Electronic Commerce and Internationalisation in New Zealand SMEs

Jia JIA

A thesis submitted to
Auckland University of Technology
in partial fulfilment of the requirements for the degree
of
Master of Business

2008

Faculty of Business

Primary Supervisor: Professor Bill Doolin

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

Jia JIA _____

Table of Contents

List of Tables

List of Figures

Acknowledgements

First of all, I would like to thank Professor. Bill Doolin, Auckland University, for his insightful and constructive comments and also valuable contribution in developing this manuscript. His kindness is always unforgettable.

Next I would like to gratefully acknowledge the assistance of interviewees from ten firms in the collection of data.

Also I should thank my families and my loved ones, for their love and support. I would like to give the best wishes to them here.

All views expressed in this paper are solely my own and do not necessarily reflect the views of any other individual or organisation.

Abstract

This research focuses on internationalisation and e-commerce in small to medium-sized enterprises (SMEs), a significant part of the New Zealand economy. Based on interviews in ten SMEs, this study explores the internationalisation process and adoption of e-commerce in these enterprises. Both phenomena are examined separately to explore relevant issues, followed by consideration of the interrelationship between the two phenomena. Ten case studies of New Zealand SMEs engaged in international business were conducted. Qualitative data was collected in semi-structured interviews with key members of each SME. The interview data were supplemented with secondary data sources, including publicly available information on the firms and their activities. A within-case and cross-case analysis was performed based around the three research foci identified above. The research findings reveal that while there is a high level of confidence among the SMEs studied for internationalisation, e-commerce adoption in these firms was at a medium level of maturity. Facilitators and inhibitors of both internationalisation and e-commerce adoption are presented. A major contribution of the study is the consideration of the mutual effects between the two phenomena, in order to raise awareness of internationalisation and e-commerce in SMEs and their significance for SMEs' competitiveness.

Keywords: New Zealand, small to medium-sized enterprises, internationalisation, e-commerce adoption.

Chapter 1. Introduction

Today, we are witnessing an exciting world that is changing at a speed faster than any generation of our ancestors could dream of. In the economic domain, the world's economy has been characterized by increasing internationalisation. The internationalisation of business impacts most countries, and more and more firms, no matter what their sizes, are becoming involved in this global trend.

We have moved beyond the era in which cross-boundary international businesses were just the expensive privilege of a handful of multinationals. Small to medium-sized enterprises (SMEs), a major source of growth and job creation in many economies (OECD-APEC, 2006), also have become one of the main drivers of internationalisation. More and more SMEs go global soon after acquiring capital and experience in the domestic market. In addition, there are a number of emerging knowledge-intensive SMEs that are early adopters of internationalisation even from their inception. Called "Born Globals" (Knight and Cavusgil, 1996, 2004), the number of these SMEs is increasing substantially worldwide. New Zealand is certainly not an exception.

New Zealand, with a small population just over 4 million, is a small but thriving and prosperous market. Due to the limited domestic market size and geographic isolation, maintaining and increasing the country's competitiveness and pursuing sustainable prosperity involves seeking overseas opportunities and competing in international markets. These have been put high on the agenda for firms of all sizes and for the New Zealand government. As in many other OECD countries, the New Zealand economy relies heavily on its SMEs, according to the Ministry of Economic Development (2007). SMEs constitute up to 99% of all businesses, account for about 60% of total employment, form around 40% of the economy output, and where the majority (>= 90%) of the industries are composed by

SMEs. SMEs are the cornerstone of New Zealand's competitive position and job creation, thus the focus of New Zealand economy's internationalisation draws largely on these SMEs.

The emergence of internationalized SMEs and "Born Globals" is not coincidence. The falling of traditional barriers, an integrated global market, and especially, the advancement of information and communication technology (ICT); are three main external drivers.

It is widely accepted that one of the most exciting advances of ICT over the last decade is the emergence and extensive use of Internet. The Internet and an associated phenomenon, electronic commerce (e-commerce), in which firms utilize information technology (IT) in their business operations, promise much for firms interested in internationalising their businesses. With e-commerce, borders between countries are becoming less relevant and more direct interaction between business entities is made possible (Chrysostome and Rosson, 2004). E-commerce enables firm to obtain abundant and valuable information about markets (Evans and Wurster, 1999), and also reduces the entry barrier to international markets, which in turn encourages the firm's international expansion and minimizes the importance of the local market.

E-commerce has penetrated businesses at a very rapid rate. However, the extent of e-commerce use continues to vary widely among SMEs. Some researchers suggest these differences largely rely on firm or market characteristics as is common in innovation diffusion models (NERA, 1998, Forrester Research, 1998). However, under the globalization atmosphere, are these still the only legitimate explanations for today's SMEs? And what are main facilitators and inhibitors for SMEs to adopt e-commerce during the process of internationalisation. These questions that underlie the research presented in this thesis.

At the start of this research, it was at a time of multiple shocks to the global economy. The subprime mortgage crisis and the ensuing credit crunch began in early 2007, combined with rising inflation worldwide and the consequent slowdown in demand world-wide. Nonetheless, internationalisation is an irreversible process. Therefore, the aim was to find some empirical evidence about how SMEs can deepen their internationalisation and adopt e-commerce in today's economic environment in order to improve their competitiveness. Further, from a theoretical view, a review of the literature found that most previous research focused on a broad and generic view of the adoption of e-commerce by SMEs, or on the internationalisation of SMEs, only. The literature that focuses on SMEs' e-commerce adoption and internationalisation process from a New Zealand perspective tends to be inadequate.

This study addresses these gaps by examining the current trend of internationalisation of New Zealand's SMEs from carefully selected industries, and e-commerce adoption in these SMEs, in order to study the relationship between the internationalisation and e-commerce adoption in SMEs in the New Zealand context.

This thesis is structured as follows. First, a literature review is presented that focuses on SMEs, internationalisation, e-commerce and adoption, and connections among these concepts. This is followed by the research design, which involved ten small case studies. The next three chapters present the findings of the case study analyses and address internationalisation issues, e-commerce adoption issues, and the relationship between these two phenomena. The thesis ends with a discussion of the implications of the research and some conclusions.

Chapter 2. Literature Review

2.1. The Nature of SMEs

2.1.1. Defining SMEs

There is no single agreed definition of the SME. OECD-APEC (2006) indicates that a variety of definitions are applied among OECD countries, and employee numbers are not the sole defining criterion. SMEs are generally considered to be non-subsidiary, independent firms which employ fewer than a given number of employees. This number varies across countries. For example, the definition of SME used by European Union (Official Journal of the European Communities, 1996) and some researchers (Oviatt and McDougall, 1994; Moini, 1995; Knight and Cavusgil, 1996) are firms with less than 250 employees. Australia defines a SME as a business employing up to 200 employees (OECD-APEC, 2006). USA defines 1-100 employees (small) and 101-499 employees (medium) (OECD-APEC, 2006). New Zealand defines SMEs as businesses employing fewer than 20 employees (OECD-APEC, 2006). For the purposes of this research, the definition of an SME applies to companies with 19 or fewer employees, in line with the New Zealand Ministry of Economic Development's current definition in its report (MED, 2007). A further reason to define SMEs in this study as having 19 or fewer employees is due to the fact that, at February 2006, 96.4% of New Zealand SMEs employed 19 or fewer people (MED, 2007). Focusing on these businesses in this study has both theoretical and empirical implications in a New Zealand perspective.

2.1.2. Characteristics of SMEs

There is considerable professional and popular writing on SMES and their differences with larger firms. In general, often owners and managers of SMEs are one and the same person, implying that strategic decisions are dependent only on a limited number of people. Recklies (2001) argued that having only one or a few people with decision-making power leads to a high identification with the business, a stable culture, and high commitment. However, this can also cause problems in the form of poor management skills (Bilili and Raymond, 1993) and informal and inadequate planning and record keeping processes (Reynolds et al., 1994; Tetteh and Burn, 2001; Miller and Besser, 2000). Jaeger and Rudzki (2007) found that SMEs' decision making processes in general seem to be individualistic, spontaneous and hardly systematic.

Due to their relatively small size, simple product range and less market share, SMEs are known for their closer relationships to customers and business partners and rely heavily on them (Recklies, 2001; Reynolds et al, 1994), but they face difficulties obtaining finance and other resources (Cragg and King, 1993; Welsh and White, 1981; Reynolds et al, 1994). In particular, the lack of human and financial resources means that SMEs tend to lack technical knowledge and ICT specialists (Cragg and King, 1993; Reynolds et al., 1994; Blili and Raymond, 1993) and have a tight budget to spend on ICT, and therefore also have a slow adoption rate of new technologies (Walczuch et al., 2000; Dennis, 2000). Size, product and market share also mean that SMEs face more risks than their larger counterparts, and hence generally they are more reluctant to take risks (Walczuch et al., 2000; Dennis, 2000).

Storey (1997) suggested another three key areas where small firms differ from the large firm: 1. Uncertainty: the small firm tends to have a greater diversity of owner-objectives. The motivation of the owner is a key influence on small firm

performance; 2. Innovation: this originally relates to the niche role some small firms have acquired but it also refers to the extremely fast rate at which some firms can grow. It is also connected with the ability to produce something that varies from the standard product or service. Small firms tend to be more likely to introduce essentially new innovations and are less committed to existing practices and products; 3. Evolution: SMEs tend to be less rationalized and formalized than larger organizations (Brouthers, Andriessen and Nicolaes, 1998). Therefore, small firms are more likely to evolve and change than the larger firm.

Small and medium sized enterprises (SMEs) are viewed as a source of flexibility and innovation, and make a significant contribution in terms of both their contribution towards the country's economy and the proportion of the labour force employed by these firms. The significance of the SME sector in New Zealand has been increasing with further opportunities presented by globalisation and technological development (MED, 2006).

2.2. The Role of SMEs in New Zealand

2.2.1. The Size of SMEs and their contribution to employment

The size of New Zealand enterprises can be broken down into the categories shown in Figure 1 below.
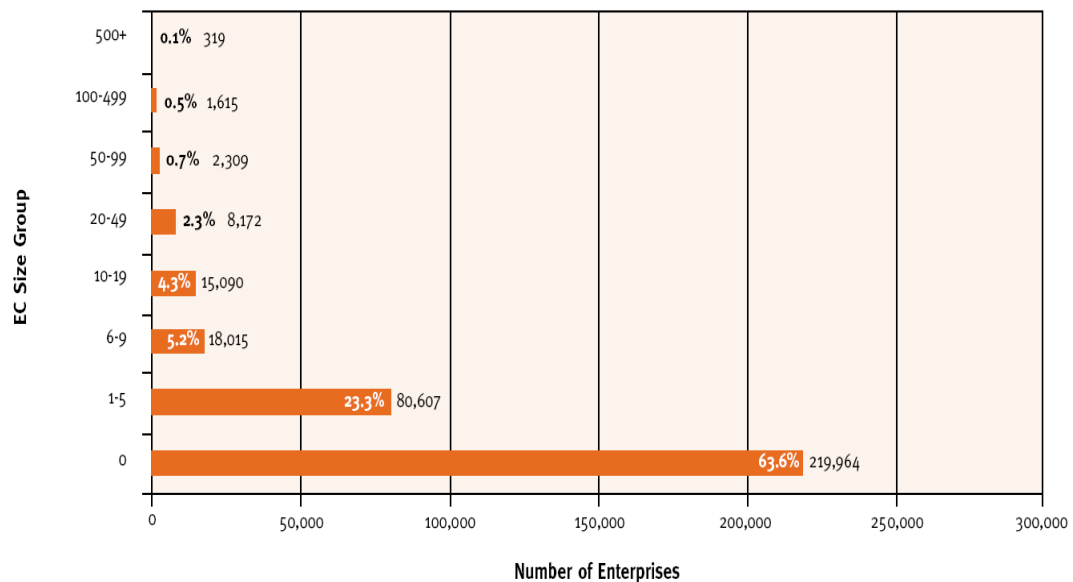
Figure 1. Number of Enterprises by Employee Count (EC[1]) as at February 2006

Source: MED (2007)

In New Zealand, 96.4% firms were under 19 employees, and 32.8% firms employed more than 1 employee in 2007. According to the MED's report (2007) SMEs accounted for 29.6% of total employment as at February 2006. The number of people employed by SMEs increased by 1.8% between 2005 and 2006, to 522,180.

2.2.2. Geographical distribution and industry sectors of SMEs

According to the statistics given by MED, the distribution of SMEs in New Zealand is very uneven, with most of them are located in the large urban centres including the Auckland, Canterbury, Wellington and Waikato regions (Figure 2).

---

[1] The Employee Count (EC) is a head-count of salary and wage earners and is primarily sourced from taxation data. It covers paid employees, but does not include working proprietors other than those who pay themselves a salary or wage.
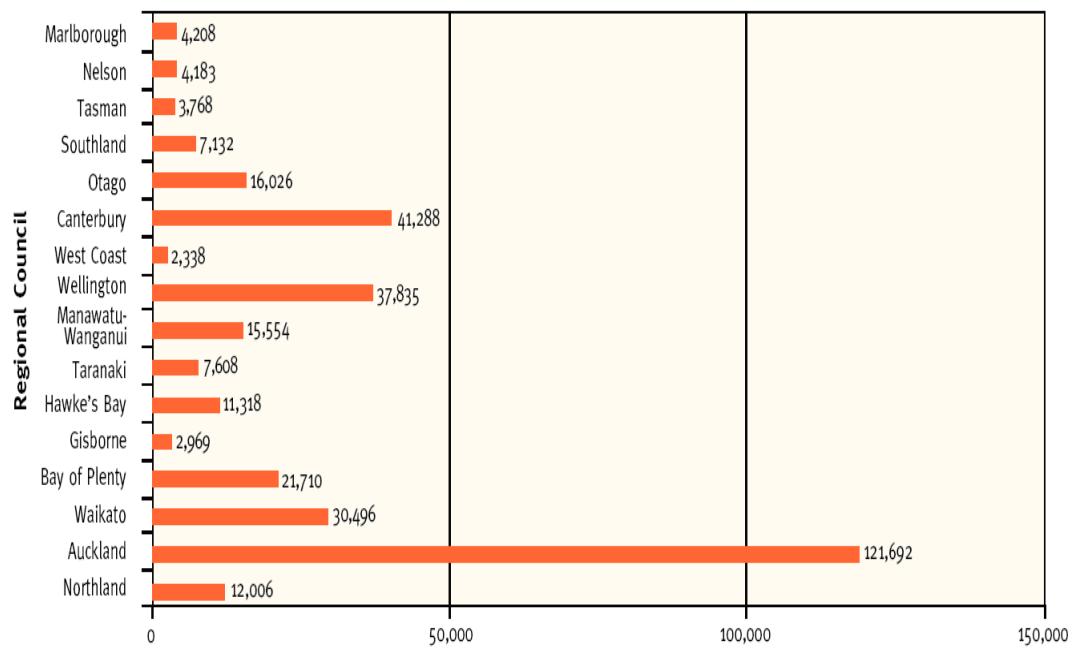
Figure 2. Number of Geographic Units with 0–19 employees by Regional Council Area as at February 2006

Source: MED (2007)

According to the Australian and New Zealand Standard Industrial Classification (ANZSIC), which is adopted by Statistics New Zealand, SMEs' industrial classifications are:

A	Agriculture, forestry and fishing
B	Mining
C	Manufacturing
D	Electricity, gas and water supply
E	Construction
F	Wholesale trade
G	Retail trade
H	Accommodation, cafes and restaurants
I	Transport and storage
J	Communication services
K	Finance and insurance
L	Property and business services
M	Government administration and defence
N	Education
O	Health and community services
P	Cultural and recreational services
Q	Personal and other services

Table 1. ANZSIC industry classifications

Source: Australia Bureau of Statistics (1993)

In New Zealand, the SME makes over 90% of firms in most industries. Figure 3 below shows the percentage of enterprises by EC in different industries categorized by the ANZSIC classification.
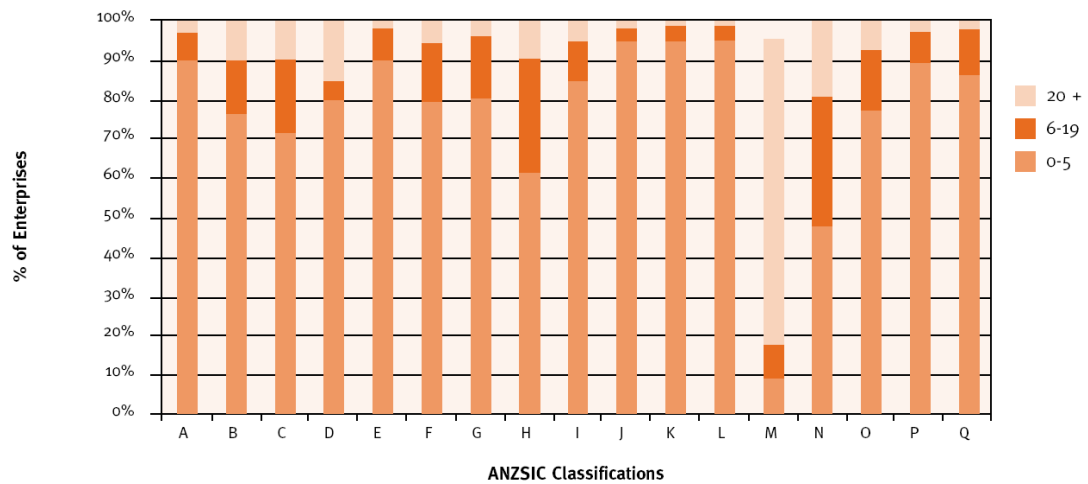
Figure 3. Percent of Enterprises by EC Size Group and ANZSIC as at February 2006

Source: MED (2007)

2.2.3. Growth

The number of SMEs continues to increase in New Zealand, with the number of SMEs increasing by 3.6% in the year to February 2006, slightly up from the 3.1% increase in the year to February 2005 The total number of enterprises rose by 3.5% from 334,340 in February 2005 to 346,091 in February 2006 (MED, 2007). Among the under 19 employees' size groups, the 1-5 employees group had the biggest increase, (3.15%), and followed by 10-19 employees group (1.56%) (Table 2).

On the other hand, the proportion of SMEs remained relatively constant, The proportion of firms defined as SMEs was 96.4 % at February 2006, compared with 96.3% at February 2005 (MED,2007).

EC Size Group	2001	2002	2003	2004	2005	2006
0	-1.55%	2.74%	4.63%	14.82%	0.67%	4.16%
1-5	1.05%	2.39%	3.51%	1.64%	8.81%	3.15%
6-9	2.48%	3.45%	8.20%	1.97%	5.68%	1.09%
10-19	3.76%	3.47%	9.28%	2.50%	7.01%	1.56%
20-49	1.70%	1.97%	8.31%	3.62%	2.68%	0.25%
50-99	2.53%	2.32%	5.87%	4.33%	3.97%	-0.86%
100-499	4.58%	0.36%	1.43%	4.30%	4.87%	4.13%
500+	4.86%	7.34%	3.60%	2.43%	4.75%	3.24%
Total	-0.35%	2.69%	4.84%	9.95%	3.10%	3.51%

Table 2. Annual Percentage Change in Numbers of Enterprises Since 2001
Source: MED (2007)

Summarizing, we can find out that New Zealand is predominantly a nation of small businesses, and SMEs make a substantial contribution to New Zealand's economic sustainability, development and employment. The locations of SMEs are concentrated in large urban areas. And the number of SMEs continues to increase over time.

2.3. New Zealand Export and Import Focus

As we mentioned at the beginning, New Zealand has a mixed economy with sizeable manufacturing and service sectors complementing a highly efficient export–oriented agricultural sector (Market New Zealand, 2006). The year 2007 was announced as "Export Year 2007", a combined government-private sector initiative to increase the value of New Zealand's exports. The total value of merchandise exports for the year ended June 2007 was $33.41 billion, up from $30.8 billion in the year to June 2006 (Statistics New Zealand, 2007). The main export markets in 2007 were Australia ($7.2 Billion), United States ($4.5 Billion), Japan ($3.5 Billion), and the People's Republic of China ($1.9 Billion).

In the year 2005, export sectors can be classified by export value as shown in Figure 4 below:
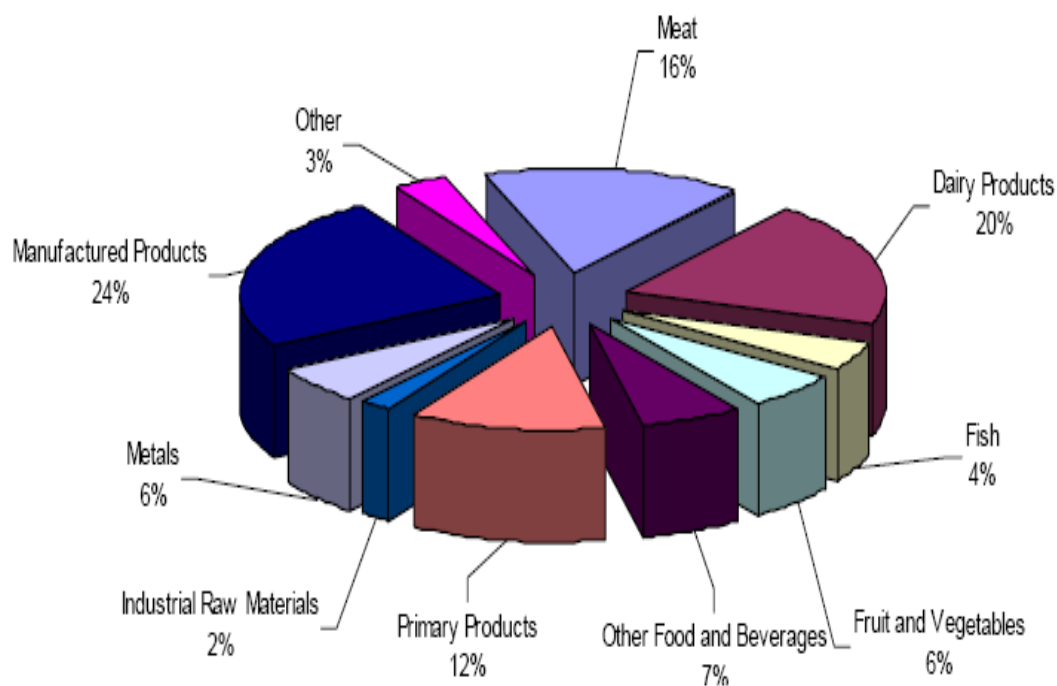
Figure 4. Composition of NZ's Major Merchandise Export Sectors YE Dec 2005
Source: Market New Zealand (2006)

The export value of food and beverages represents over the half of New Zealand's total merchandise exports, followed by manufactured products exports, primary products, metals and industrial raw materials. Among these industries, given the rise of new technologies, New Zealand's technical industries have become increasingly important. This community of exporters has been identified as among the highest achievers in the New Zealand economy.

Linking the above data with Figure 3, Percentage of Enterprises by EC Size Group and ANZSIC, we can deduce that the majority firms (90% plus) of these

top exports industries were composed by SMEs. Thus, the focus of New Zealand export draws largely on these SMEs.

New Zealand imports reached $41.1 billion in 2007, up from the $39.8 billion in 2006 (EIU ViewsWire, 2008). The main import goods are machinery and equipment, vehicles and aircraft, petroleum, electronics, textiles and plastics. New Zealand's main import partners are Australia 28.6%, Japan 10.7%, U.S. 10%, the People's Republic of China 6.6%, Germany 4.2%, and Singapore 4.1%. A relatively high exchange rate and some poor agricultural production seasons resulted in weak export growth, while a strong domestic economy contributed to considerable growth in import volumes (The Treasury, 2007). However, the recent rapid drop in the exchange rate since September, 2008, may change this pattern very soon.

In brief, both the exports and the imports of New Zealand keep the trend of growth over the time, and they play very significant roles in New Zealand's economy. However, the growth of the import is faster than the growth of the export; in other words, the merchandise trade deficit is wider. Merchandise trade account will remain deeply in deficit, to the tune of 1-1.5% of GDP in 2006-08 (EIU ViewsWire, 2006). Six main trading partners of New Zealand are Australia, the United States, Japan, the People's Republic of China, the United Kingdom, and the Republic of Korea.

2.4. International Business and the Internationalisation Process

2.4.1. Defining international business

International Business is the business "whose activities are carried out across

national borders" (Ball et al, 2007, p.9). International business has a long history since primitive trades between Phoenician and Greek merchants until today's multinational enterprises (MNEs). Many activities are included in this definition, such as conventional import-export trade, manufacturing and relatively new activities, such as foreign investment and service activities. As Czinkota Ronkainen and Moffett (1996, p. 4) note, "These activities are often interrelated." One of the most immediate consequences of the prevalence of international business is the phenomenon of 'global economic integration', which accelerates the trend towards 'global integration'; in other words, not only on the economic side, but also the globalization of the whole world.

2.4.2. Theoretical models of internationalisation

In this research, the term "internationalisation" is used in the same context as that defined by Welch and Luostarinen (1998) as the process of increasing involvement in international markets. Considerable amounts of theoretical and empirical studies have been done on the topic of internationalisation in the last three decades. As part of the continuous evolution of the process of internationalisation, different theories have been explored by different scholars.

The classic incremental theories of international business generally see companies progressing in a linear pattern from purely domestic to gradual export development, and then to full global operations. Among them, the first theory that became influential is the Uppsala School's stages theory, published in the 1970s (Johanson and Wiedersheim-Paul, 1975; Johanson and Valne 1977). This evolutionary process theory suggests firms are internationalised by following the certain stages, develop expertise locally, then seek to exploit this further on an international scale beginning with exports to close markets, and finally operate the business internationally (Donovan and Rosson, 2001;Lam and White, 1999; Havnes, 1998). These behavioural views have significance

when they are applied to those forerunners of international firms - many of them have grown up to giant multinational enterprises eventually. In these theories, the importance of the strategic perspective has also been underlined: expansion to international markets requires changes in the company strategy in order for it to fit into the novel environment (Schuh, 2001; Lam and White, 1999; McDougall and Oviatt, 1996). The classic incremental theories are challenged in today's business environment. There are some remarkable shifts of the internationalisation process; among them, the emergence of "Born Globals" is the one of the best examples to bring us some new thinking about the change in internationalisation.

International new ventures (INV) (MacDougall and Oviatt 1994, 1996) or ***'Born Globals'*** (Knight and Cavusgil, 1996, 2004), as described above, are firms which from their inception aim at overseas markets, and consider the domestic market to be just one more market among many (Jaeger and Rudzki, 2007). The emergence of this new form of business arose with the rise of ICT, by utilising advantages of the rapid advancement of these technologies. INV and 'Born Globals' are typically early adopters of internationalisation, the period from domestic establishment to initial foreign market entry being often three years or less (Autio, Sapienza, and Almeida, 2000; McDougall and Oviatt, 2000; OECD, 1997; Rennie, 1993).Some even from inception aim their businesses at a multiplicity of markets simultaneously. These INVs or 'Born Globals' have challenged the validity of the stage theories as an explanatory basis for internationalisation (Knight and Cavusgil, 1996; Moen and Servais, 2002). Reports on the widespread emergence of born globals in numerous nations (e.g. Moen and Servais, 2002; Nikkei Sangyoo Shimbun, 1995; Rennie, 1993) indicate that the phenomenon appears to be pervasive. More revelatory is that SMEs are main forces of these companies, which also indicates SMEs' abilities of innovation and quick evolution.

Another highlighted theory of internationalisation is the **Network Approach**. According to Johanson and Mattsson (1988), the network approach to internationalization can be defined as a process in which relationships are continuously established, maintained and dissolved with the aim of achieving the objectives of the firm. Thus, the internationalization strategy is by the need to:

1. Minimize the need for knowledge development
2. Minimize the need for adjustment
3. Exploit established network positions

Here the internationalisation process is determined by the set of relationships a company develops as a part of a larger network system (Axelsson and Easton, 1992; Bell, 1995; Coviello and Munro, 1997; Johanson and Vahlne, 1992; Knight and Cavusgil, 1996). Johanson and Mattsson (1988) suggest that a company's success in entering new international markets is more dependent on good access to well functioning networks and relationships than on close 'psychic distance' or similar cultural factors. Hence, the theory focuses on behaviours of firms and patterns of their network environment.

As noted previously, one of the key differences between SMEs and larger firms is that SMEs generally have limited resources. Borch (1994) claimed that strategic cooperation and alliances are sources of increased capacity for SMEs as they struggle to overcome the problems of internationalization. The extensive use of ICT and e-commerce also increases the ability of SMEs to quickly build up their own networks, through which they are able to tap into international markets within a fairly short period, by eliminating or lessening the need for intermediaries (Quelch and Klein, 1996). The network approach has significant contributions towards the study of today's SMEs' internationalisation.

The resource-based view (RBV) model is a complex behaviour study of internationalisation. In the RBV model, the firm is viewed as a bundle of linked

resources, combined with resource conversion activities (Rumelt, 1984; Grant,1996; Penrose, 1959; Teece and Pisano, 1994; Wernerfelt, 1984).The types of resources are very broad, including *tangible* resources such as properties, financial resources, tangible technologies and human resources, and *intangible* resources such as intangible technologies, patent, trademark, experience, knowledge and different skills, which are difficult to replicate by competitors and can provide the owner with competitive advantage. All these resources work together as facilitators and enablers of the internationalisation activities in a firm. The RBV has a certain connection with the network approach, in that it views networks as a vital resource (Wernerfelt, 1984), and this resource is intangible which can provide the owner unique competitive advantages during the internationalisation. Therefore, knowledge of other network contacts emerges as important (Chetty and Wilson, 2003; Jones and Coviello, 2005). The RBV model has applicability for SMEs and their internationalisation activities. SMEs should perform SWOT analysis of all the resources they have, which give them better position to overcome difficulties owing to limited resources and accelerate their internationalisation by creating their unique competitive advantages. For example, with the aid of ICT and interpersonal links, a SME can create a strategic network with local and offshore partners in short order, which can overcome shortcomings on experience and capital.

It seems to be evident that the process of internationalisation is not invariable; it keeps changing along with transformations in firms' internal and external environments. It is noteworthy that these transformations are largely underpinned by the swift advancement and spread of ICT, which enables the rapid transformation from traditional domestic business to natively internationalised business.

2.5. SMEs and Internationalisation

2.5.1. Benefits of the internationalisation for SMEs

In this era of globalization, most firms can experience competition internationally sooner rather than later. As global economic integration strikes almost every country, SMEs, just as much as giant multinationals, get involved into the internationalisation. In particular, globalization gives rise to market turbulence, increased competition, loss of protected markets due to trade liberalisation, and the emergence of international marketing opportunities, all of which can affect the operations and performance of the SME (Knight, 2000). All businesspeople must be aware of the effects of this trend when managing a domestic firm or a multinational conglomerate (Zain and Ng, 2006).

Internationalisation is not only the trend or the outcome of globalization but also provides significant benefits. It is strategically crucial for a firm to enhance its performance to stay competitive in the market over its rivals. Green et al. (1995) suggested that performance is the degree of market success attained by a product or a service at market maturity or the point at which product market boundaries change. The benefits of internationalisation for SMEs focus on the enhancement of the performance. Generally these benefits are from:

1. ***Accesses to markets and customers.*** The market and the customer, which are fundamentals to enable SMEs to explore offshore markets and achieve economies of scale, increase performance and accelerate growth. Internationalized SMEs are consistently found to out-perform non-internationalized exporters using a variety of measures of success, including profitability, production, wages and sales volumes (Aw and Hwang 1995; Bernard and Jensen 1997; Van Biesebroeck 2003; Isgut, 2001).

2. ***More opportunities.*** Rising competition and reduced opportunities in saturated, mature local markets is, unsurprisingly, one of the main factors identified in the decision to enter foreign markets from inception (Karra and Phillips, 2004). Internationalisation can also enable SMEs to explore opportunities that may not be met domestically, especially for niche market-targeted SMEs.

3. ***Richer resources.*** . Internationalisation can bring SMEs many more resources, both tangible and intangible. Richer resources facilitate more innovations, and there are strong links between innovation, internationalisation and performance growth (Harris, 2004; Harris and Li, 2005).

4. ***An efficient business network.*** The internationalisation can also help even a micro firm to establish a much broader business network to enhance its performance (Coviello and Munro, 1997, Johanson and Vahlne, 1992).

2.5.2. Barriers to internationalisation for SMEs

Barriers to internationalisation for SMEs are also inevitable, and many different scholars and international organisations have explored this field. For example, Hamill (1997) suggested that there are four main barriers to internationalisation for SMEs. They are:

1. ***Psychological barriers,*** which mainly refer to the concerns that local SMEs have with regard to the costs and consequences that the internationalisation may bring.

2. ***Organizational barriers,*** which indicate the barriers that arise from limited resources, experiences or knowledge.

3. ***Operational barriers***, which refer the problems encountered by SMEs in dealing with language problems, culture difference, different legal frameworks and transactions when they "go global".

4. ***Product/market barriers***, which relate to the suitability and competitiveness of a SME's products for the oversea markets.

In the OECD's (2007) report, it classified barriers as finance barriers, business environment barriers, capability barriers, and access barriers.

Other barriers to internationalisation commonly reported by SMEs include lack of information, knowledge and experience in international markets, the high costs of establishing and maintaining foreign distribution and marketing networks and the difficulties involved in managing complex relationships at distance (OECD, 2007). In addition, Laine and Kock (2000) argued that the barriers to internationalisation for SMEs are also caused by owner decision-making style, lack of resources and a tendency to be risk-averse.

2.6. E-Commerce and E-Commerce Adoption in SMEs

2.6.1. Defining e-commerce

There is a debate about definitions of e-commerce and e-business, with some scholars using them interchangeably (e.g. Ramsey et al., 2003) while others argue that there are differences between their meanings and limitations. Chaffey (2004) notes that e-commerce is sometimes perceived to have some overlaps with e-business (Turban et al., 2006), sometimes as broadly equivalent to

e-business, and sometimes as a subset of e-business (Jelassi and Enders, 2005). In historical terms, the first e-businesses were founded in the early to mid-1990s, while e-commerce is a relatively new phenomenon with which many firms, large and small, are still grappling (Drew, 2003). Laudon and Traver (2004) view e-commerce primarily as involving transactions that cross firm boundaries, and e-business as primarily concerning the application of digital technologies to business processes within the firm. Accordingly, the definition of e-commerce used in this study is: "The use of the internet and the web to transact business. More formally, digitally enabled commercial transactions between and among organizations and individuals" (Laudon and Traver, 2004, p.10).

According to Kalakota and Whinston (1996, 1997) and Turban et al. (2006), the framework for e-commerce can be conceptualized as shown in Figure 5. This framework underlines the importance of seeing e-commerce as being systemic in nature and impacting on an adopting company in many areas of its value-chain. Adam et al. (1999) stated that e-commerce is an interdisciplinary field of technical, business and legal issues. This framework also represents the interdisciplinary nature of e-commerce, which involves accounting and auditing, business law and ethics, computer science and management information systems, economics and finance, marketing, management, and others.

It is clear that ICT and e-commerce are two of the most important drivers of innovation and competitiveness in business today. ICT has revolutionized the way business is currently done and will continue to do so in the future (World Economic Forum, 2008). Therefore, in this research, e-commerce and its adoption are focused on to study the connections between e-commerce and the innovative way of doing business for SMEs – internationalisation.
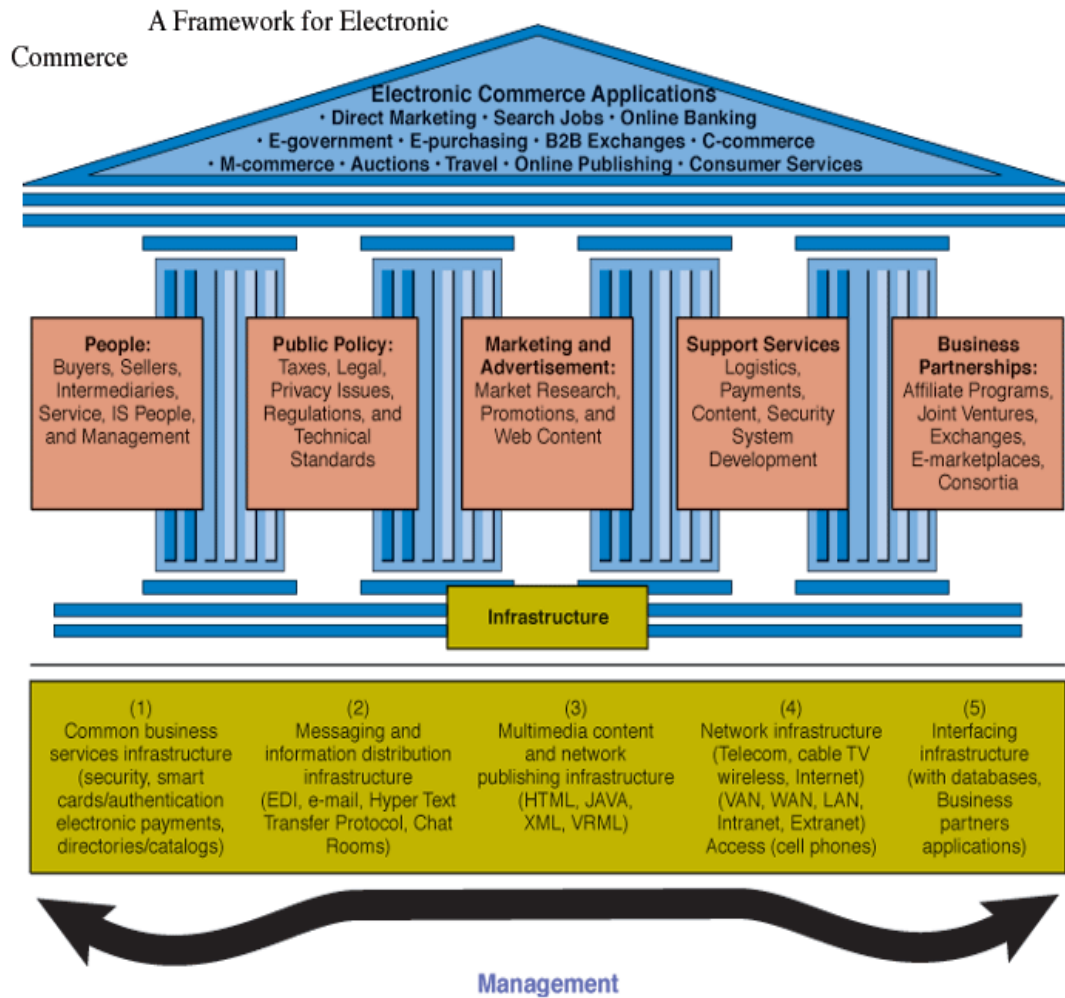
Figure 5. A Framework for E-Commerce.

Source: Kalakota and Whinston (1997, p.12)

2.6.2. The maturity of e-commerce

As discussed above, e-commerce is a relative new phenomenon. It has been observed that e-commerce is not a simple innovation; rather it is a cluster of separate innovations (Daniel, Wilson and Myers, 2002; Prescott and Conger, 1995; White, Abels and Gordon-Murnane, 1998). Therefore, e-commerce adoption is neither an invariant nor a modularized process as the emergence of new innovations, and the maturity of e-commerce adoption needs to be measured. Several stages of growth models have been proposed to describe the

various phases involved in the e-commerce environment, and measure the maturity of e-commerce adoption. For example, ECIC (2006) describe seven stages in e-commerce adoption, beginning with no internet access, followed by simple use of email and web access, and progressing through various increasingly sophisticated technological applications to using advanced e-commerce (see Table 3).

Stage	Title	Definition
0	Have not started yet	The business does not have Internet access
1	Use Email and the Web	The business does not have a web-site but accesses information and services on the Web and uses email. This step can be further divided into businesses using email only but not surfing the Web.
2	Have a basic Web site	The business has its own web-site which only included very basic information about the business; for more information customers have to contact the business.
3	Have an on-line brochure	Customers can access more detailed information about products/services from the web-site but cannot buy or pay online.
4	Have an on-line store	Customers can buy and pay for products/services from the web-site, but the web-site is not linked to internal systems and orders are processed manually.
5	Have integrated systems	The on-line 'store' is integrated with other business systems, e.g., order processing, fulfillment, accounts and/or marketing.
6	Use advanced e-commerce	Internet technology drives the business internally and externally, and is used to manage all processes end-to-end more effectively and efficiently.

Table 3. Stages of E-commerce Adoption

Source: ECIC (2006)

Other authors have developed similar stage models of e-commerce adoption that propose increasingly advanced use of e-commerce applications. Daniel et al. (2002) proposed an e-commerce adoption model consisting of four stages: 1. Developer; 2. Communicator; 3. Web presence; 4. Transactor. Similarly, Tagliavini, Ravarini and Antonelli (2001) identified five e-commerce stages: 1.

Public relations; 2. Company promotion; 3. Pre/post sales support; 4. Order processing; 5. Payment management.

The stage thinking used in previous research is useful as a framework to help us understand and describe the current state and position of a firm with respect to e-business (McKay et al., 2000; Prananto et al., 2003). Based on this prior research, a four-stage maturity model of e-commerce adoption was developed for this study. Table 4 shows this stage model in comparison with other stage models in the literature.

Stage	Description	Daniel et al. (2002) (Four stages)	Tagliavini et al. (2001) (Five stages)	ECIC (2006) (Seven stages)
0	No adoption	N/A	N/A	Stage 0
1	Entry level adoption	Developer and communicator	Public relations	Stage 1
2	Medium level adoption	Web presence	Company promotion and Pre/post sales support	Stage 2 and 3
3	High level adoption	Transactor	Order processing and Payment management	Stage 4, 5 and 6

Table 4. Four-stage Model of E-commerce Adoption Used in This Study

2.6.3. SMEs' use of the internet and e-commerce

The adoption of e-commerce among SMEs may take many forms, from online purchasing of products, contacting suppliers through email, to marketing and selling their products through their own websites to international clients. Porter (1986) divides the value chain into upstream (business to business or B2B) and downstream (business to customer or B2C) activities. Upstream activities such

as inbound logistics and operations are not dependent on location, and can be organized globally to achieve economies of scale. Downstream activities such as marketing, sales and customer service, are dependent on location, and must be organized on a multi-domestic basis (the operation customized for each market). Globerman et al. (2001) applied Porter's theories to e-commerce specifically. They suggest different internationalisation levels between upstream (B2B) and downstream (B2C) activities, and argue the former is more internationalised compared to the latter.

Focusing on our research target, the SME sector, since the rise of 'dot coms', e-commerce has been perceived by SMEs as a source of inducing competitive advantage. E-commerce can provide cost effective ways of accessing customers and suppliers globally and competing on par with large businesses (Vrazalic et al., 2003), and can overcome inherent internal problems related mostly to their limited resources and weak organisational structure (Blili and Raymond, 1993).

The internet is the infrastructure of e-commerce's adoption and diffusion. Research by OFTEL (2000) found that 49% of SMEs in the UK were connected to the internet and a further 20% intend to be connected in the near future. In Australian, 60% of small businesses were connected to the Internet by the year 2000 (Vrazalic et al., 2003). According to the American City Business Journals (IEI, 2003), SMEs using the internet have grown 46% faster than their counterparts who don't have the internet.

In New Zealand, the World Economic Forum (2008) indicates that the country has the second highest number of internet users (internet users per 100 inhabitants) in the world. MED's (2007) report reveals that the ICT penetration rate in New Zealand is very high, with 93% of businesses using computers (100 % of businesses with 100+ employees and 92% of those with 6-19

employees) and 91% using the internet (99% of those with 100+ employees and 89% of those with 6-19 employees). The proportion of businesses using the internet has increased by 12% since 2001. Most businesses use broadband (57%) rather than dial-up (11%).

It is clear that parallel to the development of ICT over the time, the ICT penetration rate is seen to get higher among SMEs. Nonetheless, internet adoption does not necessarily equate to e-commerce adoption. E-commerce, by definition, involves the conduct of commercial transactions electronically using ICT, especially the internet. In theory, most researchers consider the adoption of e-commerce as a facilitator to help SMEs to develop their markets, to increase sales turnover and to raise profitability. In reality, SMEs have long been found to be different from large firms in e-commerce context and they are not a simple scaled-down model of large firms (Bergeron and Raymond, 1997; Nummela, Loane and Bell, 2006). According to researchers' findings, in general SMEs have a greater reluctance to adopt e-commerce and a higher perceived risk of adoption, largely due to inadequate knowledge base and resources. Most SMEs use the internet for a very limited range of purposes, e.g. e-mail, an easier and more economic way to contact suppliers or receive services, as another medium for collecting information. In contrast, the revenue they generate via e-commerce through their website is much less. Therefore, adoption of e-commerce in SMEs is slower than their larger counterparts, and it is the larger businesses that have generally reaped the benefits of e-commerce (Riquelme, 2002). However, research also indicates that few SMEs actually opt to dwindle behind large companies in adopting or using e-commerce strategically in their business (Levy et al. 2002).

A similar situation applies to New Zealand. Chapple (2002) found that although the number of firms with websites had increased from 8.8% to 63.4% in one year only, despite the dramatic increase of the website adoption among SMEs, most

of these websites only provided lists of products and services. Only 20% of these sites could take orders, with only 1 in 12 taking payment online. MED's (2007) report found that 34% of businesses use the internet to receive orders for goods or services, although internet sales generally form a small percentage of businesses' total sales. The domestic market accounts for most internet sales: 22% of businesses indicated that none of their internet sales were to customers outside New Zealand, while 10% indicated that some of their internet sales were exports. Therefore, to know the causes behind these phenomena, we need to investigate what are the facilitators and the inhibitors to the adoption of e-commerce in SMEs.

2.6.4. Factors influencing e-commerce adoption by SMEs

A significant amount of research has been done on this topic (e.g. Beckinsale et al, 2006; Braven and Lundgren 2000; Dholakia and Kshetri 2004; Doolin et al., 2003; Fillis and Wagner, 2005; Grandon and Pearson 2004; Khemthong and Roberts, 2006; Levy et al, 2004; Poon and Swatman, 1997a; Stockdale and Standing, 2006; Vrazalic et al, 2003; Walczuch, Simmons et al, 2007). There are a number of recognised factors that affect the ability of SMEs to adopt e-commerce and develop their involvement in it. To analyse and categorise these factors, this study uses a model proposed by DePietro, Wiarda and Fleischer (1990) (see also, Iacovou et al., 1995), namely, the 'Technology-Organisation-Environment' (TOE) framework.

The TOE framework has been utilized for studying different types of innovations. The framework is based on the concept that innovation adoption is complex and context-sensitive (Wolfe, 1994). According to the TOE framework, there are three dimensions of technological innovation adoption: technology, organisation and environment. Kuau and Chau (2001) propose that the technological dimension refers to perceived technological benefits; the organisational

dimension refers to perceived organisational resources; and the environmental dimension refers to perceived environmental pressure. Figure 6 shows the TOE framework conceptualized into the context of e-commerce. Each of the three dimensions is discussed in detail below.

Technology
- Relative advantage
- Compatibility
- Complexity

Organisation
- Organizational readiness
- Leadership
- The core business activity and Information intensity
- Innovation champion

E-commerce adoption

Environment
- Competitive pressure
- Business partner pressure
- Internationalisation
- Government
- Support from Technology Vendors
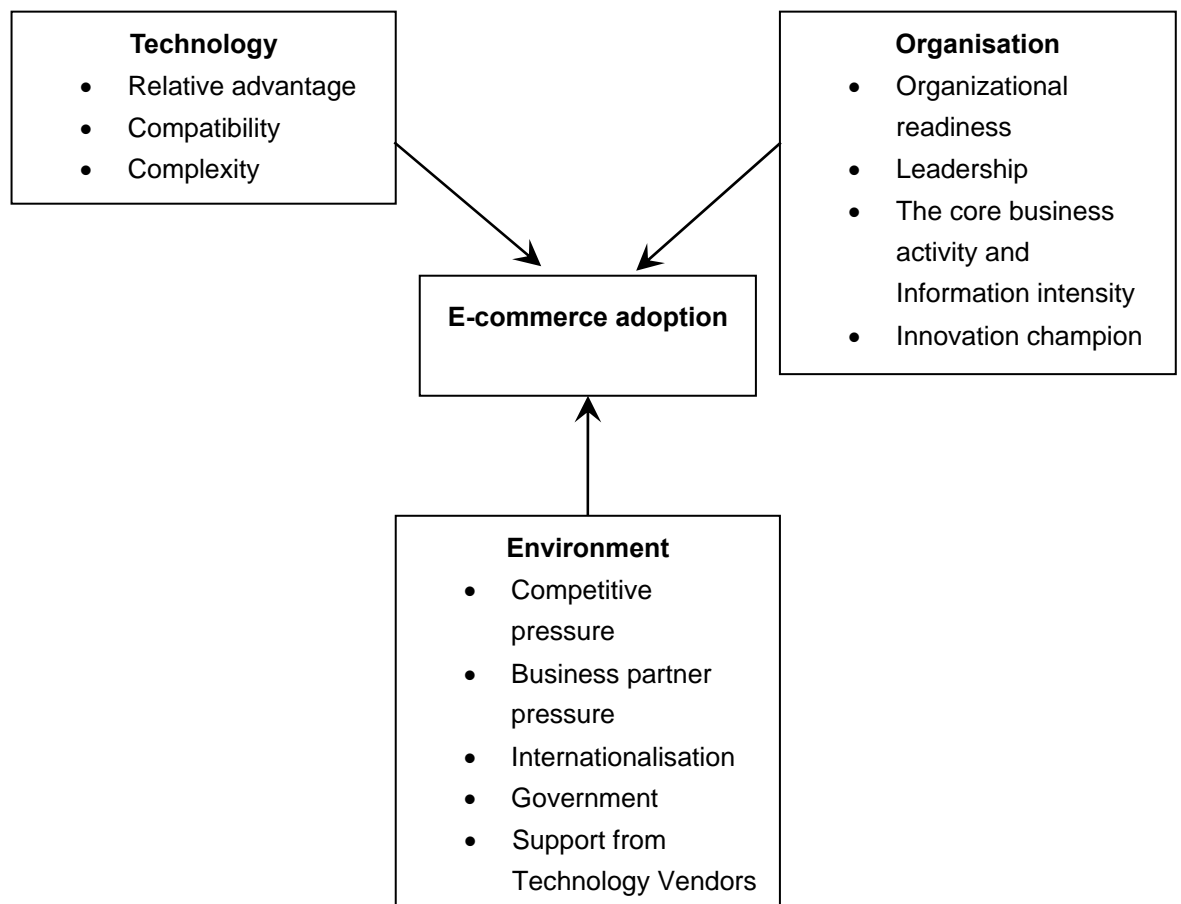
Figure 6. The TOE Model of E-commerce Adoption

2.6.4.1. Technological dimension

Technological factors that influence e-commerce adoption have been frequently studied as how the emerging technologies or innovations themselves influence the adoption process. Rogers (1983) suggested the adoption of innovations is related to the attributes of the innovations as perceived by potential adopters.

Most firms perceived e-commerce as an innovation, and as such, the adoption of e-commerce also needs to study its own attributes. There are five attributes of the innovation, which are suggested by Rogers (1983) to influence the adoption: relative advantage, compatibility, complexity, observability, and trialability. Kuan and Chau (2000) argued that relative advantage, compatibility, and complexity were found to have consistent associations with innovation behaviour. Accordingly, in this research, relative advantage, compatibility and complexity, are proposed to be the key factors in the technological context.

Relative advantage is operationalised as perceived technological benefits, which refer to the degree to which e-commerce is perceived as providing the benefits to the organisation. These benefits are normally perceived because "the degree to which an innovation is perceived as being better than the idea it supersedes that has a direct impact on the likelihood of adoption" (Rogers, 1983, p.213). The benefits of e-commerce can be classified into two categories, direct benefits and indirect benefits. Direct benefits are mostly operational benefits relate directly to the organisation, and they are usually tangible benefits in everyday activities, such as improving data accuracy, improving security of data, improving operation efficiency, speeding up application processes and reducing clerical errors (Iacovou et al. 1995; Kuan and Chau, 2001). Indirect benefits are mostly strategic benefits, which are likely to be intangible to the organisation. However, they can generally bring the organisation tactical and competitive advantages that have a far-reaching impact on business practices and relationships (Iacovou et al, 1995; Kuan and Chau, 2001).

Perceived benefits as a main factor in e-commerce adoption were found to be important in many studies (Al-Qirim, 2007; Beckinsale et al, 2006; Doolin et al., 2003; Khemthong and Roberts, 2006; Levy et al, 2004). However, Poon and Swatman (1997a) also found that some SMEs tend to concentrate on direct benefits and ignore the indirect benefits, as the latter are viewed as

non-immediate benefits. Overall, indirect benefits are generally more important and have further influences over the SMEs.

Compatibility (both technological and organisational) relates to how much adjustment or change will be needed for the adoption of the innovation or new technology. Compatibility of e-commerce has been studied by some researchers (Beatty et al., 2001; Mirchandani and Motwani, 2001; Scupola, 2003). It is clear that the higher compatibility the less changes or adjustment will be needed and the lower the possible level of resistance to the technology when it is adopted (Teo et al., 1997). E-commerce has its roots in the modern ICT, so the existing IS infrastructure (technological compatibility) of the organisation (Doolin et al. 2003), the nature of organization's work practices and the consistence of values, culture and legal framework (organisational compatibility), all can impact the decision to adopt e-commerce. Beatty et al. (2001) suggested that there is a positive relationship between compatibility and e-commerce adoption. Thus, the speed with which an organisation establishes e-commerce is influenced by its IS infrastructure and may also be influenced by the organisation's perception of the impact that e-commerce will have on its cultural norms and business practices.

Complexity is considered as an important factor for e-commerce adoption in some research (Al-Qirim, 2007; Khemthong and Roberts, 2006; Riemenschneider et al., 2001). Rogers (1983) proposed that the complexity of an innovation is negatively related to its rate of adoption. High complexity generally results in inhibiting the adoption of e-commerce. Similarly, O'Connor and Frew (2004) reported that ease of use is an important factor for the hotel industry in the adoption of e-commerce (electronic channels of distribution). In general, the higher complexity of e-commerce and its related infrastructures, the bigger the negative influence over the adoption of e-commerce. However, the rapid advancement of the ICT, the availability of fast broadband and easier access to new technology all act to lower the complexity of e-commerce.

2.6.4.2. Organisational dimension

Organisational factors that influence e-commerce adoption are mainly related to perceived organisational resources (Kuau and Chau, 2001). Almost every organisation has certain limitations on its allotted resources, although it largely depends on the size of the organisation. Factors in the organisational dimension have significant importance as these factors are internal and controllable to a certain degree; also they are fundamental for the firm's strategic decision making, including e-commerce adoption.

Some researchers use the term "Organisational Readiness" to depict the internal resources of the organisation for the adoption (Doolin and Al Haj Ali, 2008; Iacovou et al., 1995; Kuan and Chau, 2001; Scupola, 2003). There are two dimensions in organizational readiness. Financial readiness refers to the financial resources and technological readiness refers to technical resources, such as the level of sophistication of IT usage and IT management in an organisation.

In this research, based on the previous studies and within the context of e-commerce adoption, a number of internal factors within the organisation were identified:

Human resource readiness (Kuan and Chau, 2001; Mirchandani and Motwani, 2001; Scupola, 2003). Due to e-commerce's speciality, which has a high dependence on the IS/ICT knowledge, the employees' readiness mainly refers to the ability and confidence of employees to operate IT-related innovations (Thong, 1999). Competent human resource with the understanding of ICT can facilitate the adoption of e-commerce. As Mehrtens et al. (2001) suggested in their internal adoption model, the readiness of human resource is one important factor that determines the SME's speed of adoption.

Financial resource readiness refers to the availability of financial resources to implement and operate the IS infrastructure needed for e-commerce (Iacovou et al. 1995; Khemthong and Roberts, 2006; Kuan and Chau ,2001; Mirchandani and Motwani , 2001; Scupola, 2003). The cost of implementation and on-going running costs affect the adoption decision, especially for SMEs, which normally have limited financial resources. Consideration of the use of financial resources draws largely on the cost-benefit (the perceived benefit) effectiveness analysis of e-commerce adoption.

Technological resource and capability readiness (Iacovou et al., 1995; Kuan and Chau, 2001; Scupola, 2003). Also known as technical competence (Grandon and Pearson, 2004), technological readiness can be measured by the IT sophistication scale developed by Pare and Raymond (1991). Higher technical competence means a better readiness for e-commerce adoption.

CEO Characteristics/ Leadership/ Managerial support (Mirchandani and Motwani, 2001; Poon and Swatman 1997b, 1999; Thong, 1999). Compared to their bigger counterparts, SME owners and managers are often the same person. This highly centralized structure implies that strategic decisions are dependent only on a limited number of people. Thus, unlike within the bigger firms, which generally have formal board-level decision making mechanisms, SMEs' owners or managers' personal characteristics, their leadership style, their views and their support can influence adoptions profoundly. Mirchandani and Motwani (2001) identified one of the factors that influence the adoption e-commerce in small businesses as the enthusiasm of the top manager/CEO toward e-commerce. Lumpkin and Dess (2001) defined three dimensions of leadership which help the adoption of e-commerce as follows:

  Innovativeness is the willingness to support creativity and experimentation in introducing new products/services, and novelty, technological leadership

and R&D in developing new processes. *Proactiveness* is an opportunity seeking, forward looking perspective involving introducing new products or services ahead of the competition and acting in anticipation of future demand to create change and shape the environment. *Risk taking* is the tendency to take bold actions such as venturing into unknown new markets, committing a large portion of resources to ventures with uncertain outcomes, and/or borrowing heavily. (Lumpkin and Dess, 2001, p. 431)

Beck et al. (2005) also suggested the leadership role in the economy coupled with their high degree of innovativeness triggered their innovator and early-adopter behaviour with regard to e-commerce diffusion. Poon and Swatman (1997b) identified the importance of entrepreneurship and managerial support as the way in which sustainable competitive advantage can be obtained through the adoption of e-commerce.

Innovation champion (Al-Qirim, 2007; Doolin and Al Haj Ali, 2008; Poon and Swatman, 1999; Premkumar and Ramamurthy, 1995; Scupola, 2003). The presence of innovation champions (normally IT professionals) inside the adopting organisation can raise awareness of the innovation and its perceived benefits for the organisation, thus increasing the readiness of the SME to adopt.

The core business activity and characteristics/ information intensity (Doolin et al. 2003; Doolin and Al Haj Ali, 2008;Poon and Swatman, 1997a). Different business sectors involve different core activities. These activities have vastly different histories and characteristics that decide a firm's general posture towards the adoption of new technologies to a large extent. Firms with high value chain information intensity and high product information intensity would benefit most from investments in IT resources while firms with low value chain information intensity and low product information intensity would benefit least from investments in IT resources (Hu and Quan, 2003; Thong, 1999). Best

examples are "Born Globals", which embrace the IT technologies almost immediately. However, some "tradtional" industries have less intention to adopt the IT to such an extent in general.

2.6.4.3. Environmental dimension

The environment dimension contains the influences from the external environment. Some researchers (Al-Qirim, 2007;, Iacovou et al., 1995; Kuan and Chau, 2001; Levy et al., 2004; Mehrtens et al., 2001; Scupola, 2003) use the term "external pressure", and argue that this dimension is constituted by two main sources of external pressure, competitive pressure and imposition by business partners.

Competitive (industry) pressure (Al-Qirim, 2007; Iacovou et al., 1995; Kuan and Chau, 2001; Levy et al., 2004; Mehrtens et al., 2001; Scupola, 2003). This factor refers to the level of innovation capability in the organisation's industry and that of its competitors. The higher the competitive intensity in an industry, the bigger the pressure is as a motivator for the adoption of e-commerce (Kuan and Chau, 2001; Premkumar and Ramamurthy, 1995).

Business partners' pressure (Iacovou et al., 1995; Kuan and Chau, 2001; Levy et al*.,* 2004; Scupola, 2003). Business or trading partners can have a very strong influence over the innovation's adoption. A business partner can be a supplier or a buyer or both. The readiness of the supplier (Al-Qirim, 2007; Wymer and Regan, 2005) and the buyer (Al-Qirim, 2007; Doolin et al*.,* 2003; Poon and Swatman 1999), especially the buyer's influences, have been discussed by previous researchers. Kraemer et al*.* (2002) indicated that the pressure from business partners for e-commerce can be embodied as:

1. Customer service and support;
2. Exchange of operational data with suppliers;

3. Exchange of operational data with business customers;

4. Integration of the same business processes with suppliers or other business partners.

Al-Qirim (2007) also argued that it is quite logical to take whatever steps necessary to adopt technologies that can attract more business from existing customers and maintain their loyalty by adopting e-commerce.

Internationalisation (Bennett, 1997; Kandasaami, 1998; Poon and Swatman, 1995; Steinfield and Klein, 1999). Internationalisation is heralded as a key driver of e-commerce diffusion, and the influences of this factor are discussed more in detail the next section of this chapter.

Government (Grandon and Pearson 2004; Iacovou et al., 1995; Kuan and Chau ,2001). The role of government can be a notable factor in the adoption of e-commerce. While there has been a trend towards deregulation of government under globalization (Nummela et al., 2006; World Economic Forum, 2008), guidance from government is still essential to ensure that the macroeconomic environment is in a healthly and competitive state. For example, the New Zealand government has a "Central Online Management and Export Trade Accelerator Project", which identified the barriers to the uptake and use of e-commerce and broadband by SMEs in New Zealand, and developed a "Blueprint" for SMEs to use e-commerce to access global markets (MED, 2006).

Perceived support from technology vendors (Al-Qirim, 2005; Doolin et al. 2003,). Available support from technology vendors also can be an external factor that influences the adoption o an innovation. As the innovation is generally new to the firm, the scarcity of an internal innovation champion or people "know-how" forces the SME to seek external support. If the access to external support is favourable, the organisation is more likely to adopt the innovation.

2.7. Use of E-Commerce and Internationalisation in SMEs

The emergence and wide use of e-commerce over the last decade have already invoked researchers' interest in the relationship between SMEs internationalisation and e-commerce. Some researchers even suggest that e-commerce is "the only cost effective way in which many such firms can engage in trade across borders" (Ernst & Young, 2006). Some main effects of e-commerce on the SMEs' internationalisation are summarized below.

Firstly, perhaps the most distinct difference between internationalised firms and domestic targeted firms is the geographic distance between the firm and the market. Johanson and Wiedersheim-Paul (1975) and Johanson and Vahlne (1977) suggested that the psychic distance is not constant; it could change due to development of trade, communication systems etc. The use of modern ICT, especially the internet and e-commerce, can significantly change the traditional term of "physical distance". Comparing to only about two decades ago, businesses today can access the unified international markets, which were only can be accessed and dominated by those multinationals with substantive resources, at a prominent low cost by the aid of e-commerce. This has great significance for SMEs, especially in those geographically remote areas such as New Zealand, Ireland and Australia. The disadvantages caused by physical distance can be lessened largely due to the fact that there is actually no traditional "physical distance" on the web. Literally, any company can launch the worldwide commercial activity directly. As Kobrin (2001, p.688) commented: "e-commerce is intrinsically international".

Secondly, SMEs that have traditionally been restrained from international trade because of resource limitations (Bennett, 1997; Kandasaami, 1998, Poon and Swatman, 1995). E-commerce enables SMEs to overcome the barriers to

internationalisation. E-commerce is particularly valuable for international marketing, access to a global audience, cultivating and growing target markets, avoiding unfamiliar culture and business practices, obtaining international representation and creating international awareness (Bennett, 1997). Furthermore, e-commerce also provides SMEs with a cost-effective and seamless solution for customer service, which is especially persuasive for SMEs (Chattell, 1998; Quelch and Klein, 1996).

On the other hand, as more SMEs enter into the process of internationalisation, the greater the tendency for SMEs to actively seek wider use of e-commerce. The adoption of e-commerce has occurred over time (Beatty et al., 2001). As internationalisation develops among SMEs, the early adopters of e-commerce have seen e-commerce as a way to gain competitive advantage in internationalisation. Perhaps more importantly, their better position the internationalisation has no doubt impressed later adopters of e-comnmerce. At the same time, late adopters can also feel more and more pressure as their involvement in internationalisation deepens. As the use of ICT becomes legitimized, rather than asking 'Why do it?', SMEs begin to ask 'Who is doing it?' and 'Why are not we doing it?' (Beatty et al. 2001).

Overall, e-commerce is one of the most important facilitators that drive the internationalisation of SMEs. On the other hand, the intensified internationalisation among SMEs drives the diffusion of e-commerce (Steinfield and Klein, 1999).

A review of the literature found that the study of the relationship between e-commerce and internationalisation in SMEs from a New Zealand perspective was scarce. This research explores this topic to better understand the current state of SMEs' internationalisation and e-commerce adoption in New Zealand. To understand internationalisation, the study focused on drivers of and barriers

to SME internationalisation in the New Zealand context. To understand the adoption of e-commerce, the facilitators and the inhibitors of e-commerce adoption were also a focus of the study. Based on these analyses, mutual interactions between these two phenomena were explored.

Chapter 3. Research Method

3.1. Focus of the Research

Following the research's objectives and the literature review, the main focus of the research was structured as shown below in Figure 7:
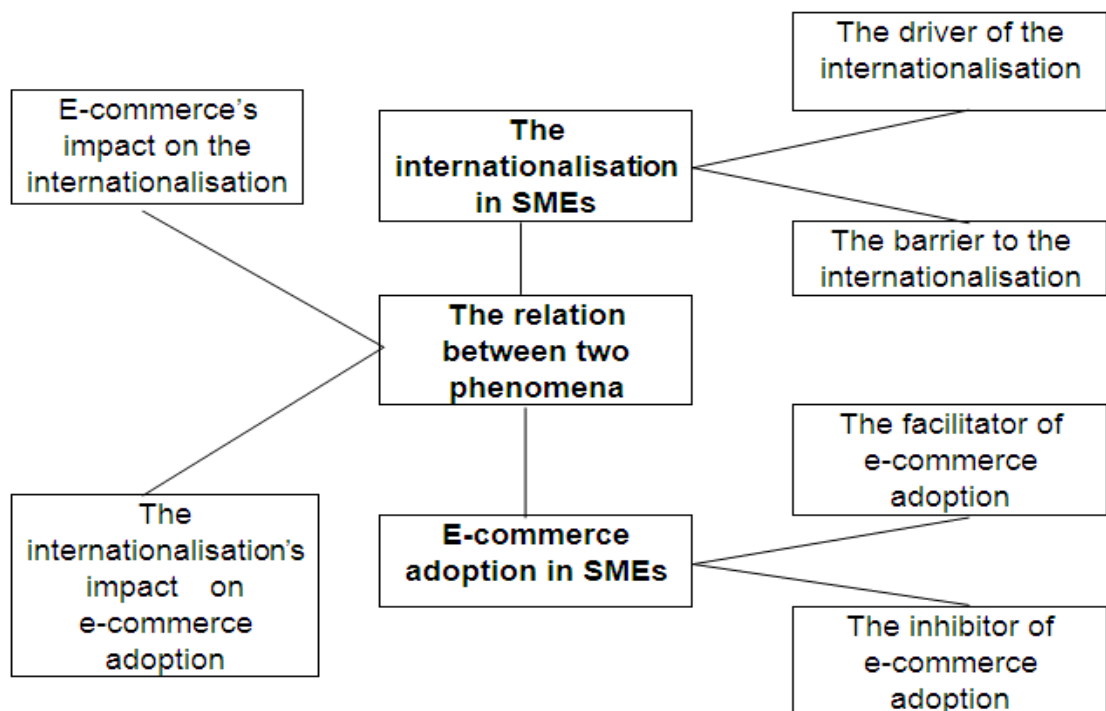
Figure 7. Main Research Focus

3.2. Research Design

Given the lack of previous research on SME e-commerce adoption and internationalisation in the New Zealand context, exploratory research was carried out to explore the local context (Benbasat, Goldstein, and Mead, 1987). Yin (1994) proposed that case studies are usually appropriate for an exploratory study, to answer "how" and "why" questions, particularly with

contemporary phenomena. In order to provide preliminary evidence on the research issues outlined in the above section, an empirical investigation involving ten SME case studies was performed.

The research used qualitative data collected in semi-structured interviews with organisational members of New Zealand SMEs engaged in international business. Topics covered in the interviews included background information on the SME, the history and process of internationalisation, the firm's use of the Internet and other e-commerce technologies for internationalisation, and factors facilitating or inhibiting the adoption of these technologies. An interview guide is included as Appendix 1. Interviews were audio-taped with permission, and transcribed to ensure the data was collected and used accurately. Qualitative data analysis was used to interpret the interview transcripts and field notes, generating relevant themes and categories.

An application for ethical approval for this research was made to the Auckland University of Technology Ethics Committee. Approval was given on 14 May 2008. Participants were given an information sheet (Appendix 2) that outlined the purpose of the research, the nature of their involvement, and what measures would be taken to protect their rights as participants. Participants then signed a consent form (Appendix 3), including permission to audio-tape the interview.

3.3. Data Collection

3.3.1. Sampling of participants

The SME participants in this study were carefully selected according to their background. The population of interest was defined as New Zealand owned SMEs based in Auckland, the city considered as the main business hub for New

Zealand, with 19 or less employees, and whose main business activities involve international business activities. The participants were selected across industrial sectors that represent the main industries in New Zealand so that the existence of sector- independent issues could be investigated. It was important to avoid observations specific to a particular sector. Diverse industries were selected from a range of industrial sectors, from traditional to newly-developed sectors, in order to provide a more comprehensive view of the research issues and have further practical and theoretical implications for New Zealand SMEs and the research literature in this area. No other constraints were placed on the research population.

The sample was identified using the "Kompass" database of company information available through the AUT Library. CEOs of SMEs in the sample were contacted by phone or email in order to request participation in the research. We considered the CEOs or the managing directors would be the best participants, as prior researchers have found that the CEO/owner in SMEs is generally also the IT manager and marketing manager. Further, they have direct access to all the resources, and also have extensive control over the business activities undertaken (Begley and Boyd, 1987; Miller and Tolouse, 1986). It was therefore decided to contact CEOs in the selected SMEs directly. A sample list of 30 SMEs was created, and an invitation and participation information sheet was sent to these companies by email. In the end, 10 SMEs were successfully recruited to participate in the study, from diverse industries.

3.3.2. Data collection and data analysis

Semi-structured interviews were conducted separately with CEOs, Managing Directors or Information Officers of the 10 SMEs studied. In total, 11 participants were interviewed. Interviews lasted between 30 to 80 minutes, with an average of 45 minutes. An interview guide was constructed containing questions based

on the issues arising from the literature review. Interview questions were designed to study a firm's internationalisation process, emphasising the involvement of e-commerce in international business activities and applying the TOE framework to identify possible facilitators and inhibitors of the adoption of e-commerce. Interviews were audio-taped and transcribed to ensure that the data was collected and used accurately. The interview data were supplemented with secondary data sources, including publicly available information on the companies and their activities. Follow-up questions typically focused on important issues requiring further clarification, and were mainly conducted by email.

A within-case and cross-case thematic analysis was organised around the research focus identified above (Yin, 2003). The transcribed interviews were read and re-read a number of times to identify dominant or characteristic themes for each SME based on the research questions underlying the study. Pre-existing coding categories drawn from the literature review were used to conduct the analysis. For example, in relation to the research questions based on facilitators and inhibitors of e-commerce adoption, specific factors relating to the three dimensions of the 'Technology-Organisation-Environment' (TOE) framework outlined in the literature review were used as coding categories. In addition, attention was given to identifying emergent categories from the data that related to the specific context of New Zealand or an SME. Once coding had been completed for each SME, the categories were organised into tables to enable comparison across the ten cases. This enabled commonalities and differences to be identified and described.

Based on this analysis, the following three chapters present findings related to the internationalisation process, e-commerce adoption, and relations between e-commerce adoption and internationalisation. Where appropriate, quotes from the interviewees are used to illustrate particular points.

3.3.3. Summary of participants

In this section the profiles of the ten SMEs participating in the study are presented. Each firm has been assigned a pseudonym and a brief summary of the firm's background information is presented. Table 5 summarises key information about the participating SMEs, including staff interviewed.

Firm S01 is a well-known marine and yachting equipments/chandlery items distributor, with over 100 years' history. It imports and exports marine equipment, and has built up strong international partnerships around the world.

Firm S02 is a west Auckland based wine maker and exporter with over 70 years history. It exports wine to over 10 countries/regions and has strong relationships with overseas clients.

Firm S03 is a manufacturer and exporter of air and water odour control. The company, with around 20 years of history, targets a niche market and has a handful of competitors. It has a factory in the South Island of New Zealand and exports products to around 10 countries through well-established overseas agents.

Firm S04 provides a range of voice communication products for use in high noise and hostile environments. It has a niche market and exports and imports special audio equipments. It has well-established overseas agents.

Firm S05 imports high technology scientific equipment. It supplies government departments, laboratories, and universities and has well-established online e-commerce applications.

Firm S06 is a supplier of computer software, specialising in systems integration support and active web development, and is an exporter of marina management software. It was established 20 years ago, and it targets a niche marina management software market. Exports are mainly to Australia, USA, UK and the Caribbean.

Firm S07 was established more than 10 years ago. It produces and exports retail management software to Europe, Australia, USA, and Pacific countries. Based in Auckland, it also has a joint venture in Europe.

Firm S08 has over 40 years of history, and is a contract manufacturer of furniture and seating systems, specialising in airport projects. It exports products to over 10 countries and regions.

Firm S09 is an importer, distributor and service provider of alarm systems and EFPOS systems. It has less than 10 years of history. It has a partner in Australia.

Firm S10, develops collection management software for museums, galleries and other cultural heritage sites. It targets a niche market and was established more than 20 years ago. It has already built up strong reputation in New Zealand local market. Software has been exported to Australia, Europe and North America.

Company	Industry (ANZSIC)	Company Size (Number of Employees)	Date Established	Overseas Partners/Filiales	Importer /Exporter	Target Markets/ Partners	Interviewee(s)
S01	Wholesale Trade/Boat	12	1907	Yes	Importer & Exporter	Pacific islands, Asia, Europe, USA, Australia	Managing Director
S02	Manufacturing /Wine	6	1937	No	Exporter	North America, Asia, Europe	CEO
S03	Manufacturing /Health	4	1990	No	Exporter	Australia, North America, Asia, Europe	CEO
S04	Manufacturing /Audio Equip	7	1979	No	Importer & Exporter	Australia, USA, Europe	CEO
S05	Wholesale Trade/Science	18	1991	No	Importer	Australia, USA, Europe, Japan	CEO
S06	Business Service/IT	12	1989	No	Exporter	Caribbean, USA, Australia, Europe	CEO
S07	Business Service/IT	19	1995	Yes	Exporter	Australia, North America, Europe, Pacific Islands	Managing Director
S08	Manufacturing /Furniture	9	1966	Yes	Exporter	Australia, Europe, Asia,USA Pacific Islands	CEO
S09	Business Service/IT	10	1999	Yes	Importer	Australia, China	General Manager & IT Support
S10	Business Service/IT	15	1985	No	Exporter	Australia, Europe, USA	CEO

Table 5. Summary of participants

Chapter 4. Internationalisation Issues of New Zealand SMEs

4.1. The Internationalisation Process

Overall, data from the interviews suggests that internationalisation in New Zealand SMEs is not a new but definitely a persistent topic with a significant long history, considering New Zealand is just a young country with merely over 160 years history.

Among those traditional industries, which include primary industries (e.g. agricultural products and wine production) and the secondary sector (e.g. manufacturing of heavy machinery and agricultural tools), most SMEs follow the classic incremental process (Uppsala model) of internationalisation. These SMEs became established in their domestic markets before initiating international activities. Among these traditional SMEs, the knowledge-based element of offerings need not necessarily be high.

As one example, firm S01, established in 1907 in Auckland, started as a boat builder and chandlery. It commenced its international business as an importer of ship equipment in its very early years. As the Managing Director mentioned, "We started import activities very early … yet it [internationalisation] is a long process. But we can see benefits … In 2007 we formed a partnership with an overseas company, and it is a big progress for us" (Managing Director, S01).

SMEs from newly founded industries or the tertiary sector (such as software design and IT services), can be classified as either 'knowledge-intensive' or 'knowledge-based' firms. These SMEs are defined as those "having a high added value of scientific knowledge embedded in both product and process … Often, this knowledge is also required in sales and marketing functions" (Coviello, 1994, p17). In the interviews in this study, New Zealand SMEs in this group went global at a very early stage, if not as soon as they were established. CEO of firm S07 commented, "By the aid of the modern technologies, we started our

international activities as soon as the firm was established, we aimed for the overseas market initially" (CEO, S07).

Clearly, these SMEs belong to the group "Born Globals", as discussed earlier, which tend to launch with cross-border business activities in mind (Autio et al*.,* 2000; Etemad and Wright, 2003).

Firm S10's CEO confirmed that "Our business is based on IT technologies, we distribute our products and services online, and we are actually in a market without borders" (CEO, S10).

4.2. Timing of Internationalisation

The ten researched SMEs differed vastly in terms of history, turnover, products and industries. They were established in different eras (from early twentieth century to late twentieth century) and have varied internal and external environment. Despite this, they tended to be involved in international activities as early as possible. As the CEO from S04 recounted, "Going offshore has very high priority … We all realized we have to do it asap" (CEO, S04).

Table 6 below indicates the overview of the participants' timing of starting the internationalisation process.

Timing of Starting Internationalisation	Number of SMEs
1-5 years	4
6-10 years	3
10 years +	3

Table 6. Timing of Staring Internationalisation

Four main reasons for the relatively early initiation of internationalisation were suggested by the interviewees:

1. *Geographic isolation and market size*. This was the most frequently mentioned reason. New Zealand's unique geographic location, which is isolated from other major international markets, plus its relatively small size (268,680 km²) with much less population (4.3 million) compared to similar sized countries, such as Japan, Ireland and Great Britain, means that firms cannot create enough demand to sustain their growth in the long run. Therefore, firms in New Zealand, no matter what the size they are, in order to enhance performance and stay competitive, have to actively seek across borders for opportunities, networks and resources. "Going global" has become a high priority for New Zealand SMEs. As The CEO from S10 mentioned, "New Zealand can't generate enough demands for our products … so overseas markets are very, very important "(CEO, S06).

2. *History and culture.* Due to its colonial history, New Zealand has a long and also very close and strong connection with Europe (mainly Great Britain) and Australia, since she was founded. These connections enable New Zealand's SMEs to conduct international business with these countries and regions at a reduced risk and cost: "Australia was our first step …. It was so much easier than going to an unfamiliar environment "(General Manager, S09).

3. *Associated industries.* This issue arose from the combination of the geographic location, history, market size and population issues. New Zealand was defined as an agricultural country, and it has never built up an integrated industrial system; for instance, heavy industries are very weak in New Zealand. Nowadays, a lot of industries need cross industrial collaboration. New Zealand SMEs have to go overseas to search for these collaborations, which are scarce in the homeland.

4. *Niche market orientation* **The** interview data revealed that 4 out of the 10 SMEs were targeting niche industries, and that they were also extraordinarily successful in the global market. Niche industries are targeted in order to offer a specialized service or product (Fillis and Wagner, 2005) and therefore rely heavily on a small number of customers.

A single country, especially one the size of New Zealand, has limited ability to produce enough demand and drivers for SMEs as players in niche markets. So, an early and rapid internationalisation process is a high likelihood: "We have to find the customers globally, as our products only aim at a special group of people"(CEO, S03).

4.3. Major Business Partners

According to Table 3, target markets and main overseas business partners for New Zealand SMEs have become diversified. The traditional markets and business partners, such as Australia, USA, Japan and Europe, still play significant roles. Similar cultural and close historic connections make these countries likely to be first targets for SMEs "going global". In particular, Australia was rated as the most important destination by the interviewees in this study, with eight of the ten SMEs targeting Australia or with partners in Australia. Australia is geographically close to New Zealand, with a similar culture and history, and shares many economic characteristics. As Kiong (2008, C1) suggests, "Australia is a natural path for New Zealand companies with global aspiration."

On the other hand, new destination markets and business partners have become more and more important for New Zealand, especially those emerging markets that have larger population and cheaper labour cost, such as China and India. Five of the researched SMEs had business interests with China or India.

4.4. Motivators for Internationalisation

According to the interviewees, five main factors motivated SMEs to "go global":

1. ***Access to bigger markets and customer base***. This was the most frequent benefit provided by the interviewees, with eight out of ten ranking it as the most important benefit. As New Zealand is a remote and small isolated market, access to offshore markets are significant for New Zealand SMEs.

49

2. ***Competitive advantage.*** A sustained competitive advantage can be obtained if the current internal strategy is value-creating, not currently being implemented by present or possible future competitors, and when the benefits of this strategy cannot be duplicated by these competitors. "Going global" as an operational strategy becomes very appealing for SMEs, especially for those "first movers" and those concentrating on niche markets. As one CEO commented, "We saw the opportunities it (internationalisation) can bring us, and keep our predominance in the industry over other (local) competitors "(CEO, S10).

   However, it is also noticeable that when a SME belongs to the industries which have already been deeply internationalised or are "Born Globals", internationalisation is no longer a prominent competitive advantage. Internationalisation has became a "must do", otherwise, these firms may face huge competitive disadvantages. The CEO from S02 recounted, "Most of them (local competitors) are having their presence in the international market …We would lose out if we don't have it" (CEO, S02).

3. ***Access to resources.*** As mentioned above, overall, New Zealand has limited resources. The possession of resources is crucial for SMEs, and one of the direct benefits that internationalisation can offer is the maximum sharing and relatively free flow of resources. "Going global" was viewed as an enabler for SMEs to access scarce resources and enhance performance by most of the interviewees: "We can easily find cheaper suppliers in China than we can find here" (General Manager, S09).

4. ***Business networks.*** SMEs rely on efficient networks of production and distribution that span traditional market boundaries. Karra and Philips (2004) argued what allows SMEs to function internationally is not having international capabilities themselves, but rather being part of a network of firms who together have the necessary capabilities. SMEs in New Zealand are enjoying more integrated and efficient networks beyond

national boundaries. As the CEO from S05 said, "Our suppliers are from all over the world. We have a efficient supplier network" (CEO, S05)

5. ***Competitive pressure***. Today, even SMEs in remote New Zealand are facing more and more competitive pressure from both domestic and international competitors. To stay competitive and maintain or even improve their position in the marketplace, SMEs consider "going global" as an effective countermeasure to competitive pressure. The managing director from S07 recounted that, "we have a branch in UK, since the competitors there are giving us more and more pressure … we can't afford to lose our market share there" (Managing Director, S07).

4.5. Barriers to Internationalisation

Barriers to internationalisation that New Zealand SMEs are experiencing were addressed in the interviews. Six main barriers are summarized below:

1. ***Financial issues.*** A shortage of funds necessary to support internationalisation was viewed as a major barrier by the interviewees. The lack of financial resources is one of the most common barriers for SMEs globally and is also discussed by many researchers. In this research, interviewees from most SMEs recounted that they were struggling to get enough funds to support their internationalisation process. For example, "Money is always a problem……otherwise our steps would be bigger than now "(CEO, S04).

   One SME mentioned that there is a government aided scheme for limited number of firms that can provide financial support for exporters: "We applied for "Market Development Fund", which can help our overseas expansion"(CEO, S06).

   However, the scheme was not known to most of the study participants. Some interviewees raised the idea that the New Zealand government should work with major financial providers to provide more realistic

schemes or funds for SMEs, to tackle this barrier, and also use better channels to publicise them. The CEO from S04 said, "We haven't received any help from the government. At least, we don't know if there is any, I guess they should have better way to let us know"(CEO, S04).

2. ***Insufficient information and knowledge***. This barrier is predominately noted in SMEs from 'knowledge-intensive' industries, especially those who are "Born Globals". Their responses mainly concerned the embrace of the global market within such a short period so that they had time to accumulate or acquire enough knowledge about overseas marketing, networks and customer behavior. On the other hand, a lack of experience or knowledge was also referred to, which can be viewed as an organizational barrier: "Lacks of target market research and experience hindered our business in China, you know, too many differences" (CEO, S03).

3. ***Geographical isolation.*** Perhaps the most well-known and inherent barrier for New Zealand SMEs. Objectively, it will not be altered over the time, as the Managing Director from S01 mentioned: "We can't change New Zealand's geographical location" (Managing Director, S01).

4. ***Competitiveness issues.*** This barrier was reported by some interviewees. In their view, New Zealand does not have distinct advantages in modern technologies and labour costs, which makes it harder for them to compete with competitors from other countries. The general economic image of New Zealand is as "agri-pastoral economy oriented". One CEO commented that, "Generally, in the global market, New Zealand companies don't have a high-tech image" (CEO, S04). For example, technology intensive SMEs believed they are facing tough competition from traditional technological hubs (America, European and Japan), and labour intensive SMEs cannot compete with

newly emerging countries like China, which has large and cheap labour resources. This issue is part of capability barriers.

However, the SMEs from niche industries seem more comfortable with their competitiveness in global markets, as New Zealanders are well-known for their innovations and creativities. The firm S10 is a good example of this, where New Zealand entrepreneurs let their creativity sparkle. Its collection management system has won a great reputation in the international market.

5. ***People***. People include owners and employees. Owners were usually found to be the decision makers in the SMEs participating in this study, and they usually controlled strategic decision making as well. Their attitude and engagement are decisive for the internationalisation. It can be a barrier when the decision maker holds a negative attitude towards internationalisation. It is a psychological barrier. In this research, all the CEOs and Managing Directors who participated showed positive attitudes towards internationalization. For example, the CEO from S08 had business links with China in the late 1970s, when China was still in many ways a closed economy.

However, a scarcity of competent employees was one of the vulnerable spots for most participating SMEs. Competent employees were proposed as essential ingredients for the success of "going global" by the interviewees. The CEO from S03 stated that, "We need people who understand both our business and foreign market, which I found very hard [to find]" (CEO, S03). New Zealand's small population limits SMEs' ability to obtain competent employees. There are also large numbers of competent employees who leave New Zealand every year for better opportunities: "In the year to July 2008, net emigration of New Zealanders to Australia (permanent and long term) was 32,000. In the last three years, the figure was more than 78,000 - nearly the population of Palmerston North" (Kerr, 2008). However, as New Zealand is a destination for immigration, experienced immigrants can

be a partial solution for this barrier. Furthermore, SMEs cannot provide significant advantages compared to larger organisations in the scramble for and retention of competent employees. The General Manager from S09 described their dilemma as: "We are having a 'Recruiting – Training – Loss – Recruiting' situation" (General Manager, S09).

6. ***Cultural and legal issues.*** Internationalisation places SMEs in a multicultural environment, which can be an operational barrier. In the interviews, representatives from some New Zealand SMEs mentioned that they are facing challenges from cultural or legal differences, especially in those emerging markets, such as China. Employing employees with a local background seems to be one solution. The Managing Director from S07 mentioned that, "Our UK division hire people locally, which is easier for us to deal with local customers" (Managing Director, S07). However, this barrier is less significant when SMEs enter target markets that have a similar cultural background and legal framework, such as the UK and Australia.

4.6. Readiness of Individuals and Firms for Internationalisation

In this research, the majority of interviewees expressed cautious optimism over their readiness for internationalisation at the individual level. New Zealanders, as members of a unique and vibrant multicultural society, tend to have an open mind towards "globalization". The availability of employees from different cultural backgrounds can also help SMEs when they go global. However, the loss of the experienced employees to bigger firms or overseas, which was described as a "Brain Drain", impairs the readiness of some SMEs.

In talking about the readiness of the organization, all of the interviewees seemed to have visions for further internationalisation, and felt confident about the next steps their firms are going to take. Even without formal written plans,

interviewees still considered "going global" as an ongoing and important business strategy. In general, New Zealand SMEs' readiness and confidence for internationalisation appears high. However, the loss of competent employees, as mentioned above, and the recent global economic recession has hit some New Zealand SMEs. The financial hardships these SMEs are experiencing plus decreasing demands from domestic and overseas markets will hold back some plans for internationalisation for a while, but were not expected to stop it. As one CEO predicted, "With current economic gloom, it [the internationalisation process] might slow down. However, I am pretty sure we won't stop it" (CEO, S08).

4.7. Summary

In general, the ten New Zealand SMEs interviewed were actively involved in the process of internationalisation. They tended to go global as soon as possible. Four of the ten firms have even set up overseas partnerships or filiations. In general, the majority of firms interviewed were quite comfortable with the current internationalisation process, and were willing to take further steps in the same direction. All the firms admitted that the actual benefits from internationalisation match their perceived benefits. Despite the presence of some barriers identified by interviewees, the overall readiness of the individual and the firm were quite high. The role of the New Zealand government was not perceived as influential in the internationalisation process, despite the existence of support schemes or funds. For instance, in September 2008, Economic Development Minister, Pete Hodgson, and Communications and Technology Minister, David Cunliffe, announced a two million dollar government funding initiative for IT exporters (mainly in the digital content sector, such as animation and 3D) and the annual AmCham-UPS Award for high-tech exporters (Hendery, 2008). However, such schemes were perceived as either too hard to apply for or insufficiently publicised. Hence, the government was expected to be more informative, and to provide more realistic supports for SMEs on both the financial side and in retaining or bringing in competent human resources.

Chapter 5. Adoption of the Internet and E-Commerce in New Zealand SMEs

The use of the internet and the adoption of e-commerce are a main focus of this research. The Table 7 below shows the summary of ICT related use in the SMEs in this study.

Company	Internal IT Team	Internet	Internet Connection	Number of Website(s)	Age of Website(s)	E-commerce Transaction Application(s)
S01	No	Yes	Broadband	2	2 years	No
S02	No	Yes	Broadband	4	12 years	No
S03	No	Yes	Broadband	0	(2years)[2]	No
S04	Yes	Yes	Broadband	3	8years	No
S05	No	Yes	Broadband	1	7years	Yes
S06	Yes	Yes	Broadband	2	8years	No
S07	Yes	Yes	Broadband	2	10years	No
S08	No	Yes	Broadband	3	10years	No
S09	Yes	Yes	Broadband	1	8years	No
S10	Yes	Yes	Broadband	2	6years	No

Table 7. Summary of ICT-related Uses

The interviews revealed a number of main issues concerning the use of the internet and the adoption of e-commerce in New Zealand SMEs.

5.1. Internet Use in SMEs

With the rapid development of ICT, the coverage and cost of internet access have improved significantly. The use of the internet has become a very common phenomenon, with all ten firms currently employing it. As one CEO asked, "How

---

[2] Firm S03 previously had a website for 2 years.

can you do business without the internet these days? We live on it" (CEO, S05).

In fact, due to the prevalence of low cost internet, New Zealand has one of highest internet penetration rates in the world. The internet has become an essential business tool for a majority of, if not all, New Zealand firms. The World Economic Forum (2008) ranked New Zealand as in 25th place for the extent of business internet use in the world. Most SMEs in this study have already used the internet extensively in the business environment, especially those "knowledge-intensive" firms. The uses of internet in the firms from primary or secondary industries are also increasingly higher and wider than was expected. Overwhelmingly, the internet was considered as a "must have" by all of the researched firms.

With respect to the manner of internet connection, broadband connection has tended to replace the traditional dial-up connection. The World Economic Forum (2008) ranked New Zealand as 26th in the world in terms of broadband internet subscription. All of the interviewed firms used broadband for their connection to the internet. Further, the speed of broadband connection has increased and is likely to further increase in the future. David Cunliffe, Minister for Communications and Information Technology in the recent New Zealand government, insisted, "We understand that widespread, high-speed broadband is essential for New Zealand to participate in the contemporary world – and we will deliver it" (Cunliffe, n.d.).

Internet access has become unprecedentedly convenient and diversified through the use of Wi-Fi and mobile broadband. The main Wi-Fi provider in New Zealand is Woosh, plus there are numerous Wi-Fi hot-spots within CBDs, and private Wi-Fi networks. Two main mobile broadband providers in New Zealand are Vodafone and Telecom. The two companies offer different data plans, although Vodafone's 3G mobile broadband is leading on speed. As one interviewee commented, "It [mobile broadband] is very convenient I always need internet connection, now I can have it, literally, everywhere" (CEO, S04).

In the SMEs in this study, application of the internet was primarily for the

purposes of communication and information exchange. Email, VoIP (Voice over IP), FTP, IM (instant messenger), and search engines (Google, Yahoo) were widely used. As a General Manager commented, "The internet has changed the way of our daily business communication" (General Manager, S09).

However, broadband speed was still perceived as relatively "slower" than other OECD countries by most of the interviewees. The monopoly on the wholesale of ISP (Internet service provider) is still perceived as strong. Most people still remember in the 2006, on the whole, Telecom's upstream speeds and data caps had resulted in New Zealand's internet connections being ranked amongst the worst in the OECD. Amid growing pressure from the New Zealand government, such as the *Telecommunication Amendment Act* of December 2006 and Digital Strategy 2.0, Telecom promised to boost download speed to 3.5MB per second. The interviewees still criticized the broadband available in New Zealand for it's slower than expected speeds: "Comparing the internet speed here with other countries I visited, it [connection speed] is not the best" (CEO, S05). The World Economic Forum (2008) ranked New Zealand in 36th place for Internet bandwidth and 106th place for quality of competition in the ISP sector. With respect to Wi-Fi and mobile broadband, the cost, capability for overseas roaming, expensive data plans and data cap were often criticized by interviewees, especially those who spent a lot of time travelling: "I travelled to Australia and used my mobile to received emails there. You won't believe how much they charged me" (CEO, S10). The coverage of Wi-Fi is limited as per infrastructure and technological limitations, which can be found mainly within the CBD area and the firms' premises. On the other hand, the overall coverage of mobile broadband attracted a reasonable level of satisfaction, despite concern over the price.

5.2. Adoption of Websites and E-Commerce in SMEs

5.2.1. Adoption and the status quo

The website has been widely adopted by the researched SMEs. Nine out of the ten firms currently have their own website. Six of them have more than one

website. The average age of the firm's websites was 7.3 years by the year 2008.

With the advancement of ICT, the availability and usability of website design software have been improved significantly. The development of basic websites is no longer the job for a small number of professional web developers. User friendly website design software and powerful personal computers make in-house design of websites easier and faster. Therefore, the cost of developing a website has dropped significantly and become more affordable. Some of the researched firms developed their own websites. Accordingly, the daily maintenance and update have become easier and related running costs have become much less. These improvements encourage SMEs in New Zealand to adopt websites. A CEO recounted, "I am the one who designed our website. It was not hard … I am self-taught" (CEO, S04).

Table 8 summarises the various uses of websites and e-commerce applications in the SMEs in this study.

As can be seen from Table 8, in contrast with the very high adoption rate of websites, the penetration rate of e-commerce applications in the researched firms was low. As defined in the literature review, e-commerce involves digitally enabled commercial transactions. However, only one of the ten firms had adopted advanced e-commerce functionalities on its website, such as online ordering and payment facilities. The remainder were using their websites for online marketing and catalogues, product demonstration and other information dissemination, and customer support. In terms of the stages of e-commerce adoption discussed in the literature review, medium stage (stage 2) or 'web presence' was the stage for most interviewed firms, with one firm at a lower stage(stage 1) as a 'communicator', and only the one firm at the higher stage (stage 3)of transactors/online store.

Company	Online advertising/ marketing	Electronic catalogue	Product demonstration	Customer support	Information /knowledge	Online order (Email link)	Online invoicing	Online payment	Recruitment
S01	√	√	√	√	√	√	√		
S02	√	√		√	√				
S03[3]									
S04		√	√		√				
S05	√	√	√	√	√	√	√	√	
S06		√	√		√	√	√		√
S07	√	√	√	√	√				√
S08	√	√	√	√	√				
S09		√	√	√	√	√	√		√
S10	√	√	√	√	√	√	√		

Table 8. Uses of Websites in SMEs

---

[3] The firm S03 no longer had a website at the time of interviewing.

Five main reasons were given by the interviewees for the general absence of advanced or higher stage e-commerce adoption:

1. Low-awareness of the benefits of advanced e-commerce applications (S02, S03 and S09): e.g. "He [CEO] doesn't think we need an online store, at least at this stage. Can't see the profit from it" (General Manager, S09).

2. Niche market oriented businesses (S04, S06 and S10): e.g. "We have to tailor our software for each customer. This is small market, and every customer's needs are different. We can't sell standard modules on line" (CEO, S06).

3. Perceived high cost (S01, S05, S09 and S10): e.g. "My concern is the money. It will cost us too much" (CEO, S05).

4. Perceived lack of technological expertise (S01, S04 and S07): e.g. "I am afraid we don't have enough 'brain-power' to develop and maintain the [e-commerce] applications you mentioned" (CEO, S04).

5. Perceived security issues (S09): e.g. "We prefer to go to the bank, not online … especially for the large amount transactions" (General Manager, S09).

5.2.2. Readiness of individuals and firms for e-commerce adoption

The prevalence of modern ICT means that Internet and e-commerce technologies have become relatively familiar to ordinary people in New Zealand. The World Economic Forum (2008) ranked New Zealand 20th place for individual readiness for using ICT. The interviewees affirmed that the readiness of employees was higher than ever. Six out of ten firms reported that their employees were confident of using these technologies in low to medium adoption stages, especially those employees from high-tech or "knowledge

intensive" SMEs. The remaining four firms reported some form of employee diffidence in dealing these technologies, but not at a serious level.

Turning to the readiness of the whole organisation, the World Economic Forum (2008) ranked New Zealand 26th place for business readiness for using ICT. Evidence from the interviews suggests that most of the SMEs studied had already been ready for the use of the internet and websites, and had the necessary confidence to adopt the new hardware or software needed to help firms increase their performance in this area. All the interviewees admitted that the internet is indispensable and that a website can be one of the most cost-effective methods for communication, advertising and marketing.

However, as noted above, a perceived lack of technological expertise in some firms limited their readiness to adopt advanced, transactional, e-commerce applications, such as taking online payments and online direct marketing. When they were asked about the adoption of such features, most interviewees expressed to have more concerns and lack of knowledge or confidence of using these functionalities. As IT support from S09 recounted "We are not ready for online transactions yet … And part of the reason is we have no experience to design and operate it" (IT Support, S09). Some SMEs had no plan or intention of ever employing these functionalities.

5.2.3. E-commerce's development and maintenance

As summarized in Table 7, five out of the ten firms interviewed had their own internal IT teams. However, the job description of these teams varied across the firms. Some of these teams are capable of providing comparatively complete IT support, such as in firm S07. The size of teams varied as well, with the majority of them having less than two employees. In one case, the CEO himself also works as the IT support (S04). In the contrast, in S09, the IT team was made up of, literally, all the employees. Five firms have the capability to develop and maintain websites in-house (S04, S06, S07, S09, S10).

The rest of the SMEs are using outsider contractors to develop and maintain their websites and e-commerce applications. It was also noticeable that some SMEs (e.g. S05) bought modularized e-commerce application(s) and built them into their websites, in order to implement e-commerce in an efficient and effective manner. However, there were also concerns about problems that may arise with using outside contractors and standardized e-commerce software, , such as cost, understanding of the business, compatibilities issues, and the availability of efficient and long-term support. As one interviewee commented: "How can we find an outsider to understand our business and design the right system for us?" (General Manager, S09).

In general, the cost of using the internet is more affordable than ever, and none of the interviewed firms considered that this cost was high. The cost of development and maintenance of websites was also considered reasonable, and some firms even have multiple websites for their multiple product lines or brands (see Table 7). Although some interviewees mentioned that website hosting services in New Zealand were quite expensive, using a server in another country, such as the USA, can be a simple alternative. As the CEO from S10 mentioned, "We moved the host to the States. It's cheaper and faster there" (CEO, S10). However, as noted above, unlike using the internet more generally and setting up websites, the cost of adopting higher stage e-commerce functionalities was perceived as high by many of the interviewees.

With regard to the security issues that may be raised by the use of the internet, websites and e-commerce, all the interviewed firms had certain protections in place, such as firewalls and internet security software. Disaster handling and recovery mechanisms existed in nine out of the ten firms, a backup server being the most common technique. None of the interviewed firms felt high security pressure, and no obvious malicious attacks were reported by the interviewees. The CEO from S08 said, "We haven't had a major issue with it – no hacker and no major break-down. It's pretty safe" (CEO, S08).

5.3. Factors Affecting SMEs Adoption and Development of e-commerce

In this research, the adoption of internet and e-commerce technologies was considered as the adoption of innovations. Based on findings from the interviews and in line with the approach discussed in the literature review, a technology-organization-environment model was adopted to analysis possible factors affecting the adoption of e-commerce across the ten SMEs in the study.

5.3.1. Technological dimensions

Relative advantage

The availability of faster and more reliable internet access reinforced perceived benefits for the SMEs in the study.

Direct benefits perceived by the interviewees are summarised below:

1. *More efficient communication*. This was the most frequently mentioned direct benefit. All SMEs used the internet as a communication tool for both internal and external communications. Emails, VoIP, and IM were the most common applications mentioned, and were generally described as "saving lots and lots of time and money" (Managing Director, S01). These new communication tools have already changed the way of communicating. More traditional methods of communications, especially the fax, long-distance phone call, and the normal business letter, have been substituted to a large extent. However, complete substitution is not in the foreseeable future.

   Furthermore, efficient and effective communication also benefits SMEs in terms of travel costs. Travel costs include two parts: staffs travel costs and customer travel costs. The use of e-commerce has already reduced unnecessary travel costs for both SMEs and customers in New Zealand

considerably. As the S01 Managing Director mentioned, "The petrol's price forces more and more of our customers to order through emails…Instead of visiting us in person" (Managing Director, S01). Another CEO mentioned that, "The Internet can help us sort out customer issues, such as [using] remote desktop" (CEO, S06).

2. ***Online marketing.*** The most significant purpose for websites of the SMEs in the study was to market the firms and their products. Online advertising, search engine keywords optimizing, and e-catalogues were the most common methods used for online marketing used by the SMEs. Interviewees considered that the cost of online marketing was much less than that of traditional media such as TV, newspapers, and magazines, which suits SMEs' limited marketing budgets well. Interviewees also appreciated the possibility for 24 hour, 7 days continuous (passive) advertising all around the world: "It's much cheaper to put ads on the internet, and people can find you through Google from all over the world" (CEO, S02). However, some interviewees were less sure about the effectiveness of online marketing. As one CEO mentioned, "I know people clicked our website, but I'm not too sure how many of them put the order through because of it [the website]" (CEO, S04). Nonetheless, given the dramatic increase in the population of internet users and changes in customers' buying behavior, most of the interviewed firms held a very positive viewpoint about the effectiveness of online marketing.

3. ***Boost in sales***. An increase in sales is one of the most important measurements for SMEs' performance. All of the interviewees perceived that e-commerce can boost sales for SMEs. The following comment from the Managing Director of S01 represents the view of most of the interviewees, with six of the ten interviewed firms reporting that sales and the number of customers had increased observably: "The website brings us the customers … The sales figure has been boosted" (Managing Director, S01).

Indirect benefits perceived by the interviewees were:

1. ***Improvement of company image***. In general, the New Zealand economic environment has already developed to a stage in which the use of the internet and basic e-commerce has become a pervasive phenomenon. In this research, most SMEs found that a first-mover advantage of e-commerce had already been very hard to obtain, Instead, use of the internet had become an imperative. As one of the interviewees mentioned, "People nowadays just don't trust a company without a proper website" (General Manager, S09). So, to a certain extent, the existence of a web presence has become a matter of a firm's public image.

2. ***Better customer service.*** SMEs in this study also perceived that better customer service can be implemented through e-commerce. E-commerce can provide platforms for faster and more efficient customer service channels, such as online interactive support, email support, and online product demonstration. The CEO from S10 said, "Our clients' satisfaction has been increased since we adopted online product demonstration … It has very positive feedbacks from our clients" (CE0, S10). With improved customer service, a better customer relationship can be expected.

3. ***Better networks***. E-commerce is perceived by the interviewees to help SMEs in creating more competitive and efficient networks with suppliers or other partners by searching and connecting them globally: "We had to find better and cheaper suppliers. By the aid of the internet, we made it" (General Manager, S09).

4. ***More opportunities.*** The global reach of the internet literally enables SMEs to be exposed to the whole world, creating more opportunities for business. As one CEO mentioned, "It [internet] is an exciting world. You never know what kind of opportunity will knock on your door … Sometimes customers just find you, easy" (CEO, S08).

5. ***Better information and knowledge gathering***. The use of e-commerce, especially the internet, websites, various online databases and online libraries, encourages SMEs to share and exchange information and knowledge in an unprecedented manner. The General Manager from S09 commented, "We use Google to search for our potential suppliers and their information … and email them directly… It's fast and easy." (General Manager, S09). All of our interviewees perceived this capability as an indirect benefit for SMEs.

Clearly the factor of relative advantage had positive influences and encouraged SMEs to adopt e-commerce in this research.

Compatibility

In terms of e-commerce's compatibility, adoption of internet, websites and low –stage e-commerce applications generally matched SMEs' business approaches, despite the SMEs in the study differing greatly in terms of their industries. For example, using emails to replace the traditional letter in an efficient and low-cost way has a very high compatibility with SMEs, and having a website is kind of a "must have" token of presence in the marketplace for today's SMEs. The relatively low cost and technological difficulty make adoption of these applications highly compatible with SMEs' infrastructure and employees.

In terms of the potential for adopting higher stage e-commerce applications, the interviewees had quite diversified responses. These were sorted into two groups:

1. SMEs that produce or sell generic products with less customization, such as furniture and wine, tend to have higher potential compatibility with these higher stage e-commerce applications. For example, "Once the time is right, we will definitely have our online order and payment system …Sure, these [e-commerce systems] will increase the [firm's] performance greatly" (CEO, S04).

2. SMEs that produce or sell customized products, such as collection management software, are more likely to have low to medium compatibility with these higher-level e-commerce applications, suggesting that adoption for these SMEs is more unlikely: "We have no two clients that are exactly the same … We tailor the software for each client. They can't just go to our website and choose the software and add it into their shopping cart ... They normally approach us first, and we tailor the software to suit their size … The best we can use the website is as a showroom" (CEO, S06). The SMEs from this second group are often found in niche markets.

As mentioned above, a considerable part of New Zealand SMEs' strength lies within niche markets, which reflects many of the SMEs researched in this study. That is, the compatibility of high stage e-commerce applications in the researched SMEs was low to medium as a whole. This factor has negative to neutral influences on high stage e-commerce adoption in general.

Complexity

The complexity of using various e-commerce and internet-related technologies were perceived differently by the interviewees. As New Zealand has a very high internet penetration rate, employee familiarity with the internet is high and less training is required. The adoption and use of the internet and low level e-commerce applications, such as email, were considered as being of "low complexity". Similarly, the use of external websites is also deemed as "low complexity" by our interviewees

The adoption and maintenance of internal websites were perceived differently by interviewees in different SMEs. The perceptions from SMEs belonging to "knowledge-intensive" industries or "Born Globals", especially IT-related SMEs, was that this was a "low complexity" task as their websites were generally developed and maintained in-house. SMEs within traditional industries were more likely to perceive the complexity of internal website adoption and maintenance as "medium to high", due to the lack of professionals inside the

organisation with the necessary "know-how". It was also noticeable that one of SMEs interviewed actually dropped its website as the complexity of its maintenance was too high for the firm: "We didn't have the right staff to maintain it [the website] … It was my secretary's job" (CEO, S03).

Most of the SMEs interviewees held conservative attitudes towards the complexity of using advanced e-commerce applications. Lack of confidence in the security of the payment and privacy were sometimes expressed. Further, aspects of adopting advanced e-commerce applications that generally require IT professionals' involvement, such as an online payment system, security, automated ordering and database use, were considered as too complicated to be developed and maintained by most of the interviewees in this study, who regarded the complexity as "high".

5.3.2. Organisational dimension

Human resource readiness

In the researched SMEs, due to the high penetration rate of ICT in New Zealand, the readiness for using low stage e-commerce applications was high: "Our staff are all happy to use the internet at the work … I can't see any problem" (CEO, S02). However, there is unwillingness on the part of the SMEs, even in some knowledge-intensive SMEs, to adopt advanced e-commerce application because of a perceived low level of readiness of their employees for advanced e-commerce applications. This was largely due to a lack of competent personnel: "Finding the right person [who knows about e-commerce] has always been a problem for a small company like us" (General Manager, S09).

Financial resource readiness

In general this factor had a neutrally influence on the adoption of e-commerce among the SMEs researched. While, in common with other SMEs, the firms in this study have limited financial resources, the availability of low price internet and overseas hosting services, together with the significant decrease in the price

of the IT hardware, meant that they believed they have enough financial resources to invest in e-commerce: "It [e-commerce] costs us less and less. It definitely encourages us [to adopt], and we're glad to see that trend" (CEO, S02). However, there were some objections regarding New Zealand's e-commerce service charges, such as local hosting service charges and banking service fees. For example, "The bank charges us way too much on the online payment system. You know, we are just a small company. That hinders our plan of using it [e-payment system]" (CEO, S10). However, taking into consideration that most of the SMEs researched had not actually adopted high-level e-commerce applications at the time of interviewing, this factor's influence needs further investigation.

Technological resources and capabilities

This factor was considered to have a neutral influence on e-commerce adoption by the participants in this study. The use of the internet and websites were able to be integrated into the current technological infrastructure of the SMEs (e.g. existing information system) without major modifications.   Although some SMEs started with a low level of IT resources or capabilities, they were still perceived themselves as competent and confident to adopt e-commerce. As S01's CEO commented, "It was not hard to start to use the internet and the website for us" (CEO, S01). The existing gaps between proposed e-commerce applications and the SMEs' current information systems were generally not perceived to be significant enough to impede adoption. However, given that most of the SMEs researched have not yet adopted high-level e-commerce applications, this factor's influence also needs further investigation.

CEO characteristics/ leadership/ managerial support

According to the analysis of the ten SMEs, it was obvious that the decision making process was centralized in SMEs. A small number of individuals' preferences tended to influence adoption of e-commerce greatly, although in a variety of ways. From the interview data, three types of decision maker can be categorized by their management approaches:

1. ***Enterprising management.*** Most of the senior managers interviewed belong to this category. They shared a common characteristic of being willing to take risks and seeking new opportunities to increase their firm's performance. This type of manager generally had very strong support for and a positive influence on the adoption of e-commerce. As the CEO from S10 noted, "I welcome any new idea, as long as it is feasible and helps us to stay competitive" (CEO, S10).

2. ***Cautious management.*** In contrast to above, some decision makers held a cautious attitude towards the adoption of innovations. In general, they were only prepared to adopt e-commerce applications with proven success in similar industries. The prudent approach they used means that their support for e-commerce adoption is conditional, and limited: "Unless it has been proven" (CEO ,S02).

3. ***Conservative management.*** In this research, a very few managers had a conservative attitude towards the adoption of e-commerce. These intereviewees were only happy to use technology that they thought was appropriate or necessary to run the business. Their attitudes towards and support of the adoption of e-commerce were often negative. For example, "Our CEO doesn't like it" (General Manager, S09). This attitude does not necessarily mean that these managers are not willing to adopt e-commerce applications. Rather, they determine what technology and how to adopt, and are normally more conservative and slower in doing so than their counterparts in the other SMEs.

As can be seen, the personality of the SME's decision maker is the main variable in this factor. Although some scholars suggest that the age of the decision maker may affect attitudes towards e-commerce adoption (for example, Grandon and Pearson, 2004; Khemthong and Roberts, 2006), there was little evidence to support this, and age was not considered to be a relevant variable in this study.

Innovation champion

The presence of an innovation champion in the organisation was regarded as a positive factor for the adoption by the interviewees in this study. Employees or CEOs who have the understanding of basic principles of e-commerce and see the benefits of e-commerce are able to encourage a faster and wider adoption of e-commerce. For instance, in the firm S04, the CEO was well aware the benefits a website can bring. He developed the website by himself, and actively sought more possible uses for e-commerce. However, the presence of the innovation champion relies on the availability of appropriate human resources within the SMEs, which was generally considered as deficient. In the ten SMEs studied, innovation champions could be identified in three of them (S04, S09, S10). These individuals were all in positions where they could influence managerial decision making, such as the business partner, the project leader or the CEO.

The core business activity and Information intensity

This factor had a range of different possible influences over the adoption of e-commerce in this research. By analyzing the profiles and responses from the interviewees, a connection was found between the core business activity and the adoption of e-commerce. Overall, the SMEs who have core business activities with high information intensity, such as IT and high-tech products, are more willing to adopt e-commerce applications. S10, who specializes in collection management software, had very high information intensity. When they found that their standard website was no longer able to meet their clients' demands, they began developing a more information integrated portal site for collectors or museums to manage their collection online. On the other hand, SMEs who have core business activities with less information intensity, such as wine and furniture, overall were less willing to adopt e-commerce applications, especially with regard to high-level e-commerce applications. The CEO from S02, a wine company, commented, "We are quite happy to use the website just as an online catalogue since our product lines are very clear and straightforward … All they [clients] need is there [on the website]" (CEO, S02).

5.3.3. Environmental dimension

Competitive (industry) pressure

According to the ten SMEs studied, pressure from competitors was viewed as a relatively positive factor for the adoption of e-commerce. For example, the managing director from S01 responded: "To maintain our competitive advantage, we have to keep up to date with our competitors … So does the use of e-commerce" (Managing Director, S01). According to observation, there were two types of firms in each industry, active adopters and passive adopters. The former type, such as firm S10, viewed adoption of e-commerce as a strategic opportunity to keep competitive advantage over its domestic competitors and shorten the gap with international leaders. It designed and adopted new e-commerce applications to achieve these goals. The pressure they perceived may be from competitors in the same industry or even from different industries. However, the pressure of competition, in other words, environmental uncertainty, was definitely relevant.

Passive adopters, such as firm S09, adopted e-commerce applications to conform with industry practice: "Everyone [in the industry] has these [internet and website]. We felt the pressure as the loss of clients … I guess it has become the standard [of the industry]" (General Manager, S09). The pressure this type of firm feels is from the whole industrial environment, and may relate directly to the SME's existence. In this study, it was difficult to tell which form of pressure, competitive or industrial, was the greater influence in the adoption of e-commerce, and a SME may experience both forms of pressure in different stages of growth.

Pressure from business partners

In this study, business partners were divided into two groups, buyers and suppliers. Partner pressure had a positive influence over the adoption of e-commerce, no matter which type of partner group the pressure originated from.

However, between the two groups, according to the interviewees, buyer pressure had a greater significance. Being in the industry over decades, the CEO from S04 had experienced changes in the effect of buyer pressure over the time. He commented that, "We have experienced the changes of our customers' buying behaviour patterns, which have huge differences with our customers twenty or even ten years ago … We have to transform [ourselves] to meet their changes" (CEO, S04). All ten SMEs agreed that increased pressure from buyers over the last decade has driven the firms' adoption of e-commerce, and as advancements in ICT continue, they perceive that this pressure will also continue and may be even higher in the foreseeable future.

Pressure from suppliers is not perceived to be as great as that from buyers in motivating e-commerce initiatives. SMEs that are involved in a lot of import activities are generally experiencing more concerns regarding the pressure from their overseas suppliers. For example, "Our suppliers are mainly in China. We had to change some of our business practices to meet their standards … We log onto their portal sites and use their database format to place orders" (General Manager, S09). Similar view was expressed by S01 as well.

Internationalisation

All the SMEs studied all considered that this factor had a relatively positive influence on the adoption of e-commerce. The magnitude of the influences seems to be related to the scale of a firm's involvement in international business. For example, the General manager from S09 emphasised, "We rely on these [e-commerce applications] to contact our Sydney branch and clients … We [Auckland and Sydney offices] have meetings via the internet almost every day, needless to mention numerous emails … I can't imagine how to work without these [e-commerce applications]" (General Manager, S09).

It was observed that increasing internationalisation drives the adoption of e-commerce from both external (e.g. remote markets) and internal (e.g. overseas partners) aspects of a firm's environment. The effects of this factor were found to be rather complicated and extensive; therefore, this factor will be

discussed separately in Chapter 6.

Government engagement

The New Zealand government was considered as an important stakeholder for country's economy by the interviewees. The prior review had pointed out that there were some schemes conducted by the New Zealand government to assist SMEs' e-commerce adoption, such as the Minister of Economic Development's '*Central Online Management and Export Trade Accelerator (COMET) Project'*, and tax return for the investment in e-commerce*.* In the interviews, the majority of participants were not aware of the presence of these schemes. For example, "No, we haven't received any support from the government. Actually haven't heard of any … That [COMET project] sounds very interesting" (CEO, S08). Other SMEs also expressed similar views over this factor. The general lack of awareness of the SMEs in this study of such schemes meant that the government factor did not have a significant influence on e-commerce adoption in the researched SMEs. All interviewees thought that the government has more room to facilitate e-commerce adoption. For example, that the government needs to use more channels to publicize existing schemes, and provide more practical funding for more SMEs across different industries.

Perceived support from technology vendors

Most of the researched SMEs had limited internal technology support, except for a couple of knowledge-intensive firms. Seeking support from outside technology vendors has become an important option for SMEs, and these technology vendors have become an external stakeholder in SMEs' e-commerce adoption. The general perception towards external vendors expressed by the SMEs in this study was somewhere between negative to neutral. The following comment represents a typical response from the SMEs without internal support: "We only had some minor problems with our system providers, such as communication problems, high cost and the understanding of our business, but so far we are OK with them" (CEO, S09). The main concerns expressed about technology vendors were:

1. Their understanding of the business;
2. Their understanding of e-commerce itself;
3. The availability of ongoing support;
4. Their availability when disasters struck.

Because of these concerns, some SMEs were reluctant to rely on external IT support. As an interviewee in firm S09 indicated, "We'd like to train and use our own people where it is possible, as outside contractors have too much uncertainty" (IT Support, S09).

5.3.4 Summary

Table 9 below summarises the factors that influence e-commence adoption and their relative role in this study.

Adoption Factor	Facilitator	Neutral	Inhibitor	*Comment*
Technological Dimension				
Relative advantage	√			Including direct and indirect advantages
Compatibility		√	√	The compatibility varies with industries and the stage of e-commerce
Complexity		√	√	The complexity varies with industries and level of e-commerce adoption
Organisational Dimension				
Human resource readiness		√	√	This factor varies with the stage of e-commerce adoption
Financial resource readiness		√		This factor needs further observation
Technological resource and capabilities		√		This factor needs further observation
Decision maker's characteristics and managerial support	√			Their knowledge and characteristics determine the support that can provided
Innovation champion	√			The existence of an innovation champion can facilitate adoption
Core business activity and information intensity	√	√		This factor varies with industries and the products/services of an SME
Environmental Dimension				
Competitive pressure	√			SMEs may experience different pressure depending on their position in the market place
Business partner pressure	√			The pressure from buyers is greater than that from suppliers, but varies with business activities
Internationalisation	√			Internationalisation boosts the demand for e-commerce
Government		√		The engagement of government could be more active and informative
Support from technology vendors		√	√	SMEs were satisfied with outside vendors in general

Table 9. Summary of Factors Influence SMEs' E-commerce Adoption

Chapter 6. Relationship between E-Commerce and Internationalisation in SMEs

Exporting and importing are two most predominant forms of international activity conducted by the SMEs in this study. These are followed by collaborating with overseas partners, participating in joint ventures, and other activities. This chapter focuses on how e-commerce facilitates the process of internationalisation in New Zealand SMEs. The chapter is organised thematically in terms of: 1. How does e-commerce affect the internationalisation process in the New Zealand context? 2. How are New Zealand SMEs using e-commerce to overcome barriers to the internationalisation? 3. How are New Zealand SMEs using e-commerce for internationalisation? 4. How does internationalisation affect factors influencing e-commerce adoption?

6.1. Effect of E-Commerce on Internationalisation

Different theories of the internationalisation process were discussed above. In this research, changes in SMEs internationalisation process were noticed. E-commerce is obviously one of the main catalysts for changes; therefore, its significant effects on internationalisation were studied.

1. ***The classic incremental or stage-based approach*** is still applicable to some SMEs. It has been accelerated significantly by the use of e-commerce applications, and has less influence than it used to. Summarizing SMEs who followed the incremental approach in this research, typical stages of their internationalisation processes can be recapitulated as:
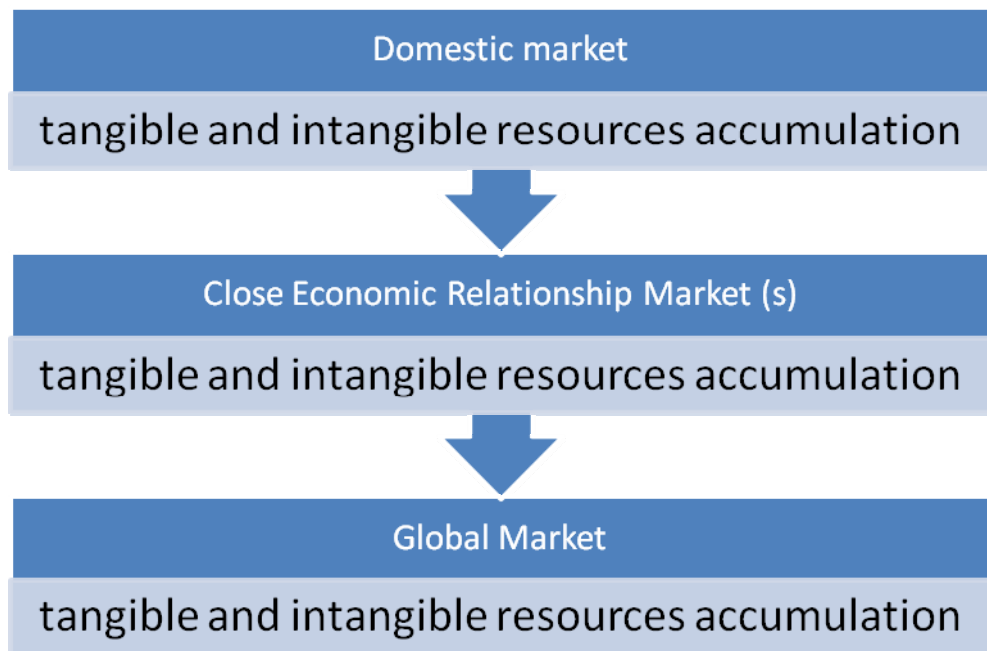
Figure 8. Stages of Internationalisation Process

From above, it can be seen that resources (including tangible and intangible) are persistent pursuits and also enablers of the firm's internationalisation. In most of the researched SMEs, the adoption of e-commerce did not really create tangible resources for the firms directly. However e-commerce can accelerate the whole process by 1. stimulating the speed of accumulating intangible resources (such as experience, knowledge, business awareness and reputation) both in domestic and international markets; 2. enabling SMEs to penetrate into offshore markets at reduced cost (e.g. communication and travel) and risk (e.g. cultural and legal risks). As a result, there are still different stages in the internationalisation process, but the clear borders of stages have been blurred and the duration of each stage has been reduced.

2. ***The rise of international new ventures***. One prominent pattern in the SMEs studied was the considerable number of international new ventures or "Born Globals". The increase in these SMEs in New Zealand is largely enabled by the adoption of e-commerce. The typical profile of these SMEs is:

  - a knowledge-intensive firm;

- twenty years or less old;
- internet and website(s) adopted around ten years ago;
- grew up with the "dot.com" phenomenon;
- present in multiple countries or regions;
- often aimed at niche markets with international orientation.

Compared to stage-model SMEs, these SMEs do not proceed through the first stage, in that New Zealand is just a one of their markets and does not even have to be their main target market. Their growth is based on the close relationship with overseas markets (including clients, or if there is any, suppliers and partners), resources and demands from those markets. E-commerce provides these SMEs with an international vision, convenient and cheaper communication and marketing tools, in-time customer support, and most importantly, the knowledge and experience that cannot be gained in the local market within a short time span for SMEs. E-commerce can be described as "the muscle and veins" for these INVs.

3. ***The increasing importance of network and resources view***. Based on the interviews, it was found that the importance of network and other resources has been enhanced. The process of internationalisation can be considered as the process of allocating resources in order to pursue more resources. New Zealand is a small country, and most the SME participants in this study were driven by obstacles that have their basis in inefficient networks and scarce resources. E-commerce helps New Zealand SMEs to expand their networks with external markets and access scarce resources. E-commerce provides possibilities to optimize networks with suppliers, clients and partners, and encourages freer flow and allocation of resources in the global market. Concretely speaking, by adopting e-commerce, the old value chain is becoming shorter for both suppliers and clients by removing layers. As e-commerce enables more SMEs to be involved in the internationalisation process, the importance of efficient networks and access to resources is intensified. This change was perceived by all the SMEs in this research. The increasing

importance of networks and resources had a similar impact for all SMEs in this study, whether incrementally internationalized or international new ventures. This effect can reinforce the above two effects of e-commerce on the internationalisation, and is also intensified by those two effects.

6.2. Use of E-Commerce to Overcome Barriers to Internationalisation

The results of the study suggest that with the assistance of e-commerce applications, SMEs can overcome or minimize some barriers to internationalisation.

1. ***Minimizing geographical isolation effects.*** This was the most significant benefit that the interviewees perceived from e-commerce: "It [e-commerce] gives us the connection to offshore markets … Not just trans-Tasman, we are talking about remote markets for us, such as the American market" (Managing Director, S01). While e-commerce cannot shorten the spatial distance, but it can shorten the temporal distance between SMEs and their markets. For example, real-time communication, long distance technological support, and online marketing, can help SMEs use as small amount of resources as possible to neutralize the disadvantages of being in an isolated country. Geographical distance is said to be meaningless on the internet, or at least to have little meaning (Riggins, 1998). Therefore, e-commerce is expected to overcome this barrier for SMEs, especially in countries like New Zealand.

2. ***Providing and sharing information and knowledge.*** As the CEO from S10 mentioned, "The internet has changed traditional knowledge acquisition for the business … So much information is just a click away on Google" (CEO, S10). All of the participants were aware of being in an information-explosion era, in which the speed of traditional acquisition and accumulation of information and knowledge cannot meet today's expectations. E-commerce helps New Zealand SMEs obtain the

information and knowledge which is difficult to acquire or requires a long time to be gained in the domestic market, such as information and knowledge of the internationalisation process and overseas markets. E-commerce provides almost infinite, literally, ad-hoc information for SMEs and can accelerate the process of internationalisation.

3. ***Reducing cultural and legal framework differences.*** This was perceived by the research participants as a ramification arising from the previous e-commerce effect of making large amounts of information and knowledge available to SMEs. In New Zealand, e-commerce can help SMEs based in an Anglo-Saxon culture and common law system to understand different cultures and legal frameworks in other markets. A CEO recounted, "I still can remember my first trip to China in the 1970s … Now we study target markets on the internet … It [e-commerce] helped us to understand differences and reduced cultural shock," (CEO, S08).

4. ***Finding competent human resources***. Internationalisation requires that SMEs find employees with diversified knowledge and skills. The scarcity of suitable human resources in the home country is a huge problem for SMEs in a country with a population of just over four million people. E-commerce, especially e-recruitment applications, helps SMEs appeal to competent human resources online and targets human resources internationally: "If you log onto our website, you will see the 'work with us' tab. It has helped us to find a couple of employees there [the overseas market] locally" (General Manager, S09). It also reflects the free flow and allocation of resources which are brought by e-commerce.

5. ***The alleviation of competitive pressure.*** The interviewees stated that they felt competitive pressure from both domestic and overseas competitors. Traditional disadvantages in technology and resources may hinder New Zealand SMEs' internationalisation process from the beginning. E-commerce can help SMEs use affordable time and financial resources to form strategic alliances with overseas partners, setup

efficient networks, and obtain technology and resources to resist competitive pressure, and speed up the internationalisation process.

6.3. SME Use of E-Commerce for Internationalisation

In the research, participants were asked to clarify their current e-commerce sophistication by describing their various uses of e-commerce. The participants showed a broad range of e-commerce uses, which were classified with regard to functional sophistication and cross-cultural adaptation.

6.3.1. Functional sophistication

1. ***Information.*** Overall, all of the respondents are using e-commerce to obtain exchange internally (with employees and partners) and externally (with suppliers, clients and potential employees). The information ranges from daily communications to more detailed knowledge acquisition. The main information associated e-commerce uses in the SMEs researched are summarized in Table 10:

Application	*Number of SME Users*	*% of Total*
E-mail	10	100%
Outside websites (including search engines and portal websites)	10	100%
Own website	9	90%
Instant messenger	7	80%
Online customer inquiry/ support	7	70%
VoIP(Voice over IP)	6	60%
Online conference	4	40%
Online recruitment	3	30%
Online forum/community	2	20%

Table 10. Information Associated E-commerce Uses

Overall, the SMEs in this study had a high level of use of information-related e-commerce applications. However, most SMEs are confined to

using those applications with relatively low complexity. SMEs from knowledge-intensive industries tended to adopt more advanced applications.

2. ***Marketing.*** In this research, most SMEs used e-commerce applications as marketing tools in their international activities. The most common application used for marketing was an SME's own website(s). Table 10 shows that nine of the ten SMEs (90%) had their own website and used it for this purpose, with four   having multiple websites for different product lines or brands. The main marketing tool on the SME websites were on-line catalogues or brochures, with some additional advertising materials. Three out of the ten SMEs (30%) used other online marketing methods, such as using Google's Adwords to increase the click through rate or placing an advertising banner on other websites. Only two (20%) interviewed SMEs had online marketing plans. The online marketing budget was generally very low.

Application	*Number of SME Users*	*% of Total*
Website	9	90%
Online catalogue/brochure	9	90%
Other online marketing methods	3	30%

Table 11. Marketing-Associated E-Commerce Uses

The overall sophistication of international marketing applications is evaluated as medium, in that the SMEs are still using passive online marketing applications. An increased awareness of active marketing applications could increase the potential for online marketing by these SMEs in their international business activities.

3. ***Transactions.*** The researched SMEs used e-commerce for transactional functions only at a rather primitive level. Most online orders and invoices were transacted through e-mails or a link on the SME's website. Only one

of the ten (10%) SMEs in the study had implemented an online payment system (Table 12).

Application	Number of SME Users	% of Total
Online order(e-mail link)	5	50%
Online invoicing	5	50%
Online payment	1	10%

Table 12. Transaction associated e-commerce uses

In general, the sophistication of transaction-related e-commerce applications in the SMEs studied was low, especially in terms of online payment. This was not all on account of SMEs' low awareness or readiness; it was also due to the fact that a significant proportion of SMEs targeted niche markets with highly customized products.

4. **E-commerce enabled business.** It was observed that some of the SMEs studied were involved in e-commerce based businesses. These types of businesses are generally based on the use of ICT by origin. The firm S10 was a good example. At the time of the interview (July 2008), its online collections portal site was 80% completed, which is aimed to help collectors and museums virtually display and manage their collections online. This kind of business opportunity can only be enabled by the use of e-commerce. Similar applications of client customization through electronic means were also found. Two (20%) firms were found to have these applications. They are both knowledge-intensive and niche market oriented firms. The overall sophistication of this use of e-commerce was low in this study, but certainly has potential since the total number of the international niche market oriented SMEs in New Zealand is considerable.

6.3.2. Cross-cultural adaptation

Cross-cultural adaptation in this study was observed through two aspects, language adaptation and localization. It was notable that in the study although all ten firms have overseas business interests, their level of cultural adaptation is low.   Nine firms had websites but none of them had translated their website(s) into other languages; English was the only available language.   Further, at the time of the interviews, these SMEs had no intention to translate their websites into different languages.   As for the localization of e-commerce, three (30%) SMEs, firms S01, S07 and S09, had different websites for their overseas partners or divisions.

Some explanations for low degree of cross-cultural adaptation were provided by the interviewees, including:

1. English is the language that has the most influence and universality in the global business environment; therefore the need for translation into other languages is low.

2. The main target markets and most partners of the SMEs studied were from English-speaking regions, and have close cultural background with New Zealand. As shown in the literature review, traditional business partners of New Zealand still have dominant influences when this country's SMEs start to go global.

3. Scarce human and financial resources. A lack of competent staff to support cultural adaptation would require the use of outside contractors or consultants, and thus extra expenses. The tight budget of SMEs does not encourage firms to pursue this option, especially when the matter does not have very high priority.

6.4. Effect of Internationalisation on E-Commerce Adoption

In Chapter 5, factors that can affect the adoption of e-commerce were discussed. This research found that these factors' effects were variable and subject to the different business environments of the SMEs. In moving from a domestic to an international business environment, internationalisation means remarkable changes for the firm, and this impacts on some (not all) e-commerce adoption factors. To show how this occurs, five factors from the TOE framework discussed earlier are used to assist the discussion.

1. ***Relative advantage.*** Internationalisation can raise the perceived benefits from e-commerce use in SMEs. Along with the deepening of internationalisation, the perceived advantages of e-commerce are also magnified. As a CEO predicted, "We are going to have our innovative online integrated collections management system … It has significant meaning for our overseas users, and we hope that can give us a distinct competitive advantage" (CEO, S10). Therefore, this factor's effect as a facilitator has been increased.

2. ***Complexity.*** The deepening of internationalisation tends to require the firm to adopt more advanced e-commerce applications. Inevitably, the complexity is increased. For example, "Our main concern about the proposed online database with our Sydney partner is its technological difficulty … It might be too hard for a small business to design and maintain it" (IT Support, S09). This factor's effect as an inhibitor to e-commerce adoption has been reinforced by internationalisation.

3. ***Human, financial and technological resources.*** Internationalisation enables SMEs to be exposed to more resources in international markets. It is feasible for SMEs to obtain more resources that are hard to obtain in the domestic market. For example, "It is easier to raise funds in the international market … Of course, if you have a good business idea" (CEO, S03). Therefore, the effects of the availability of various resources

as factors influencing adoption have been diminished by internationalisation.

4. ***Competitive pressure.*** Internationalisation not only brings more business opportunities for SMEs, but also brings more competitors. The deepening of internationalisation thus results in intensified pressure on the firm. In most of the industries researched, there were significant gaps between the levels of pressure involved in leading or keeping up with a New Zealand standard as opposed to an international standard. A CEO recounted, "We can feel more and more pressure from the higher standard competitors from other countries … You know, this is a niche market, so we have to work harder" (CEO, S06). The intensified pressure from international competitors drives the demands of e-commerce.

5. ***Business partner pressure***. The impact of internationalisation on this factor's effect on e-commerce adoption is more appreciable from the buyer group of business partners. More buyers are brought to SMEs by internationalisation; similarly, buyers are exposed to more sellers. Overall, an internationalized market tends to become a buyer-driven market, and the buyer is empowered to gain control of the buying process. SMEs have to comply with it. The convenience of e-commerce and the diversity of choices available to a buyer have driven changes in buyer behavior. As the managing director from S07 mentioned, "[In the global market] the competition is severe. We have to realize clients' needs, and meanwhile hope that clients can know us better … So we have our training and certification program on the web" (Managing Director, S07). Internationalisation has reinforced this factor's effect as a facilitator for the adoption of e-commerce.

Chapter 7. Conclusion

7.1. Discussion

7.1.1. Internationalisation

With respect to the internationalisation process followed by the SMEs in this study, examples of both the traditional incremental internationalisation process and the emergent "Born Global" approach were found. SMEs in traditional primary and secondary industries tended to follow the classic Uppsala model of internationalisation (Johanson and Wiedersheim-Paul, 1975; Johanson and Valne 1977), becoming established in their domestic markets before initiating international activities. In contrast, 'knowledge-intensive' or 'knowledge-based' SMEs from tertiary or emerging industries (e.g. software design and IT services) fitted the "Born Global" categorisation (Autio et al., 2000; Etemad and Wright, 2003), in that they tended to launch with cross-border business activities in mind.

In terms of the benefits of internationalisation for the SMEs in this study, the findings largely match those expected from the literature, including access to bigger markets and customer base (e.g. Bernard and Jensen 1997; Isgut, 2001), opportunities (Karra and Phillips, 2004) and resources (Harris, 2004; Harris and Li, 2005). Participation in an efficient and broader business network was also a reported benefit of internationalisation (Coviello and Munro, 1997, Johanson and Vahlne, 1992). The SMEs also reported a fifth benefit not identified in the literature review – the use of internationalisation as an effective countermeasure to competitive pressure from both domestic and international competitors.

With respect to barriers of internationalisation, the SMEs in this study reported many of the barriers identified in the literature review. These included organizational barriers resulting from a shortage of financial and human resources, and information and knowledge of target markets (Hamill, 1997; Laine and Kock, 2000; OECD, 2007), and operational barriers related to cultural or legal differences in overseas markets (Hamill, 1997), although this was more

typical of emerging markets as compared to target markets that have a similar cultural background and legal framework to New Zealand. Capability barriers (OECD, 2007) related to a lack of international competitiveness with respect to labour and technology were also mentioned. Interestingly, the psychological barrier of SME management concerns over the costs and consequences of internationalisation (Hamill, 1997; Laine and Kock, 2000) was not found, with all the CEOs and Managing Directors who participated showing positive attitudes and confidence towards their SMEs' internationalization.

7.1.2. E-commerce adoption

Based on the stages of e-commerce adoption identified in the literature review (e.g. Daniel et al., 2002; ECIC, 2006; Tagliavini et al., 2001), it was expected that the SMEs studied would exhibit the full range of e-commerce adoption maturity. However, most of the SMEs studied exhibited only a medium level of e-commerce maturity, with only one SME having full online transaction capability. The interviewees suggested a range of reasons for the general absence of advanced or higher stage e-commerce adoption, including a low level of awareness of the benefits of advanced e-commerce applications, a perceived high cost of e-commerce adoption, a perceived lack of technological expertise, and perceived security issues. The niche characteristics of some SMEs' markets were also mentioned as limiting the potential benefits of full e-commerce adoption.

Analysis of the interviews provided good support for the 'Technology-Organisation-Environment' (DePietro et al., 1990; Iacovou et al., 1995) model of e-commerce adoption developed in the literature review (see Figure 6 above). The main facilitators of e-commerce adoption identified in the analysis were (1) the relative advantage of e-commerce in terms of a wide range of direct and indirect benefits (e.g. Iacovou et al, 1995; Kuan and Chau, 2001); (2) the characteristics of the SME CEO or Managing Director (e.g. Lumpkin and Dess, 2001; Mirchandani and Motwani, 2001; Poon and Swatman 1997b), with most exhibiting an enterprising management approach to taking risks and seeking new opportunities; (3) the presence of an e-commerce innovation

champion (e.g. Doolin and Al Haj Ali, 2008; Poon and Swatman, 1999); (4) whether the SME had core business activities with high information intensity (e.g. Poon and Swatman, 1997a), such as in IT and high-tech products; (5) competitive pressure within an SME's industry (Kuan and Chau, 2001; Premkumar and Ramamurthy, 1995); (6) pressure or influence from business partners (e.g. Al-Qirim, 2007; Kraemer et al., 2002; Wymer and Regan, 2005), particularly from buyers although examples of supplier pressure were mentioned; and (7) the scale of an SME's involvement in international business (e.g. Bennett, 1997; Kandasaami, 1998; Poon and Swatman, 1995; Steinfield and Klein, 1999).

The major inhibitors to e-commerce adoption mentioned, although only by some of the ten SMEs, included (1) the low level of compatibility (e.g. Beatty et al., 2001; Mirchandani and Motwani, 2001; Scupola, 2003) of high-level e-commerce applications with some SMEs' product characteristics or niche markets; (2) the perceived complexity (e.g. Al-Qirim, 2007; Khemthong and Roberts, 2006; Riemenschneider et al., 2001) of aspects of adopting advanced e-commerce applications such as an online payment system, security, automated ordering and database use; (3) a perceived low level of employee competence or readiness (e.g. Kuan and Chau, 2001; Mirchandani and Motwani, 2001; Scupola, 2003) for advanced e-commerce applications; and (4) perceived concerns about external IT vendors and a reluctance to rely on their support (e.g. Al-Qirim, 2005; Doolin et al. 2003).

7.1.3. E-commerce and SME internationalisation

A number of authors have suggested that e-commerce is closely interrelated to internationalisation (Ernst & Young, 2006; Kobrin, 2001), and that the legitimacy of its adoption by SMEs seeking to internationalise is well-established (Beatty et al. 2001). The interrelationship between the two can be seen in the way e-commerce is an important facilitator and driver of the internationalisation of SMEs, while the intensified internationalisation among SMEs is driving the diffusion of e-commerce (Steinfield and Klein, 1999). This study provides a degree of support for this, in that most SME CEOs recognised the benefits of e-commerce for internationalisation and that the scale of an SME's involvement

in international business appeared to influence e-commerce adoption. Further, the results of the study suggest that SMEs could use e-commerce applications to assist them to minimize or overcome some barriers to internationalisation, such as minimizing geographical isolation effects, providing and sharing information and knowledge, reducing cultural and legal framework differences, finding competent human resources, and alleviating competitive pressure.

7.2. Conclusions from the Study

Towards the end of this research study, on 8 October 2008, *The Global Competitiveness Report 2008-2009* was released by the World Economic Forum. It examined the many factors enabling national economics to achieve sustained economic growth and long-term prosperity. Economists summarized twelve pillars of competitiveness, which are reproduced in Table 13 below.

The 12 pillars of competitiveness

Basic requirements
- Institutions
- Infrastructure
- Macroeconomic stability
- Health and primary education

Key for **factor-driven** economies

Efficiency enhancers
- Higher education and training
- Goods market efficiency
- Labor market efficiency
- Financial market sophistication
- Technological readiness
- Market size

Key for **efficiency-driven** economies

Innovation and sophistication factors
- Business sophistication
- Innovation
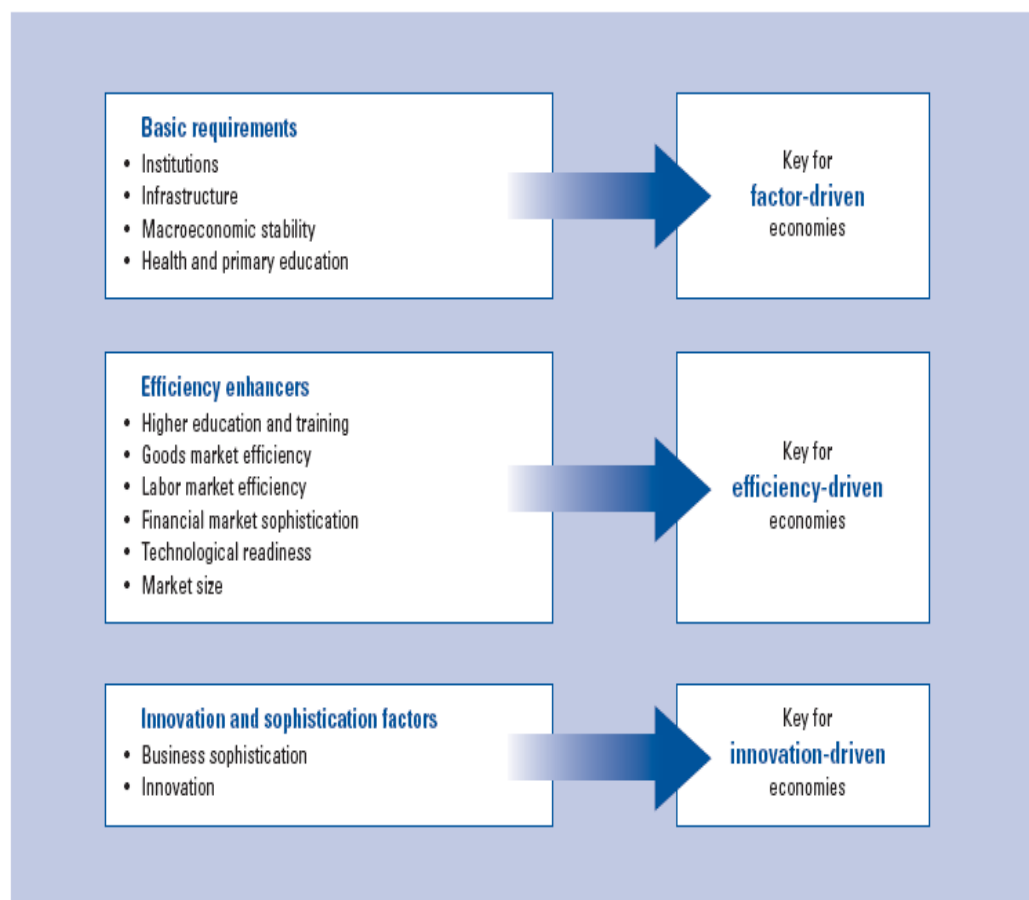
Key for **innovation-driven** economies

Table 13. The 12 Pillars of Competitiveness
Source: World Economic Forum, (2008b)

Overall, New Zealand was ranked in 24th place in this report, which retains the same rank given in 2007-2008. The question "How to keep and increase New Zealand economy competitive?" is often addressed by individuals, businesses and the government. Due to the importance of SMEs in New Zealand's economy, and its unique geography and history, this study suggests that the answer is largely driven by how to maintain and increase New Zealand SMEs' competitiveness.

For New Zealand SMEs, the urge to be competitive in order to grow drives the need to find out what can strengthen the twelve pillars of competitiveness shown above. In this regard, two sources for SMEs' competitiveness were identified and studied in this research, namely internationalisation and e-commerce adoption. Internationalisation is not a new phenomenon, and in this research it was found that the internationalisation of business seems to be irreversible, even under today's global economic gloom. None of the participants in this study expressed a willingness to withdraw from business overseas. Internationalisation can refine efficiency-driven keys and factor-driven keys by facilitating the free flow and allocation of resources and access to larger markets. Although e-commerce is a relative new phenomenon, its emergence has greatly changed the way business, is conducted and improved the innovation-driven keys for firm competitiveness. This research focused on these two sources of strategic competitiveness, and aimed to find out the current status of SMEs' internationalisation and e-commerce adoption in the New Zealand context, and also to explore how these two phenomena work together and affect each other.

In general, by interviewing representatives from ten SMEs in the Auckland region across various industries, this research has presented an exploratory empirical study into New Zealand SMEs' internationalisation and adoption of e-commerce. Based on empirical findings drawn from interviews, the relationships and effects between the internationalisation and e-commerce adoption were discussed.

Reflecting on the observed practices of the SMEs studied, the research revealed

that internationalisation has already penetrated into New Zealand SMEs. Indeed, internationalisation has a relatively long history in New Zealand due to the integrated effects of unique history, population, market size and isolated geographical location. These can also partly explain another distinct finding, that SMEs in New Zealand tend to have a relatively early timing of internationalisation. Traditional business partners are still significant for the SMEs in this study. Perceived benefits of internationalisation identified by participants included:

1. Accesses to bigger markets and customer base;
2. Competitive advantages;
3. Accesses to resources;
4. Better networks;
5. Competitive pressure.

Six main barriers to internationalisation were also identified by the SMEs:

1. Financial issues;
2. Insufficient information and knowledge;
3. Geographical isolation;
4. Competitiveness issues;
5. People;
6. Cultural and legal issues.

This research also examined the readiness for internationalisation at both an individual and organisational level, and found that the readiness of New Zealand SMEs was fairly optimistic, despite concerns of a "brain drain" and the current international financial crisis. Overall, SMEs in New Zealand are active in seeking opportunities to go global, and do so with confidence.

With regard to the findings on e-commerce adoption, the internet is been widely used in New Zealand SMEs, and the infrastructure of e-commerce has been significantly improved since the use of the broadband became more widespread. However, gaps between New Zealand's internet/e-commerce infrastructure and that of other OECD countries were also raised by the SMEs. All the SMEs in the study were observed to have a very high penetration rate of the internet and the

website. Indeed, uses of the internet and websites have already become necessities for New Zealand SMEs. The absence of them, especially a website, may cause negative effects to the firm's image. Impacts of e-commerce diffusion have already changed New Zealanders' ways of operating business and going global. However, in contrast to a high adoption rate of basic e-commerce applications, such as communication and information exchange applications, advanced e-commerce applications had hardly been adopted by the participants. Thus, the overall maturity level of e-commerce adoption in the firms studied was medium.

Factors affecting e-commerce adoption was a key question that was grounded in the responses of the interviewees. The TOE framework was applied in the discussion of this aspect of the research. Main factors from technological, organisational, and environmental dimensions were discussed separately to identify their effects on e-commerce adoption within the New Zealand context.

The study also observed the interplay of SMEs' internationalisation processes and e-commerce adoption. Mutual effects were found between the two phenomena. Different internationalisation process theories were discussed in terms of industries and environments. Traditional theories of internationalisation have been redefined by e-commerce, and in general, the internationalisation process has been greatly facilitated by the adoption of e-commerce, especially in term of SMEs. On the other hand, the deepening of internationalisation drives the adoption of e-commerce by affecting some adoption factors. The research analyzed how e-commerce assists New Zealand SMEs to overcome barriers to internationalisation that were identified. In addition, e-commerce uses were classified into two categories, functional sophistication and cross-cultural adaptation, to reveal how New Zealand SMEs utilized e-commerce internationally.

7.3. Implications

7.3.1. Implications for New Zealand SMEs

For New Zealand SMEs, their high dependency on international markets is a complex outcome of New Zealand's culture, history, geographical location, size and other factors. If internationalisation is a source of competitiveness, owners and managers of SMEs need to understand that the process of internationalisation is changing over the time. The overall process is speeding up, especially with the assistance of e-commerce. A business's network is becoming more and more important in the internationalisation process, and the increase number of INVs and "Born Globals" has changed many of the concepts of traditional theories. Nevertheless, the internationalisation process is still determined by the characteristics of an industry. These changes to the internationalisation process require SME owners and managers to not only have a clear vision of the benefits and barriers of internationalisation, but also to have an understanding of e-commerce. In particular, some barriers to internationalisation can be weakened by adopting e-commerce, such as geographical isolation and knowledge absence.

E-commerce adoption for SMEs is not just another source of competitive advantage. Decision makers in SMEs need to understand that business environments have already been changed by the progressive development of modern ICT. Some SMEs, such as technology-intensive firms, may be more adept at adopting e-commerce than others. This is influenced by the product and service information intensity of the firm. However, the adoption of the internet and websites does not equal the entire adoption of e-commerce. The maturity of e-commerce adoption was relatively low in the SMEs studied, for a varietry oif reasons. Some SMEs in New Zealand do not appear to be fully aware of the benefits and significance of e-commerce, primarily in terms of high stage e-commerce adoption. This low awareness needs to be addressed in the future. SME decision makers also need to be ware of factors that affect e-commerce adoption, which can give them an integrated view when making strategic planning decisions for e-commerce adoption.

The mutual effects between internationalisation and e-commerce adoption show SMEs that these two phenomena are closely interrelated, and that they interact with each other.

7.3.2. Implications for the New Zealand government

In an international market, Downes and Mui (1998) suggest that deregulation is one of the driving forces that change the conditions for business and society. New Zealand has obviously taken a step in that direction. However, deregulation does not mean the weakening of government's role in economic activities. Instead of becoming the constitutor or the rule maker of the economy, government's role is more like an aggregate of the arbitrator, the supervisor and the mentor. It is clear that the role of government in the economic field is not declining, but is emphasised. Under today's economic crisis, the highest priority of the New Zealand government is to secure the future and prosperity of the country, and increasing the competitiveness of SMEs is certainly an important part of that. According to this research, some issues that government needs to address are:

1. More schemes and funds that can provide more financial incentives for SMEs to go global. Most importantly, such schemes must be made more feasible for and publicized to SMEs, not just for larger firms. SMEs form the backbone of this country's economy. These schemes and funds can give SMEs a practical significance, especially in today's global economic downturn.

2. The World Economic Forum (2008b) has suggested that New Zealand's competitiveness would be enhanced by upgrading its infrastructure. A country's infrastructure falls within government's job description, and gaps between New Zealand and other developed countries need to be acknowledged and remedied, especially, in terms of the scope of this research, with regard to the infrastructure of e-commerce (e.g. available the bandwidth of the internet and the cost of internet connection).

3. The fear of a "brain drain" is a big concern in New Zealand. It makes harder for SMEs to compete with international competitors, as human resources are of strategic importance to the firm. Concern about losing competent employees was observed in the research. Government needs to adjust its policies to assist SMEs to retain people and even attract more competent people from overseas.

7.3.3. Theoretical implications

This research committed to filling several theoretical gaps:

1. An empirical study of the current situation of New Zealand SMEs' internationalisation, as well as the perceived benefits and barriers to it.

2. Establishing e-commerce use in New Zealand SMEs at present and a practical analysis of the factors influencing e-commerce adoption using the TOE framework.

3. Exploring the mutual effects between internationalisation and the adoption of e-commerce.

The study gave a comparatively integrated view over these three issues in the New Zealand context and evidence-based theoretical findings were presented. Theoretical findings from the study will be of interest to other scholars and may be useful for further research.

7.4. Limitations and Further Research

The present research involved a small sample of ten SMEs from one geographic area, Auckland. Therefore, any conclusions drawn are tentative or ex parte. In addition, the longitudinal implications of the study are limited due to the cross-sectional nature of the research method. The focus of this research was across industries, rather than from a specific industry. This means that the depth

of study of particular industries was limited by the scope of the research. The ten firms studied had all already been involved in international activities. Therefore, SMEs currently targeting only the domestic market or planning to go global were absent in the research. At the time of the interviews, the overall medium maturity level of e-commerce adoption and the general lack of advanced e-commerce applications in the SMEs studied means that the research did not explore in as much detail as was intended the adoption of high stage e-commerce applications.

Some suggestions for further research were brought up from this research. Selecting firms from other New Zealand regions and main urban centres would provide valuable insights, as would a longitudinal study of the role of e-commerce in the SME internationalisation process. Selecting a specific industry in further research would provide a greater depth to the research and have more practical implications for that particular industry. Future research may well experience a higher occurrence of advanced e-commerce applications and higher levels of e-commerce maturity, enabling issues related to these areas to be explored more fully. Most importantly, internationalisation and e-commerce are two fast-changing phenomena, and hence, researchers need to keep their awareness and knowledge of them up to date. Connecting prior theories with the actualities of the changing internationalisation and e-commerce phenomena would be a key area for further research.

References

Adam, N. R., Dogramaci, O. Gangopadhyay, A. and Yesha, Y (1999). *Electronic Commerce Technical, Business, and Legal Issues*, New Jersey: Prentice Hall.

Al-Qirim, N. A. (2007). E-commerce Adoption in Small Businesses: Cases from New Zealand*, Journal of Information Technology Case and Application Research,* 9, 2, pp. 28-57.

Australia Bureau of Statistics. (1993). *Australian and New Zealand Standard Industrial Classification (ANZSIC), 1993. Retrieved* 15, January, 2008 *from* http://www.abs.gov.au/Ausstats/abs@.nsf/Previousproducts/1292.0Contents 11993?opendocument&tabname=Summary&prodno=1292.0&issue=1993& num=&view

Autio, E., Sapienza, H. and Almeida, J. (2000). Effects of age at entry, knowledge intensity, and imitability on international growth, *Academy of Management Journal* 43(5): 909–924.

Aw, B. Y. and Hwang, A. (1995). Productivity and the Export Market: A Firm-Level Analysis, *Journal of Development Economics*, Vol. 47(2), August, pp. 313-332.

Axelsson, B. and G. Easton, editors. (1992). *Industrial network - a view on reality*. London: Routledge.

Ball, D.A… [et al.]. (2007). *International Business: the Challenge of Global Competition 11th Ed.* New York: McGraw-Hill/Irwin.

Beatty, R. C., Shim, J. P. and Jones, M. C. (2001). Factors Influencing Corporate Web Site Adoption: A Time-Based Assessment, *Information and Management,* (38): 337–54.

Beck, R., Wigand, R.T. and Konig, W. (2005). The diffusion and efficient use of electronic commerce among small and medium-sized enterprises: an international three-industry survey, *Electronic Markets*, Vol.15, No. 1, pp 38-52.

Beckinsale, M Levy M. and Powell P. (2006). Exploring Internet Drivers in SMEs, *Electronic Markets,* 16(4):361-370.

Begley, T. M. and Boyd D. P. (1987). Psychological characteristics associated with performance in entrepreneurial firms and small business. *Journal of Business Venturing*, 2, 79-93.

Bell, J. (1995). The internationalization of small computer software firms: A further challenge to stage theories. *European Journal of Marketing*, 29(8): 60 - 75.

Benbasat, I., Goldstein, D. K., and Mead, M. (1987). The case research strategy in studies of information systems. *MIS Quarterly, 11*(3), 369-386.

Bennett, R. (1997). Export Marketing and the Internet, *International Marketing Review*, Vol 14, No.5:324-344.

Bergeron,F. and Raymond, L. (1997). Managing EDI for corporate advantage: a longitudinal study. *Information and Management* 31 6 (1997), pp. 319–333.

Bernard, A. B. and Jensen, B. (1997). Exports, Skill Upgrading, and the Wage Gap, *Journal of International Economics*, Vol. 42, pp. 3-31.

Blili, S. and Raymond, L. (1993).Threats and Opportunities for Small and Medium-Sized Enterprises*, International Journal of Information Management*, 13, 439-448.

Borch, O. (1994). The process of relational contracting: developing trust-based strategic alliances among small business enterprises. Published in Shrivastava, P., Huff, A. and J. Dutton (Eds.). *Advances in strategic management 10 B. Interorganizational relations and interorganizational strategies*. Greenwich: JAI Press, pp. 113-136.

Brouthers, K.D., Andriessen, F. and I. Nicolaes. (1998). Driving blind: strategic decisionmaking in small companies. *Long Range Planning*, 31, pp. 130-138.

Chaffey, D. (2004). *E-business and E-commerce Management, 2ⁿᵈ ed.* Englewood Cliffs: Prentice-Hall.

Chapple, I. (2002, August, 02). Small Firms Drag Feet with Internet, *The New Zealand Herald*, Retrieved from http://www.nzherald.co.nz/small-business/news/article.cfm?c_id=85&objectid=2347534

Chattell, A. (1998). *Creating value in the digital era: Achieving success through insight, imagination and innovation*. New York: New York University Press.

Chetty, S. and Blankenburg Holm, D. (2000). Internationalisation of small to medium-sized manufacturing firms: a network approach, *International Business Review*, Vol. 9, pp. 77-93.

Coviello, N. E. (1994). Internationalizing the Entrepreneurial High Technology, knowledge- Intensive firm*, Journal of International Marketing 8(2), 63-85.*

Coviello, N. E. and Munro, H. (1997). Network relationships and the internationalisation process of small software firms. *International Business Review*, 6(4): 361 - 86.

Chrysostome, E. and Rosson, P. (2004, June) .*The Internet and SME internationalization: Promises and illusions*. Paper presented at Conference of ASAC 2004, Quebec City, Quebec.

Cragg, P.B. and King, M. (1993). Small-firm computing: Motivators and inhibitors, *MIS Quarterly*, 17(1), 47-60.

Cunliffe, D. (N/A). From the Minister, Retrieved 31, June, 2008 from http://www.digitalstrategy.govt.nz/Digital-Strategy-2/about-the-strategy/From -the-Minister/

Czinkota, M.R., Ronkainen. H. A., and Moffett, M.H. (1996). *International Business: Fourth Edition.* Fort Worth: The Dryden Press.

Daniel, E., Wilson, H. and Myers, A. (2002). Adoption of e-commerce by SMEs in the UK: towards a stage model, *International Small Business Journal*, Vol. 20, Iss. 3; p. 253- 270.

Dean, A. (2002). Telelearning: Invention, Innovation, Implications: Towards a Manifesto. *E-JIST* Vol. 5, Number 2. Accessed 01, March, 2008. http://www.usq.edu.au/electpub/e-jist/docs/Vol5_No2/dean_frame.html.

Dennis, C. (2000). Networking for Marketing Advantage, *Management Decision,* 38(4), 287-292.

DePietro, R., Wiarda, E., and Fleischer, M. (1990). The context for change: Organization, technology, and environment. In Tornatzky, L. G. and Fleischer, M. (Eds.), *The processes of technological innovation* (pp. 151-175). Lexington MA: Lexington Books.

Dholakia, R.R., Kshetri, N. (2004). Factor impacting the adoption of the internet among SMEs, *Small Business Economics*, Vol. 23 pp.311-22.

Donovan, K. and Rosson, P. (2001). *The Internet and Internationalization: Nova Scotia SMEs.* Retrieved 3, January, 2008 from http://www.mgmt.dal.ca/cibs/%5B-papers/DP-185.pdf

Doolin, B., Mcleod, L., McQueen, B. and Watton, M. (2003). Internet Strategies for Establishing Retailers: Four New Zealand Case Studies, *Journal of Information Technology Cases and Applications,* 5(4): 3–19.

Doolin,B. and Al Haj Ali, E. (2008). Adoption of Mobile Technology in the Supply Chain: An Exploratory Cross-Case Analysis, *International Journal of E-Business Research*, 4(4), 1-15.

Downes, L. and Mui, C. (1998). *Unleashing the Killer App – Digital Strategies for Market Dominance*, Boston: Harvard Business School Press.

Drew, S. (2003). Strategic uses of e-commerce by SMEs in the east of England, *European Management Journal,* Vol. 21 No. 1, pp. 78-88.

ECIC. (2006). *eCommerce in Welsh SMEs: the state of the nation report 2004/2005*. Cardiff: eCommerce Innovation Centre.

EIU ViewsWire. (2006). *New Zealand economy: Quick View - Record imports drive up trade deficit.* Retrieved 20, January, 2008, *from* http://proquest.umi.com.ezproxy.aut.ac.nz/pqdweb?index=0&did=1174328641&SrchMode=2&sid=3&Fmt=3&VInst=PROD&VType=PQD&RQT=309&VName=PQD&TS=1225814265&clientId=7961

EIU ViewsWire. (2008). *New Zealand: Historical data - Key exports and imports.* Retrieved 19, January, 2008, *from* http://proquest.umi.com.ezproxy.aut.ac.nz/pqdweb?index=0&did=1438319771&SrchMode=2&sid=4&Fmt=3&VInst=PROD&VType=PQD&RQT=309&VName=PQD&TS=1225814693&clientId=7961

Ernst & Young. (2006). *Six Key Issues for New Zealand to Address.* Retrieved on 12, May, 2008 from http://www.med.govt.nz/templates/MultipageDocumentPage____17266.aspx#P494_84168

Etemad, H. and Wright, R. (2003). Internationalization of SMEs: Toward a New Paradigm, *Small Business Economics*, Vol. 20, pp. 1-4.

Evans, P, Wurster, T. (1999). *Getting Real about Virtual Commerce.* Harvard Business Rev 77(6):85–94.

Fillis, I. and Wagner, B. (2005). E-business Development: an Exploratory Investigation of the Small Firm, *International Small Business Journal* , Vol.23, No.6, pp.604-634.

Forrester Research. (1998). *the Forrester Report: Resizing On-line Trade.* Cambridge: Forester Research Inc.

Globerman, S., Thomas, W. R. and Stephen, S. (2001). Globalization and Electronic Commerce: Inferences from Retail Brokering. *Journal of International Business Studies,* 32(4): 749-768.

Grandon, E.E., and Pearson, J.M. (2004). Electronic commerce adoption: an empirical study of small and medium US businesses, *Information & Management* (42:1), pp 197-216.

Grant, R.M. (1996). Prospering in dynamically competitive environments: organizational capability as knowledge integration, *Organization Science* 7(4): 375–387.

Green, D. H., Barclay, D. W. and Ryans, A. B., (1995). Entry Strategy and Long-Term Performance Conceptualization and Empirical Examination, *Journal of Marketing,* Vol. 59 , pp. 1-16.

Hamill, J. (1997). The Internet and International Marketing. *International Marketing Review*, 14 (5), pp.300-323.

Harris, R. and Li, Q. C. (2005). *Review of the Literature: The Role of International Trade and Investment in Business Growth and Development.* Report to UK Trade & Investment.

Harris, R. (2004). DTI Industrial Support Policies: Key Findings from New Micro-Data Analysis, In *Raising UK Productivity - Developing the Evidence Base for Policy*, DTI Economics Paper 8, London, 1-30.

Havnes, P-A. (1998). Stirling, Dynamics of small business internationalisation. A European panel study, PhD dissertation, University of Stirling, Stirling.

Hendery, S. (2008, Septembe, 25). Govt helps IT exporters to reach out*, New Zealand Hearlad,*p. B4.

Hu, Q. and Quan, J. (2003). *Information Intensity and the Impact of IT Investments on Productivity: An Industry Level Perspective*, Proceedings of the 11th European Conference on Information Systems (ECIS 2003), June 19-21, Naples, Italy.

Iacovou,C.L., Benbasat, I. and Dexter, A.S.(1995). Electronic data interchange and small organizations: adoption and impact of technology. *MIS Quarterly,* vol.19 no. 4, pp. 465–485.

IEI. (2003). Facts & Figures: The Internet and Business. In Vrazalic L. Hyland P. MacGregor R. and Connery A.(2003*).* Regional Community Portals: Analysing the current state of play using the S3 model, *Proceedings of the 5th International IT in Regional Areas Conference*, December, Perth.

Isgut, A. (2001). What's Different about Exporters? Evidence from Colombian Manufacturing, *The Journal of Development Studies*, Vol. 37 (5), June, pp. 57-82.

Jaeger, S. and Rudzki, R. (2007). *How SMEs engage in the global economy - cases from New Zealand.* Paper presented at the Oxford Business & Economics Conference. Oxford University, Oxford.

Jelassi, T. and Enders, A. (2005). *Strategies for E-business: Creating Value through Electronic and Mobile Commerce: Concepts and Cases,* Englewood Cliffs: Prentice Hall.

Johanson, J. and Mattsson, L.-G. (1988). Internationalization in Industrial Systems – A Network Approach. Published in Hood, N. and J.-E. Vahlne (1992). *Strategies in Global Competition.* London: Croom Helm, pp.287-314.

Johanson, J. and Vahlne, J.E. (1977). The Internationalization Process of the Firm – A Model of Knowledge Development and Increasing Foreign Market Commitments, *Journal of International Business Studies*, 8 (1) 23-32.

Johanson, J. and Vahlne, J.E. (1999). The internationalization process of the firm: a model of knowledge development and increasing foreign market commitments.In Buckley, P. J. and P. N. Ghauri, editors, *The internationalization of the firm.* 2nd ed. London: Clays Ltd., Suffolk.

Johanson, J. and Wiedersheim-Paul, F. (1975). The Internationalization of the Firm, *Journal of Management Studies*, 12 (3), 233-251.

Jones, M.V. and Coviello, N.E. (2005). Internationalisation: conceptualising an entrepreneurial process of behaviour in time, *Journal of International Business Studies*, Vol. 36 No. 3,pp. 284-303.

Kalakota, R. and Whinston, B. A. (1996). *Frontiers of Electronic Commerce,* Reading: Addison-Wesley Publishing.

Kalakota, R. and Whinston, B. A. (1997). *Electronic Commerce – a Manager's Guide*, Reading: Addison-Wesley Longman Inc.

Kandasaami, S. (1998). Internationalisation of Small- and Medium-sized Born-Global Firms: A Conceptual Model, Graduate School of Management, University of Western Australia, Australia,

Karra, N. and Philips,N.(2004). Entrepreneurship goes global, *Ivey Business Journal November/December*. Retrieved 10, February, 2008 from http://www.iveybusinessjournal.com/view_article.asp?intArticle_ID=519

Kerr, R. (2008, September, 23). Flight of Kiwi shows unhappiness over NZ's prospects, *The New Zealand Herald*, Retrieved from http://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=10533561&pnum=0

Khemthong, S and Roberts, L. M. (2006). Adoption of Internet and Web Technology for Hotel Marketing: A Study of Hotels in Thailand, *Journal of Business Systems, Governance and Ethics*, vol. 1, no. 22, pp. 47-66.

Kimberly, J.R. (1976). Issues in the design of longitudinal organizational research, *Sociological Methods & Research*, Vol. 4 No. 3, pp. 321-47.

Kiong, E. (2008, Septembe, 13). Making money in the land of Oz*, The New Zealand Herald*. c1.

Knight, G. and Cavusgil, T. (1996). The born global firm: A challenge to traditional internationalisation theory. *Advances in International Marketing*, Vol. 8. pp. 11–26.

Knight, G. and Cavusgil, T. (2004).   Innovation, organizational capabilities, and the born-global firm. *Journal of International Business Studies* (2004) 35, 124–141.

Knight, G.A. (2000). Entrepreneurship and Marketing Strategy: The SME under Globalization. *Journal of International Marketing*, 8 (2), pp.12-32.

Kobrin S.J. (2001). Territoriality and the governance of Cyberspace, *Journal of International Business Study,* 32(4):687–704

Kock, S. and Laine, A. (2000). *A process model of internationalization – New times demand new patterns.* Proceedings of the 16th Annual IMP Conference, Bath, Great-Britain, September 7- 9, 2000.

Kraemer, J, Gibbs, J and Derick, J. (2002). *Impacts of globalization on e-commerce adoption and firm performance: A cross country investigation*, University of California, Irvine, USA.

Kuan, K.K.Y., and Chau, P.Y.K. (2001). A perception-based model for EDI adoption in small businesses using a technology-organization-environment framework, *Information & Management*, 38, pp. 507-521.

Lam, L.W. and White, L.P. (1999). An adaptive choice model of the internationalisation process*, International Journal of Organizational Analysis*, Vol. 7 No. 2, pp. 105-34.

Laudon, K. C., and Traver, C. G. (2004). *E-commerce: business, technology, society 2nd Edition*. Boston: Addison Wesley.

Levy, M., Powell, P. and Yetton, P. (2002). The dynamics of SMEs information stations, *Small Business Economics,* 19(4), 341-354.

Levy, M., Powell, P., and Worrell, W. (2005). Strategic intent and e-business in SMEs: enablers and inhibitors. *Information Resource Management*, 18(4): 1-21.

Lumpkin, G. and Dess G. (2001). Linking two dimensions of entrepreneurial orientation to firm performance: The moderating role of environment and industry life cycle. *Journal of Business Venturing*, 16(5):429–451.

Market New Zealand. (2006). *New Zealand country profile. Retrieved* 11, January, 2008, *from*
http://www.marketnewzealand.com/MNZ/aboutNZ/sectors/14436.aspx

McDougall, P. and Oviatt, B. (1994). *Explaining the Formation of International New Ventures, Journal of Business Venturing*, 9 (6), 469-487.

McDougall, P. and Oviatt, B. (1996). New venture internationalization, strategic change, and performance: a follow-up study, *Journal of Business Venturing*, Vol. 11 No. 1, pp. 23-40.

McDougall, P. and Oviatt, B. (2000). International entrepreneurship: the intersection of two research paths, *Academy of Management Journal* 43(5): 902–906.

McKay, J., Prananto, A., and Marshall, P. (2000). *E-business maturity: The SOG-e model.* Paper presented at the Proceedings of the 11th Australasian Conference on Information Systems (ACIS), 6-8 Dec, Queensland University of Technology, Brisbane, Australia.

Mehrtens, J., Cragg, P.B. and Mills, A.M. (2001). A model of Internet adoption by SMEs. *Information & Management* 39(3), 165–176.

Miller, D. and Friesen, P.H. (1984). *Organizations: A Quantum View*, Englewood Cliffs: Prentice-Hall.

Miller, N.L. and Besser, T. L. (2000). The Importance of Community Values in Small Business Strategy Formation: Evidence from Rural Iowa. *Journal of Small Business Management,* 38(1), 68-85.

Ministry of Economic Development, (2006). *Central Online Management and Export Trade Accelerator Project Report.* Wellington: Ministry of Economic Development.

Ministry of Economic Development, (2007), *SMEs in New Zealand: Structure and Dynamics*,Wellington: Ministry of Economic Development.

Mirchandani, D. A and Motwani, J.(2001). Understanding small business electronic commerce adoption: An empirical analysis. *The Journal of Computer Information Systems.* Vol. 41, Iss. 3, pg. 70-74.

Moen, O. and P. Servais. (2002). Born global or gradual global? Examining the export behavior of small and medium-sized enterprises. *Journal of International Marketing*, 10(3): 49-72.

NERA. (1998). *Advanced Telecoms Services: Awareness, Take Up and Availability in the UK.* London: NERA.

Nikkei Sangyoo Shimbun (1995). Benchaa Shin Sedai (New Generation Ventures), Tokyo: Nihon Keizai Shimbun.

Nummela, N., Loane, S. and Bell, J. (2006). Change in SME internationalisation: An Irish Perspective, *Journal of Small Business and Enterprise Development*, 13 (4), 562-583.

O'Connor, P. and Frew, A. (2004). An Evaluation Methodology for Hotel Electronic Channels of Distribution. *International Journal of Hospitality Management* , 24, 179-199.

OECD (1997). *Globalization and Small and Medium Enterprises (SMEs)*, Paris:Organization for Economic Cooperation and Development:

OECD. (2000). *Enhancing the competitiveness of SMEs in the global economy: Strategies and policies.* Conference of Ministers Responsible for SMEs and Industry Ministers, Bologna, Italy. Online at: http://www.oecd.org. *Official Journal of the European Communities,* 1996, 39(L107).

OECD-APEC, (2006)*, Removing Barriers to SME Access to International Markets*, Athens: OECD-APEC.

OFTEL. (2000). Internet Use among Small and Medium Enterprises (SMEs), Q2(Aug/Sept). In Daniel,E., Wilson,H., and Myers, A.(2000). *Adoption of E-commerce by SMEs in the UK*, Proceedings of the UK Association for Information Systems, 2001.

Oviatt, B and McDougall, P. (1994*). Toward a theory of international new ventures*. *Journal of International Business* 25(1):45–64.

Pare, G. and Raymond, L. (1991*). Measurement of information technology sophistication in SMEs*, Proceedings of Administrative Sciences Association of Canada Nineteenth Annual Conference, Nigeria Falls, Ontario, Canada, pp. 90–101.

Penrose, E. (1959). *The Theory of the Growth of the Firm.* London: Basil Blackwell.

Poon, S. P.H. and Swatman, P.M.C. (1995), "The Internet for small businesses: an enabling infrastructure for competitiveness", Proceedings of the Fifth Internet Society Conference, pp 1-23.

Poon S.P.H. and Swatman P.M.C. (1997a), Internet-based Small Business Communication: Seven Australian Cases, *International Journal of Electronic Markets special issue on Electronic Commerce in Asia*, Vol. 7, No. 2, pp.15-21.

Poon, S. P. H. and Swatman, P. M. C. (1997b). 'Small Business Use of the Internet: Findings from Australian Case Studies', *International Marketing Review* 14(5): 385–402.

Poon, S. P.H. and Swatman, P. M. C. (1999). An Exploratory Study of Small Business Internet Commerce Issues, *Information and Management* 351: 9–18.

Porter, M. E., editor. (1986). *Competition in Global Industries*. Boston: Harvard Business School Press.

Prananto, A., McKay, J., and Marshall, P. (2003). *A study of the progression of e-business maturity in Australian SMEs: Some evidence of the applicability of the stages of growth for e-business model.* Paper presented at 7th Pacific Asia Conference on Information Systems (PACIS) 2003, University of South Australia, Adelaide, Australia.

Premkumar, G. and Ramamurthy, K. (1995). The Role of Interorganisational and Organizational Factors on the Decision Mode for Adoption of Interorganisational Systems, *Decision Sciences*, Vol. 26, No. 3, pp. 303-336.

Prescott, M. and Conger, S. (1995). Information Technology Innovations: A Classification by IT Locus of Impact Research Approach, *The Database for Advances in Information Systems,* 26(2-3): 20-41.

Quelch, J. and Klein, L. (1996). The Internet and international marketing, *Sloan Management Review*, 37(3), 60-83.

Ramsey, E., Ibbotson, P., Bell, J. and Gray, B. (2003). E-Opportunities of Service Sector SMEs: An Irish Cross-Border Study, *Journal of Small Business and Enterprise Development* 10(3): 250–64.

Recklies, D. (2001). *Small and Medium-Sized Enterprises and Globalization*. Retrieved 12, January, 2008 from http://www.themanager.org/pdf/global.pdf

Rennie, M. (1993). Born global*, McKinsey Quarterly* (4): 45–52.

Reynolds, W., Savage, W. and Williams, A. (1994). *Your Own Business: A Practical guide to success.* Melbourne: Thomson Learning Nelson.

Riemenschneider, C. K., Harrison, D. A. and Mykytyn, P. P. (2003). Understanding IT Adoption Decisions in Small Business: Integrating Current Theories, *Information and Management*, 40: 269–85.

Riggins, J. F. (1999). A Framework for Identifying Web-Based Electronic Commerce Opportunities, *Journal of Organizational Computing and Electronic Commerce*, Vol. 9, N0. 4, pp.297-310.

Riquelme, H. (2002). Commercial Internet adoption in China: comparing the experience of small, medium and large business, *Internet Research: Electronic Networking Applications and Policy*, 12(3), 276- 286.

Rogers, E.M. (1983). *Diffusion of Innovations, 3rd Edition.* New York: Free Press.

Rumelt, R.P. (1984). Towards a Strategic Theory of the Firm, in R.B. Lamb (ed.) *Competitive Strategic Management*, Prentice Hall: Englewood Cliffs, NJ. pp. 131–145.

Schuh, A. (2001). *Strategic change during the internationalisation of the firm,* Proceedings of the 27th EIBA Conference, Paris, 13-15 December 2001.

Scupola, A. (2003). The adoption of Internet commerce by SMEs in the south of Italy: An environmental, technological and organizational perspective. *Journal of Global Information Technology Management.* Vol. 6, Iss. 1,pg. 52-72.

Simmons, G. J., Durkin, M.G. McGowan, P. and Armstrong, G.A. (2007). Determinants of Internet adoption by SME agri-food companies, *Journal of Small Business and Enterprise development*, Vol. 14 No. 4, 2007 pp. 620-640.

Statistic New Zealand. (2007). *Key points: June 2007.* Retrieved 21, January, 2008 from http://www.stats.govt.nz/products-and-services/ext-trade-stats/key-pints-jun-06.htm

Steinfield, C. and Klein, S. (1999). Local vs. Global Issues in Electronic Commerce. *Electronic Markets,* 9(1/2): 1-6.

Stockdale, R. and Standing, C. (2006). A Classification Model to Support E-Commerce Adoption Initiatives. *Journal of Small Business Enterprise and Development*, 13(3), 381-394.

Storey, D. J. (1997) *Understanding the Small Business Sector*. London: International Thompson Business Press.

Tagliavini, M., Ravarini, A. and Antonelli, A. (2001). An evaluation model for electronic commerce activities within SMEs, *Information Technology and Management*, Vol. 2 No. 2, pp. 211-230.

Teece, D. and Pisano, G. (1994). The dynamic capabilities of firms: an introduction, Industrial and Corporate Change 3(3): 537–556.

Teo, T.S.H., Tan, M. and Buk, W.K. (1997). A contingency model of Internet adoption in Singapore. *International Journal of Electronic Commerce*, 2(2), 95-118.

Tetteh, E. and Burn, J, (2001). Global Strategies for SME-business: Applying the SMALL Framework, *Logistics Information Management,* 14 (1/2), 171-180.

The Treasury. (2007). *New Zealand Economic and Financial Overview – 2007*. Retrieved 15, January, 2008 from http://www.treasury.govt.nz/publications/economy/overview/2007

Thong, J. Y. L. (1999). An integrated model of information systems adoption in small businesses. *Journal of Management Information Systems, 15*(4), 187-214.

Turban, E., King, D., Viehland, D. and Lee, J. (2006). *Electronic Commerce 2006: A Managerial Perspective*, Englewood Cliffs: Prentice Hall Inc.

Van Biesebroeck, J. (2003). *Exporting Raises Productivity in Sub-Saharan African Manufacturing Plants,* Retrieved 10, February, 2008 from http://ssrn.com/abstract=457542.

Vrazalic L. Hyland P. MacGregor R. and Connery A.(2003). *Regional Community Portals: Analysing the current state of play using the S3 mode*l, Proceedings of the 5th International IT in Regional Areas Conference, December, Perth.

Welch, L. S. and Luostarinen, R. (1988) Internationalization: evolution of a concept, *Journal of General Management 14*, 36–64.

Walczuch, R., Van Braven, G. and Lundgren, H. (2000), Internet adoption barriers for small firms in The Netherlands, *European Management Journal*, Vol. 18 No. 5, pp. 561-72.

Welch, L. S. and Luostarinen, R. K (1988). Internationalization: Evolution of a Concept, *Journal of General Management* 14(2): 34–55.

Welsh, J.A. and White J.F. (1981). A small business is not a little big business, *Harvard Business Review*, 59(4), pp. 46–58.

Wernerfelt, B. (1984). A resource-based view of the firm, *Strategic Management Journal* 5(2): 171–180.

White, M. D., Abels, E. G. and Gordon-Murnane, L. (1998). What Constitutes Adoption of the Web: A Methodological Problem in Assessing Adoption of the World Wide Web for Electronic Commerce, *Journal of the American Society for Information Science* 35: 217-226.

Wolfe, R.A. (1994). Organisational innovation: review, critique and suggested research directions. *Journal of Management Studies*, 31(3), 405-431.

World Economic Forum. (2008a). *Global Information Technology Report 2007-2008.* Retrieved 10, April, 2008 from http://www.weforum.org/en/initiatives/gcp/Global%20Information%20Technology%20Report/index.htm

World Economic Forum. (2008b). *The Global Competitiveness Report 2008-2009.* Retrieved 28, October, 2008 from http://www.weforum.org/documents/GCR0809/index.html

Wymer, S. and Regan, E. (2005). Factors Influencing Ecommerce Adoption and Use by Small and Medium Businesses, *Electronic Markets – The International Journa,l* 15(4): 438–53.

Yin, R.K. (1994). *Case Study Research: Design and Methods*, 2nd Edition, California: Sage Publications.

Zain, M. and Ng, S.I. (2006), The impact of network relationships on SMEs' internationalization process, *Thunderbird International Business Review*, Vol. 48 No. 2, pp. 183-205.

Appendices

Appendix 1. Interview Guide

Background information

- What is the interviewee's role in the company?
- What business does the company engage in?
- How many employees are there in the organization?
- Is the company part of a larger organizational structure?
- How is the company organised?
- What is the company's history?

Internationalisation

- In what ways does the company participate in international markets?
- How is internationalisation important to the company?
- What is the history and process of internationalisation for the company?
- What are target markets?

Use of electronic commerce technologies

- To what extent are the Internet and other forms of electronic commerce technology used in the company (where, what for, and for how long)?
- What is your company's motivation for using these technologies?
- What is the role of these technologies in the internationalisation of the company?
- Who provided the stimulus for using electronic commerce technologies for internationalisation?
- Was the use of electronic commerce technologies for internationalisation part of a deliberate business strategy?

Adoption of electronic commerce technologies

- Who is in charge of adopting electronic commerce in your organisation? What is your personal opinion about it?
- Do you think it is a considerable high cost to adopt electronic commerce and related infrastructures?
- What technological factors facilitated or constrained the company's adoption and use of electronic commerce technologies for internationalisation?
- What internal organisational factors facilitated or constrained the company's adoption and use of electronic commerce technologies for internationalisation?
- What external environmental factors facilitated or constrained the company's adoption and use of electronic commerce technologies for internationalisation?

Benefits and consequences

- What benefits does the company derive from using electronic commerce technologies for internationalisation?
- Did the actual benefits match the company's perceived benefits?
- What problems were encountered in implementing and using electronic commerce technologies for internationalisation?
- Have there been consequential changes to the company work processes or operations?
- Were there any other implications or unintended consequences?

Appendix 2. Participant Information Sheet

Participant Information Sheet

AUT
UNIVERSITY
TE WĀNANGA ARONUI O TAMAKI MAKAU RAU

Information Sheet Produced 5 April 2008

Project Title: Electronic Commerce and Internationalisation in New Zealand SMEs

An Invitation

Dear Sir/Madam,

My name is Simon Jia, and I am a postgraduate student at Auckland University of Technology. I am currently conducting research for my Master of Business thesis, which deals with the use of electronic commerce in the internationalization of New Zealand small and medium sized enterprises (SMEs).

I am conducting a series of interviews in order to obtain a current and detailed understanding of the use of the Internet and electronic commerce by New Zealand's SMEs for internationalisation and entry into overseas markets.

I would like you to participate in my research and would appreciate any assistance you can offer me. You have been selected as someone who could provide a helpful perspective on the use of electronic commerce by New Zealand SMEs. Your experiences, views and comments on this topic would be a valuable source of information for my research.

Participation is voluntary and you are under no obligation to be interviewed. If you agree to be interviewed I will ask you to fill in a consent form that, together with this information sheet, outlines your role in the project and how I will respect your rights as a research participant. I will not ask for personal information or for commercially sensitive information. You are free to not answer a question and may withdraw from the interview at any time.

What is the purpose of this research?

SMEs have a unique and crucial position in New Zealand's economic structure. In an increasingly global economy, many SMEs are seeking to take advantage of the opportunities offered in overseas markets and deal with the challenges brought by the internationalisation. The use of the Internet for electronic commerce is one of most widely discussed solutions for SME internationalisation.

The aim of this research is to obtain an understanding of the current status of electronic commerce use for internationalisation in New Zealand's SMEs, and to identify the motivators and barriers to adoption of this strategy.

Data collected in the study will be used as part of a thesis for the Master of Business degree from Auckland University of Technology. We may also present findings from this research in academic conference and journal papers.

How was I chosen for this invitation?

I have identified your organisation as an Auckland-based SME (with less than 20 employees) that is likely to be engaging in overseas business activities such as exporting or importing. As a manager or employee overseeing or involved in these activities, you are someone who can provide a helpful perspective on the use of electronic commerce in these activities.

What will happen in this research?

I would like to interview you for about an hour at a location and time convenient to you. You will be asked to describe issues you have encountered in your organisation's involvement in electronic commerce.

The interview will be conducted by me, under the guidance of my supervisor, Professor Bill Doolin from Auckland University of Technology. I would like to audiotape the interview so that I have an accurate record of the interview, but this would only be done with your consent. A transcript of the interview will be prepared by me, and will only be read by me and my supervisor.

What are the discomforts and risks and how will these be alleviated?

I do not anticipate any discomfort or risk arising from your participation in this study. Your responses will remain confidential to me and my supervisor, and will be used for academic purpose only. No data will be provided to a third party. I will not ask for personal information or for commercially sensitive information. You are free to not answer any question and may withdraw from an interview at any time.

Your name and that of your organisation will not be identified in any subsequent publication. However, given the small size of New Zealand, it is always possible that a person close to the organisation might be able to guess the identity of your organisation through distinctive features of its operations.

What are the benefits?

The outcome of the research will be a better understanding of the use of electronic commerce for internationalisation in New Zealand SMEs. The findings may be of interest to you or your organisation. The research should provide benefits to New Zealand through generating knowledge specific to the local context that can be disseminated to New Zealand SMEs and

organisations involved in their development and support. It will also provide an important contribution to academic knowledge in this area.

How will my privacy be protected?

The findings from this research will form part of my Master of Business thesis, and may also be presented in academic conference and journal papers. In all cases, the findings will be aggregated so that your comments will not be linked to you personally. Your name or your organisation's name will not be used. If I quote your comments directly, the quote will only be attributed to a pseudonym or generic position title and not to you personally. You have the option to verify the accuracy of the interview transcript. At the conclusion of the research, consent forms and data from the study will be stored in my supervisor's office at AUT University for six years, before being destroyed.

What are the costs of participating in this research?

The only anticipated cost to you is approximately one hour of your time to participate in an interview.

What opportunity do I have to consider this invitation?

I would appreciate it if you could consider this invitation and inform me your decision by email or phone (contact details are provided below) within a week of receiving this information sheet.

How do I agree to participate in this research?

If you do accept my invitation and agree to participate in an interview, I will send you a copy of the consent form. You need to read and sign the consent form to indicate your informed consent.

Will I receive feedback on the results of this research?

If you are interested, I will send you a summary of the research findings upon request.

What do I do if I have concerns about this research?

Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisor, Professor Bill Doolin, *bill.doolin@aut.ac.nz,* (09) 921 9999 extn. 5807.

Concerns regarding the conduct of the research should be notified to the Executive Secretary, AUTEC, Madeline Banda, *madeline.banda@aut.ac.nz* , (09) 921 9999 extn. 8044.

Whom do I contact for further information about this research?

Researcher Contact Details:

Jia JIA (Simon)
Faculty of Business
Tel: 021 1793766
E-Mail: myp8106@aut.ac.nz

Project Supervisor Contact Details:

Professor Bill Doolin
Faculty of Business
AUT University
Private Bag 92006
Auckland
Tel: (09) 921 9999 extn. 5807
E-Mail: bill.doolin@aut.ac.nz

Approved by the Auckland University of Technology Ethics Committee on 14 May 2008, AUTEC Reference number 08/70.

Appendix 3. Consent Form

Consent Form

Project title: **Electronic Commerce and Internationalisation in New Zealand SMEs**

Project Supervisor: **Professor Bill Doolin**

Researcher: **Jia (Simon) JIA**

☐ I have read and understood the information provided about this research project in the Participant Information Sheet dated 5 April 2008.

☐ I have had an opportunity to ask questions and to have them answered.

☐ I understand that notes will be taken during the interviews and that they will also be audio-taped and transcribed.

☐ I understand that I may withdraw myself or any information that I have provided for this project at any time prior to completion of data collection, without being disadvantaged in any way.

☐ If I withdraw, I understand that all relevant information including tapes and transcripts, or parts thereof, will be destroyed.

☐ I agree to take part in this research.

☐ I wish to receive a copy of a summary from the research (please tick one): Yes ☐ No ☐

Participant's signature: ....…………………….
Participant's name: ....………………….
Participant's contact details (if appropriate):
………………………………………………………………………………………..
………………………………………………………………………………………..
………………………………………………………………………………………..
………………………………………………………………………………………..
Date:

Approved by the Auckland University of Technology Ethics Committee on 14 May 2008, AUTEC Reference number 08/70.

Note: The Participant should retain a copy of this form.