validity

As its name implies, *face validity* relates to face value and relies upon experts' personal opinions and judgment. Because of the vagueness and subjectivity that can result, face validity is a weak test of validity, and some researchers question its use (Sekaran, 2003). Given the lack of validation of third-party online tools, checking face validity seems a reasonable first step prior to moving on to more demanding tests.

This study assessed *face validity* based on published research, feedback from three website managers, and a comparison with Malaysia's domain name database. In a landmark 2004 U.S. case, the court ruled that pages culled from the WM were admissible as evidence (Gelman, 2004). The court acceptance demonstrates face validity by legal experts. Next, an email invited two Malaysian hoteliers to test their website in the WM. The WM provided archived versions of their sites, and they agreed that the WM provided accurate ages and archived versions.

A final test of face validity compared the website age provided by the WM with the domain name age provided by Mynic, Malaysia's domain name registrar (whois.mynic.net.my). In principle, a hotel would register a domain name to house the website prior to launching the website. Comparing the WM website age with the domain name age for the 79 hotels using a *.my* domain name showed that 11 hotels had a domain name age younger than the WM website age. Three hotels changed domain names, evidenced by the links and content on archived web pages. For example, the Hotel Flamingo began at *www.twosteps.com/flamingo* on August 23, 2000 and then changed to *www.flamingo.com.my* on June 3, 2002. The other eight hotels changed their Mynic information, resetting the registration date on file with Mynic. These two issues highlight shortcomings of using domain name age as a measure of Internet adoption and provide face validity for the Malaysian hotels' website age.

b. Content validity

Closely related to face validity is *content validity*, which ensures that a measure includes an adequate and representative set of items to cover a concept. Content validity also relates to sample-population representativeness, for example, the ability of a questionnaire to

represent the larger population. When experts agree that a measure provides adequate coverage of a concept, the measure has content validity (Sekaran, 2003).

This study assessed content validity based on the representativeness of websites and adequacy of the website age information provided by WM. As noted above, the WM provided universal coverage for the two Malaysian hotels' websites. Furthermore, the WM returned archived versions for 291 of 315 hotel websites, which suggests representativeness. In summary, confirmation by website managers and representation of 291 Malaysian hotels in the WM suggest face and content validity of the WM's website age, website updates and archived web pages.

c. Predictive validity

Predictive validity, also known as practical or concurrent validity, measures how well an independent variable or set of independent variables relates to the characteristics of research interest (Sekaran, 2003). Scholars debate whether predictive validity falls in the general category of *construct validity* (see the following section) or the extent that the operationalisation of a concept actually measures that concept (Straub, 1989). Predictive validity can also show the applied value of research (Straub et al., 2004). For example, a business could predict its online sales based on the number of website visits and email enquiries. To demonstrate validity, the firm could periodically correlate website visits in a particular month with sales in that or subsequent months. Repeatedly high correlations would suggest predictive validity, thus allowing the firm to use website visits to forecast future sales. Depending on the objective, researchers typically use correlation or regression analyses to test such hypothesised relationships (Hinkin, 1995)

Predictive validity stemmed from the number of website updates recorded. Literature on the evolution of websites (Chatterjee, Hoffman, & Novak, 2003; Chu et al., 2007; Piccoli et al., 2004; Teo & Pian, 2004) led to the prediction that older websites would have a higher average frequency of updates. The result of a one-tailed Pearson correlation test - a significant positive relationship between website age and the logarithmic value of update frequency ($r=.274$, $n=175$, $p<.001$) - shows older websites were updated more frequently and suggests predictive validity.

c. Nomological validity

Combined with predictive validity, *nomological* and *convergent* validity help achieve *construct* validity - the empirical and theoretical support for a particular interpretation (Straub, 1989). Nomological, or lawful, validity links a theoretical concept with observable results (Cronbach & Meehl, 1955).

The diffusion of innovations served as the theoretical base for testing nomological validity. This theory argues that organisational characteristics relate positively to organisational technology use (Matzler et al., 2005; Wang & Fesenmaier, 2005). U.S. and Swiss studies showed that high rated, large, and affiliated hotels led in technology adoption (Murphy et al., 2003; Siguaw et al., 2000). Compared to lower rated, smaller, or non-affiliated hotels, such hotels had more resources and expertise to facilitate IT implementation. Similarly, emerging Malaysian research and early global research found that large, high rated, and affiliated hotels led in the use of advanced website features (Hashim & Murphy, 2007; Wei

et al., 2001). Based on the similarity in these studies, star rating, hotel size, and brand affiliation were the independent variables for testing nomological validity.

Table 26 shows the results of one-way Pearson correlation tests for the logarithmic number of rooms (due to the non-normal distribution), Spearman correlation tests for star rating, and independent t-tests for chain-affiliation against the dependent variables of website age and number of updates. Given the possible correlation among the three independent variables - size, number of stars, and affiliation - two multiple regression tests examined the predictive importance of the independent variables on website age and number of updates. No independent variables were significant predictors for number of updates, and star rating was a significant predictor of website age (β=.203, p=.031).

Correlation coefficient/ t-value, significance level	Size	Rating	Affiliation
Website age in days	0.161, p=.017	0.239, p=.001	2.737, p=.004
Average update frequency	0.112, p=.070	0.193, p=.005	1.775, p=.039

Table 26 Correlation and T-test results for website age and number of updates

Although the low correlation coefficients in Table 26 indicated significant relationships, and the multiple regressions showed low predictive importance, the results were in line with diffusion of innovations research. Larger, higher-rated, and affiliated hotels launched their websites earlier and updated their websites more often than did smaller, lower-rated, and non-affiliated hotels did, helping support nomological validity.

d. Convergent validity

Convergent validity results when two variables measuring the same construct correlate highly (Straub et al., 2004). Triangulation of multiple research results, rather than relying on a single line of evidence, helps achieve convergent validity.

Convergent validity was evaluated by measuring the relationship between domain name age and the creation date of a website at that address. Despite the limitation of a temporal gap between owning a domain name and having a live website, studies use an organisation's domain name age as a proxy for Internet adoption (Adamic & Huberman, 2000; Murphy et al., 2006). Although a domain name age is an imperfect proxy to investigate evolving Internet use, a high positive correlation between a website's domain name age and that same website's age as provided by the WM would suggest convergent validity.

This study used the 79 websites with a *.my* domain to test convergent validity due to difficulty of establishing the age of names in global domains such as *.com* or *.org*. Eliminating the 11 hotels that changed domains or Mynic information, the result of one-way Pearson correlation for the 68 hotels hosted in *.my* showed a significant positive correlation between website age and domain name age ($r=.933$, $p<.001$). This strong correlation supports convergent validity for the website age provided by the WM.

The results of the four validation tests website age helped validate the 291 websites ages gathered for this study. The validation also helps overcomes limitations associated with domain name age and gives a valid temporal measure to study the evolving Internet use. Having gathering the data, the next section presents the results of the hypotheses testing.

5.3 Descriptive analysis

5.3.1 Population and sample

The population was a census of 540 hotels registered with Ministry of Tourism Malaysia in 2005. The mail survey identified eight hotels no longer operating and two hotels declined to participate, leaving the sample as 530 hotels. For any discrepancy, this study assumed the first hand information from a hotel's website and survey was correct. Table 27 describes the sample and responses from the mail survey. As shown in Table 27, the mail survey responses were comparable to the hotel sample distribution.

Hotel Characteristics	Frequency	Percentage	Frequency of response to the survey	Percentage
Size (rooms)				
1-99	255	48	106	44
100-199	124	23	61	25
>200	151	29	75	31
Total	**530**	**100**	**242**	**100**
Rating				
One	77	14	25	10
Two	148	28	58	24
Three	148	28	82	34
Four	85	16	48	20
Five	72	14	29	12
Total	**530**	**100**	**242**	**100**
Affiliation				
Affiliated	207	39	88	36
Non-affiliated	323	61	154	64
Total	**530**	**100**	**242**	**100**

Table 27 The sample

The four data collection procedures yielded different sample size. Table 28 summarises the sample size for each procedure used in the following analysis.

Methodology	Objective	Sample size
1. Mail survey	**Objective**: To request general information about the hotel and business strategic type	• 246/530 hotels replied. However, four replies were incomplete. • Yielded information and business strategic types for 242 hotels
2. Website content analysis	**Objective**: To investigate the presence of the 22 website features	• Search through 2003/2004 Malaysia Accommodation Directory, survey response, Google and Yahoo identified 315 urls from the 530 hotels.
3. Mystery email	**Objective**: To investigate the presence of the 13 quality email replies features	• Search through 2003/2004 Malaysia Accommodation Directory, survey response, Google and Yahoo identified 359 email addresses from the 530 hotels. • Excluded 14 hotels using the same third party email. • Final sample size is 345 email addresses. • Only 167 hotels replied to the mystery email.
4. Website age from the Wayback Machine	**Objective**: To collect the website age for the 315 hotels involved in the content analysis	• Keying in the 315 urls yielded 291 website age

Table 28 Sample size from each data collection procedure

5.3.2 Miles and Snow (1978) business strategy classification

Table 29 shows the classification of the hotel business strategy for the 242 hotels that responded to the questionnaire. Using Conant et al. (1990) majority rule decision classification procedure, Analysers had the highest presence, 85 hotels, followed by Defenders (71), Prospectors (63) and Reactors (23).

	Prospector	Analyser	Defender	Reactor	Kruskal Wallis/Chi Square	p-value
Frequency (%)	63 (26%)	85 (35%)	71 (29%)	23 (10%)		
Size (%)						
1-99	19	48	56	57	**21.60**	**<.001**
100-199	33	19	24	30		
>200	48	33	20	13		
Rating (%)						
One and two	13	33	48	57	**29.53**	**<.001**
Three	40	31	30	44		
Four and five	48	37	23	0		
Affiliation (%)						
Affiliated	54	42	20	17	**21.83**	**<.001**
Non-affiliated	46	58	80	83		
Total	**100**	**100**	**100**	**100**		

Table 29 Business strategic types across hotel profiles

The results of Kruskal-Wallis and Chi Square tests suggested the Miles and Snow (1978) business strategy classification differed significantly across size, rating and affiliation. Prospectors and Analysers were primarily large, high rated and affiliated hotels while the Defenders and Reactors were small, low rated and non-affiliated hotels. The result was in line with previous Miles and Snow (1978) study where Prospectors are often large organisations with strong financial support (see for example Song et al., 2008; Kearns, 2005; Apigian et al., 2005).

5.3.3 Email and website adoption

Search of the 530 hotels from the Malaysian Accommodation Directory, Google and Yahoo and information from the mail survey identified 359 (67%) hotels had email and 315 (59%) hotels had websites.

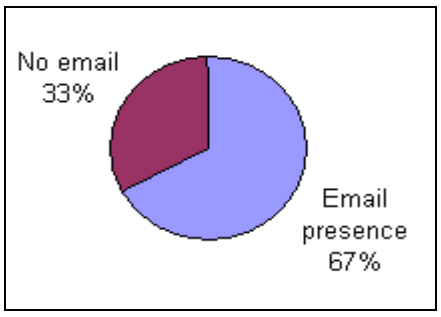


Figure 16 Email adoption

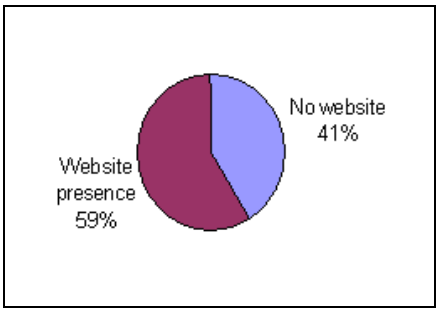


Figure 17 Website adoption

Table 30 shows the percentage of email and website adoption by hotel characteristics and business strategic types. The three statistical tests - T-test for number of rooms, Kruskall Wallis for rating and Chi Square for affiliation and business strategic types - indicated significant differences in email and website adoption across room size, rating and affiliation.

	N	Email		T-test/Kruskall Wallis/ Chi Square and p-value	Website		T-test/Kruskall Wallis/ Chi Square and p-value	Average Website age (in days)	Correlation/ ANOVA F and p-value
		Yes	No		Yes	No			
Size									
Average number of rooms		198	84	**12.02, p<.001**	215	85	**6.62, p<.001**	1914	**0.203, p<.001**
Star rating (%)									
One an d two	225	38	62	**153.99, p<.001**	26	74	**187.08, p<.001**	1599	**2.77, p<.001**
Three	148	87	13		78	22		1902	
Four and five	157	98	2		99	1		2140	
Chain affiliation (%)									
Affiliated	207	94	6	**81.03, p<.001**	92	8	**118.24, p<.001**	2147	**2.81, p<.001**
Non affiliated	323	54	46		42	58		1534	
Business strategic types (%)									
Prospector	63	98	2	**23.77, p<.001**	86	14	**12.16, p=.007**	2046	1.17, p=.298
Analyser	85	89	11		75	25		1809	
Defender	71	82	18		66	34		1677	
Reactor	23	74	26		52	58		1718	

Table 30 Percentage of email and website adoption

The results indicate significant differences between hotel characteristics with email and website adoption. Compared to the small, low rated and non-affiliated hotels, large, high-rated and affiliated Malaysian hotels led in email and website adoption. A Pearson

correlation for number of rooms showed a significant positive correlation ($r = .203$, $p<.001$) with website age. The One-way ANOVA result showed high rated and affiliated hotels had their website significantly earlier than low rated, non-affiliated hotels.

Similarly, the Chi square results indicated significant difference in email and website adoption across the four business strategic types. Compared to the other three business strategic types, Prospector hotels had the highest email and website adoption. Prospectors had their website about a year earlier than the other business strategic types. There was no significant difference, however, between the four strategic types in website age.

Email reply features

Figure 18 shows almost half of the hotels replied to the mystery email (167 out of 345). One out of ten hotels (34 out of 345) had bounced email.

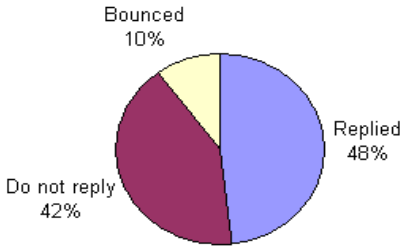


Figure 18 Mystery email response rate

Table 31 shows the percentage of 13 email reply features identified in the email reply analysis by the 167 hotels.

Feature	% with feature
1. Prompt – Replied within 24 hours	64
2. Polite - Opened with 'Dear'	90

3. Polite - Thanked the recipient	64
4. Polite - Used 'Please'	57
5. Polite - Closed with 'Best regards'	75
Average politeness score: 72%	
6. Personal - Greeted recipient with name	74
7. Personal - Closed with sender's name	87
8. Personal - Include sender 's title	70
Average personalisation score: 77%	
9. Professional - Answered question	75
10. Professional - Used proper English	63
11. Professional - Provisional booking	65
Average professionalism score: 68%	
12. Promotion - Signature file	41
13. Promotion - Slogan or other promotional messages	30
Average promotional score: 36%	

Table 31 Email reply with the 13 features

On average, Malaysian hotels scored the highest in providing personal replies (77%) followed by politeness (72%). Most hotels (90%) opened their email politely with 'Dear'. About two out of three hotels answered the email within 24 hours and thanked the recipient for the enquiry (64%). Over one in two used (57%) 'Please' in their reply and three out of four hotels (75%) closed their email politely such as with 'Best regards' or 'Yours sincerely'.

Almost three out of four hotels (74%) greeted the recipient by name. Almost nine out of ten hotels (87%) included the sender's name, but only seven out of ten (70%) included their title or position in the response. Nearly eight of ten hotels answered the questions (75%) and over three out of five hotels (63%) answered with proper English. Sixty-five percent of the hotels included a provisional booking offer in their reply. The hotels performed the poorest

in using email as a promotional tool with an average presence of 36%. Forty-one percent hotels included a signature file but only 30% of the hotels included a slogan or other promotional message in their email.

Website Features

Table 32 shows the percentage of 22 website features on the Malaysian hotel websites. Branded urls led other features with the highest presence (99%). Almost all websites (>80%) had four features - online reservations, photo, information on hotel facilities and room information. From 40 to 70% of the hotel websites included contact information such as email, phone, address and map. Forty-eight percent of the hotels provided an online enquiry and feedback on their homepage, 72% of hotels had no flash page on the sites and 74% used their website for online promotion.

Features	Percentage of hotels with features
1. Branded URL	99
2. Rooms information	94
3. Facilities info	89
4. Photo of the hotel	88
5. Online reservation	80
6. Map	76
7. Promotions	74
8. No flash page	72
9. Physical address	59
10. Phone	58
11. Enquiries/Feedback	48
12. Email	43
13. External link	34
14. Membership	20
15. Multilingual site	20
16. Branded email	20
17. Press release/News	19
18. Search function	19
19. Sitemap	18
20. Personal login	17
21. Download/Printables	12
22. Date of last update	8

Table 32 Website features presence

Few hotels websites (<35%) advanced to the stages of personalisation and loyalty building with features such as membership and multi lingual sites. Even fewer Malaysian hotel websites (<20%) provided value added features such as downloads/printables, press releases, sitemaps and customised search functions. Finally, only 8% of the websites included the date of the last update to the homepage.

5.4 Hypotheses testing

This section presents the results for testing the hypotheses discussed in Chapter 3. It begins by discussing Internet adoption by the 530 hotels. Next, this section reports the implementation, how these hotels use their email and websites via email reply quality and presence of website features. Later, this section tests the relationships between website age with email reply quality and website features, and lastly uses cluster analysis to describe evolving Internet use.

5.4.1 Hotels' Internet adoption

Table 33 shows the hotels' Internet adoption. Of 530 hotels, 161 (30%) had no Internet adoption. Fifty-four (10%) hotels adopted just email and 315 (60%) had email and websites. A positive relationship between hotel profiles and Internet adoption levels support the DOI theory. Hotel size, measured through number of rooms, indicated that compared to small hotels, large hotels had the highest Internet adoption.

Profiles	N	*Stage 1*: No adoption	*Stage 2*: Email only	*Stage 3*: Email and website
N	**530**	**161**	**54**	**315**
Size				
Average number of rooms	530	72	122	**214**
ANOVA F (p value)		***91.96, p<.001***		
Rating (%)	**530**	**%**	**%**	**%**
One and two star	225	**62**	12	26
Three	148	13	12	**75**
Four and five	157	2	5	**93**
Kruskal Wallis (p value)		***209.90, p<.001***		
Affiliation status (%)	**530**	**%**	**%**	**%**
Affiliated	207	6	5	**89**
Non-affiliated	323	**46**	13	41
Chi Square (p value)		***120.82, p<.001***		
Business strategy types (%)	**242**	**%**	**%**	**%**
Prospectors	63	2	12	**86**
Analysers	85	11	14	**75**
Defenders	71	18	16	**66**
Reactors	23	26	22	**52**
Chi Square (p value)		***16.26, p=.012***		

Numbers in bold indicate the leader within hotel profiles and business strategic types

Table 33 Hotel characteristics and Internet adoption

In terms of ratings, more than half of the one and two star hotels had not adopted the Internet. Yet only two of the 157 high-rated hotels had not adopted the Internet. One to three stars hotels had equal presence in the second stage, email adoption. The four and five star hotels had their highest presence with website and email adoption. Finally, almost nine out of ten affiliated hotels adopted both email and websites.

Classifying the hotels by business strategy type showed the Prospectors led in Internet adoption followed by Analysers, Defenders and Reactors. The results aligned with Miles and Snow's (1978) description of the strategic types with technology adoption and use. Prospectors, the innovative organisations, led technology adoption while the careful Analysers follow the industry leader before adopting a new technology. Defenders were slow to adopt new technology as they seldom make major changes in their technology, structure and operations. Finally, slightly half of Reactors adopted website and email.

The results ***supported*** the first three categories of the proposed Internet adoption model in ***Hypothesis 1***: no adoption, email only and finally, email and website. Similarly, the results also ***supported Hypothesis 2 and 3*** on the positive relationships between hotel characteristics and business strategic types with Internet adoption. Large, high rated, affiliated and Prospector hotels were advanced in their Internet adoption with most hotels having email and website presence.

Diffusion studies suggest organisational adoption ranges from awareness to successfully infusing the innovation at the implementation stage (Cooper & Zmud, 1990; Zaltman et al., 1973). Successful Internet adoption includes choosing the correct website features and providing proper email responses at the implementation stage (Murphy et al., 2003). The following section looks at the implementation stage, via email reply quality and website features.

5.4.2 Relationship of hotel characteristics and business strategic type with email reply quality

Hypothesis 4 proposed email use evolved from (1) adoption to (2) having a working email to (3) replying to incoming email to (4) providing high quality email reply. The results of the mystery email replies ***supported Hypothesis 4.*** Table 34 shows the replies to the mystery email based on hotel characteristics and business strategic types. Out of 345 emails sent, 34 bounced. These 34 hotels failed to evolve to the second stage of the proposed email adoption model, having a working email.

The three statistical tests - T-test for number of rooms, Kruskall Wallis for rating and Chi Square for affiliation and business strategic types - indicated significant differences with bounced email across room size, rating and affiliation. Small, low

rated and non-affiliated hotels had more bounced emails than the large, high rated and affiliated hotels, ***supporting Hypothesis 5***. The results however, ***rejected Hypothesis 6***, instead of leading on having bounced email, Reactors shared an equal percentage of bounced email with Defenders.

	N	Replied	Did not reply	T-test/ Kruskall-Wallis /Chi square and p-value	Bounce	T-test/ Kruskall-Wallis /Chi square and p-value
Size						
Average number of rooms	345	227	181	1.514, p=.130	126	**41.63, p<.001**
Star rating (%)						
One and two	80	32	46	**5.20, p=.023**	21	**12.45, p<.001**
Three	122	49	43		8	
Four and five	143	57	39		5	
Chain affiliation (%)						
Affiliated	182	48	46	0.995, p=.319	6	**5.765, p=.016**
Non-Affiliated	163	48	37		15	
Business strategic types (%)						
Prospector	60	53	38	0.322, p=.956	9	4.714, p=0.194
Analyser	75	48	43		9	
Defender	58	52	38		10	
Reactor	15	50	40		10	

Table 34 Percentage of mystery email response

Out of 311 hotels with working email, only 167 (54%) hotels evolved to the third stage, replying to incoming email. The results ***failed to support Hypothesis 7(a)(I)*** on the positive relationship between size email replies. ***However, the result supported hypothesis 7(a)(ii)*** on the positive relationship between hotel rating with email replies. On average, large hotels responded more to the mystery email than the small hotels did. As for the rating, high rated hotels responded significantly more to the mystery email than the low rated hotels did. Almost six of ten high rated hotels replied to the mystery email. The results ***failed to support hypothesis 7(a)(iii)***. The affiliated and non-affiliated hotels shared equal percentages of email reply. Similarly, the results

for business strategic types ***rejected hypothesis 8a.*** Instead of Defenders, Prospectors led other business strategic types in replying to the mystery email.

The proposed email adoption model suggests providing quality email reply reflects successful email adoption. The results in Table 35 ***rejected Hypothesis 7(b)(i), (ii) and (iii)*** on the positive relationship between hotel size, rating and affiliation with email reply features.

		Prompt - Replied within 24 hours	**Polite - Opened with 'Dear'**	**Polite - Thanked the recipient**	**Polite - Used 'Please'**	**Polite - Closed with 'Best regards'**	**Personal - Greeted recipient with name**	**Personal - Closed with sender's name**	**Personal - Include sender's title**	**Professional - Answered question**	**Professional - Used proper English**	**Professional - Provisional booking**	**Promotion - Signature file**	**Promotion - Slogan and other promotional messages**
Average number of rooms	With feature	242	233	219	249	233	233	231	252	228	247	266	315	301
	Without feature	200	165	239	197	208	208	191	168	222	192	151	166	195
	T-statistic	36.50	46.94	36.50	37.23	37.16	37.05	43.74	36.51	37.16	36.56	36.45	41.77	47.84
	p-value	**<.001**	**<.001**	<.001	**<.001**	**<.001**	**<.001**	**<.001**	**<.001**	**<.001**	**<.001**	**<.001**	**<.001**	**<.001**
Star rating (%)	One and two	58	100	62	39	73	81	89	58	73	58	27	12	8
	Three	57	83	58	54	67	70	80	55	75	48	65	23	17
	Four and five	71	91	69	65	82	75	93	84	75	75	78	63	47
	K/W	1.36	0.001	0.04	0.85	0.16	2.36	0.001	8.91	0.02	4.57	2.21	29.33	21.35
	p-value	.145	.053	.402	**.043**	.132	.553	.083	<.001	.974	.004	**<.001**	**<.001**	**<.001**
Affiliation (%)	Affiliated	68	90	65	60	76	69	88	80	75	71	71	60	46
	Non-affiliated	60	90	63	53	73	80	87	58	75	54	60	19	13
	Chi square	0.69	0.00	0.02	0.43	.16	1.19	0.00	4.46	0.00	2.29	1.11	14.66	10.67
	p-value	.122	.492	.421	.179	.686	.062	.487	**.001**	.481	**.016**	.068	**<.001**	**<.001**
Business strategic types (%)	Prospector	60	87	73	70	80	73	77	73	63	70	87	47	43
	Analyser	56	86	64	50	78	61	92	58	86	56	78	19	19
	Defender	53	90	67	50	63	70	83	67	67	53	87	33	27
	Reactor	50	88	63	75	63	88	75	63	50	63	63	25	25
	Chi square	.39	.25	.78	4.44	3.04	2.61	3.20	1.68	6.85	2.11	3.34	5.80	4.74
	p-value	.941	.968	.855	.217	.386	.455	.362	.641	.077	.550	.343	.122	.191

Note: Numbers in bold show significant features with positive relationship

Table 35 Hotel profile and percentage of email reply quality

Large hotels led significantly in implementation by providing quality email reply except on one feature, thanking the recipient, where the small hotels led. Results on star rating showed only five features with positive and significant relationships: using ‘please’, provisional booking, using signature file and promotional message. Two features, using 'please' and including the sender's title, showed a significant result but in the opposite direction. The one and two star hotels led the three star hotels on these features. Similarly, hotels affiliation status showed positive and significant relationships on four email reply features: including the sender’s title, using proper English, using a signature file and promotional message.

There were counterintuitive findings on the relationship between strategic types and email reply quality. The results ***rejected Hypothesis 8b showing*** no significant difference between each strategic type’s email replies. Instead of Defenders, Prospectors often led in providing quality email replies. Prospectors had a higher presence in eight of the 13 features.

In summary, the result supported Hypothesis 4 on the four stage of evolving email use from adoption, to having a working email to replying to incoming email and finally providing quality email replies. Nonetheless, providing a quality email reply is only part of successful Internet implementation. A good website complements the high quality email replies. The following section reviews how hotels perform on their website features.

5.4.3 Relationship of hotel characteristics and business strategic type with website features present

Hypothesis 9 and 10 investigated the relationship between hotel characteristics and business strategic types with website features. A T- test for the number of rooms, Kruskal Wallis for star rating and Chi Square for the chain-affiliation and business strategic types explored the relationship with the 22 website features.

The results in Table 36 ***failed to support Hypothesis 9***. Except for size, hotel rating and affiliation status do not positively relate to website features presence. The T-test showed positive and significant presence on all website features across room size. The presence of these features was more prevalent in large rather than small hotels. The Kruskal Wallis for star rating and Chi Square results failed to support the positive relationship between hotel rating and affiliation with presence of website features. Hotel rating shows seven features - email, map, phone, downloads/printables, facilities information, external link and news release - were in the non-hypothesised direction. As for affiliation status, the affiliated hotels had a higher presence on 21 out of the 22 features. Only one feature, email, was in the non-hypothesised direction.

Similar to email replies, the findings on website use ***rejected Hypothesis 10***. Unlike other Miles and Snow (1978) studies [see Auger (2003); Apigian et al., (2005); Kearns (2005)], this study found no significant difference among the strategic types in their website design except on three features: photo of the hotel, enquiries and feedback and sitemap. Two features however, photo of the hotel and sitemap, were in the non-hypothesised direction. Prospectors led in providing enquiries/feedback and sitemap while Reactors led in providing hotel photos.

		Online reservation	Email	Map	Phone	Physical address	Promotions	Rooms information	Downloads/printables	Facilities info	Photo of the hotel	External link	No flash page	Membership	Personal Login	Enquiries/Feedback	Press release/News	Multilingual site	Sitemap	Search function	Date of last update	Branded URL	Branded Email
Average no of rooms	With feature	240	215	221	225	223	247	222	299	225	224	255	224	324	350	252	253	279	310	287	257	215	248
	Without feature	113	205	195	200	203	121	99	203	132	139	194	191	186	186	180	205	199	194	198	211	152	203
	T-statistic	53.16	56.26	51.31	50.96	50.84	50.89	77.28	102.2	62.65	61.50	62.65	67.95	79.13	85.97	54.06	81.65	80.36	84.45	82.32	125.9	225.2	70.66
	p-value	**<.001**	**<.001**	**<.001**	**<.001**	**<.001**	**<.001**	**<.001**	**<.001**	**<.001**	**<.001**	**<.001**	**<.001**	**<.001**	**<.001**	**<.001**	**<.001**	**<.001**	**<.001**	**<.001**	**<.001**	**<.001**	**<.001**
Star rating	One and two	60	28	85	55	33	38	83	7	85	83	26	71	0	0	21	9	9	7	7	3	98	5
	Three	72	53	65	61	67	70	93	6	84	85	24	72	8	5	35	8	12	10	10	7	100	24
	Four and five	94	41	80	57	85	91	99	19	95	93	43	73	38	33	68	32	30	28	30	10	100	35
	K/W	17.86	5.24	5.50	0.38	0.11	30.98	8.87	5.29	4.37	3.21	5.91	0.03	26.00	24.03	23.76	13.66	9.49	9.72	11.71	1.32	0.91	9.68
	p-value	**<.001**	.002	.002	.344	.449	**<.001**	**<.001**	.002	.006	**.021**	.001	.481	**<.001**	**<.001**	**<.001**	**<.001**	<.001	**<.001**	**<.001**	.125	.203	**<.001**
Affiliation	Affiliated	85	39	80	65	66	80	95	16	93	90	36	74	31	26	59	24	26	23	25	10	100	30
	Non-affiliated	73	49	70	49	49	65	92	7	83	86	30	69	6	5	33	12	11	11	10	5	99	21
	Chi-square	3.76	1.47	2.11	3.66	4.22	4.58	0.75	3.94	3.55	0.77	0.47	0.55	14.26	11.21	10.08	3.54	5.92	3.90	5.89	1.08	0.008	9.2
	p-value	**.033**	.043	**.020**	**.003**	**.002**	**.001**	**.110**	**.038**	**.004**	.108	.167	.147	**<.001**	**<.001**	**<.001**	**.004**	**.001**	**.002**	**.001**	**.007**	.448	**<.001**
Business strategic types	Prospector	83	46	69	56	56	78	93	7	80	82	35	33	17	56	57	26	17	28	35	17	100	30
	Analyser	81	45	69	45	45	69	92	7	89	77	34	30	14	14	38	16	16	11	23	6	100	30
	Defender	70	40	77	66	66	64	87	15	89	94	26	34	30	9	36	17	28	4	15	11	98	26
	Reactor	79	42	75	42	42	50	75	0	83	100	25	25	11	0	17	0	0	8	25	9	100	8
	Chi-square	2.34	0.43	1.12	5.43	5.43	4.55	4.02	3.44	2.81	8.48	1.59	0.55	0.37	2.43	8.42	5.18	5.89	12.94	5.65	1.60	2.80	2.59
	p-value	.506	.934	.770	.143	.143	.208	.253	.328	.422	.037	.662	.907	.947	.487	**.038**	.158	.117	.005	.130	.658	.423	.460

Note: Numbers in bold show significant features with positive relationship

Table 36 Hotel characteristics, business strategy and percentage of website feature presence

Diffusion literature suggests innovation adoption evolves over time (Rogers, 2003). For instance, a hotel Internet study found hotels with old domain name age had more features on their website and provided a better quality of email reply than hotels with young domain names (Murphy et al., 2006). As described in Section 5.3.3 large, high rated and affiliated hotels had their websites significantly earlier than the small, low rated and non-affiliated hotels. Thus, these hotels should lead in their website design and email use. The following section uses website age to test hypotheses on evolving Internet use.

5.4.4 Relationship of website age with email and website implementation

(a) Email reply and website age

Hypothesis 11a suggested a positive relationship between the email reply and the website's age. The T-test of relationships between website age and quality email responses in Table 37 ***supported Hypothesis 11a.*** The results show that hotels responding to the mystery email had significantly older website age than hotels that did not respond except on two features, greeting recipient with names and include the sender's title.

Features	Average feature present (/167)	Average website age in days with the email replies feature	Average website age in days without the email replies feature	T-test	p-value
1. Replied to the email	47	**1981**	1880	41.08	<.001
2. Prompt - Reply within 24 hours	64	**1989**	1968	32.87	<.001
3. Polite - Open with 'Dear'	90	**1998**	1814	44.57	<.001
4. Polite - Thanked the recipient	64	**2058**	1845	32.92	<.001
5. Polite - Used 'Please'	57	**2160**	1741	33.51	<.001
6. Polite - Closed with 'Best regards'	75	**2044**	1800	33.42	<.001
7. Personal - Greeted recipient by name	74	1973	**2007**	33.54	<.001
8. Personal - Closed with sender's name	87	1974	**2035**	40.30	<.001
9. Personal - Include sender's title	70	**2028**	1852	33.31	<.001
10. Professional - Answered question	75	**2071**	1712	33.54	<.001
11. Professional - Used proper English	63	**2139**	1662	32.86	<.001
12. Professional - Provided a provisional	65	**1991**	1959	32.92	<.001

booking					
13. Promotion - Signature file	41	**2168**	1821	35.81	<.001
14. Promotion - Slogan and other promotional messages	30	**2262**	1847	41.63	<.001

Table 37 E mail replies and website age

The findings supported the limited studies using temporal variable with evolving email use. For example, Murphy et al. (2006) found that hotels with older domain name ages provided a better email reply quality than hotels with younger domain name ages.

(b) Website features present and website age

Hypothesis 11b suggested presence of website features grows over time, reflected by the website age. Table 38 shows older websites had a significantly higher presence on 18 of 22 features. These results align with Internet evolution literature that the presence of website features evolved over time from simple use such as providing information, to advanced use such as providing online transactions, interactivity, personalisation and loyalty (Chu et al., 2007; Corigliano & Baggio, 2006; Murphy et al., 2006) and help ***supported Hypothesis 11b***.

Features	Average feature present (/315)	Average website age (in days)			
		Sites with feature	Sites without features	T-test	p-value
1. Online reservation	80	**1930**	1868	50.63	<.001
2. Email	70	1818	**1993**	53.21	<.001
3. Map	76	**2007**	1630	48.74	<.001
4. Phone	58	**2003**	1801	48.14	<.001
5. Physical address	59	**1989**	1816	47.95	<.001
6. Promotions	74	**1938**	1856	48.23	<.001
7. Rooms information	94	1894	**2322**	76.32	<.001
8. Downloads/Printables	12	**2264**	1872	97.84	<.001
9. Facilities	89	**1971**	1518	58.08	<.001
10. Photo	88	**1961**	1510	59.30	<.001
11. External Link	34	**2136**	1810	59.31	<.001
12. No Flash Page	72	**1920**	1913	62.53	<.001
13. Membership	20	**2316**	1810	72.94	<.001
14. Personal login	17	**2468**	1799	79.71	<.001
15. Enquiries/Feedbac	48	**2042**	1797	50.38	<.001

k					
16. Press release/News	19	**2035**	1889	75.43	<.001
17. Multilingual site	20	**2222**	1841	74.78	<.001
18. Sitemap	18	**2346**	1817	76.77	<.001
19. Search function	19	**2202**	1860	81.32	<.001
20. Date of last update	8	1737	**1934**	119.70	<.001
21. Branded URL	99	1918	**2635**	200.47	<.001
22. Branded email	20	**1835**	1669	66.84	<.001

Table 38 Website features and website age

Although evolving, a closer look at the website age suggests Malaysian hotels websites evolved in the opposite direction at the first two stages. As shown in Figure 19, instead of providing information, late adopter hotels leapfrogged to a higher stage of website evolution, providing online transactions while the early adopters hotels were still at the early stage of providing information.

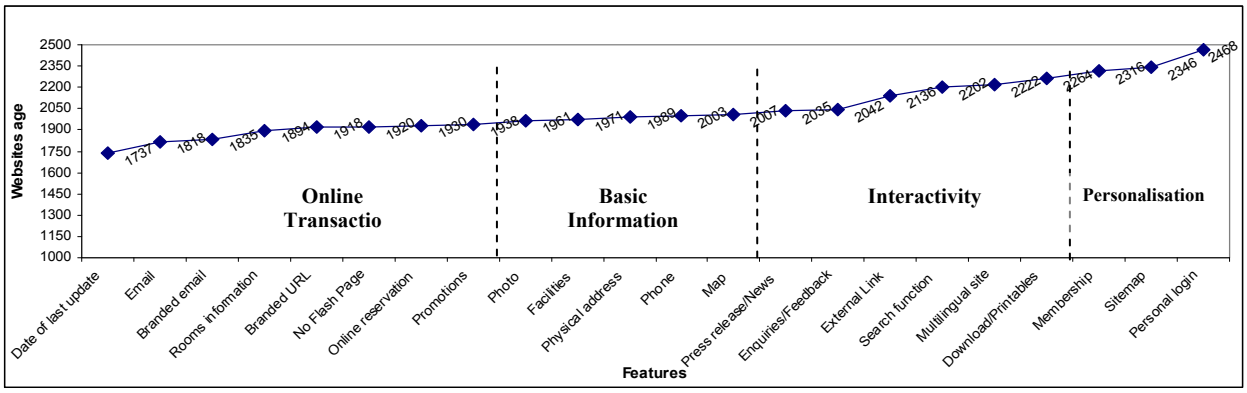


Figure 19 Evolving websites use by Malaysian hotels

The website age helps describe evolving email and website design. This section found that website design by Malaysian hotels did not evolve following most website evolution models. The analysis however, involved only two variables: website age and website features. The following section extends this finding by grouping the hotels based on website features and examines how hotel characteristics and business strategic types relate to evolving website design.

5.4.5 Investigating evolving website design

Cluster analysis classifies similar cases into groups and covers disciplines such as psychology, biology, sociology, economics and marketing, using names such as typology construction, Q analysis and classification analysis (Hair, Black, Babin, Anderson, & Tatham, 2006). Hospitality Internet studies used cluster analysis to identify groups based on website features (Murphy et al., 2006; Zafiropoulos et al., 2006) and email response features (Murphy, Schegg et al., 2007).

There are two types of cluster analyses, hierarchical and non-hierarchical, sometimes called K-means clusters. Research is inconclusive on which method is best and suggests the selection depends on the research problem (Hair et al., 2006). The hierarchical method, which provides a series of solutions corresponding with a different number of clusters, suits a small number of objects (<250) and explorative purposes (Augen, 2005; Hair et al., 2006). The non-hierarchical method produces only one solution for the number of cluster requested. However, the nomination of the cluster solution should have a theoretical support (Hair et al., 2006).

This study used Ward's hierarchical cluster technique (Hair et al., 2006) as studies recommend the Ward method over other separation techniques (Everitt, 1993; Hair et al., 2006; Morey, Blashfield, & Skinner, 1983). The clustering started with 22 features, and then eliminated the least significant discriminator, testing solutions for 20, 19, and 18 features across three to five clusters. Four clusters across 19 variables best differentiated

among groups. Table 39 presents the multivariate cluster results, from the youngest to the oldest cluster based on website age.

Cluster results are often descriptive, atheoreotical and noninferential (Hair et al., 2006). In addition, cluster membership changes depending on the number of variables. Validating a cluster solution helps check the generalisability and stability of the result (Hair et al., 2006). An Artificial Neural Network using a Kohonen network helped validate the multivariate clusters (Murphy et al., 2006). After testing for four solutions across 22, 20, 19 and 18 variables, four clusters across 19 variables best differentiated among groups, with significant cluster different on 17 variables and 95% agreement with the multivariate solution (X^2 = 407.43, df =9, p<.001).

Features	% average presence	Simple savvy	Showtime	Stagnating	Sophisticated	ANOVA/chi square	p-value
Website age (days)		**1737**	**1812**	**2042**	**2458**	**2.53**	**<.001**
1. Online reservations	81	82	79	***66***	**98**	**14.97**	**.002**
2. Email	40	**93**	19	***4***	44	**163.57**	**<.001**
3. Map	80	***66***	**95**	70	**90**	**23.26**	**<.001**
4. Phone	70	**95**	***0***	86	**100**	**267.33**	**<.001**
5. Physical address	71	**96**	***4***	87	**98**	**236.64**	**<.001**
6. Promotions	77	***67***	74	***68***	**100**	**18.26**	**<.001**
7. Room information	71	**95**	***4***	86	**100**	**9.04**	**.029**
8. Download/Printables	30	***7***	***11***	***7***	**34**	**22.6**	**<.001**
9. External Link	36	***28***	***32***	***29***	**56**	**11.37**	**.010**
10. Flash Page	27	25	**45**	29	***7***	**16.91**	**.001**
11. Membership	31	***6***	***11***	***9***	**98**	**174.51**	**<.001**
12. Personal login	26	6	11	***0***	**85**	**157.73**	**<.001**
13. Enquiries/Feedback	53	***36***	48	46	**81**	**23.03**	**<.001**
14. Press release/News	20	24	15	***7***	**34**	**14.12**	**.003**
15. Multilingual site	22	***13***	21	***9***	**46**	**25.35**	**<.001**
16. Sitemap	19	18	19	***4***	**34**	**15.30**	**.002**
17. Search function	22	18	13	***5***	**53**	**41.64**	**<.001**
18. Date of last update	10	***7***	***5***	***5***	**22**	**12.30**	**.005**
19. Branded email	27	**63**	***2***	***0***	42	**131.31**	**<.001**
N	**315**	**99**	**119**	**56**	**41**		

Numbers in bold indicate cluster leaders and numbers in italics indicate cluster laggards.

Table 39 Profile of multivariate clusters

The website clusters ***failed to support the stages proposed in Hypothesis 12*** and the website age suggested that at least one hotel cluster, *Stagnating*, failed to evolve. Although this cluster had the second oldest website age, these hotels lagged other hotels in the presence of almost all features and failed to lead in the presence of any feature. Yet, *Simple Savvy*, the youngest cluster, led all other clusters in the presence of five website features.

The *Simple Savvy* cluster had the youngest website age and resembled Stage 1 in the four-stage adoption model. These hotels focused on providing contact and product information such as email, physical address, phone number and room information. Hotels in this cluster led in the use of branded email addresses and performed above average in two features, online reservations and press releases.

The second youngest cluster, *Showtime*, performed below average across most features but led in providing maps and animation. This cluster and the *Stagnating* cluster may reflect bandwagon effects, that is, adopting technologies without clear strategy and purpose (McBride, 1997). Finally the oldest cluster, *Sophisticated*, had the highest presence in 16 of 19 features. This cluster dominated in providing online transactions, promotions and loyalty features such as membership and personal logins.

Table 40 shows the hotel profiles, strategic types and average website age for the four clusters. Hotels in the *Sophisticated* cluster had the oldest website age and the youngest were the *Simple Savvy*.

	N	Simple savvy	Showtime	Stagnating	Sophisticated	Kruskal Wallis/ chi square/ ANOVA	p-value
Cluster size	**315**	**99**	**119**	**56**	**41**		
Average website age (days)		1737	1812	2042	**2458**	**7.66**	**<.001**
Size							
Average number of rooms		199	196	173	**366**	**12.00**	**<.001**
Rating		%	%	%	%		
One and two	58	21	**43**	36	0	**9.90**	**.007**
Three	111	**43**	34	21	2		
Four and five	146	27	27	8	**38**		
Affiliation		%	%	%	%		
Affiliated	183	25	21	22	**32**	**35.19**	**<.001**
Non-affiliated	132	40	12	**46**	2		
Business strategy	**177**	%	%	%	%		
Prospector	54	15	37	9	**39**	10.11	.342
Analyser	64	38	**48**	11	3		
Defender	47	**36**	32	23	9		
Reactor	12	17	25	**58**	0		

Note: Numbers in bold indicate the leader within hotel profiles and business strategic types

Table 40 Cluster Characteristics

Hotels in the feature-rich *Sophisticated* cluster were mostly large, high rated and affiliated hotels. The *Sophisticated* cluster had the most rooms, almost double the number of rooms as the other clusters. As for star rating, the one- and two-star hotels had their highest presence in the bandwagon clusters, *Showtime* and *Stagnating*, and no *Sophisticated* presence. Most three-star hotels were in the *Simple Savvy* cluster and two were in the *Sophisticated* cluster. The four- and five-star hotels had their highest presence in the advanced *Sophisticated* cluster and lowest presence in the *Stagnating* cluster. Affiliated hotels were mainly in the *Sophisticated* cluster and mixed across the other clusters. Non-affiliated hotels were mostly in the *Simple Savvy* and *Stagnating* clusters.

As for the business strategic types, Prospector hotels had the highest presence in the *Sophisticated* cluster. Almost half of the Analyser hotels were in the *Showtime* cluster and

three out of ten of Defender hotels were in the *Simple Savvy* cluster. Almost six out ten of the Reactors were in the problematic *Stagnating* cluster. The results ***supported Hypothesis 13 and 14*** on the relationship of hotel characteristics and business strategic types with website cluster.

5.4.6 Cluster membership and email performance

Studies suggest hotels with websites and that reply to customer emails have evolved in their Internet use (Murphy et al., 2006; Murphy et al., 2003). Table 41 shows the percentage of email response features in each cluster for 150 hotels that responded to the mystery email. The *Sophisticated* cluster, with the oldest website age and highest presence of website features, provided the best email responses. Other clusters tended towards providing poor email response. For instance, hotels in the *Simple Savvy* failed to greet recipient, answer the email professionally and close their email politely with 'Best regards' and including sender's name.

Email Response Features	*% average presence*	Simple savvy	Showtime	Stagnating	Sophisticated	*ANOVA/ Chi square*	*p-value*
Average website age (in days)		**1816**	**1862**	**1945**	**2600**	**1.795**	**0.027**
Prompt - within 24 hours	69	67	*53*	74	**80**	**6.51**	**0.09**
Polite - Open with 'Dear'	91	89	*86*	94	**96**	2.31	0.51
Polite - Thanked the recipient	66	66	*61*	63	**72**	.96	0.81
Polite - Used 'Please'	58	58	51	*47*	**76**	5.19	0.16
Polite - Closed with 'Best regards' or 'Yours sincerely'	74	*67*	82	68	**80**	3.95	0.27
Personal - Greeted recipient with name	78	*69*	73	79	**88**	3.56	0.31
Personal - Closed with sender's name	90	*84*	90	90	**96**	2.85	0.41
Personal - Include sender 's title	73	73	65	*63*	**92**	**7.06**	**0.07**
Professional - Answered question	76	*71*	75	84	**72**	1.36	0.72
Professional - Used proper English	67	64	63	*52*	**88**	**7.28**	**0.06**
Professional - Provisional booking	69	73	65	*58*	**80**	3.32	0.34
Promotion - Signature file	51	40	*28*	48	**88**	**25.65**	**<.001**
Promotion - Slogan and other promotional messages	37	31	*22*	26	**68**	**17.26**	**.001**
N		**55**	**51**	**19**	**25**		

Note: Numbers in bold indicates cluster leaders while numbers in italic indicate the cluster laggards

Table 41 Percentage of email response features presence in each cluster

The results show significant differences on five features, prompt reply, including sender's title, proper English, using a signature file and promotional message. Analysis using the Scheffé post hoc test for significance indicated that the *Sophisticated* cluster differed significantly different from the other clusters in these two features.

The results ***supported Hypothesis 15*** and hotel DOI literature on evolving Internet use (Murphy et al., 2006; Murphy et al., 2003). Hotels in the feature-rich *Sophisticated* cluster, were the most advanced in their email and website use. Apart from having a good website, these hotels also provided a quality email reply to their guests. The results show that hotels in Simple Savvy, Showtime and Stagnating not only struggle in their website implementation but also in providing quality email replies.

5.5 Results and discussion

Table 43 summarises the outcomes of the hypotheses testing followed with a discussion of the empirical results and the insights they shed on the four research questions behind this study.

Hypotheses	Findings
Hypothesis 1: Malaysian hotels' Internet adoption consists of three stages, (a) no adoption to (b) email adoption to, (c) email and website adoption	**Supported**
Hypothesis 2: Malaysian hotels' email and website adoption relates positively with hotel (a) size, (b) rating and (c) affiliation.	**Supported**
Hypothesis 3: Malaysian Prospector hotels will lead in (a) email and (b) website adoption followed by Analysers, Defenders and Reactors.	**Supported**
Hypothesis 4: Malaysian hotels' email use will evolve from (1) adoption to (2) having a working email address to (3) replying to email and finally, (4) providing high quality email replies.	**Supported**

Hypothesis 5: Small, low rated and non-affiliated Malaysian hotels will have a higher rate of bounced email than large, high rated and affiliated hotels.	**Supported**
Hypothesis 6: Malaysian Reactor hotels will have the highest rate of bounced email followed by Analysers, Defenders and Prospectors.	**Rejected**
Hypothesis 7: Malaysian hotels' (a) email response rate and (b) email response quality relate positively with hotel (i) size, (ii) rating and (iii) affiliation.	**Rejected**
Hypothesis 8: Malaysian Defender hotels will have the highest (a) email response rate and (b) email reply quality followed by Analyser, Prospector and Reactor hotels.	**Rejected,**
Hypothesis 9: Malaysian hotels' website feature presence relates positively with hotel (a) size, (b) rating and (c) affiliation.	**Rejected**
Hypothesis 10: Malaysian Prospector hotels will have more website features present followed by Analysers, Defenders and Reactors.	**Rejected**
Hypothesis 11: Website age relates positively to (a) quality email replies and (b) website features present on Malaysian hotels.	**Supported**
Hypothesis 12: Malaysian hotels' website will evolve from (1) simple online presence to, (2) interactivity to, (3) to sales and transaction and to (4) personalised and loyalty building features.	**Rejected**
Hypothesis 13: There is a positive relationship between hotel (a) size, (b) rating and affiliation with evolving website use.	**Supported**
Hypothesis 14: Malaysian Prospector hotels will lead in evolving website use followed by Analysers, Defenders and Reactors.	**Supported**
Hypothesis 15: Malaysian hotels' website evolution stage will relate to email response evolution.	**Supported**

Table 42 Results of the hypotheses

Based on the diffusion of innovations theory (Rogers, 2003), this study investigated the adoption and implementation of two Internet technologies, email and websites, by Malaysian hotels. It applied adoption and diffusion modelling studies, respectively, to explain factors related to the adoption and investigate the implementation for the two

technologies. This study is replete with varying results from the hypotheses testing with most findings supporting, and some findings contradicting previous studies. The following sub-sections summarise the results from the qualitative and quantitative studies and how the results help answer the four research questions.

Research Question 1: How do hotel size, rating and affiliation status relate to Internet adoption and implementation?

In line with DOI theory and DOI studies (Murphy et al., 2003; Rogers, 2003), the adopter study found hotel characteristics related significantly to email and website adoption. Larger, higher rated and affiliated hotels had a higher email and website presence and adopted these technologies significantly earlier than did the smaller, lower rated and non-affiliated hotels. These results supported and helped generalise research on hotel technology adoption (Murphy et al., 2003; Siguaw et al., 2000; Wei et al., 2001).

However, the diffusion modelling study found contradictory results. The analysis of hotel size, rating and affiliation status with the 22 website features and 13 email replies quality (see Table 35 and 36) failed to support DOI theory and previous studies on the positive relationship between hotel characteristics with website features present and the quality of email replies (Chu et al., 2007; Murphy et al.,2006). Although the five and four-star hotels are leading, the results found the one-and-two star and non-affiliated hotels perform better than the three star and affiliated hotels on simple and basic communication features such as politeness in email and providing information on website. One possible explanation is the concentration among the small Malaysian hotels on using email and website primarily for information dissemination purpose. This support the literature on business Internet use in

Malaysia that indicates information gathering and dissemination as main activities on the Net (Hamid, 2005; Le & Ke, 2002; Paynter & Lim, 2001). In conclusion, this study found support for DOI on the relationship of hotel characteristics with Internet adoption but not the implementation.

Research Question 2: How do Miles and Snow business strategic types relate to Internet adoption and implementation?

The Miles and Snow (1978) strategic types relate significantly to email and website adoption but not at the implementation stage. As hypothesised, Prospectors led other strategic types in email and website adoption. Contrary to other Miles and Snow (1978) Internet studies that found Prospectors lead in their Internet implementation (Apigian et al., 2005; Auger, 2003), the analysis however, failed to show significant difference between the four strategic types in their email use and website design. These unexpected results bring about an important question: Why did Analysers, Defenders and Reactors differ from Prospectors in the adoption stage but not in the implementation stage?

One possible explanation for these inconsistent results is that Malaysia is a developing country. Studies suggest a country environment such as income, growth affect the level of technology diffusion (Hargittai, 1999). Developing countries tend to acquire mature technologies (Kim, 1998), imitate technology use from developed countries (Alkan, 2002; Hoekman, Maskus, & Saggi, 2004) and benefit from transfer of technologies (Hoekman et al., 2004). Turkey for example, has no tradition of conducting research as it preferred to rely on imported technologies (Alkan, 2002).

In addition, most developing countries are anxious to adopt and acquire IT for their development, and a common method by developing countries to accelerate development and promote economic growth is *'technology leapfrogging'* (Davison, Vogel, Harris, & Jones, 2000). Technology leapfrogging refers to "the implementation of a new technology in which the previous version of that technology has not been deployed to accelerate development and promote economic growth (Davison et al., 2000, p. 2)". Technology leapfrogging allows the developing countries to employ a technology immediately. Examples of technology leapfrogging include the single leap from nothing to satellite based telecommunication system in Papua New Guinea and the rapid move of mobile phones replacing land lines in China (Davison et al., 2000).

Technology leapfrogging helps explain the insignificant differences of website design and email replies among the four strategic types. As such, regardless of their business strategic types, rather than *creating*, Malaysian hotels *select* from the best available design. Often, the selection may stem from website design in developed countries. Similarly, with email, hotels may have used templates for an email reply from their sister hotels or email communication best practices. This argument is supported by the qualitative study's findings. As managers interviewed in the explorative study said:

> *"There was a massive Internet adoption especially among the big chain hotels, most followed the model of their sister hotels in developed countries"* (General Manager of Hotel C, Defender)

> *"We always look at the successful features adopted by leading hotels and evaluate whether or not it suits us."* (Managers, Hotel K, Analyser)

> *"We have to follow the trend otherwise we will lose our existing and potential customers."* (Managers, Hotel K, Analyser)

Research Question 3: Does website age reflect evolving Internet use?

One element in diffusion of innovations, *time*, measures the rate of adoption and assimilation for an innovation (Fichman, 2000; Rogers, 2003). The new variable, website age, opened another tack for investigating evolving Internet adoption and implementation. Website age shows when the website went online. Internet diffusion studies suggest websites evolved over time, as reflected through the complexity and sophistication of the website design. Thus, older websites age should be at higher stage of Internet evolution than younger websites.

Unlike a study showing a positive relationship between domain name age and website features (Murphy et al., 2006), the cluster solutions showed varying relationships between website age and website features. The oldest cluster, *Sophisticated*, had the highest website feature presence. However, the next two oldest clusters - *Showtime* and *Stagnating* - had fewer features compared to the youngest cluster, *Simple Savvy*. Hotels in the *Simple Savvy* cluster seem to have leapfrogged other clusters in evolving website use. Research question 4 explains the possible explaination for these results.

Research Question 4: Based on website age, how does Malaysian hotels' website and email implementation evolve?

The results failed to support Hashim et al's (2006) model on the evolution of hotels' website use. In contrast to previous website diffusion studies (Chu et al., 2007; Walcott et al., 2001), the cluster analysis showed Malaysian hotels website seemed to evolve in a non-linear fashion. Using the website age as a temporal measure of website adoption, descriptive results as in Figure 19 and further exploration using

cluster analysis shows early adopter hotels were still at the early stage of website evolution, providing information while late adopters have leapfrogged to the second stage of website evolution, providing online transactions. Despite being second and third earliest in website adoption, the early adopters were in the features-poor clusters, *Stagnating* and *Showtime*.

The findings highlight three issues. Firstly, the non-linear website implementation contradicts with most Internet diffusion studies that found organisations evolve in their websites use from simple to complex use. Secondly, the findings suggest that early adoption might not necessarily lead to early implementation as in the case for the early website adopter hotels that are still in the early website evolution stage. Finally, the findings highlight the problem of joining the Internet bandwagon for the early adopter.

Nonetheless, the findings support the four-stage model of evolving email use. Malaysian hotels email use evolved from adoption, to having a working email address, to replying to email and finally, providing high quality email replies. The results showed poor email management by some hotels. Thirty-four out of 359 hotels with email had problems with bounced emails and slightly more than half (54%) replied to the mystery email. Sixty four percent replied within 24 hours. Except on the promotional features, the hotels scored more than 50% on other reply quality features.

The results supported previous findings on the positive relationships between advanced website use and good email replies quality (Murphy et al., 2006; Murphy et al., 2003).

Hotels with websites in the oldest and features-rich *Sophisticated* cluster provided the best email replies. In summary, the website age addresses the limitation of previous Internet diffusion studies and provides another measure for Internet diffusion studies.

This quantitative study found contradictory findings from the qualitative study in Chapter 4. Firstly, the qualitative study found Malaysian hotel websites evolved following a linear pattern as opposed to the non-linear pattern found in the quantitative study. Secondly, the qualitative study highlighted relationships and indicated patterns on the positive relationship between the four Miles and Snows (1978) business strategy types and website features. The study found Prospectors led with the most advanced website features. In contrast, the quantitative study found no significant difference between the four strategic types with website features.

Nevertheless, both studies found hotel size, affiliation and rating related positively to website adoption and implementation. These conflicting findings highlight the benefits of triangulation in research (Jick, 1979). As the qualitative study is limited in sample size, the quantitative study helped generalise the findings to a wider population. As noted earlier, this study involves a census of all Malaysian hotels registered with The Ministry of Tourism Malaysia.

Although this research of Malaysian hotels does not generalise to other countries and industries, it does offer several academic and managerial contributions. Having reported the results, the following chapter concludes and discusses the academic and managerial contributions of this study.

Chapter 6 Discussion and Implications

This chapter begins with a summary of the research findings, followed by the academic and managerial implications. The chapter and dissertation conclude by identifying limitations and future research avenues.

6.1 Summary of findings

Using two research streams from Diffusion of Innovation (Rogers, 2003), adoption and diffusion modelling, this study investigated Internet adoption and implementation by Malaysian hotels. *Adoption* refers to email and website presence; *implementation* relates to the presence of 22 website and 13 email reply features.

The adopter study showed significant relationships between hotel characteristics and business strategic types with email and website adoption. In line with the literature, large, high rated, affiliated (Murphy et al., 2003; Siguaw et al., 2000; Wei et al., 2001) and Prospector (Apigian et al., 2005; Auger, 2003) hotels led in email and website adoption. The website age showed larger, higher rated, affiliated and Prospector hotels had their websites significantly earlier than the smaller, lower rated, non-affiliated and the other strategic type hotels.

The diffusion modelling study however, failed to support hypotheses on significant relationships between hotel characteristics and business strategic types with website features and email reply quality. Despite a 50% of email adoption rate, the results showed poor email and website implementation by the Malaysian hotels. This finding supports the

arguments that widespread adoption does not necessarily led to widespread implementation and indicates assimilation gap problems (Fichman & Kemerer, 1999).

About 10 percent, thirty-four out of 359 hotels, had bounced email and almost half of the hotels (42%) failed to reply. Similarly, there was poor implementation on the hotels' websites such as gratuitous animation and little emphasis on customer relationship features such as membership, personal login and multilingual sites.

An objective of the diffusing modelling research question was to investigate evolving website and email use using the new validated feature, website age. The results failed to support hypotheses related to evolving website use. The cluster analysis showed Malaysian hotels' websites evolved in a non-linear fashion. The results however, supported the proposed four-stage model of evolving email use, from adoption, to having a working email address, to replying to email and providing high quality email replies. Lastly, the findings supported the positive relationships between advanced website use and email reply quality. The following sections discuss the academic and managerial contributions of the findings.

6.2 Academic contributions

This dissertation noted five potential contributions to existing knowledge. The following subsections discuss each of the contributions.

Contribution 1: Non-linear website evolution

A key contribution of this study was the non-linear website evolution by Malaysian hotels. Using the website age as a temporal proxy, the cluster analysis showed that many

Malaysian hotels failed to evolve in their website design. Hotels in the *Stagnating* cluster failed to evolve despite early adoption. The result contradicts and limits generalising most Internet diffusion literature that suggests business websites evolve through predictable and linear patterns (King & Teo, 1997; Nolan, 1973) from the simplest form, information dissemination, to providing transaction and personalised activities (Hanson & Kalyanam, 2007; Piccoli et al., 2004; Teo & Pian, 2004).

Thus, what could have contributed to the non-linear website evolution? As environmental factors influence the diffusion process (Roger, 2005), this study argued literature on the Internet bandwagon effect and multinational diffusion helped describe the non-linear website evolution by Malaysian hotels.

Industry competition, as well as fad and fashion may drive Malaysian hotels' Internet use. Hotels with poor Internet performance may have joined the Internet bandwagon of using the Internet in business without understanding the implications of improper implementation (McBride, 1997). The Internet bandwagon effect happens not only among hotels, but also with other tourism businesses. As a speaker in the first UNCTAD Asia Pacific eTourism Conference (2007) highlighted, "Major concerns and challenges for small to medium tourism enterprises are the lack of know-how on the challenges and opportunities of the Internet, an increased demand for in-depth, high quality content and an increased awareness of maintaining good relations with customers through e-services (Hamzah, 2007)." Further, a report from the International Telecommunication Union on Malaysia's Internet development noted, "Malaysia is strong in the pervasiveness, geographical dispersion and organisational setting for information technology. However, its weaknesses are in the

absorption, connectivity infrastructure and sophistication of use (Minges & Gray, 2002 p. 40)."

In addition, multinational diffusion literature offers a plausible explanation for the non-linear website implementation. Studies found IT diffusion occurs unevenly across countries due to markets and the economic environment (Caselli & Coleman, 2001; Kraemer et al., 2006; Zhu et al., 2006). Compared to developed countries, developing countries' market environments have information asymmetries, imperfections and immature institutional structures that may hold back the diffusion process (Dewan & Kraemer, 2000; Zhu & Kraemer, 2005; Zhu et al., 2006). For example, a report by the United Nations Conference on Trade and Development (2002) on e-business found despite rapid adoption, the Asia-Pacific, Latin America and Eastern Europe regions comprised about 5% of worldwide business in 2002, while North America and Western Europe garnered 95%. Developed and developing countries are at different stages of e-business transformation with developed countries going beyond information sharing to supply chain coordination and business process optimisation (Zhu & Kraemer, 2005). Thus, given the status of a developing country and only ten years of Internet use, Malaysian businesses are still learning their Internet use.

In summary, diffusion modelling reports what happens following adoption. Aligned with diffusion of innovations theory that indicates environmental factors influence the diffusion process (Premkumar, 2003; Rogers, 2003), this study suggests coping with industry competitiveness relates to the non-linear website implementation. As Zhu et al., (2006) noted, competitiveness may have influenced some hotels to adopt the Internet, joining the

Internet bandwagon and adopting the Internet without understanding the benefits. The effect may be particularly strong in the hospitality industry as technology-savvy customers forced hotels to alter their operations and customer service (Gursoy & Swanger, 2007).

Contribution 2: Proposed an Internet adoption model that includes email and a four stage email adoption model

Most Internet adoption models focus on websites (Chu et al., 2007; Doolin et al., 2002; Piccoli et al., 2004), ignoring the Internet's most popular technology, email (Rainie & Horigan, 2005). Given the growing importance and popularity of email in hospitality (Gray, Matear, & Matheson, 2000; Hashim & Murphy, 2007) and other industries (Forman, Goldfarb, & Greenstein, 2003; Martin, Van Durme, Raulas, & Merisavo, 2003), this study argued it is essential to include email in an Internet adoption model to provide a comprehensive view of Internet adoption and implementation.

The findings supported the hypothesis of three categories of hotel Internet adoption: no adoption, email adoption, and then website adoption. Almost 70% of the hotels had email presence. This widespread email adoption relates to the five innovation characteristics - compatibility, simplicity, relative advantage, observability and trialability - discussed in diffusion of innovations literature (Rogers, 2003). Email is easy to use and setting up an email account involves minimal or even no charges. It is also faster and cheaper than postage communication. In most situations, email systems are compatible with other computer technology.

Besides proposing the three categories of hotels' Internet adoption, this study found that email use evolved in four stages: from no adoption, to having a working email address, to

replying to email and finally, providing high quality email replies. To the author's knowledge, no published studies explored stages of email adoption. In addition, the results in Section 5.4.6 showed positive relationship between website and email evolution. Hotels with advanced features had a better email reply quality than hotels with limited website features.

In summary, the results showed email as a popular medium by Malaysian hotels to begin their Internet adoption. This study added to the limited studies that include email in their Internet adoption model and to the author's knowledge, was the first to propose the four-stage email adoption model.

Contribution 3: In line with previous studies, the Miles and Snow (1978) typology fit the adoption stage, yet contrary with the implementation stage.

This study extended the application of Miles and Snow (1978) to the hospitality industry, added to the limited studies investigating the relationship between business strategic types and Internet use (Apigian et al., 2005; Kearns, 2005), and could be the first to apply Miles and Snow (1978) strategic types to an online communication medium, email.

In line with previous Miles and Snow (1978) Internet studies, the results showed the four strategic types differed significantly in email and website adoption. Prospectors led in email and website adoption. However, unlike previous Miles and Snow (1978) Internet studies, the results showed no significant difference in the implementation of email and websites.

As noted in the conclusion of Chapter 5, this study argued technology imitation and leapfrogging contributed to the insignificant differences in email and website use among the four strategic types. Rather than *create*, Malaysian hotels may have *selected* from the best available website design and email reply templates that often stemmed from developed countries.

Finally, to the researcher's knowledge, this study was the first to apply the Miles and Snow (1978) business strategic types in a developing country. The literature review on Miles and Snow (1978) in section 2.3.3 noted the wide application of this model across various industries and its internally consistent result in describing organisational behaviour. However, previous studies were in developed countries. Miles and Snow (1978) derived the four strategic types based on case studies of companies in developed countries, primarily the United States. These results added to existing knowledge by extending and helping generalise the application of the Miles and Snow (1978) strategic typology to a developing country, Malaysia.

Contribution 4: Introduced and validated a temporal variable, website age, to investigate evolving Internet use

By introducing and validating the website age variable, this study added to existing knowledge in two ways. Firstly, this study added to the growing research on the evolutionary and dynamic nature of the Internet (Chatterjee et al., 2002; Chu, 2001; Murphy et al., 2006; Park & Thelwall, 2003; Piccoli et al., 2004; Teo & Pian, 2004) by suggesting an underutilised website adoption measure, website age. Website age helped overcome limitations associated with domain name age and gives researchers a valid

temporal measure of website adoption. Furthermore, the archived websites allow researchers and practitioners to study websites over time

Secondly, this study answered a 1989 call for rigorous instrument validation in information system research (Straub, 1989). Similar to social science studies on instruments validation such as the psychometric properties of questionnaire items (Babbie, 1997; Straub et al., 2004), validating the output from archival databases is an important new challenge. By validating website age, this study reinforced the importance of instrument validation (Straub, 1989) for metrics from the growing field of third-party tools such as the website age from the Wayback Machine, Google PageRank and Alexa popularity rank and number of links (Murphy & Scharl, 2007). As researchers continue to use these tools, it is important to address the validity of both the tools and their measures.

Contribution 5: Highlighted the benefits of replicating existing studies into other geographical areas

In their review of information technology use in the hospitality industry, O'Connor and Murphy (2004) commented that the trend to replicate existing studies in different geographical area added little to the existing knowledge. Nonetheless, this study found replicating existing studies into other geographical areas provided insights, helped increase the generalisability *or* as this study showed, challenged existing findings. For instance, most Internet literature described websites use as evolving in a linear and sequential process but this study of Malaysian hotels showed this was not always the case. In addition, this study found contradictory findings on the relationship between Miles and Snow (1978) business strategic types with Internet use when extending the typology to a developing country, Malaysia.

This contradictory finding support Da Silveira's (2001) argument that research on technology and innovation in developing economies should not always be grounded on theories derived from leading economies. In addition, as argued by Zhu and Kraemer (2005, p. 62), theories developed in "mature markets and industrialised economies need to be re-examined in the context of developing countries, because these countries may have very different economic and regulatory environments". Moreover, Rosenzweig (1994) challenges the assumption of conceptual equivalence across cultural and economic barriers in management science studies.

In summary, although the Internet is an innovation with a global platform (Forman et al., 2003; Forman, Goldfarb, & Greenstein, 2005), most Internet studies focused on developed countries (Dedrick, Gurbaxani, & Kraemer, 2003). This study added to the paucity of Internet studies in developing countries, particularly in the Malaysian hospitality industry. Diffusion of innovations studies found environmental factors such as competitiveness, government supports and market conditions influenced the level of technology adoption and use in organisations (Kraemer et al., 2006; Zhu et al., 2006). Thus, problems such as information asymmetry, market inefficiencies, limited infrastructure and lack of awareness result in different ways organisations perceived and used their Internet (Dewan & Kraemer, 2000; Zhu & Kraemer, 2005; Zhu et al., 2003). For instance, a hotel Internet study in Brazil found hotels managers still perceived the website as another form of mass media like TV and limited their website use for promotional purposes (Schmidt, Cantallops, & Dos Santos, forthcoming).

Having discussed the five academic contributions, the following section shares four managerial implications.

6.3 Managerial implications

This dissertation offers four managerial insights to relevant stakeholders as discussed in the following sub-sections.

a. Planning leads to successful Internet use

As the Internet becomes essential for operational and strategic purposes (Bai, Law, & Wen, forthcoming; Nasution & Mavondo, 2008), hotels without the Internet face competitive disadvantages. However, to ensure the hotels benefit from the technology, the decision to adopt necessitates long and short term planning.

Studies on innovation diffusion showed that an innovation must be integrated or ingrained into the business activities before it can generate significant business value (Devaraj & Kohli, 2000). Some businesses assumed that the Internet alone would solve their business problems and developed stand-alone solution to their business; this however, generally led to disappointing results (Garrigós-Simón et al., 2005; Porter, 2001). As such, planning should include the goals, objectives and ways for the Internet to add value to the operation. For example, hotels could use information obtained from server log files and cookies to know about customers' activities on their websites (Hofacker & Murphy, 2005).

In addition, planning helps ensure technology integration, "the degree of inter-connectivity among back-office information systems and database inside the firm and those externally integrated to suppliers system (Zhu et al., 2006, p 1562)." Technology integration allows

the hotels to streamline information and dataflow within and outside the organisation. Studies suggest that integrated technology helps improve firm performance through reduced cycle time, improved customer service, and lowered procurement costs (Barua, Konana, Whinston, & Yin, 2004).

Finally, it seems time for the bandwagon clusters, *Showtime* and *Stagnating*, to re-evaluate and revise their objectives for going online. After being online for five years, Malaysian hotels in the *Stagnating* cluster seem to have little sense of direction with their online presence. The management may reflect on outsourcing aspects of their website management to website specialists to provide ideas and tips on good website design and on how to obtain online customer information for developing new marketing strategies. This would help the hotels to improve their online presence.

b. Improving website design

Managers of *Showtime* and *Stagnating* hotels should reflect on improving their online presence by adding useful features to their websites. Websites with pleasant audio and visual features such as video and music may appeal to some visitors but take longer to download. Research suggested media richness features such as flash, sounds and music added little to customer purchases online (Liang & Lai, 2002). Hotels should focus on adding useful and value added features such as interactive search, an FAQ section and external links to related websites.

As competition intensifies and customers demand more customised and personalised services, hotels should enhance their virtual presence and strategy to provide better online

customer relationship management. For instance, hotels could use guest recognition programs that keep the record of new and repeat guests' record. Based on this information, the hotel could pre-block the best rooms, welcome customers with fruit, flowers, and personalised welcome note.

c. The importance of evaluating online customer service

Similar to offline customer service in traditional media such as the telephone and surface mail, evaluating online customer services is important. However, evaluating online customer service based solely on website features is insufficient. Hotels should consider mystery emails to assess e-service features such as email correspondence for online complaints and enquiries. The assessment will provide hotels with details on the strengths and weaknesses of their e-services, such as the level of responsiveness and quality of reply based on the 5Ps – prompt, professional, personal, polite and promotional.

Efficient email handling is a critical business success factor (Coussement & Van den Poel, 2008). Hotels should provide email addresses but must avoid problems such as bounced emails, low reply quality or worse, no reply to enquiries as these harm the hotel's service quality. Hotels should train their staff on email policies (Hashim & Murphy, 2007) or use automatic email classification to improve their online customer services (Coussement & Van den Poel, 2008). In addition, hotels could analyse their email response and address common email questions through an FAQ section on their websites (Murphy et al., 2003; Schegg et al., 2003).

This study found 24% of the 167 hotels that responded to the mystery email failed to reply within 24 hours. The last reply arrived two weeks later. Hotels that do not respond quickly to email enquiries neglect an opportunity to attract additional guests (Murphy, Olaru, Schegg, Frey, 2003). Customers might email several hotels simultaneously. Slow and incomplete replies might exclude a hotel from the set of alternatives in the final decision process. A prompt, polite, personal, professional and promotional email reply is vital.

d. Message to the stakeholders

The results of this study should alert the hoteliers, government of Malaysia, related ministries and agencies on the potential to improve Internet use by Malaysian hotels. To help address this problem, related government agencies and Malaysian hospitality academic institutions could collaborate to provide training and courses to hoteliers on effective website and email use. The government plans to upgrade the Ministry of Tourism websites into a one-stop portal for tourists (*The Ninth Malaysia Plan, 2006-2010*). The portal would allow visitors to gather information about their destination, plan their visit and book their accommodation online. The poor and limited website and email use by some Malaysian hotels hinders the Internet's potential for the Ministry of Tourism and related tourism entities.

6.4 Limitations and future research

This dissertation investigated Internet adoption and use by Malaysian hotels. It also introduced and demonstrated using website age to measure evolving website design. In doing so, it answered four research questions and helped fill the gap of sparse research on Malaysian hotels' Internet use. There are, however, limitations to this study.

There are 2256 hotels in Malaysia (*The Ninth Malaysia Plan, 2006-2010*), however given no valid hotel list, this study limited its population to a census of the 540 hotels registered with the Ministry of Tourism Malaysia. Future studies could include more hotels for a comprehensive view on Malaysian hotels' Internet use. Similarly, extending and comparing the population to other locations, particularly developing countries, could improve the generalisability and relevance of the results.

This study involved only two independent hotel variables, hotel characteristics and business strategic types. Future research could test other organisational variables discussed in the diffusion literature – such as owner attitudes, employee's IT knowledge and organisation mindfulness (Premkumar, 2003; Rogers, 2003) – that may influence an organisation's adoption and implementation decisions.

Another limitation relates to the website content analysis. In content analysing hotels' homepage for the 22 features, this study did not follow links to detect bad links, broken links or the underlying content. In addition, although the study incorporated two coders and reliability testing in the pre-testing, the final content analysis used a single coder. Future studies could content analyse the next layer of the websites, use multiple coders (Krippendorff, 1980) or automated content analysis (Scharl et al., 2004) to help address validity and reliability issues. In addition, given time constraint, this study investigated the evolution of hotels' website by grouping the hotels as in the cluster analysis. Future research could evaluate and investigate the evolution of each hotel's website.

The 22 websites features surveyed are by no means comprehensive. Future research could add more features to reflect evolving website design. For instance, hotels' online activities have extended to mobile commerce and using Really Simple Syndication, which allows website visitors to stay informed by receiving the latest information from the hotel website. Mobile commerce adds a new chapter to hotels' Internet and technology use. For example, Scandic Hotels is perhaps the first chain to provide customers with WAP-based technologies (Louvieris, Driver, & Powell-Perry, 2003). Similarly, future research could add to the 13 criteria of a quality email reply. Possible criteria to add include providing suggestions for the holiday event and follow up responses (Gardini, 2007).

Future studies could use information on website features and quality of email replies to investigate relationships with hotel performance metrics such as sales and online reservations. Do hotels with higher website features and good email replies generate higher reservations than hotels with fewer website features and lower email reply quality?

This study did not conduct a reliability test to measure the stability of the Miles and Snow (1978) business strategic type categorisation. A test-retest helps measure the classification consistency over a brief period (Malhotra et al., 2002). Another potential research area is to use the Miles and Snow (1978) business strategic types to compare website and email performance between developed and developing countries.

This study validated the website age from the Wayback Machine (WM). Future research should address the reliability of the WM. In addition, now that the Wayback Machine seems validated as a viable research tool, an interesting range of research possibilities arise.

Researchers can now have increased confidence in the data generated by the tool and can incorporate such data into their research such as using the website age for a longitudinal study on website development.

Finally, future research could include popularity variables of the website such as Google PageRank, Alexa popularity rank and the number of incoming links to measure website evolution (Murphy, Hashim et al., 2007; Murphy & Scharl, 2007). Hotels at a higher Internet evolution stage should have a higher Alexa popularity rank, Google PageRank and greater number of links to their site than hotels at a lower evolution stage.

In closing, as websites and email continue to be important for hotel sales and online customer services (O'Connor & Murphy, 2004), a good website design (Hwang & Kim, 2007) and good quality email reply (Murphy et al., 2003) are essential to build and retain customer trust and confidence. This study found Malaysian hotels use their websites for limited purposes. Features related to personalisation and navigation such as membership, sitemap and language options appeared the least on most hotels websites. In addition, poor email replies by the hotels indicate poor customer relationship management. These results should alert relevant stakeholders. It seems time for hoteliers to evaluate the returns from their email and website investment. If Malaysian hotels are to succeed in their online business, addressing these weaknesses is an essential priority.

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Appendices

Appendix 1: In-depth interview invitation email

Subject: An Invitation for Interview

Dear Mr X,

This email is an invitation to participate in a study I am conducting for my PhD research at the University of Western Australia. My research centres on the use of the Internet among Malaysian hotels and hopes to suggest on the effective website design and email management for hotels. I would be grateful if you decided to participate in this research, as I believe you could contribute to a better research on this topic. The results of this study should help your hotel to use the Internet better in the future.

Your participation in this study will include a 50 minute face-to-face interview session regarding your hotel's experience using the Internet. Participation in this study is voluntary and all information provided is considered completely confidential. The interview will be conducted while I am in Malaysia from 12 December 2005 to 20 January 2006.

I look forward for your reply of this email with a proposed date, time and venue that would be convenient to you.

If you have any questions regarding this study, or would like additional, please do not hesitate contact me. I am best reach via email.

Thank you.

Yours sincerely,
NOOR HAZARINA HASHIM
Business School,
The University of Western Australia

Appendix 2: In-depth interview invitation letter

Noor Hazarina Hashim
M261 Business School
The University of Western Australia
35 Stirling Highway, Crawley WA 6009
Phone: +618 6488 3716 (office),
+618 9389 1651 (home) and
+618 0414 531193 (mobile)
Fax: +618 6488 1055
Email: hashin01@student.uwa.edu.au

Attention to:
The General Manager's name

An Invitation for Interview

Dear Mr X,

This letter is an invitation to participate in a study I am conducting for my PhD research at the University of Western Australia. My research centres on the use of the Internet among Malaysian hotels and hopes to suggest on the effective website design and email management for hotels. I would be grateful if you decided to participate in this research, as I believe you could contribute to a better research on this topic. The results of this study should help your hotel to use the Internet better in the future.

Your participation in this study will include a 50 minute face-to-face interview session regarding your hotel's experience using the Internet. Participation in this study is voluntary and all information provided is considered completely confidential. The interview will be conducted while I am in Malaysia from 12 December 2005 to 20 January 2006.

I look forward for your reply of this letter via my email, fax or phone with a proposed date, time and venue that would be convenient to you.

If you have any questions regarding this study, or would like additional, please do not hesitate contact me. I am best reach via email.

Thank you.

Yours sincerely,

……
(NOOR HAZARINA HASHIM)
Business School,
The University of Western Australia

Appendix 3: Cover letter and the questionnaire

THE UNIVERSITY OF WESTERN AUSTRALIA | Business School

Manager's name,
Address.

Would you please spare a few minutes and share your thoughts related to how Malaysian hotels use the Internet?

The enclosed questionnaire seeks information about your: (i) hotel characteristics and management practices and (ii) current Internet use. The questionnaire should take you less than 10 minutes to complete. This questionnaire comes in English (yellow set) and Malay (blue set). Please answer either one depending on your preference. Once completed, please return this questionnaire by 28 April 2006 using the reply-paid envelope provided.

You can complete the survey online at:
http://www.student.biz.uwa.edu.au/~hazarina/survey.htm

Please note that your responses will be kept strictly confidential. If interested, you can request a summary of the results at the end of the questionnaire.

Please also note that this study is a major part of Noor Hazarina Hashim's PhD research and is supported by University of Western Australia and the Universiti Teknologi Malaysia

If you have any queries about the study, please email us at hashin01@student.uwa.edu.au (Noor Hazarina Hashim) or jmurphy@biz.uwa.edu.au (Assoc Prof. Dr. Jamie Murphy)

Thank you for your time and cooperation in furthering this research endeavour.

Sincerely,

…….. ……...

Noor Hazarina Hashim
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This research is conducted in collaboration with:

PERSATUAN HOTEL MALAYSIA

MALAYSIA
KEMENTERIAN PELANCONGAN MALAYSIA
MINISTRY OF TOURISM MALAYSIA

maho
MALAYSIAN ASSOCIATION OF HOTEL OWNERS

Completion of the questionnaire reflects your consent to participate in the study.

SECTION 1: ABOUT YOUR HOTEL

Please share information about your hotel in this section. Please select one box only or write in the space provided.

a. Your hotel's name	_____
b. The year your hotel began operating?	_____
c. Number of Rooms:	_____
d. Geographical Location *(Please (√) in one box only)*	☐ City ☐ Beach ☐ Island ☐ Lake ☐ National Park ☐ Hill Park
e. Hotel Rating *(Please (√) in one box only)*	☐ 1 star ☐ 2 star ☐ 3 star ☐ 4 star ☐ 5 star ☐ 6 star
f. Affiliation Status	☐ Chain Membership ☐ Non-chain/Independent

Thank you, you have completed 25% of this questionnaire…
The next section is about your hotel's Internet usage

SECTION 2: INTERNET USAGE

1. Does your hotel have a website?

☐ Yes
   a. Please write the website address: _____
   b. The year the website went online: _____
☐ No

2. Does your hotel have an email address?

☐ Yes
   a. Please write the email address that customers use to communicate with your hotel:
      _____
   b. The year your hotel starts to use the email: _____
☐ No

3. What are the Internet services offered by your hotel *(You may select **MORE** than one)*.

☐ in room dial up access
☐ in room broadband access
☐ wireless access

☐ an Internet cafe
Other, please write: _____

4. If you have RM 100 000, how would spend on the Internet infrastructure? *(please rank, 1= the first thing to do and 7= the last thing to do) ?*

___ Integrating the offline and online system
___ Website design
___ Email management
___ Improving revenue system management
___ Improving customer relationship management
___ Subscribing to a better booking engine
___ Hiring more skilled IT staffs

Thank you, you have completed 50% of this questionnaire…*The next section is about your hotel's management practices*

SECTION 3: MANAGEMENT PRACTICE

*The following statements illustrate selected **management practices** at your hotel. Please select ONE option that **best** fits your hotel.*

Activity 1: Service Offered *(Please (√) in one box only)*
Your services to customers are best described as: ☐ Innovative and continually changing ☐ Fairly stable in certain markets while innovative in other markets ☐ Stable and consistently defined throughout the market ☐ Slow and largely responsive to opportunities and threats in the market

Activity 2: Success Profile *(Please (√) in one box only)*
Your hotel has an image in the marketplace as a hotel that: ☐ Offers few and selective services that are high in quality ☐ Has a reputation of being an innovative ☐ Adopts only proven successful services ☐ Reacting to opportunity and threat to maintain or enhance your position

Activity 3: Market Observation *(Please (√) in one box only)*
The amount of time your hotel spends observing changes in the marketplace is best described as: ☐ Lengthy: We are continuously monitoring the marketplace ☐ Average: We spend a reasonable amount of time monitoring the marketplace ☐ Minimal: We do not spend much time monitoring the marketplace ☐ Sporadic: We sometimes spend much time and sometimes little time monitoring the

marketplace

Activity 4: Growth *(Please (√) in one box only)*

Growth at your hotel is due to your practice of :

- ☐ Concentrating and developing the existing market
- ☐ Responding to the pressures of the marketplace
- ☐ Aggressively entering new markets with new types of services
- ☐ Aggressively penetrating existing markets while adopting new services only after a very careful review of their potential

Activity 5: Operational Goal *(Please (√) in one box only)*

One of the most important goals at your hotel, is your dedication and commitment to:

- ☐ Keep costs under control
- ☐ Analyse costs and revenues carefully to keep costs under control and to selectively generate new services or enter new markets
- ☐ Ensure that people, resources and equipment required to develop new products and new markets are available and accessible
- ☐ Ensure that your hotel guards against critical threats by taking whatever action possible only when it is necessary

Activity 6: Managerial Employees Skills *(Please (√) in one box only)*

The skills that your managerial employees possess can best be characterised as:

- ☐ Analytical: Their skills enable them to both identify trends and then develop new service offerings or markets
- ☐ Specialised: Their skills are concentrated into one or few specific areas
- ☐ Broad and Entrepreneurial: Their skills are diverse, flexible and enable change to be created
- ☐ Fluid: Their skills are related to the near-term demands of the market place

Activity 7: Competitive Strategy *(Please (√) in one box only)*

The one thing that protects your hotel from your competitors is that you are able to:

- ☐ Carefully analyse emerging technologies and adopt only those with proven potential
- ☐ Do a limited number of things exceptionally well
- ☐ Respond to trends even though they may possess moderate impact
- ☐ Consistently develop new markets and new services

Activity 8: Decision Making *(Please (√) in one box only)*
In making decisions, your hotel management staff tends to concentrate on: ☐ Maintaining a secure financial position through cost and quality control measures ☐ Analysing opportunities in the market place and selecting those with proven potential, while protecting a secure financial position ☐ Activities and business functions that need most attention, given the opportunities or problems your hotel currently confront ☐ Developing new services and expanding into new markets

Activity 9: Planning *(Please (√) in one box only)*
Your hotel prepares for the future by identifying: ☐ The best solutions to problems that require immediate attention ☐ Trends and opportunities in the marketplace, which can result in the creation of new services ☐ Existing problems that help to improve your current services and market position ☐ Trends in that industry which your competitors have proven possess long term potential while also solving problems related to your current service offerings and market position

Activity 10: Structure *(Please (√) in one box only)*
The structure of your hotel is: ☐ Functional – organised by department: marketing, accounting, personnel ☐ Market oriented – organised by target group of customers: business traveller, family ☐ Primarily functional, however, a market oriented structure does exist in newer or larger service offering areas ☐ No fixed structure as you continually change to enable us to meet opportunities and solve problems as they arise

Activity 11: Performance Evaluation *(Please (√) in one box only)*
The procedures your hotel uses to evaluate performance are best described as: ☐ Decentralised to encourage many organisational members to be involved ☐ Heavily oriented toward reporting requirements which demand immediate attention ☐ Highly centralised and primarily the responsibility of senior management ☐ Centralised in more established service areas and more participatory in newer service areas

You have completed 100% of this questionnaire… Thank you for participating in this survey

Would you like to have a summary of the report? If yes, please write your details below:

Address:_____

_____

Email: _____

Appendix 4: Coding sheet for website content analysis

1. INFORMATION AND PROCESS			
Sales or reservation	***Presence (√)***	***Absent (√)***	***Description***
1. Online reservation			Link for online bookings

Contact info			
2. Physical address			List the complete address
3. Email			List the email address. Includes online form
4. Phone			List the phone number
5. Map			Link to a map
Goods and services			
6. Room description			Link about types of rooms offered
7. Hotel facilities			Link about facilities offered
8. Photo of the hotel			Photo of the hotel building
Sales Promotion			
9. Special promotions			Link to special promotions
2. VALUE ADDED			
Travel information			
10. External links			Link to other websites
Entertainment			
11. Audio/flash/animation			Presence of flash/audio animation on the homepage
3. DESIGN AND USABILITY			
Navigation			
12. Multilingual site			Other language option
13. Sitemap			Link to sitemap
14. Search function			Presence of search function
4. RELATIONSHIPS			
Loyalty/CRM			
15. Personal login			Special login for members
16. Membership/Club			Invitation to join the hotel membership
Public Relations			
17. Comments/Enquiries/ Suggestions			Link inviting users to leave their comments/feedback
18. News/Press release			Link providing news/press release about the hotels
19. Download and printables			Features allowing users to print hotel information in document form
5. TRUST			
Timeliness			
20. Date of last update			Homepage indicated the date for last update of the website
Branding			
21. Branded URL			The website url included the full or part of the hotel name
22. Branded email			Website URL as part of email address such as hotelabc@abc.com.my

Appendix 5: Mystery guest email enquiry

Dear <hotel name>,

My family is considering spending our New Year holiday at your hotel from 29 December 2006 till 4 January 2007. We are a family with two children (4 and 7 years old). I have two enquiries, which I highly appreciate to be answered:

(1) Are there any special offers for this time of the year?

(2) Does your hotel offer non-smoking rooms?

Best regards,
Ashleigh Brown

Features	Description	Presence (√)	Absent (√)

Appendix 6: Coding sheet for email reply

Prompt	• Reply within 24 hours		
Polite	• Open with 'Dear' • Thanked the recipient • Used 'Please' • Closed politely such as with 'Best regards'		
Personal	• Greeted recipient by name • Closed with sender's name • Included sender's title		
Professional	• Answered question • Used proper English – No grammar and spelling error. • Provided a provisional booking		
Promotion	• Signature file • Slogan or other promotional messages		

Appendix 7: List of 116 hotels urls deleted for the validity test

Name	Url
1. Allson Klana Bandar Baru Nilai	http://www.allsonklana.com.my
2. Allson Klana Resort	http://www.allsonklana.com.my
3. Awana Golf & Country Resort	http://www.awana.com.my
4. Awana Kijal Golf Beach & Spa	http://www.awana.com.my
5. Bayview Hotel Georgetown	http://www.bayviewintl.com
6. The City Bayview Hotel Langkawi	http://www.bayviewintl.com
7. Berjaya Tioman Beach Resort	http://www.berjayaresorts.com.my
8. Berjaya Langkawi Beach & Spa Resort	http://www.berjayaresorts.com.my
9. Berjaya Times Square Hotel & Convention Centre	http://www.berjayaresorts.com.my
10. Berjaya Georgetown	http://www.berjayaresorts.com.my
11. Berjaya Palace Resort	http://www.berjayaresorts.com.my
12. Grand Bluewave Hotel Johor Bahru	http://www.bluewavehotels.com
13. Grand Bluewave Hotel	http://www.bluewavehotels.com
14. Cititel Penang	http://www.cititelhotel.com
15. Cititel (Mid Valley)	http://www.cititelhotel.com
16. Concorde Hotel Kuala Lumpur	http://www.concorde.net
17. Concorde Inn - KLIA	http://www.concorde.net
18. Concorde Hotel Shah Alam	http://www.concorde.net
19. Crystal Crown JB	http://www.crystalcrown.com.my
20. Crystal Crown Hotel	http://www.crystalcrown.com.my

21. Equatorial Hotel	http://www.equatorial.com
22. Equatorial Penang	http://www.equatorial.com
23. Equatorial Cameron Highlands	http://www.equatorial.com
24. Equatorial Bangi	http://www.equatorial.com
25. First World Hotel	http://www.genting.com.my
26. Genting Hotel	http://www.genting.com.my
27. Highlands Hotel	http://www.genting.com.my
28. Resort Hotel	http://www.genting.com.my
29. Theme Park Hotel	http://www.genting.com.my
30. Hotel Grand Crystal	http://www.ghihotels.com.my
31. Hotel Grand Continental Kedah	http://www.ghihotels.com.my
32. Grand Continental Hotel Alor Setar	http://www.ghihotels.com.my
33. Hotel Grand Central	http://www.ghihotels.com.my
34. Grand Olympic	http://www.ghihotels.com.my
35. Grand Continental Hotel Pahang	http://www.grandcontinental.com.my
36. Hotel Grand Continental Sarawak	http://www.grandcontinental.com.my
37. Grand Continental JB	http://www.grandcontinental.com.my
38. Grand Continental Hotel Kuala Lumpur	http://www.grandcontinental.com.my
39. Grand Continenal Melaka	http://www.grandcontinental.com.my
40. Grand Continental Penang	http://www.grandcontinental.com.my
41. Heritage Hotel, Cameron Highlands	http://www.heritage.com.my
42. Heritage Hotel Ipoh	http://www.heritage.com.my
43. Cherating Holiday Villa	http://www.holidayvilla.com.my
44. Holiday Villa Alor Star	http://www.holidayvilla.com.my
45. Holiday Villa Langkawi Beach Resort	http://www.holidayvilla.com.my
46. Sri Pelangi Segamat	http://www.hockhai.com
47. Sri Pelangi Muar	http://www.hockhai.com
48. Hyatt Regency Johor Bharu	http://www.hyatt.com
49. Hyatt Regency Kuantan	http://www.hyatt.com
50. Hyatt Regency Kinabalu	http://www.hyatt.com
51. Crowne Plaza Mutiara Kuala Lumpur	http://www.ichotelsgroup.com
52. Crown Plaza Riverside Kuching	http://www.ichotelsgroup.com
53. Legend Hotel & Apartment, The	http://www.legendsgroup.com
54. The Legend Resort Cherating	http://www.legendsgroup.com
55. Renaissance Kota Bharu Hotel	http://www.marriott.com
56. JW Marriott Hotel	http://www.marriott.com
57. Renaissance Hotel (New World)	http://www.marriott.com
58. Renaissance Melaka	http://www.marriott.com
59. Miri Marriott Resort and Apartment	http://www.marriott.com
60. Hotel Mutiara Johor	http://www.mutiarahotels.com
61. Mutiara Pedu Golf & Lake Resort	http://www.mutiarahotels.com
62. Naza Hotel Johor Bahru	http://www.nazahotel.com.my
63. Naza Hotel Melaka	http://www.nazahotel.com.my
64. Naza Hotel Penang	http://www.nazahotel.com.my
65. The Puteri Pan Pacific	http://www.panpacific.com
66. The Pan Pacific Hotel	http://www.panpacific.com
67. The Pan Pacific KLIA	http://www.panpacific.com
68. Grand Plaza Parkroyal	http://www.parkroyalhotels.com
69. Grand Plaza Park Royal	http://www.parkroyalhotels.com
70. Hotel Perkasa Keningau	http://www.perkasahotel.com.my
71. Hotel Perkasa Mt. Kinabalu	http://www.perkasahotel.com.my
72. Quality Hotel City Centre	http://www.quality.com.my
73. Quality Hotel Shah Alam	http://www.quality.com.my
74. Residence Hotel KL	http://www.residence.com.my
75. Residence Resort	http://www.residence.com.my
76. Hotel Seri Malaysia Mersing	http://www.serimalaysia.com.my
77. Hotel Seri Malaysia Sg.Petani	http://www.serimalaysia.com.my
78. Hotel Seri Malaysia A.Setar	http://www.serimalaysia.com.my

79. Seri Malaysia Seremban	http://www.serimalaysia.com.my
80. Seri Malaysia Port Dickson	http://www.serimalaysia.com.my
81. Seri Malaysia Rompin	http://www.serimalaysia.com.my
82. Seri Malaysia Temerloh	http://www.serimalaysia.com.my
83. Seri Malaysia Kuantan	http://www.serimalaysia.com.my
84. Seri Malaysia Taiping	http://www.serimalaysia.com.my
85. Seri Malaysia Ipoh	http://www.serimalaysia.com.my
86. Seri Malaysia Marang	http://www.serimalaysia.com.my
87. Seri Malaysia Kuala Terengganu	http://www.serimalaysia.com.my
88. Hotel Seri Malaysia Johor Bharu	http://www.serimalaysia.com.my
89. Seri Malaysia Bayan Baru	http://www.serimalaysia.com.my/
90. Sunway Hotel Seberang Jaya	http://www.sh.com.my
91. Sunway Hotel Georgetown	http://www.sh.com.my
92. Shangri-La Hotel	http://www.shangri-la.com
93. Shangri-La's Golden Sands Resort	http://www.shangri-la.com
94. Shangri-La's Hotel, Penang	http://www.shangri-la.com
95. Shangri-La's Rasa Sayang Resort & Spa	http://www.shangri-la.com
96. Shangri-La Putrajaya	http://www.shangri-la.com
97. Shangri-La's Rasa Ria Resort	http://www.shangri-la.com
98. Shangri-La's Tanjung Aru Resort	http://www.shangri-la.com
99. Sheraton Labuan Hotel	http://www.sheraton.com
100. Sheraton Penang	http://www.sheraton.com
101. Sheraton Perdana Resort	http://www.sheraton.com
102. Sheraton Langkawi Beach Resort	http://www.sheraton.com
103. The Westin Kuala Lumpur	http://www.sheraton.com
104. Sheraton Imperial K. Lumpur	http://www.sheraton.com
105. The Summit Hotel	http://www.summithotel.com.my
106. The Summit Hotel	http://www.summithotel.com.my
107. Swiss-Inn Sungai Petani	http://www.swissgarden.com
108. Swiss Inn Kuala Lumpur	http://www.swissgarden.com
109. Swiss Garden Hotel	http://www.swissgarden.com
110. Swiss-Garden Resort & Spa	http://www.swissgarden.com
111. Club Sabah Golf & Beach	http://www.swissgarden.com
112. The Regency Pelagus Resort	http://www.theregency.com.my
113. The Regency Plaza Hotel	http://www.theregency.com.my
114. Vistana Hotel Kuala Lumpur	http://www.ytlhotels.com
115. Vistana Penang	http://www.ytlhotels.com
116. Vistana Hotel Pahang	http://www.ytlhotels.com