Network Relationships
in International Entrepreneurship:
A Multilevel Analysis

A thesis presented in partial fulfilment

of the requirements for the degree of

Doctor of Philosophy

in

Marketing

Massey University, Albany

New Zealand

Loren M Stangl

2012

Abstract

This thesis extends knowledge on the relationship between networks and internationalisation for innovative entrepreneurial firms, by exploring the phenomenon at country, industry, and firm levels. Through multilevel analysis, this thesis builds on the network approach to internationalisation, a theoretical cornerstone in the emerging field of international entrepreneurship research.

The globally-focused study investigates institutional and economic factors influencing the proportion of innovative entrepreneurial firms engaged in international business in 51 countries. Variables representing networks, at a country-level, are identified and tested. Findings illustrate that networks are positively and significantly associated with higher proportions of innovative entrepreneurial firms reporting substantial overseas engagement.

The industry-focused study argues industry-specific forces influence development of networks for internationalisation. This study synthesises 32 empirical articles on internationalisation of software small and medium-sized enterprises (SMEs). Findings identify patterns of network influences on foreign market strategies (reactive/proactive), market selection, and entry mode decisions. Characteristics specific to the software industry also encourage the development of networks for internationalisation.

The firm-focused study explores network relationships used by New Zealand software SMEs for innovation and internationalisation. Using multiple case study methods, findings indicate network patterns relate to the founder's prior entrepreneurial and international experience, firm size, innovation type (incremental/radical) and internationalisation type (incremental/radical).

The integrated findings from this multilevel analysis provide insights into how networks create awareness, pathways, and competencies for internationalisation. In doing so, this thesis extends understanding of the interconnected, complex, and multilevel relationship between networks and internationalisation for innovative entrepreneurial firms.

Acknowledgements

Thanks go to many people who have provided guidance and support throughout the course of my PhD studies. First, I sincerely thank my supervisors from whom I have learned greatly. You each possess important skills I hope to someday acquire. Thanks to Professor Sylvie Chetty, whose ability to find and keep a clear focus has inspired me; Dr Ellen Rose, whose ability to simplify the complicated has amazed me; and Dr Drew Martin, whose ability to simultaneously balance micro and macro perspectives has mesmerised me. I genuinely appreciate your time, dedication, and guidance. Thank you also to my examiners, Dr Marco van Gelderen, Dr Susan Freeman, and Professor Brendan Gray. Your comments and insights helped me to be a better researcher and to produce a stronger thesis. I look forward to working with each of you again.

I extend my thanks to my colleagues at Massey University: Professor Anne de Bruin for inspiring and guiding me; Dr Andrew Murphy for consistently providing strong support and encouragement; Professor Malcolm Wright for having faith in me; and my fellow CJM members for convincing me there was a light at the end of the tunnel. You are a great team and I look forward to many years working together.

My thanks also go to the *ie-scholars network,* through which I have found inspiration, support, and friendship. Thanks to Professor Hamid Etemad and Professor Rod McNaughton for creating ie-scholars and for your advice; Dr Tanja Kontinen and Dr Arto Ojala for your encouragement and friendship; and to my ie-scholar peers. I look forward to future collaboration and conferences.

Most importantly, thank you to my family. Jeffrey, you have been my rock and made this journey another adventure together. Izzy and Nathan, thank you for your love and patience. It hasn't been easy having both parents doing their PhDs. Hopefully our examples will provide inspiration pursuing your own future goals. Love, encouragement, and tenacity got all of us through.

> *"Tenacity is what leaders are made of. Tenacity is when you start something you finish it without complaining. To be tenacious you have to believe in what you are doing. If you are tenacious it will get you far in life"* (Nathan, age 10).

Table of Contents

Table of Tables

Table of Figures

Chapter 1

Introduction

1.1 Aim and Scope of the Research

The aim of this thesis is to extend knowledge on the relationship between networks and internationalisation for innovative entrepreneurial firms, by exploring the phenomenon at country, industry, and firm levels. The thesis builds on the network approach to internationalisation, a theoretical cornerstone in the emerging field of international entrepreneurship (IE) research (Chetty & Colin-Campbell-Hunt, 2003; Jones, Coviello & Tang, 2011; Rialp, Rialp, & Knight, 2005). Extant IE literature consistently identifies network relationships as intangible internal resources affecting the ability of small and medium-sized enterprises (SMEs) to acquire and utilise external resources for internationalisation (Coviello & McAuley, 1999; Johanson & Kao, 2010). However, surprisingly limited knowledge exists on how external conditions influence the relationship between SME networks and their internationalisation strategies (Melén, Nordman, Tolstoy, & Sharma, 2011).

A core assumption of this thesis is that the choice to develop and leverage network relationships for internationalisation is a complex strategic decision influenced at multiple levels. Influences at the national level, come from institutional and economic conditions within the country; at the industry level, from competitive positioning; and at the firm level, from internal resource heterogeneity. Integration of theoretical reasoning from institutional, industry, and firm perspectives provides a holistic evaluation of the embedded nature of international business decision making (Peng, Wang, & Jiang, 2008).

International entrepreneurship research suggests competency in developing and leveraging network relationships creates a competitive advantage for resource-constrained SMEs (eg., Loane & Bell, 2006). Competitive SMEs utilise network relationships to more effectively access, mobilise, and exploit external resources, thereby enhancing their own performance (Chetty & Blankenburg

Holm, 2000; Coviello, 2006). Networks extend a firm's knowledge base, allowing them to identify opportunities and avoid obstacles (Hoang & Antoncic, 2003; Ucbasaran, Westhead, & Wright, 2001). The 'diversity of knowledge', acquired through networks, is a key ingredient for recognising innovations (Möller et al., 2005; Shane, 2000) and international market opportunities (Johanson & Vahlne, 2006; Zahra, Ucbasaran, & Newey, 2009). In summary, extant research shows SMEs develop and utilise networks to compensate for scarce resources, to develop innovative offerings, and to serve as a catalyst for internationalisation (Coviello & Munro, 1997; Johanson & Mattsson, 1988; Oviatt & McDougall, 2005). Identifying the key aspects of network relationships most effective in achieving these objectives remains an open research problem.

Research shows both internal and external environmental factors influence internationalisation decisions (Andersson, 2004; Bloodgood, Sapienza, & Almeida, 1996; Madsen & Servais, 1997). According to Etemad (2004a), the interaction between the entrepreneur, firm, market, and international environment epitomises the IE phenomenon. Melén et al.(2011, p. 380) concur stating, "International entrepreneurship develops at the interplay between the firm and its environment". Increasingly, IE scholars incorporate an institutional approach into their research, indicating a growing interest on how environmental factors influence SME internationalisation (Jones, Coviello, & Tang, 2011). However, although IE research acknowledges the external environment's importance as a driver of SME internationalisation decisions, a gap exists in the literature explaining how external environments influences a firm's propensity to develop networks for internationalisation. The two concepts are seldom linked. For example, a 2009 Delphi study of IE experts identified two of the critical research questions for future development of the field to be 1) What role does the external environment play in IE? and, 2) How do networks influence internationalisation? (Dana & Wright, 2009). This thesis argues these two questions are interconnected.

Findings from other disciplines provide some initial insight into the relationship between external environmental forces and the propensity to develop networks. At the country level, research on culture links the tendency

for generalised trust to network formation (Kiss & Danis, 2008; Klyver, Hindle, & Meyer, 2008). International business research finds firms operating in countries with emerging or transitional institutional environments substitute strong network relationships for unstable institutions (Peng & Zhou, 2005). At the industry level, management research shows that firms operating in dynamic, knowledge-intensive industries strategically develop networks to reduce vulnerability and increase survival rates (Eisenhardt & Schoonhoven, 1996; Pittaway, Robertson, Munir, Denyer, & Neely, 2004; Powell, 1990). These findings indicate that the country and the industry within which a firm operates may encourage its tendency to develop networks.

Multilevel research encourages a holistic understanding of behaviour by exploring both the phenomenon and the context in which it is embedded. Extant literature emphasises the importance of investigating networks with a multilevel perspective to better understand the embedded and interconnected relationships (Brass, Galaskiewicz, Greve, & Tsai, 2004; Melén et al., 2011). Similar calls for multilevel perspectives come from the field of entrepreneurship (Shepherd, 2011), organisational studies (Rousseau, 2011), and innovation studies (Drazin & Schoonhoven, 1996; Gupta, Tesluk, & Taylor, 2007; Rothaermel & Hess, 2007). This thesis progresses study on the relationship between networks and internationalisation by investigating the phenomenon through a multilevel lens as delineated in the following section.

1.1.1 Multilevel Research Framework

This thesis adopts a multilevel research approach to investigate the relationship between networks and internationalisation using three discrete, yet interconnected, studies. The research design allows each study to be conducted at the appropriate unit of analysis, using suitable methodologies for the nature of the enquiry. The individual studies explore country, industry, or firm-level perspectives to address different aspects of the central research question: What is the multilevel relationship between networks and internationalisation for innovative entrepreneurial SMEs? Figure 1.1 illustrates the multilevel research framework.

Figure 1.1 Multilevel Research Framework

Multilevel Analysis of Network Relationships

Cross-Country
GEM Study

The Software
Industry

Software
SMEs
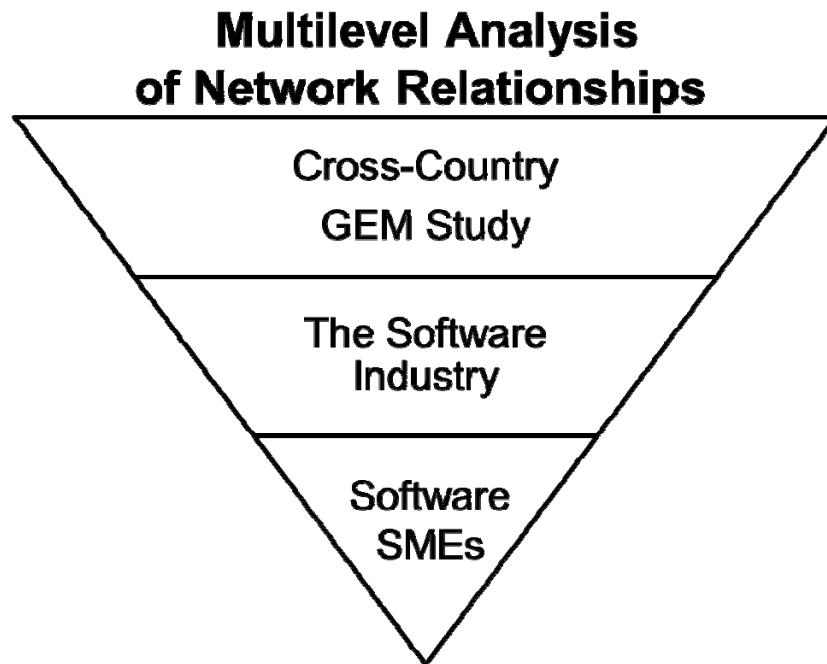
Starting at the macro level and using Global Enterprise Monitor (GEM) data from 51 countries, the first study, presented in Chapter 2, seeks to understand how country-specific institutional and economic factors relate to the extent of internationalisation by innovative entrepreneurial firms. Institutional factors include domestic support for innovation, international trade, and networks. Economic factors include measures of domestic market size and wealth. This study builds on institutional theory (DiMaggio & Powell, 1983; North, 1990; Scott, 1995) and argues that the decision to engage in international trade is influenced by idiosyncratic economic, cultural, and political history of the country in which a firm is embedded. The cross-country design of this study provides a global focus to the research.

In the second study, presented in Chapter 3, the level of analysis moves down a tier and explores the relationship between networks and internationalisation within an industry setting. This study builds on industry-based view theory (Porter, 1980) and argues industry-specific forces influence a firm's decision to develop networks for internationalisation. Using systematic literature review methods the study investigates whether firms operating in the same industry demonstrate similar patterns of network influences on

internationalisation based on analysis of 32 published empirical articles over a 15 year time frame.

The third study in this thesis, presented in Chapter 4, moves the level of analysis down to the final tier and focuses on firm-specific factors influencing the relationship between networks and internationalisation. This research explores what network relationships are used by SMEs in the process of innovation and internationalisation. It builds on resource-based view theory (Barney, 1991; Wernerfelt, 1984) and argues network relational competencies to be heterogeneous firm resources that impact both innovation and internationalisation strategies (Loane & Bell, 2006; Oviatt & McDougall, 1994). Knowledge accumulated from the country and industry level studies support the selection of New Zealand and the software industry for this exploratory research. Through in-depth case study analysis of 10 SMEs, this study explores internal factors influencing network development by examining the types of innovation, internationalisation, and networks utilized by these firms.

Throughout the thesis, as the analysis moves from a macro to more micro levels, each study is informed by accumulated knowledge from the previous ones. Together the three studies contribute towards multilevel understanding of the relationships between SME networks and internationalisation.

1.1.2 Research Questions

This thesis explores the following overarching research question: What is the multilevel relationship between networks and internationalisation for innovative entrepreneurial SMEs? Each of the three studies addresses this central research question at an appropriate level of analysis. The research threads combine to inform and extend knowledge on external environmental influences on SME internationalisation network decisions. Table 1.1 summarises the research questions.

Table 1.1 Research Questions

<table>
<tr><td colspan="1">

What is the multilevel relationship between networks and internationalisation for innovative entrepreneurial firms?

GLOBAL FOCUS: CROSS-COUNTRY GEM STUDY
How are national-level institutions (those supporting innovation, international trade and networks) and economic factors (domestic market size and wealth conditions) related to the levels of internationalisation of innovative entrepreneurial firms?

INDUSTRY FOCUS: SOFTWARE INDUSTRY STUDY
Do SMEs operating in the global software industry demonstrate similar patterns of network influences on internationalisation?

FIRM FOCUS: SOFTWARE SMEs
What network relationships are used in the innovation and internationalisation processes of New Zealand software SMEs?

</td></tr>
</table>

1.1.3 Research Relevance

This thesis contributes to and extends IE research by increasing knowledge on how external environments influence the relationship between SME networks and internationalisation. Enquiry into the relationship between networks and internationalisation is a high priority in IE research (Dana & Wright, 2009). According to Melén, Nordman, Tolstoy, and Sharma (2011), a network-based view of international entrepreneurship is emerging. IE research is expanding the frame of reference from the individual entrepreneur and/or the firm, to include the network, industry, or institutional environment within which the firm operates (Jack, 2010). Dana and Wright (2009, p. 94) highlight, "… microenvironmental factors such as partnerships and networks, as well as macroenvironmental factors such as the role of the state" as explanatory variables for IE and important areas for future research. This thesis aligns with the international entrepreneurship field's research priorities.

A better understanding of the relationship between SME networks and internationalisation is relevant to businesses and government policy-making in several ways. First, the SME sector prevails globally. Worldwide SMEs account

for 99% of all firms and create 50-75% of value added (OECD, 2010). Due to the importance of the SME sector, policy-makers strive to develop programs enhancing SME innovation, entrepreneurship, and export capabilities to grow their economies (OECD, 2008a, 2009, 2010). Second, technological advances in production, transportation, and communication increase SME opportunities internationally (Madsen & Servais, 1997). As such, a growing number of entrepreneurial firms engage in international trade, often participating in specialised niche-product markets. Third, globalisation increases the necessity for SMEs to be internationally competitive, whether or not they are active participants in international markets (Etemad, 2004b; Knight, 2000). In summary, research findings from this thesis benefit SME business managers and policy-makers both in New Zealand and internationally.

1.2 Theoretical Framework

1.2.1 Research Field

International entrepreneurship is a young field exploring a complex phenomenon (Dimitratos & Jones, 2005; Jones et al., 2011). At the international business and entrepreneurship nexus, IE is "the discovery, enactment, evaluation, and exploitation of opportunities-across national borders-to create future goods and services" (Oviatt & McDougall, 2005, p. 540). Starting in the late 1980s, IE's research domain began with enquiry into early, rapid, and non-traditional internationalisation by innovative, knowledge-intensive SMEs. These firms are known as born globals (Knight & Cavusgil, 1996; Madsen & Servais, 1997), micro-multinationals (Dimitratos, Johnson, Slow, & Young, 2003), and international new ventures (Oviatt & McDougall, 1994). Although these firms' activities remain an interesting area of enquiry, the IE domain no longer limits enquiry based on size, age, or industry. The defining IE attribute is the firm's international and entrepreneurial attitude (Dimitratos & Plakoyiannaki, 2003; Knight & Kim, 2009).

Today, the IE domain covers two established research streams and an emerging tributary (Jones et al., 2011). The first stream originates from the international business field and explores innovative entrepreneurial firms'

international activities. Terjesen, Acs, and Audretsch (2010) refer to this stream as "cross-border entrepreneurship"; Jones, Coviello, and Tang's (2011) term is "entrepreneurial internationalisation" or simply "Type A". The industry-focused study presented in Chapter 3 and the firm-level study presented in Chapter 4 fall within the Type A research stream. The second IE research stream originates from the entrepreneurship field and explores how entrepreneurial behaviour differs by country. Hessels (2008) refers to this research stream as "cross-national entrepreneurship". Terjesen et al. (2010) use "comparative international entrepreneurship", and Jones et al. (2011) classify this stream as "international comparisons of entrepreneurship" or simply "Type B". The newest IE research stream, "Type C", explores cross-national differences on cross-border internationalisation. Jones et al. (2011, p. 16) argue "… Type C research (comparative entrepreneurial internationalisation) is truly at the intersection of international business and entrepreneurship. Consequently, it is the crux of IE". The first study of this thesis, presented in Chapter 2, fits the emerging Type C research stream. Figure 1.2 illustrates the three types of IE research, their origin and focus.

Figure 1.2 International Entrepreneurship Research Field

International Entrepreneurship

Type A

Type B

Type C

Entrepreneurship Research

International Business Research

Type A: Research on international activities of entrepreneurial firms; Cross-border entrepreneurship

Type B: Research on how entrepreneurial behaviour varies by country; Cross-national entrepreneurship

Type C: Research on country differences in internationalisation behaviour; Cross-national differences on cross-border entrepreneurship

Based on Jones, Coviello, and Tang (2011)

1.2.2 Research Terms and Definitions

This section briefly summarises the seven key terms and definitions used throughout this thesis. Acknowledging that there is no definitional conscious of terms, for the purpose of this thesis, the following definitions are presented and discussed. The terms are presented in alphabetical order.

Entrepreneurship: The term entrepreneurship refers to "the creation of new economic activity" (Davidsson, Delmar, & Wiklund, 2006, p. 27). This definition is independent of age and size. Therefore, this definition recognises that new economic activity can be initiated by established firms (corporate entrepreneurship) or within established firms (strategic entrepreneurship) (Hoskisson, Covin, Volberda, & Johnson, 2011).

Innovation: For this research, innovation is defined as "the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations" (OECD, 2005, p. 48). This definition takes a holistic approach to innovation thus accounting for 'soft innovations', which often associate with knowledge-intensive and service industries (OECD, 2007a; Sheehan, 2006). Furthermore, this definition provides sufficient depth to classify the innovations according to products, processes, marketing, or organisational typologies. For additional details on the definition of innovation, as used in this thesis, please refer to Section 4.3.1.

Innovative Entrepreneurship: The distinction between entrepreneurship and innovative entrepreneurship recognises that some entrepreneurial ventures are replicative (e.g., providing new distribution outlets) (Baumol, Litan, & Schramm, 2007). Innovative entrepreneurship refers to new or existing firms offering products and services previously unavailable in the market. Innovative production or delivery methods distinguish this entrepreneurship form (Baumol et al., 2007). Although most scholars agree innovation is a critical component to entrepreneurship, often-empirical investigations rely on self-employment measures to represent macro-entrepreneurship levels (Acs & Szerb, 2010). Therefore, this thesis makes a clear distinction between entrepreneurship in

general and innovative entrepreneurship. For additional details about innovative entrepreneurship, please refer to Section 2.3.2.

Institutions: Scott (1995, p. 33) defines institutions as "social structures that have attained a high degree of resilience". A country's institutional matrix includes formal institutions (e.g., laws and regulations) (North, 1990), and informal institutions (e.g., social norms and shared cultural beliefs) (DiMaggio & Powell, 1983, 1991; Meyer & Rowan, 1991). For additional details about institutions, please refer to Sections 1.2.3 and 2.3.1.

Internationalisation: The term internationalisation includes inward as well as outward involvement in international business. This thesis uses Calof and Beamish's (1995, p. 116) definition of internationalisation as "the process of adapting firms' operations (strategy, structure, resources, etc.) to international environments". For additional details on the definition of internationalisation, please refer to Section 4.3.2.

Networks: The term network is a metaphor referring to the long-term, dyadic relationship between two actors (e.g., a firm and customer, or a firm and an individual). A network also includes the actor's interconnected relationships (e.g., customer's customer, customer's suppliers, and customer's competitors). The dyadic relationship between two actors may be constrained or facilitated by the other network relationships (Anderson, Håkansson, & Johanson, 1994; Grabher, 1993). This interpretation of networks originates from the business network approach expressed by Johanson and Mattsson (1987, 1988) and various scholars from the Industrial Marketing and Purchasing (IMP) project (Anderson et al., 1994; Håkansson & Snehota, 1989). The definition recognises that networks include direct and indirect relationships that are interdependent, cumulative, and reciprocal. This interpretation of networks differs from the business network approach in that individuals are also considered actors in the network. Social network relationships are important to SMEs as a media through which information, finance, access to other networks, and reputation assets flow (Chetty & Wilson, 2003; Hite & Hesterly, 2001; Lechner & Dowling, 2003). For additional details on the definition of networks, please refer to Sections 1.2.3.1 and 4.3.3.

Although often used interchangeably, networks and strategic alliances are different concepts. Whereas networks include both direct and indirect relationships, strategic alliances refer to: "… voluntary arrangements between firms involving exchange, sharing, or co-development of products, technologies, or services" (Gulati, 1998, p. 293). As such, strategic alliances are more clearly defined and prescriptive relationships, often associated with modes of entry. For example, Freeman and Edwards (2006), include strategic alliances as one of several operational modes available to internationalising SMEs within a network structure.

> *"The conceptual framework [of a network structure] allows for entry modes that can be separated into outward activities (export intermediary, export agent, export direct, sales office overseas, foreign direct investment in sales office, licensor overseas, and franchisor overseas), inward activities (import intermediary, buying agent, import direct, buying office overseas, licensee in host country, and franchisee in host country), and linked activities (strategic alliances and cooperative management) to share the risk" (Freeman & Edwards, 2006, p.54).*

Small and Medium-sized Enterprise (SME): Internationally, different classifications for SMEs exist. Most countries include a maximum number of full-time employees in their definition. The definition applied in this thesis follows the European Union's classification of an SME - between 10 and 250 employees. This definition is most commonly used (OECD, 2010) allowing for international comparisons. Also, the 250 employee classification falls between country-specific extremes. For example, in the USA the SME is considered a firm with less than 500 employees, whereas in New Zealand the SME firm has less than 19 full-time employees. New Zealand's Ministry of Economic Development is re-evaluating their definition to more closely align with other OECD countries (NZ-MED, 2007).

1.2.3 Research Theories

Four theories create the base for this thesis as illustrated in Figure 1.3. The network approach to internationalisation (NAI)[1] is the core theoretical logic

---

[1] NAI is an acronym used in this thesis in reference to the network approach to internationalisation. It is not an established term used in international entrepreneurship research.

guiding the overall research objective (Johanson & Mattsson, 1988). NAI is not a single theory but rather a perspective influenced by the work of diverse scholars. The three framework theories are institutional theory (DiMaggio & Powell, 1991; North, 1990; Scott, 1995), the industry-based view (IBV) (Porter, 1980), and the resource-based view (RBV) (Barney, 1991; Wernerfelt, 1984). Peng and colleagues (Peng, 2006, 2009; Peng, Sun, Pinkham, & Chen, 2009; Peng, Wang, & Jiang, 2008) call for integration of these three theories in order to obtain a holistic understanding of firm behaviour; one that recognises that firms do not make decisions in isolation. "Specifically, strategic choices are not only driven by industry conditions and firm capabilities, but are also a reflection of the formal and informal constraints of a particular institutional framework that managers confront" (Peng et al., 2008, p. 923).

Figure 1.3 Core and Framework Theories
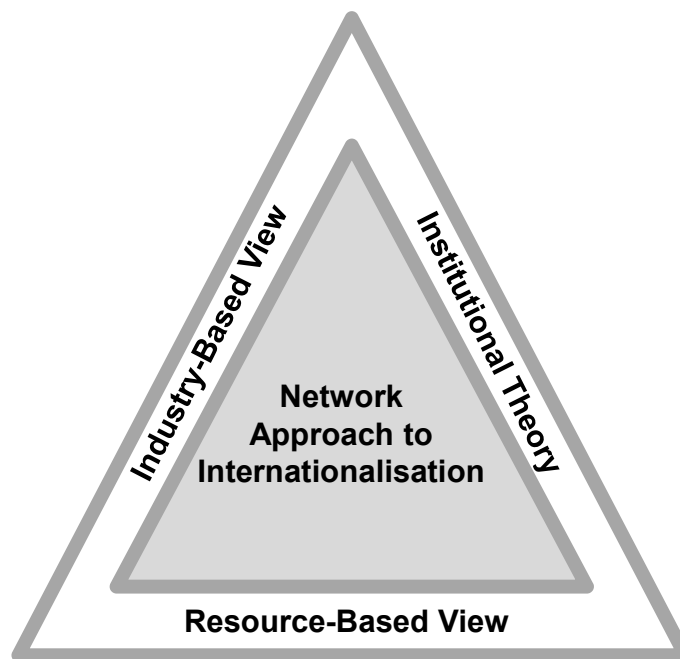
The theoretical logic underpinning the integration of institutional, IBV, and RBV theories supports this thesis' research objective to describe how multilevel forces influence the relationship between networks and internationalisation. Peng (2006, 2009) refer to this integration as a 'strategy tripod approach' to understanding the embedded nature of firm decision making (see Figure 1.4). The mantra that multiple theories provide better insights into internationalisation decision-making is echoed by IE scholars' call for holistic approaches to

understand the phenomenon (Coviello & Martin, 1999; Crick & Spence, 2005; Rialp et al., 2005). However, a difference between the strategy tripod approach and this thesis is that SME strategy is perceived to be behavioural rather than intentional.

> *"The key aspect of this "strategy as behaviour perspective" is that strategies are formed regardless of strategic intent. That is strategies can emerge over time and do not have to be formed deliberately (Mintzberg & Waters, 1985; Mintzberg, 1991)….internationalisation strategies are, therefore, considered to be the foreign markets in which [SMEs] conduct business and the modes they use to do so" Agndal & Chetty, 2007, p. 1451).*

The behavioural perspective on strategy recognises that SMEs follow less systematic and linear patterns of strategic planning for internationalisation than larger firms (Crick & Spence, 2005). As such, although this thesis supports the theoretical logic behind the strategy tripod approach, it does not study intentional or future-oriented strategy. This thesis follows a 'strategy as behaviour perspective' and considers the choice to develop and leverage network relationships for internationalisation to be a complex, strategic decision informed at multiple levels.

Figure 1.4 Strategy Tripod Approach
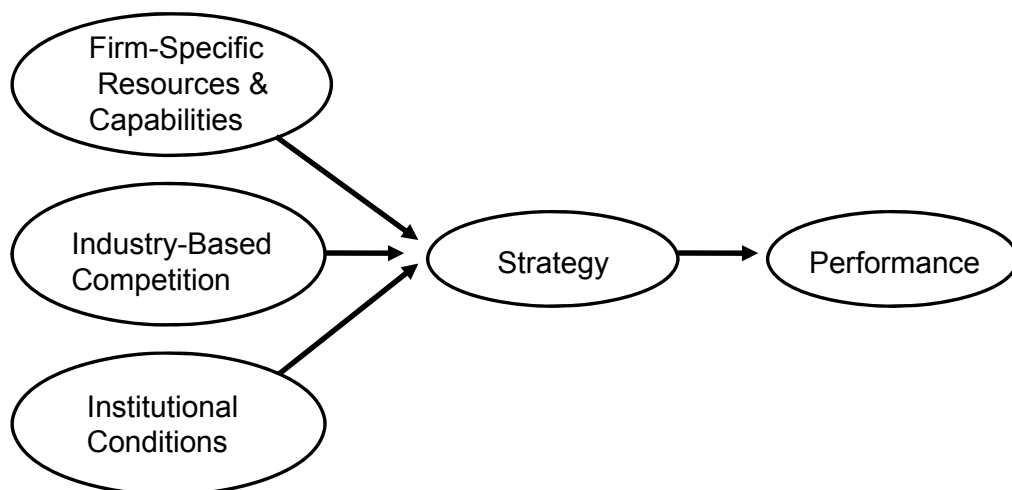
Based on Peng, 2006, 2009 p. 15

Both NAI and the three framework theories focus on how firm and business environment interactions complement and support each other. Therefore, the link between these approaches is the concept of embeddedness. NAI stems

from Industrial Marketing and Purchasing (IMP) research (Johanson & Mattsson, 1987). According to the IMP research stream, "... the firm is embedded within a business network context that is itself enveloped by an environment" (Anderson et al., 1994, p. 4). Through direct and indirect network relationships, a firm and the business environment influence each other (Anderson et al, 1995:4). Likewise, researchers supporting a multilevel approach argue that the firm's embedded environment affects both domestic and international strategy (Gao, Murray, Kotabe, & Lu, 2010; Peng et al., 2008). It is through the integration of institutional, industry, and firm perspectives that a holistic understanding of firm strategies and performance emerges (Peng, 2006). International entrepreneurship develops in the interplay between the firm and the business environment (See Melén et al., 2011). According to Chetty and Blankenburg Holm (2000, p. 80), "In order to study the internationalisation of a firm we need to understand the context in which it operates, such as, environmental conditions and the firm's relationships". Therefore, applying theoretical logic, from NAI and the three framework theories under a multilevel research design, supports the aims of this thesis.

1.2.3.1 Network Approach to Internationalisation

The network approach to internationalisation (NAI) argues "foreign market opportunities are born in constellations of firms and individuals" (Melén et al., 2011, p. 359). NAI is based on understanding, from business network theories of internationalisation (Johanson & Mattsson, 1988; Johanson & Vahlne, 2009) as well as social network (Granovetter, 1983) and social exchange (Burt, 1992) theories. True to the international entrepreneurship roots, NAI also includes entrepreneurial opportunity recognition theories (Shane, 2000) which shows how "internationalisation may unfold as an on-going entrepreneurial activity of creating new business in ever-evolving network contexts" (Melén et al., 2011, p. 379). NAI is an important theoretical approach in international entrepreneurship research (Johanson & Kao, 2010; Melén et al., 2011; Rialp, Rialp, & Knight, 2005). A recent review of 323 international entrepreneurship articles concludes network research features prominently in all three research streams (See Jones et al., (2011).

NAI originates from the 1970s European IMP project. IMP research on business-to-business marketing shows that enduring business relationships between suppliers and customers develop slowly through social exchange processes (Johanson & Mattsson, 1987). As Anderson, Håkansson, and Johanson (1994, p. 3) illustrate in Figure 1.5, inter-organisational relationships can be direct (e.g., between a firm and customers) or indirect (e.g., between a firm and a customer's customer). Influencing the dyadic relationship between two actors is the actors' other relationships. The network approach recognises the external environment is not 'faceless'; instead, these elements serve as an interconnected network of dyadic business relationships (Anderson et al., 1994). Because network members value relationships over simple, discrete transactions, opportunistic behaviour within the network is minimised (Coviello & Munro, 1997; Oviatt & McDougall, 1994) and thus transaction costs are reduced (Powell, 1990). Therefore, these relationships and the embedded networks represent intangible firm assets (Johanson & Kao, 2010).

Figure 1.5 Business Network Approach
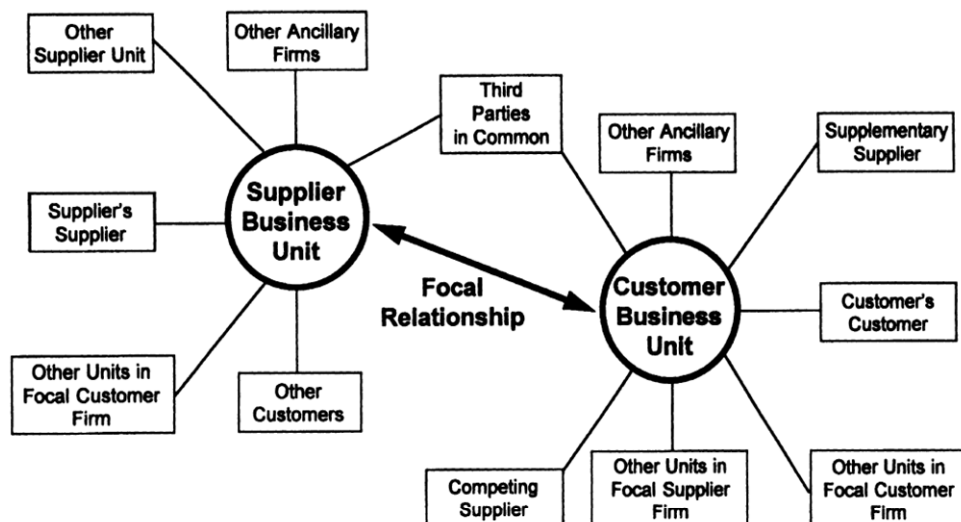
Network approach to understanding inter-connected relationships in industrial markets. Anderson, Håkansson and Johanson, 1994, p. 3

Johanson and Mattsson (1988) apply logic from the IMP industrial network approach to explain how firms enter and expand in foreign markets. From a network perspective, internationalisation is the gradual process as a firm attempts to enter and establish a position in a foreign business network. The

original business network theory of internationalisation was developed in conjunction with the Uppsala model of internationalisation (Johanson & Vahlne, 1977; Johanson & Wiedersheim-Paul, 1975). In the original Uppsala model, the firm builds a domestic business prior to entering international markets. The internationalisation process is gradual, starting with low commitment modes to foreign markets with low psychic distance. The original Uppsala model is firm centric and does not incorporate a network perspective to internationalisation. Johanson and Valhne (2009, p. 1144) revise their Uppsala model to incorporate a network perspective recognising that "successful internationalisation requires reciprocal commitment between the firm and its counterparts". The revised Uppsala model becomes a business network model of internationalisation process. The new model builds on the network perspective (Anderson et al., 1994; Coviello & Munro, 1997; Johanson & Mattsson, 1988) and blurs boundaries between Uppsala and NAI models.

Early research applying a network approach to the study of internationalisation focuses on the inter-firm relationships. However, scholars are increasingly recognising interpersonal networks are important for SME internationalisation (Ellis & Pecotich, 2001; Harris & Wheeler, 2005). Extant research shows social networks play an important role in SME internationalisation (Chetty & Wilson, 2003; Coviello & Cox, 2006; Ellis & Pecotich, 2001). Zhou et al. (2007, p. 674) define social networks as "a web of personal connections and relationships for the purpose of securing favours in personal and/or organisational action". However, Harris and Wheeler (2005, p. 203) find international business opportunities tend to start from social interactions and evolve into strategically important relationships: "The process ends with a business relationships; it does not begin with planned relationships". NAI finds both interfirm and interpersonal network relationships affect internationalisation strategies of innovative and entrepreneurial SMEs.

1.2.3.2 Framework Theories

Institutional Theory: Institutional theory focuses on competitive advantages at the country level to address why firms in the same institutional environment develop similar characteristics (Bruton, Ahlstrom, & Li, 2010; DiMaggio &

Powell, 1983; Peng et al., 2009). Institutional theory represents contributions from economics (North, 1990), sociology (DiMaggio & Powell, 1983, 1991), and organisational theory (Meyer & Rowan, 1991). Institutional theory's genesis lies in the recognition that firms operate within a social framework representing a country's idiosyncratic economic, social, and political history. A country's institutional matrix includes formal institutions (e.g., laws and regulations) and informal institutions (e.g. social norms and shared cultural beliefs). Institutional theory recognises that interacting regulatory, normative, and cultural-cognitive forces support and maintain stable behaviour (Scott, 2008).

Regulatory forces establish the 'rules of the game' by which firms operate (North, 1990). Research finds regulatory forces, such as government legislation and industry compliance standards, influence allocation of entrepreneurial effort toward productive, high-growth entrepreneurship (Baumol, 1990; Bowen & De Clercq, 2008; Busenitz, Gómez, & Spencer, 2000). Terjesen and Hessels (2009, p. 547) find, ".... countries with more transparent business systems often provide entrepreneurs with a range of achievable, merit-based business opportunities, including international opportunities". In addition, Kiss and Danis (2008) propose that firms from countries with well-developed domestic regulatory institutions use their strong foundations to engage in international expansion activities, even if the target country's institutional environment is less developed.

In contrast, social norms and values define proper (Bruton et al., 2010) and admired (Busenitz et al., 2000) behaviour. Cultural-cognitive forces relate to preconscious cultural behaviour affecting regulatory and normative conditions (Meyer & Rowan, 1991). Cultural-cognitive forces influence "... how societies accept entrepreneurs, inculcate values, and even create a cultural milieu whereby entrepreneurship is accepted and encouraged" (Bruton et al., 2010, p. 423). As such, cultural-cognitive forces influencing innovation and international orientation are also likely to influence international entrepreneurship within a country. Cognitive institutions may define international opportunity awareness within a country and the role networks play in the process (see Kiss and Danis,

2008). Cosmopolitan-oriented countries support global interconnectedness and provide opportunities for favourable international cognitions.

DiMaggio and Powell (1983) maintain that institutions exert pressure on firms and on individuals to conform through coercive, imitative, and normative expectations. The outcome results in country-specific expectations of appropriate actions. Normative forces likely influence entrepreneurial behaviour as well. Busenitz et al. (2000) find norms influence the social desirability of entrepreneurship. Society's accumulated knowledge and skill sets become institutionalised as they merge into the country's shared social knowledge. Normative forces establish international commercialisation activity as normal and accepted behaviours for innovative entrepreneurial firms (see Kiss and Danis, 2008). Spillover effects occur when countries have high levels of exporters. De Clercq et al.(2008) find a strong relationship between high export levels and new ventures with export aspirations. Existing exporters appear to provide positive role models for new firms, suggesting informal isomorphic forces influence internationalisation.

In summary, a country's distinct blend of rules, norms, and beliefs represent a specific institutional profile (Kostova, 1997; Kostova & Roth, 2002). Busenitz, Gómez and Spencer (2000) argue that country institutional profiles direct the type of entrepreneurship within a country. Institutional theory supports research into the relationship between networks and internationalisation in two ways. First, institutional theory helps explain why firms in a specific country might follow similar patterns developing networks and engaging in international activities. Second, institutional theory provides a framework to understand how IE occurs. Researchers advocate a greater application of institutional theory to enhance studies on entrepreneurship (Bruton et al., 2010), international business (Peng et al., 2008), and international entrepreneurship (Jones et al., 2011; Zahra & George, 2002) as well as research into network influences on the internationalisation process (Johanson & Kao, 2010).

Industry-Based View: IBV focuses on the industry-level origins of competitive advantage to address how firms can best compete in the same industry. Industry importance in determining competitive strategy develops from Porter's

(1980) seminal work. This research area focuses on the systematic assessment of the firm's industry to understand the competition in order to frame a competitive position.

> *"The essence of formulating competitive strategy is relating a company to its environment. Although the relevant environment is broad, encompassing social as well as economic forces, the key aspects of a firm's environment is the industry or industries in which it competes"* (Porter, 1980, p. 3).

Bloodgood et al. (1996, p. 65) apply Porter's industry-based view to internationalisation drivers and argue that firms with "preferential access to raw materials, proprietary technology, and economics of scale or scope represent potentially significant competitive advantage".

IBV primarily supports research into the relationship between networks and internationalisation by highlighting industry influences on firm strategic decisions. Strategic management research finds that firms operating in turbulent business environments strategically develop networks to reduce their vulnerability and increase their survival rates (Eisenhardt & Schoonhoven, 1996; Pittaway et al., 2004; Powell, 1990). Powell's (1990) seminal work identifies network emergence in industries where the exchange of tacit knowledge, intense technological competition, and trust (as a governance mechanism) are vital. Technology-intensive industries develop networks as a firm strategy to: 1) gain access to new technologies or new markets; 2) benefit from joint research and development (R&D) or production economies of scale; 3) source intangible knowledge beyond the boundaries of the firm; and 4) share risks of high development costs and increasingly short product life cycles (Powell, 1990, p. 315). As such, the firm's internal need to remain competitive may push SMEs to create networks. Dynamic environments force firms to cultivate networks of learning to avoid the *"liability of unconnectedness"* (Powell, Koput, & Smith-Doerr, 1996, p. 143).

International business research finds that the firm's industrial context influences the frequency, intensity, and importance of both motivations (Leonidou, Katsikeas, Palihawadana, & Spyropoulou, 2007) and barriers (Leonidou, 2004) for exporting by smaller firms. Growth stage industries provide

new opportunities to satisfy global demand and to serve as potential resources for SMEs (Andersson, 2004; Fernhaber, McDougall, & Oviatt, 2007). Oligopolistic industries encourage product differentiation and niche-orientated strategies by SMEs and facilitate inter-organisational co-operation (Fernhaber et al., 2007; McDougall, Oviatt, & Shrader, 2003; Rosenkopf & Schilling, 2007). Service-intensive industries may require SMEs to locate in foreign markets to serve customers efficiently (Kennedy, 2004; Lommelen & Matthyssens, 2004; Patterson & Cicic, 1995). Globally integrated, knowledge-intensive industries often demand international presence by SMEs to capitalise on technological innovations and to maintain their competitive advantage (Bloodgood et al., 1996; Fernhaber et al., 2007; Zahra, Ireland, & Hitt, 2000). Usually the industry's external forces pull the SME into the international arena, influencing the firm's product strategy as well as their pattern and pace of internationalisation (Etemad, 2004b). In summary, IBV theory highlights how industries influence the propensity of SMEs to develop and leverage network relationships and to pursue international global markets.

Resource-Based View (RBV): RBV focuses on the firm-level origins of competitive advantage to ask why firms in the same industry differ. RBV's theoretical base states that firms consist of heterogeneously distributed resources. Combining valuable, rare, inimitable, and non-substitutable (VRIN) attributes with organisational learning creates a sustainable competitive advantage (Barney, 1991; Eisenhardt & Martin, 2000; Wernerfelt, 1984). The key to success is the organisational learning rather than the actual resources. The firm develops the capabilities to build, integrate, and transform internal and external resources into a competitive advantage (Eisenhardt & Martin, 2000; Lu, Zhou, Brunton, & Li, 2010; Teece, Pisano, & Shuen, 1997).

RBV supports research into the relationship between networks and internationalisation in two ways. First, RBV reinforces the idea that firms need not own the resources to create a competitive advantage, an important concept for SMEs. As Lu et al. (2010, p. 421) explain, "In contrast to large multinational enterprises, which can simply hire or buy such resources, entrepreneurial firms must seek resources supplied by external organisations". Through networks,

resource-scarce SMEs can mobilise external partner assets for internationalisation (Coviello, 2006). Second, RBV illustrates how firms can create relational capabilities that lead to a competitive advantage. Lorenzoni and Lipparini (1999, p. 317) define relational capabilities as the capability to interact with other companies. These authors propose that relational capabilities accelerate internal and external knowledge integration resulting in greater innovation and growth. Liesch and Knight (1999, p. 386) extend this logic to SME internationalisation showing that, "By participating in international networks, SMEs create conduits of information flows and knowledge formation… that help to accelerate the firm's progress up the internationalisation learning curve". In summary, RBV theory highlights how capabilities to access, mobilise, and leverage internal and external tacit knowledge create competitive advantages for SME internationalisation (Coviello, 2006; Liesch & Knight, 1999; Peng, 2001).

1.2.3.3 Theory Integration

The international entrepreneurship research domain embraces theoretical pluralism due to the field's multidisciplinary and multi-theoretical origins (Dana & Wright, 2009; Jones et al., 2011; Terjesen et al., 2010). Jones et al. (2011, p. 17) argue, "… because IE is based on a complex phenomenon, it is perhaps unlikely that theories unique to IE will be produced. Instead, it will continue to develop theory that spans the domains of international business and entrepreneurship, as well as beyond". This thesis integrates theories from international business, entrepreneurship, strategic management, sociology, and economics to increase understanding of the relationship between SME network and internationalisation. Figure 1.6 illustrates this researcher's interpretation of the IE research domain's pluralistic theoretical base. The figure also shows how each study originates and converges, taking into consideration the different levels of analysis.

Figure 1.6 Multilevel Analysis in International Entrepreneurship
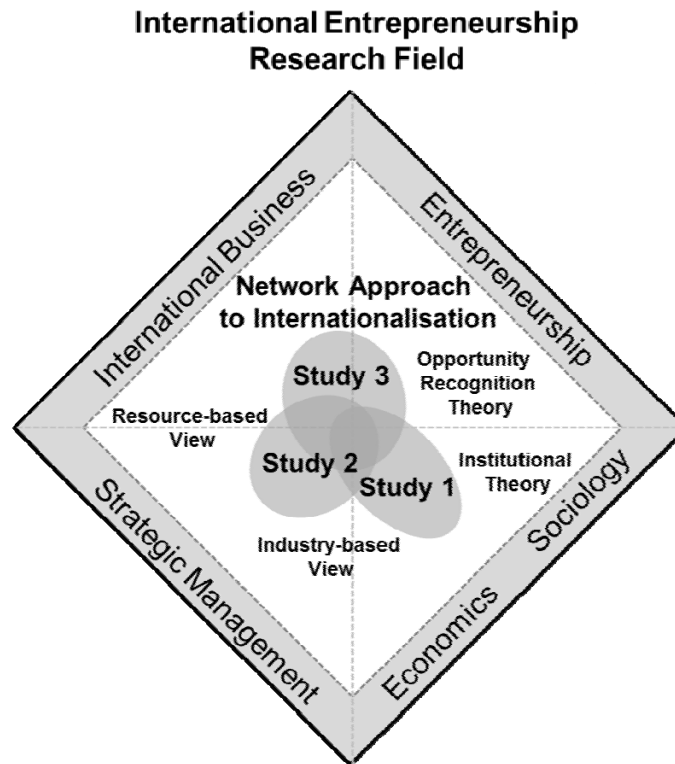
Researcher's interpretation of IE field and theoretical influences on thesis studies

1.3 Conceptual Framework

1.3.1 Research Paradigm

Like a roadmap, a research paradigm details the underlying assumptions guiding the researcher towards achieving the specific aims of the study. Human behaviour research generally follows one of three research paradigms: positivism, constructivism, and critical realism. Positivism and constructivism represent opposite ends of a ontological continuum; critical realism represents a midpoint between these two extremes (Krauss, 2005). Table 1.2 summarises the differences between these paradigms.

Conceptually, this thesis follows the critical realism paradigm. The following sections briefly discuss the ontology, epistemology, and methodology associated with each research paradigm and illustrates why critical realism best informs this thesis.

Table 1.2 Research Paradigms

Research Paradigms	Positivism	Critical Realism	Constructivism
Ontology What constitutes realty?	One reality	Multiple perceptions of a single realty	Multiple realities
Epistemology What is the relationship between the researcher and reality?	Objectivist	Modified Objectivist	Subjectivist
	Value-free	Value-cognizant	Value-laden
	Looking through a one-way mirror	Looking through participant's window	Looking through participant's eyes
Methodology			
How is knowledge aquired?	Discovered or verified through direct observation	Discovered by naming and describing broad, generative mechanisms	Discovered by immersion-context and time dependent
What research methods?	Quantitative Methods	Mixed Methods	Qualitative Methods

1.3.2 Ontology

Ontology represents the researcher's belief on what constitutes reality. Is a single reality objectively observable and measureable? A positivistic research paradigm proposes a single reality exists and waits to be observed. Do observers subjectively construct multiple realities? Constructivism proposes multiple realities exist. Are these multiple perceptions really a single reality? A critical realism research paradigm assumes a single reality exists. The researcher understands reality by examining multiple perceptions. According to Bhaskar (1975), critical realists view reality as stratified rather than flat; reality includes empirical, actual, and real domains (Easton, 2010). Because observations are incomplete and selective, they are open to different interpretations. Interpreting observed phenomenon requires linking results to the actual phenomenon. According to Easton (2010, p. 123), "We see just the tip of an iceberg but that doesn't mean that the invisible three-quarters is not there or is unconnected to what we see". To broaden overall understanding, critically comparing results to other external explanations is necessary. Figure 1.7 illustrates the stratified ontology of critical realism.

Figure 1.7 Critical Realism

**Critical Realism
Stratified Ontology**

Empirical
Domain
What is observed

Actual Domain
What actually happens

Real Domain
What makes it happen

Process of Interpretation

Multiple perceptions
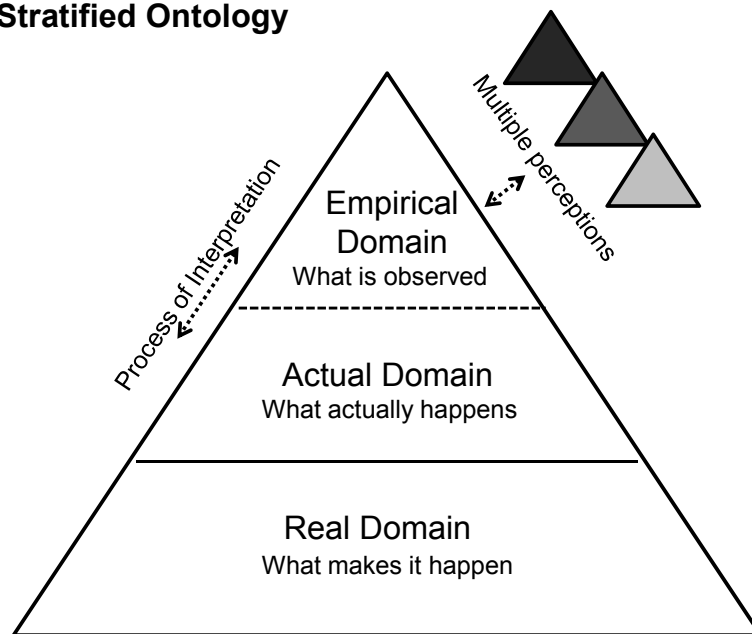
Based on Bhaskar (1975) and Easton (2010)

1.3.3 Epistemology

The term epistemology comes from epistêmê, an ancient Greek word for knowledge. Epistemology refers to the researcher's appropriate role when seeking knowledge. Under a positivistic research paradigm, a single reality exists, and the researcher objectively observes or measures reality. The researcher appears to observe the phenomenon through a "one-way mirror" (Guba & Lincoln, 1994, p. 110). The researcher gains knowledge through value-free verification. Under the constructivism research paradigm, multiple realities exist and the researcher immerses herself in participants' perceptions of reality. Knowledge increases through this value-laden experience; however, the data are context and time dependent (Krauss, 2005). Critical realism assumes a single reality exists, but the data points are imperfectly apprehensible (Denzin & Lincoln, 1994). To address this shortcoming, critical realism researchers strive to develop a "family of answers", viewing the phenomenon from different contexts and through the different participants' perceptions (Healy & Perry, 2000, p. 123). Researchers try to understand what objects are involved in a relationship, how these objects act, and how they interact or combine to cause

events (Easton, 2002). The critical realism paradigm recognises that a partial and imperfect reality is observed through the participant's perception or "window" (Denzin & Lincoln, 1994). The researcher gains knowledge by naming and describing the general process. By triangulating multiple perceptions, over time, a complex phenomenon emerges (Healy & Perry, 2000). As such, the researcher is value-cognisant as she evaluates how the research findings "fit" with preexisting knowledge (Denzin & Lincoln, 1994). A critical realism research paradigm supports investigations of complex social science phenomena, such as networks (Healy & Perry, 2000).

1.3.4 Methodology

A research paradigm's third element is the methodology. Methodology refers to the theoretical assumptions on how the researcher gains knowledge. Methodology differs from research methods. Methodology guides the choice of tools the researcher uses to frame and answer a research question. Quantitative research methods commonly associate with positivism whereas qualitative research methods associate with constructivism. The critical realism paradigm advocates using quantitative, qualitative, or a mixture of both research method categories. Critical realism encourages adopting a holistic approach to understand the phenomenon, gathering information from different modes, and evaluating critically the conflicting findings (Giddings & Grant, 2006). International entrepreneurship scholars advocate integrating quantitative and qualitative techniques to investigate SME internationalisation (Coviello & Jones, 2004) and network dynamics (Coviello, 2005).

1.3.5 Mixed Methods Research Design

The research's overall objective is to understand better the relationship between networks and internationalisation for innovative entrepreneurial SMEs. An exploratory synergistic mixed method research design addresses this research objective (Creswell, 2003, 2009). Mixed methods often are recommended for IE research (Coviello & Jones, 2004; Rialp et al., 2005); however, this approach is difficult to achieve due to the editorial constraints of academic journals (Hohenthal, 2006). This thesis employs the multiple-study format, allowing

exploration of this complex phenomenon through mixed methods and multiple levels of analyses. Each study is a separate piece of the research designed to be publishable as an independent journal article. These three studies flow from a central starting point, combining to create the unique, holistic contribution.

Mixed method research is not simply a matter of 'anything goes' (Giddings & Grant, 2006). Rigorous research design clearly demonstrates why mixed methods best address the research objective as well as provide explanations as to why a particular method is used (Creswell, 2003). This thesis offers a deeper understanding about the complex phenomenon of networks and internationalisation. The results also add to the field of international entrepreneurship by examining this phenomenon through different lenses. According to Newman et al. (2003, p. 170), if the purpose of the research is to "understand a complex phenomenon", then qualitative research methods have advantages, as deep insights can be gained from viewing the subject holistically. If the purpose of a research study is "to add to the knowledge base", then quantitative research methods have advantages due to generalisability. However Newman et al. (2003, p. 170) call the debate between qualitative and quantitative methods a "false dichotomy" and recommend conceptualising these research techniques as a qualitative-quantitative interactive continuum. All research may be extended by applying multiple methodologies, resulting in a more holistic understanding of the subject.

A great variety of mixed method research design classifications exist. Traditionally, researchers undertaking a mixed method design classify the status and order of each data collection stage. Creswell (2003) provides a commonly used typology for mixed method design classification based on Morse's (1991) coding system. Using this typology, qualitative and quantitative methods are abbreviated as QUAL and QUANT, respectively. Writing the terms in upper-case letters signifies the data are treated equally whereas lower-case letters signify one data set serves a secondary or supporting status. However, Creswell (2009, p. 104) highlights a trend away from typologies and towards synergistic and interactive reconceptualisation of mixed method research designs.

"Instead of looking at mixed methods as a priority of one approach over the other or a weighting of one approach, the research considers the equal value and representations of each. Instead of unequal importance of the two [quantitative and qualitative research] approaches, the two are viewed from an ideology of multiple points of view, instead of differences".

This thesis adopts the synergistic approach to the interaction of mixed method procedures. Figure 1.8 uses Morse (1981) coding to illustrates how the three discrete studies contributed equally to the thesis. Each study approaches the thesis' central research question from a different level of analysis. Individual research objectives dictate the appropriate methodology for each study. Study 1 takes a global focus towards the central research question. Through confirmatory research, Study 1 examines cross country secondary data from 51 countries using multivariate analysis methods. Study 2 takes an industry focus towards the central research question. Through descriptive research, Study 2 follows systematic literature review methods, using a qualitative interpretative approach, to analyse 32 published empirical articles on the software industry. Study 3 takes a firm focus towards the central research question. Through exploratory research, Study 3 applies qualitative case study methods to analyse primary data from 10 New Zealand software SMEs. Together the three studies provide multilevel understanding of the thesis' central research objective.

Figure 1.8 Mixed Method Research Design

Multilevel Analysis

Study 1: Global Focus
Type: Confirmatory Research
Method: Multivariate Analysis
Data: Secondary
Unit of Analysis: Country
Sample Size: 51

QUANT

Study 2: Industry Focus
Type: Descriptive Research
Method: Systematic Literature Review
Data: Secondary
Unit of Analysis: Published Industry Studies
Sample Size: 32

QUAL

Study 3: Firm Focus
Type: Exploratory Research
Method: Case Study
Data: Primary
Unit of Analysis: Firm
Sample Size: 10

QUAL

Thesis

QUANT: quantitative research methods. QUAL: qualitative research methods.
Use of **Upper Case Type** indicates the data are treated equally.

1.4 Chapter Outline

Following this introductory chapter, the thesis presents each of the three discrete studies in a separate chapter. The studies start at the macro level of analysis and progress towards a micro level, following the multilevel research framework. Each study builds on and extends the knowledge acquired in the previous study. Together the studies provide a holistic perspective on the relationship between networks and internationalisation for innovative entrepreneurial SMEs.

Chapter 2 presents the global focus study, which investigates institutional and economic factors influencing the proportion of innovative entrepreneurial firms actively engaged in international business. This study builds on institutional theory (DiMaggio & Powell, 1983; North, 1990; Scott, 1995) and

uses multivariate techniques to investigate Global Entrepreneurship Monitor (GEM) data from 51 countries.

Chapter 3 presents the industry focus study, which explores patterns of network influences on internationalisation strategies of SMEs within a single-globally integrated industry. This study builds on the industry-based view (IBV) theory (Porter, 1980) and uses systematic literature review methods to evaluate 32 empirically published articles on the internationalisation processes of software SMEs in 11 countries.

Chapter 4 presents the firm focus study, which explores what network relationships are used in innovation and internationalisation processes by SMEs in a single industry within a single country. This study builds on the resource-based view theory (RBV) (Barney, 1991; Wernerfelt, 1984) and uses multiple case study methods to explore the types of innovation, the types of internationalisation, and the types of networks used by 10 New Zealand SMEs operating in the software industry.

Chapter 5 closes the thesis by summarising each study's findings and drawing interrelated conclusions. This chapter discusses contributions to the field of international entrepreneurship research and implications for SME managers and policy makers. The chapter presents a summary of the research limitations and suggestions for future research opportunities emerging from this thesis.

Chapter 2

Institutional and Economic Influences on Innovative International Entrepreneurship: A Cross-Country Study

2.1 Chapter Overview

This chapter takes a macro-level perspective to investigate the relationship between networks and internationalisation. It presents a global focus study investigating the following two overarching issues: Do country-level factors influence innovative entrepreneurial firm internationalisation? Do networks influence this relationship? This study represents the first tier of the thesis' multilevel analysis as shown in the highlighted section in Figure 2.1.

Figure 2.1 The Global Focus
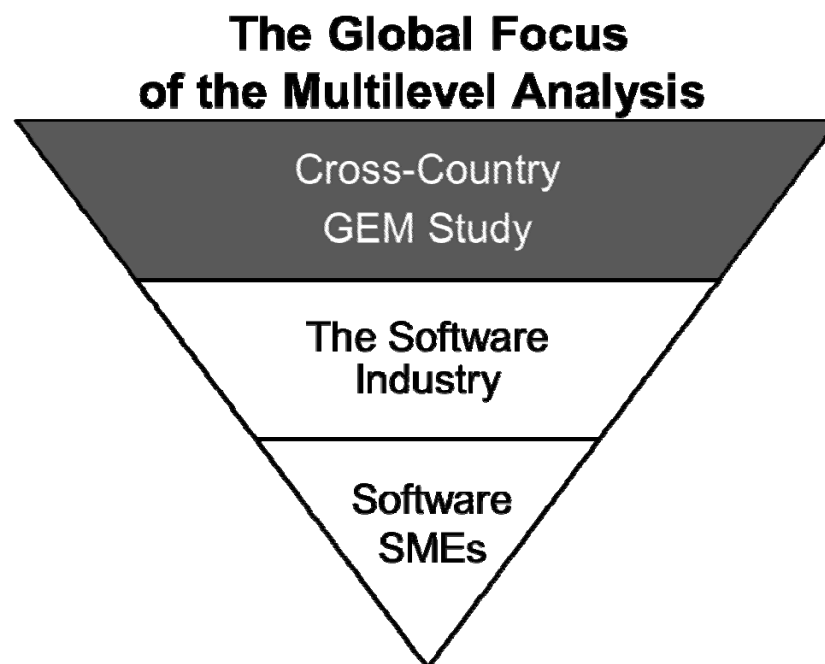
Specifically, this study seeks to understand how country-specific institutional and economic factors relate to the proportion of innovative international entrepreneurship (IIE) within a country. IIE is novel terminology used in this thesis. IIE represents the percentage of innovative entrepreneurial firms actively

engaged in international business. This study builds on institutional theory (DiMaggio & Powell, 1983; North, 1990; Scott, 1995) and argues that a firm's decision to engage in international trade is influenced by idiosyncratic economic, cultural, and political history of the country in which it is embedded. Institutional factors include domestic support for innovation, international trade, and networks. Economic factors include measures of domestic market size and wealth.

Using Global Enterprise Monitor (GEM) data and multivariate analysis techniques, this study compares domestic market conditions and the proportion of IIE in 51 countries. Findings show that formal institutional support to develop and commercialise innovations positively influences initial engagement with foreign customers. However, the same institutions show a significantly negative relationship with more substantial levels of IIE. This study's findings support extant research proposing that efficient formal institutions create higher entrepreneurial opportunities, but they also create a more hostile and competitive environment for resource-constrained entrepreneurial firms (De Clercq et al., 2010; Stephan & Uhlaner, 2010).

In terms of the relationship between informal institutional support for networks and the proportion of IIE, this study's findings show networks are positively associated with substantial levels of IIE. Social globalisation measures provide a proxy for networks at a country level of analysis. The results imply country level conditions that expose innovative entrepreneurial firms to international products and people, may create a greater awareness of international opportunities, resulting in higher levels of international engagement. These findings support firm level international entrepreneurship research showing an entrepreneur's global mindset gained through international work or education experiences increases engagement in international activities (Manolova, Brush, Edelman, & Greene, 2002; McDougall, Shane, & Oviatt, 1994). The findings provide insight into external environmental conditions influencing the relationship between SME networks and internationalisation.

An earlier version of the study was presented at the 2012 International Council of Small Business Conference in Wellington, New Zealand.

2.2 Study Background

Growing numbers of entrepreneurial firms engage in international trade, venturing into realms once ruled exclusively by large multinational corporations. Agile and innovative, these firms target niche markets to capitalise on promising opportunities created by rapid technological advancements, converging global demand, and interconnected economies (Knight & Cavusgil, 2004; Oviatt & McDougall, 1994; Ruzzier, Hisrich, & Antoncic, 2006). International entrepreneurship (IE) research explores these dynamics using theoretical insights from the entrepreneurship and international business literatures. Oviatt and McDougall (2005, p. 540) define international entrepreneurship as "the discovery, enactment, evaluation and exploitation of opportunities-*across national borders*-to create future goods and services"[2]

How researchers interpret the phrase 'across national borders' reflects their disciplinary legacy and directs the flow of enquiry towards either cross-border or cross-national entrepreneurship (Hessels, 2008; Terjesen et al., 2010). According to Terjesen, Acs, and Audretsch (2010), cross-border entrepreneurship research is primarily undertaken by international business scholars and explores the international activities of entrepreneurial firms. Jones, Coviello, and Tang (2011) refer to this branch of IE research as "entrepreneurial internationalisation" or "Type A".[3] On the other hand, cross-national entrepreneurship research is primarily undertaken by entrepreneurship scholars and explores how entrepreneurial behaviour varies by country (Hessels, 2008). Jones et al. (2011) refer to this IE research stream as "comparative international entrepreneurship" or "Type B".

An emerging area of IE research is positioned at the nexus of these two research streams and explores cross-national differences on cross-border internationalisation. Research into this area addresses Zahra and George's (2002) core, yet unanswered question in IE research, namely: "What contextual factors influence the extent and scope of entrepreneurial firm's internationalisation"? Jones et al. (2011) refer to this emerging IE research

---

[2] Italics added
[3] Please refer to Section 1.2.1 for a full explanation of IE research streams.

stream as "comparative entrepreneurial internationalisation" or simply "Type C". These authors proclaim this nexus to be a fertile research area into what they call "the crux" of international entrepreneurship; however, studies are rare and rather eclectic. In their review of 323 IE studies, Jones et al. (2011) reference only four studies exploring environmental influences on comparative entrepreneurial internationalisation. These scholars suggest future research should apply an institutional theoretical lens to explore why and how international entrepreneurship differs across countries and cultures.

This study asks how institutional and economic conditions are related to levels of internationalisation on innovative entrepreneurial firms. This research objective requires amalgamation of knowledge from both international entrepreneurship streams. Findings from the cross-border stream provide three insights into factors influencing internationalisation. First, innovation matters. Innovation often acts as a catalyst to form entrepreneurial firms and serves as a prerequisite for entrepreneurial internationalisation (Hessels, 2008; Jones et al., 2011; Knight & Cavusgil, 2004; Oviatt & McDougall, 1994). Second, globalisation opens avenues for innovative entrepreneurial firms to access and serve international niche markets (Bloodgood et al., 1996; Knight, 2000). Third, to succeed in international markets, innovative entrepreneurial firms need to develop and leverage networks (Chetty & Blankenburg Holm, 2000; Coviello, 2006; Johanson & Mattsson, 1988; Oviatt & McDougall, 1994). According to Johanson and Valhne (2009), internationalisation is simply a by-product of attempting to strengthen the firm's position within established business networks or to cultivate new ones.[4] However, contextual factors (e.g., network partner's location and industry levels of global integration) direct the entrepreneurial firm's international orientation (Schweizer, Vahlne, & Johanson, 2010).

Findings from the cross-national research stream confirm country-level factors influence the development of specific types of entrepreneurship. Core to this idea, is the understanding that different types of entrepreneurship exist and that not all entrepreneurship types have offerings suitable for international

---

[4] See Johanson and Kao, 2010 for a review of literature taking a network theory approach to explore the process of internationalisation.

markets. Comparative entrepreneurship research finds both institutional and economic forces influence the type of entrepreneurship for a specific country (Baumol, 1990; Bowen & De Clercq, 2008). Laws and regulations establish the framework conditions that indirectly shape entrepreneurial efforts. These formal institutions influence entrepreneurial motivations (Hessels, van Gelderen, & Thurik, 2008), innovation aspirations (Hessels et al., 2008; Koellinger, 2008; Szirmai, Naudé, & Goedhuy, 2011), and export orientations (De Clercq et al., 2008). Business norms and cultural beliefs also influence entrepreneurship quality (Stephan & Uhlaner, 2010), innovation frequency (Dakhli & De Clercq, 2004; Kaasa, 2009; Luk et al., 2008), and network collaboration (Arenius & De Clercq, 2005; De Clercq, Danis, & Dakhli, 2010; Klyver et al., 2008). These informal institutions influence complex relationships between the country's economic development level and the predominant entrepreneurship type (Bosma & Levie, 2009; Szirmai et al., 2011). Although entrepreneurship occurs at all levels of economic development, the type of entrepreneurship and subsequent impact on the economy differs (Baumol, Litan, & Schramm, 2007). In summary, extant research highlights institutional and economic forces' influences on entrepreneurship.

Innovation features prominently in both international entrepreneurship research streams. Innovative offerings create international growth opportunities for firms (Bloodgood, et al., 1996; Chetty & Campbell-Hunt, 2003; Knight & Cavusgil, 2004). However, institutional and economic environments may either create or hinder innovative opportunities for entrepreneurial firms (Baumol, 1990; Hessels et al., 2008; Shane, 1992). Further investigation of the activities of innovative entrepreneurial firms across countries will help to pinpoint contextual factors that influence internationalisation strategies and will highlight the conditions moving firms from casual engagement to major investments in international markets.

This study seeks to understand how a country's institutional and economic environment influences the proportion of Innovative International Entrepreneurship (IIE). Defined as the percentage of firms who engage with foreign customers out of the country's total percentage of innovative

entrepreneurial firms, IIE recognises innovation's importance for international markets. The proportion of IIE can be subdivided into latent, moderate, or substantial. Latent IIE describes domestic innovators. Moderate IIE represents innovative entrepreneurial firms with up to a quarter of their customers located in foreign markets. Substantial IIE represents innovative entrepreneurial firms with more than a quarter of their customers located internationally.

Presentation of the study is organised in the following manner. Section 2.3 introduces the conceptual foundations of institutional theory and the literature's relevance to the allocation of entrepreneurial endeavours within a country. Under this theoretical framework, findings from both international entrepreneurship research streams combine to develop the conceptual model and hypotheses in Section 2.4. Section 2.5 describes the data and the research methodology. Sections 2.6 and 2.7 provide a summary of the empirical analysis. The limitations and future research opportunities are presented in Section 2.8, managerial and policy implications in Section 2.9 and Section 2.10 concludes.

2.3 Theoretical Framework

2.3.1 Institutional Theory

A multidisciplinary framework describes institutional theory, representing contributions from economics (North, 1990), sociology (DiMaggio & Powell, 1983, 1991), and organisational theory (Meyer & Rowan, 1991). Institutional theory's appeal lies in the similarities rather than differences explaining organisational behaviour (Bruton et al., 2010; DiMaggio & Powell, 1983; Peng et al., 2009). Recent special issues of *Entrepreneurship Theory and Practice*, the *Asian Pacific Journal of Management*, and the *Academy of Management Journal* attest to institutional theory's relevance to business literature[5]. Researchers advocate a greater application of institutional theory to enhance studies on entrepreneurship (Bruton et al., 2010), international business (Peng et al., 2008), and international entrepreneurship (Jones et al., 2011; Zahra & George, 2002), as well as research into network influences on the

---

[5] Special issues on Institutional Theory include: *Entrepreneurship Theory and Practice*, Vol. 34, Issue 3, 2010; *Asian Pacific Journal of Management*, Vol. 26, No 3, 2009; and *Academy of Management Journal*, Vol. 45, No 1, 2002.

internationalisation process (Johanson & Kao, 2010). Heeding this advice, institutional theory provides a central explanatory mechanism fitting the research objectives.

The genesis of institutional theory lies in the recognition that firms operate within a social framework representing a country's idiosyncratic economic, social, and political history. Globally, various capitalist configurations exist displaying complementary firm-institutional environments (Baumol et al., 2007; Hall & Soskice, 2001; Whitley, 1999). Institutional theorists debate whether isomorphic forces shape homogeneous firm strategies based on a country's institutional comparative advantage, or whether heterogeneous firm strategies coincide and thrive within any given institutional architecture (Boyer, 2005; Carney, Gedajlovic, & Yang, 2009). In either case, institutional theory recognises that national environments operate differently and that the home environment influences firm strategy.

Scott (1995, p. 33) defines institutions as "social structures that have attained a high degree of resilience". Institutions are dynamic (Dacin, Goodstein, & Scott, 2002) with bi-directional interaction occurring between firms and institutions (Carney et al., 2009).[6]

> *"Global change is not necessarily about uniformity, or oppression or progress; nation-states and organisations and managers are not sponges or pawns, but actors responding to challenges under the guidance of existing institutions" (Dacin et al., 2002, p. 50 citing Guillén (2000)).*

Thus the interrelationship between a country's institutions, economic conditions, and entrepreneurial firms operates within a co-evolving environment (Carney et al., 2009).

A country's institutional matrix includes formal institutions (e.g., laws and regulations) and informal institutions (e.g. social norms and shared cultural beliefs). Institutional theory recognises that interacting regulatory, normative, and cultural-cognitive forces support and maintain stable behaviour (Scott,

---

[6] See special issue on Institutional Entrepreneurship research: *Organization Studies*, Vol. 28, No. 7, 2007.

2008). Regulatory forces establish the 'rules of the game' by which firms operate (North, 1990). In contrast, social norms and values define proper (Bruton et al., 2010) and admired (Busenitz et al., 2000) behaviour. Cultural-cognitive forces relate to preconscious cultural behaviour affecting regulatory and normative conditions (Meyer & Rowan, 1991). DiMaggio and Powell (1983) maintain that institutions exert pressure on firms and on individuals to conform through coercive, imitative, and normative expectations. The outcome becomes country-specific expectations of appropriate actions. A country's distinct blend of rules, norms, and beliefs represent a specific institutional profile (Kostova, 1997; Kostova & Roth, 2002). Busenitz, Gómez and Spencer (2000) argue country institutional profiles direct the type of entrepreneurship within a country.

Research seeking to understand why entrepreneurship varies across countries should explore the nexus of institutions and economic development levels according to Acs, Desai and Hessels (2008). Evidence suggests a country's level of economic development influences both the type of entrepreneurship and subsequent impact on economic growth (Bosma & Levie, 2009; Hessels et al., 2008). Developing countries pass through factor-driven, efficiency-driven, and innovation-driven stages (Porter, Sachs, & McArthur, 2002). According to Acs and Szerb (2010), entrepreneurship quality and quantity vary at each stage. Entrepreneurship levels based on self-employment figures follow a U-shaped curve: high entrepreneurship levels exist during the factor-driven stage, low levels at efficiency-driven stage, and high level again at innovation-driven stage (Bosma & Levie, 2009). One caveat is that entrepreneurial quantity does not equate to quality (Baumol et al., 2007). Acs and Szerb (2010) argue that entrepreneurship measures, incorporating quality differences, result in S-shaped curves with more productive entrepreneurship reflective of a stronger institutional framework.

2.3.2 Environmental Influences on Type of Entrepreneurship

Baumol's (1990) seminal historical analyses of entrepreneurship in Ancient Rome, China, and the United Kingdom informs the understanding that environmental conditions influence the type, and thus the quality, of a country's entrepreneurship. In his study, Baumol (1990) identifies the institutional

environment as pivotal in the allocation of entrepreneurial efforts towards three types of entrepreneurship: productive, unproductive, and destructive. Productive entrepreneurship requires activities with high-growth economic potential from a national, rather than firm, perspective (Baumol et al., 2007). Innovative entrepreneurship is a specific type of productive, high-growth entrepreneurship. Innovative entrepreneurship refers to new or existing firms offering products and services previously unavailable in the firms or their markets. Innovative production or delivery methods distinguish this entrepreneurship form (Baumol et al., (2007). Unlike innovative entrepreneurship, replicative entrepreneurship simply provides new outlets for existing products and services (Baumol et al., 2007).

This study focuses on innovative entrepreneurship. Coupling innovation and entrepreneurship is not a new concept. Schumpeter (1934) identifies entrepreneurship as an act of creative destruction, whereas Drucker (1985a) considers innovation to be the specific function of entrepreneurship. Most scholars agree innovation is a critical component to entrepreneurship and that, although related; entrepreneurship and small business are not synonymous concepts (Drucker, 1985b; Thurik, Wennekers, & Uhlaner, 2003). Empirical investigations tend to rely on self-employment or new venture creation activities to represent macro-entrepreneurship levels (Reynolds et al., 2005). However, replicative entrepreneurs do not innovate (Baumol et al., 2007; Szirmai et al., 2011). Therefore, according to Acs and Szerb (2010, p. 6) measures that do not distinguish between innovative and replicative entrepreneurship fail to capture quality differences across entrepreneurial activity. The focus on quantity rather than quality "... bundles together street hawkers with the founders of Facebook" (The Economist, 2011). Recent international entrepreneurship research incorporates quality measures in recognition that not all entrepreneurship contributes equally to national economic growth (Acs & Szerb, 2010; Bowen & De Clercq, 2008; Stephan & Uhlaner, 2010; Terjesen & Hessels, 2009).

Previous entrepreneurship research acknowledges both innovation and international market orientation as high-growth, productive entrepreneurship forms (Bosma & Levie, 2009; Hessels et al., 2008; Wong, Ho, & Autio, 2005).

Acs and Szerb (2010) consider entrepreneurial aspirations for innovation and for internationalisation to represent key quality indicators in their Global Entrepreneurship and Development Index (GEDI).[7] GEDI measures entrepreneurial aspiration levels for innovation and internationalisation to represent critical differences between efficiency-stage versus innovation-stage countries. Innovative entrepreneurship research shows general entrepreneurial framework conditions, developed through quality formal institutions, to be less important than informal institutional conditions (Stephan & Uhlaner, 2010). Institutions and the level of economic development influence the export orientation of new ventures through knowledge spillovers from international trade and foreign direct investment (De Clercq et al., 2008) as well as through the prevailing institutional structure (Terjesen & Hessels, 2009).

Using this logic, the current study investigates the actions of innovative entrepreneurial firms, and thus firms with the potential to expand internationally. IIE also builds on findings from firm-level international entrepreneurship research, highlighting innovation as a prerequisite (Oviatt & McDougall, 1994) and catalyst for internationalisation (Knight & Cavusgil, 2004; Mathews & Zander, 2007). By examining firms with the potential to expand internationally, this study offers new insights into how institutional and environmental forces affect internationalisation.

The proportion of IIE in a country represents the percentage of firms who engage with foreign customers out of the country's total percentage of innovative entrepreneurial firms. IIE is divided into latent, moderate, or substantial internationalisation. Latent IIE describes domestic innovators. Moderate IIE represents innovative entrepreneurial firms with up to a quarter of their customers located in foreign markets. Substantial IIE represents innovative entrepreneurial firms with more than a quarter of their customers located internationally.

---

[7] For more information on GEDI, please also refer to Acs and Autio (2011) The Global Entrepreneurship and Development Index: A brief explanation at www.imperial.ac.uk/business-school.

As institutional structures are interrelated, individual influences may be difficult to isolate (Terjesen & Hessels, 2009). The extant research recommends selecting explicit institutions closely related to the domain of interest (Busenitz et al., 2000; Kostova & Roth, 2002). This study's domain of interest is specific institutional forces influencing the proportion of IIE within a country. Therefore, this study investigates formal institutions supporting innovation and international trade. The research also explores country-specific informal institutions that support the discovery and exploitation of international market knowledge and network opportunities. Findings from the cross-border stream of international entrepreneurship consistently highlight a firm's ability to generate, build and/or leverage network relationships as influential in its internationalisation process (Coviello & Munro, 1997; Johanson & Mattson, 1998; Oviatt & McDougall, 2005). Finally, the study considers the joint impact of a country's economic development level and domestic market size as relevant to the proportion of IIE within a country. Prior cross-national research considers these economic factors separately or interchangeably to represent domestic market conditions. However, findings from the cross-border stream of international entrepreneurship research consistently acknowledges the importance of domestic market conditions in stimulating internationalisation, with small domestic markets noted for higher levels of internationally oriented firms (Bloodgood, et al. 1996; Chetty & Campbell-Hunt, 2003; Madsen & Servais, 1997).

2.4 Hypotheses

2.4.1 Formal Institutions and IIE

2.4.1.1 Innovation Development and Commercialisation

A country's formal institutional environment sets the 'rules of the game' in which entrepreneurial firms operate (North, 1990). Minniti (2008) proposes that government policies influence entrepreneurial quality than more effectively than entrepreneurial quantity. Other research finds that regulatory forces, such as government legislation and industry compliance standards, influence entrepreneurial effort allocations toward productive, high-growth forms of entrepreneurship (Baumol, 1990; Bowen & De Clercq, 2008; Busenitz et al.,

2000). Terjesen & Hessels (2009, p. 547) find, ".... countries with more transparent business systems often provide entrepreneurs with a range of achievable, merit-based business opportunities, including international opportunities". In addition, Kiss and Danis (2008) propose that firms from countries with well-developed domestic regulatory institutions use their strong foundations to engage in international expansion activities, even if the target country's institutional environment is less developed.

A country's formal institutional environment affects the level of economic freedom. Economic freedom relates to the degree a market economy exists. Central market economy components include voluntary exchange, free competition, and protection of persons and property (Gwartney, Lawson, & Emerick, 2003). McMullen, Bagby and Palich (2008) argue increasing economic freedom equates to decreasing transaction costs which thus affect entrepreneurial decision-making. McMullen et al. (2008) find opportunity-motivated entrepreneurship, which targets growth through innovation, internationalisation, or job creation, significantly associates with property right protection. Their findings support earlier work by Acs, Morck, Shaver, and Yeung (1997) proclaiming countries wishing to reduce the costs of international expansion by innovative firms need to protect innovators' property rights.

However, Bowen and De Clercq (2008) fail to find a relationship between a country's level of regulatory protection and the allocation of high-growth entrepreneurship implying the relationship may be moderated by other as yet unknown factors. The authors propose that their study's focus on job creation, as the high-growth measure, fails to capture entrepreneurial efforts associated with high technology or knowledge-intensive activity. Bowen and De Clercq (2008) call for future research to examine this relationship using the extent of innovation or internationalisation as measures of growth-orientated entrepreneurship. In summary, formal institutional conditions allowing the accumulation and protection of private property may represent basic framework conditions for the allocation of entrepreneurial efforts towards productive entrepreneurship in general (McMullen et al., 2008) and IIE specifically.

> *H1a: A country's formal institutional support for innovation development and commercialisation positively influences its proportion of moderate Innovative International Entrepreneurship.*

2.4.1.2 International Trade

Formal institutional conditions establish trade flow between countries. Trade freedom refers to measures of tariffs, quotas, hidden import barriers, as well as exchange rates and capital controls. Trade barriers hinder productive entrepreneurship by repressing specialisation, competition, and thus innovation (McMullen et al., 2008). Controlling for trade barriers and exchange rate differences, Terjesen and Hessels (2009) examine institutional influences on the proportion of export-oriented new ventures. Their results show lower prevalence of trade barriers positively relates to substantial export-orientation in new ventures whereas exchange rates do not. De Clercq et al. (2008, p. 298) find that "cross-country differences with respect to the proportion of export-oriented new ventures may be the result of a country's openness to cross-border activities". De Clercq et al. (2008) shows increases in both foreign direct investment and international trade positively affect greater proportions of export-oriented new ventures. However, this relationship only holds for countries with high-income levels. The authors propose that foreign MNCs' operating in low-income countries may prefer to work with larger or more established domestic firms, rather than new ventures. In summary, formal institutional conditions allowing for countries to trade freely may represent a basic framework condition for the allocation of entrepreneurial efforts towards international entrepreneurship in general and IIE specifically.

> *H1b: A country's formal institutional support of international trade positively influences its proportion of moderate Innovative International Entrepreneurship.*

2.4.2 Informal Institutions and IIE

Informal institutions influence the type of entrepreneurship developing within a country (Spencer & Gómez, 2004). A country's informal institutional environment contains both cultural-cognitive and normative forces (DiMaggio & Powell, 1983). In terms of cultural-cognitive forces, research recognises culturally-based heuristics underlie entrepreneurial behaviour (Stephan &

Uhlaner, 2010). Cultural-cognitive forces influence "... how societies accept entrepreneurs, inculcate values, and even create a cultural milieu whereby entrepreneurship is accepted and encouraged" (Bruton et al., 2010, p. 423). As such, cultural-cognitive forces influencing innovation and international orientation are also likely to influence the proportion of IIE within a country.

Research examining the influence of cultural-cognitive forces on innovation shows mixed results. Shane (1992) finds less hierarchical and more individualistic cultures invent more. Cultural-cognitive forces in less hierarchical countries support flexibility, trust, and informal channels of communication (Hofstede, 1980). Creativity thrives in this milieu as 'diversity of knowledge' stimulates innovation (Tödtling, Lehner, & Kaufmann, 2009). Informal communication channels allow for the cross-fertilisation of ideas and thus greater invention. Shane (1992) finds individualistic cultures to be more inventive than collective ones due to the support for individual freedom, recognition, and achievement. Individualistic cultures promote an outward-looking or cosmopolitan orientation (Hofstede, 1980). Cosmopolitanism, from an entrepreneurial firm perspective,

> *"... represents a state of mind that is focused on the outside, the other, and seeks to reconcile the local and the global, the familiar and the foreign ... cosmopolitanism is openness, an eagerness to investigate and learn from others"(Levy, Taylor, Boyacigiller, & Beechler, 2007).*

In other words, individualistic cultures with cosmopolitan orientation create opportunities for entrepreneurs to develop a global mindset (Levy et al., 2007; Paul, 2001).

However, Stephan and Uhlaner (2010) find that while 'performance-based cultures' create efficient entrepreneurship framework conditions and opportunities, they do not ensure innovative entrepreneurship. Innovative entrepreneurship thrives in countries characterised by 'socially supportive cultures'. Drawing on an evolutionary perspective to explain this relationship, Stephan and Uhlaner (2010, p. 1358) propose that*:*

> *"... with increasingly efficient institutions, new firms may actually get squeezed out, competing for resources and customers with existing*

firms … by contrast our findings suggest that social capital, as evidenced by the friendliness and cooperativeness of a culture, may play a far more decisive role for entrepreneurship".

Although on the surface these findings seem counter-intuitive, paradoxical findings relate to the differences between invention and innovation. Shane (1992, p. 40) acknowledges this point and states, "The values that make a society a successful inventor might not make it a good innovator". Innovation is the commercialisation of inventions (Fagerberg, 2005; Garcia & Calantone, 2002). Individualism's cultural-cognitive traits might create a comparative advantage in stimulating invention; however, cultural-cognitive traits fostering cooperation might create a comparative advantage in the commercialisation stage.

Previous findings on the influence of cultural-cognitive forces on internationalisation show both individual and environmental influences on internationalisation decisions. Hessels et al. (2008) conclude countries with proportionately higher wealth-motivated entrepreneurs tend to have more export-oriented entrepreneurship. Generally, entrepreneurs engage in international activities if they have overall positive perceptions or previous experience (Manolova et al., 2002). The evidence supports behavioural models of internationalisation theories (e.g., Uppsala theory) proposing international expansion begins in countries with similar culture or small psychic distance (Johanson & Vahlne, 1977; Johanson & Wiedersheim-Paul, 1975). The literature also supports cross-border international entrepreneurship research showing alertness to international opportunities based on perceptions and experiential factors (Arbaugh, Camp, & Cox, 2008; Manolova et al., 2002; Oviatt & McDougall, 1994; Reuber & Fischer, 1997). Cognitive institutions may define international opportunity awareness within a country and the role networks play in the process (see Kiss and Danis, 2008). Cosmopolitan-oriented countries that support global interconnectedness may provide greater opportunities for favourable international cognitions.

Normative forces are also likely to influence entrepreneurial behaviour. Busenitz et al. (2000) find norms influence the social desirability of entrepreneurship. In turn, a society's accumulated knowledge and skill sets

become institutionalised as they merge into the country's shared social knowledge. Normative forces establish international commercialisation activity as normal and accepted behaviour for innovative entrepreneurial firms (see Kiss and Danis, 2008). Spillover effects occur when countries have high levels of exporters. For example, De Clercq et al.(2008) find a strong relationship between high export levels and new ventures with export aspirations. Existing exporters appear to provide positive role models for new firms, suggesting informal isomorphic forces may influence IIE.

In addition to legitimising international expansion as a viable commercialisation strategy, informal institutional norms may influence the importance of internationalisation networks. Yeung (2002, p. 48) argues normative forces determine how inter-organisational relationships form (co-operative vs. competitive) and different relationship forms shape entrepreneurial behaviour. Trust-based relationships substitute for formal hierarchical contracts and thus represent alternative governance structures (Powell, 1990; Yeung, 2002). Oviatt and McDougall (1994), argue innovative new ventures use informal, alternative governance structures to overcome barriers to international commercialisation. Johanson and Valhne (2009) contend all internationalisation occurs through network relationships. In summary, normative forces within a country influence international market aspirations and collaborative network development.

The previous discussion suggests a self-reinforcing effect between a country's informal institutional environment and global integration level. Globalisation refers to "networks of interdependence at multi-continental distances" linked by flows of goods, capital, information, ideas, and people (Dreher, 2006; Koehane & Nye, 2000). Acs and Szerb (2010) consider a country's level of economic globalisation representative of institutional support for international-oriented entrepreneurship. Arguably, more than economic linkages connect countries. Koehane and Nye (2000) suggest globalisation creates connections at multiple levels including economic, political, environmental, and social. Social globalisation refers to interconnectedness between ideas, information, images, and people from different countries

(Dreher, 2006; Koehane & Nye, 2000). Social globalisation measures interpersonal global connectedness and represents networks at a country level of analysis. Following Dreher (2006), social globalisation is operationalised as a multidimensional concept representing informal institutional support for foreign product acceptance, global exchange of ideas and information, and opportunities for exposure to and interaction with foreigners.

2.4.2.1 Convergence of Global Demand

Economic theories of social globalisation find that increasing cultural proximity reduces resistance to foreign ideas and products (Dreher, 2006). International entrepreneurship research proposes a link between the influence of converging global demand on market homogeneity and innovative entrepreneurial firms' following niche strategies (Bloodgood et al., 1996; Madsen & Servais, 1997; Nkongolo-Bakenda, Anderson, Ito, & Garven, 2010). Entrepreneurial firms are engaging with foreign customers earlier and more proactively due to the globalisation of their markets (Knight, 2000). For firms in knowledge-intensive industries, internationalisation through deep-niche strategies may be a survival requirement (Shrader, Oviatt, & McDougall, 2000). Institutional support encouraging social integration and cultural proximity likely creates favourable conditions for innovative entrepreneurial firms adopting niche strategies in global markets.

> *H2a: A country's level of informal institutional support for global linkages increasing cultural convergence positively influences its proportion of substantial Innovative International Entrepreneurship.*

2.4.2.2 Information Flows

Social globalisation theory argues global communication networks promote international trade and economic integration (Mayer-Schöenberger & Hurley, 2000, p. 147). Country-level conditions provide access to the Internet and other technological advances. These conditions provide innovative entrepreneurial firms with the opportunity to exchange ideas and information necessary to source and serve foreign customers (Knight, 2000; Madsen & Servais, 1997; Vinig & de Kluijver, 2007). Acs and Szerb (2010) measure a country's networking attitude as a combination of Internet usage and entrepreneurial role-

model support. Countries with higher social globalisation levels have greater access to ideas and information flows more easily between domestic and international firms. Increasing information flows may enhance international knowledge and improve the domestic firm's ability to satisfy foreign customer needs. Institutional support, facilitating higher information exchange levels, may also create favourable conditions for innovative entrepreneurial firms to commercialise aggressively in international markets.

> *H2b: A country's informal institutional support for global linkages increasing information flows positively influences its proportion of substantial Innovative International Entrepreneurship.*

2.4.2.3 International Personal Contacts

Social globalisation literature proposes that multiple levels of interpersonal networks connect countries and that ideas, information, and trade flow through these networks (Koehane & Nye, 2000). Extant research finds network relationships influence entrepreneurship (Kwon & Arenius, 2010), innovation (Pittaway et al., 2004), and internationalisation (Johanson & Kao, 2010). According to Johanson and Vahlne (2009), whatever happens, happens in networks. The more integrated a country is with the global community, the greater the opportunity for people to interact and thus for international networks to develop.

International personal contacts occur through foreign educational or work exchanges, tourism, and immigration (Dreher, 2006). Several research streams study the economic consequences of international personal contacts including research on entrepreneurial global mindset (Levy et al., 2007), prior international experience of top management teams (Reuber & Fischer, 1997), the immigrant effect on international trade (Enderwick, Tung, & Chung, 2011), as well as Diaspora and transnational influences on international entrepreneurship (Rauch, 2001; Tung & Chung, 2010; Yeung, 2002). Recent human mobility research finds entrepreneurs with international education or work experience are more innovative than domestic entrepreneurs, better connected through their networks and social capital, and act as conduits through which knowledge spillovers occur (Liu, Wright, Filatotchev, Dai, & Lu,

2010). Zahra, Ucbasaran, and Newley (2009) argue exposure to and involvement in international networks helps innovative entrepreneurial firms gain and assimilate international knowledge to develop more creative offerings.

International personal contacts occur through a country's inflow and outflow of people. Inflows result in greater numbers of foreign students, visitors, or immigrants to a country and create opportunities for foreign exposure to export suitable domestic products. Outflows result in greater domestic entrepreneurial exposure to foreign products, markets, and potential network contacts. This exposure increases awareness of potential market opportunities by domestic firms. Both inflows and outflows lower the psychic distance between innovative entrepreneurial firms and international markets. Institutional support encouraging greater international interpersonal contact may also create favourable conditions for innovative entrepreneurial firms to aggressively develop and leverage networks for internationalisation.

> *H2c: A country's informal institutional support for global linkages increasing international personal contacts positively influences its proportion of substantial Innovative International Entrepreneurship.*

2.4.3 Domestic Economic Environment and IIE

A central premise underlying the proposition that IIE is a specific type of high-growth entrepreneurship is that entrepreneurial firms with innovative offerings have the potential to commercialise these innovations internationally. Although innovative entrepreneurship occurs in all countries and at all levels of economic development, the innovation type differs (Szirmai et al., 2011). Innovation implies newness; however, the novelty level is relative (Fagerberg, 2005). Innovations can be new-to-the-firm, new-to-the-market, or new-to-the-world (Garcia & Calantone, 2002; OECD, 2005). Developing countries primarily display new-to-the-firm or new-to-the-market innovations (Szirmai et al., 2011). Innovations that are new-to-the-firm represent replicative entrepreneurship, the type that dominates in developing countries (Baumol et al., 2007). Innovations new-to-the-market represent the innovation diffusion process as international opportunities are recognised in new markets (Szirmai et al., 2011). Audrestch and Sanders (2011) propose that globalisation has caused a shift in

comparative advantage where developing countries have advantages in mature industries and developed countries have advantages in knowledge-intensive industries at the beginning of the product life cycle. Their model further supports the proposal that developed economies will exhibit higher levels of new-to-the-world innovations. As such, the proportion of IIE should be more substantial in countries characterised by a higher level of economic development.

Cross-national entrepreneurship research finds economic development affects the export-orientation of nascent entrepreneurs and new ventures. De Clercq et al. (2008) find income level affects both the export-orientation of new ventures as well as knowledge spillover effects from inward foreign direct investment (FDI), outward FDI, and international trade. These authors find that new ventures from high-income countries show higher levels of substantial export orientation (De Clercq et al., 2008). Hessels and van Stel (2009) find that new ventures with strong export orientations make a greater contribution to economic growth in higher income countries than in lower income countries. International expansion is a viable and often necessary commercialisation strategy for entrepreneurial firms from high-income countries due to the level of specialisation and knowledge-intensity of their innovative offerings. Therefore, innovative firms from developed countries may pursue more aggressive international commercialisation strategies. As such, the IIE proportion should be greater in countries characterised by higher economic development.

Domestic market size also affects the allocation of entrepreneurial efforts towards IIE. According to Bosma and Levie (2009) larger countries in terms of either population and/or land mass have lower levels of international orientation. This relationship holds irrespective of the level of economic development. Findings from firm-level research provide insight into this country-level phenomenon (Bell, 1995; Bloodgood et al., 1996; Etemad, 2004b; Madsen & Servais, 1997; Schweizer et al., 2010). First, because larger countries provide abundant opportunities for innovative entrepreneurial firms (Arbaugh et al., 2008) these firms are often 'pulled' into international markets responding to unsolicited orders, following domestic customers abroad, or leveraging their founders' previously established overseas networks. In contrast, small-country

firms are 'pushed' into international market-seeking activities to find sufficient markets for innovative products. Therefore, the proportion of IIE should be more substantial in countries characterised by small domestic markets.

Comparative international entrepreneurship research often considers the level of economic development and domestic market size as separate variables. However, in the current study, these two variables combine to represent a country's domestic environmental influences on the proportion of IIE. Higher economic development reflects more stable institutional environments and represents a basic framework condition for the allocation of entrepreneurial efforts towards international entrepreneurship (McMullen et al., 2008). Economic development creates opportunities for export of suitable innovations and a higher level of innovative entrepreneurship. Firms located in small domestic markets need to aggressively target international customers to find sufficient customers for their innovations. Conversely, firms located in large domestic markets may have sufficient opportunities without venturing internationally.

> *H3a: A country environment characterised by both high-income levels and a small domestic market will have a greater proportion of substantial Innovative International Entrepreneurship.*
>
> *H3b: A country environment characterised by both high-income levels and a large domestic market will have a greater proportion of moderate Innovative International Entrepreneurship.*

Figure 2.2 summarises this study's conceptual framework and illustrates the formal institutional conditions, the informal institutional conditions, and the economic environmental predicted to influence the proportion of moderate and substantial IIE within a country.

Figure 2.2 Conceptual Framework
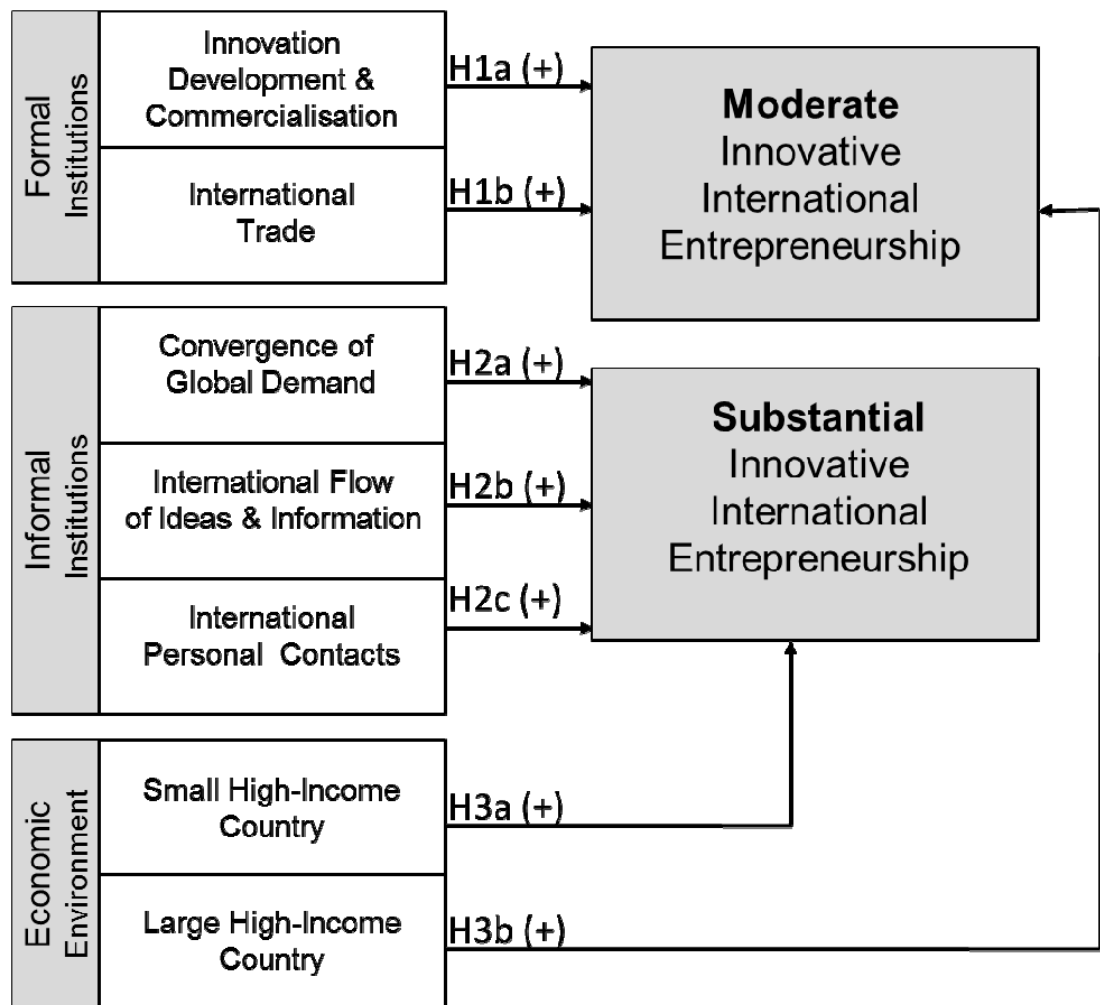
2.5 Methodology

2.5.1 Data

Data for this study comes from the 51 countries listed in Table 2.1. The countries are grouped into four categories representing different domestic economic conditions. The groupings are based on median splits on population and Gross Domestic Product per capita (GDPP) in US dollars as reported in 2003 by the World Bank.

Using the median split classification is a simply and unbiased way to group the countries into those with small or large populations and low or high-income levels. However there are two disadvantages to using this method. First, the median split is dependent on participating country characteristics. Therefore, a

country such as Australia may be considered small or large, depending on which other countries are included in the data set. A second disadvantage of using the median split method for grouping countries is that each group may contain countries which vary significantly in terms of their economic conditions. For example, Greece, New Zealand, and United Arab Emirates are each a member of the small, high-income group and yet their domestic economic environment by be quite different. To address the compatibility issue, the countries and grouping shown in Table 2.1 are compared to the three stages of economic development, as indicated in the 2008 World Economic Forum's Global Competitiveness Index (GCI) based on 2001-2007 data (Porter et al, 2008 p. 56). Please see Appendix A for the comparison details. In summary, 23 of the 24 high-income countries in Table 2.1 (both large and small) are classified as being in GCI's high stage of economic development. The United Arab Emirates is the exception as it is classified in GCI's middle stage. In terms of large, low-income countries, 16 of the 17 shown in Table 2.1 are classified as being in GCI's low economic development stage. Malaysia is the exception as it is classified in GCI's middle stage. Finally, regarding the 9 countries shown in the small low-income group, GCI classifies 6 as being in the middle stage, 2 as being in the low stage (Croatia and Jamaica), and one (Slovenia) as being in the high stage of economic development. Overall, the GCI supports the median split groupings both within and between cells. Thus, although not a perfect classification mechanism, the median split does allow for insights into the joint impact of a country's domestic market size and economic develop level as relevant to the proportion of IIE within a country.

The potential for common method variance is controlled by selecting measures of the independent and dependent variables from autonomous data sources (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Secondary data come from four sources. First, IIE data come from the Adult Population Survey (APS) collected through the Global Entrepreneurship Monitor (GEM) project years 2004-2006. Second, data on formal institutional influences supporting innovation and freedom to trade internationally are drawn from the 2003 Economic Freedom of the World (EWF) Index. Third, data measuring the informal institutional influences representing global interconnectedness draw

from the 1993-2003 Swiss Federal Institute of Technology's Konjunkturforschungsstelle (KOF) Social Globalisation Index. Finally, data measuring domestic market conditions are sourced from the World Bank 2003 database. For greater robustness, the predictor variables are measured by data from 2003 or prior whereas data for the outcome variables are from 2004-2006.

Table 2.1 Domestic Environment Country Groups

Domestic Economic Environment

		Low Income		High Income	
Large	Argentina	Phillipines		Australia	
	Brazil	Poland		Canada	
	China	Russian Federation		France	
	Columbia	South Africa		Germany	
	India	Thailand		Italy	
	Indonesia	Turkey		Japan	
	Malaysia	Uganda		Spain	
	Mexico	Venezuela		United Kingdom	
	Peru			United States	
Small		Chile	Austria	Netherlands	
		Croatia	Belgium	New Zealand	
		Czech Repulic	Denmark	Norway	
		Hungary	Finland	Portugal	
		Jamaica	Greece	Singapore	
		Jordan	Iceland	Sweden	
		Latvia	Ireland	Switzerland	
		Slovenia	Isreal	United Arab Emirates	
		Uruguay			

Population level: Median population based for mid-year 2003 figures   World Bank data
Income level: Median GDP per capita for 2003 based on constant 2000 US$

2.5.1.1 The Adult Population Survey (GEM)

The Global Entrepreneurship Monitor (GEM) is a collaborative effort between the London Business School and Babson College (Reynolds et al., 2005)[8]. GEM has conducted the Adult Population Survey (APS) annually since the initial 1999 survey. GEM surveys entrepreneurs in 66 countries, representing 80% of the world population (Acs, Amorós, Bosma & Levie, 2009). National research teams collect APS data using standardised telephone and door-to-door surveys. In each participating country, GEM researchers survey a minimum of 2,000 randomly selected adults (age 18-64 years). GEM uses country-specific case weights to ensure samples represent national demographics (Reynolds et al., 2005). The reliability and validity of GEM-APS

---

[8] www.gemconstorium.org.

measures have been verified by Reynolds et al. (2005). The APS produces harmonised individual level data. However, in 45% of the GEM studies published between 1999 and 2009, researchers aggregated the APS data to a country level of analysis to explore institutional effects on entrepreneurship (Álverez, Urbano, & Amorós, 2010). According to Acs et al. (2009), in the first ten years of availability, 81 articles using GEM data have been published in high-ranking journals. As such, the evidence suggests researchers consider GEM-APS to be a reliable (Terjesen & Hessels, 2009) and comprehensive (Terjesen et al., 2010) data source on comparative international entrepreneurship.[9]

2.5.1.2 Economic Freedom of the World Index (EFW)

The Economic Freedom of the World Index (EFW) is the by-product of the Economic Freedom Project organised by Michael Walker and Nobel Laureate Milton Friedman from 1986 to 1995 (Gwartney et al., 2003).[10] The EFW Index has been produced annually since 1996. EFW ranks economic freedom in 141 nations, representing 95% of the world's population. The index is the most widely used index of economic freedom (de Haan, Lundström, & Strum, 2006) with 194 articles published in the first 10 years of availability (Dawson, 2007). The EFW Index is considered a quality measure of a country's formal institutional environment (de Haan et al., 2006). EFW is based on 42 separate variables divided into five areas: Area 1, government size; Area 2, legal structure and security of property rights; Area 3 access to sound money; Area 4 freedom to trade internationally; and Area 5, regulation, credit, labour, and business. In this study, data from Area 2 represents formal institutional support for innovation and Area 4 represents formal institutional support for international trade. Countries are rated on a scale of 0-10 with higher scores representing a higher level of economic freedom.

---

[9] See Reynolds et al. 2005 for details on GEM data collection and implementation procedures.
[10] See www.fraseramerica.org for historical account of the EFW Index.

2.5.1.3 Social Globalisation Index (KOF)

The KOF Globalisation Index provides annual, comparative data for 181 countries dating from 1970.[11] Since KOF's creation in 2006, the index has been utilised in 46 journal articles or book chapters and is beginning to appear in international entrepreneurship research (Acs & Szerb, 2010; Vinig & de Kluijver, 2007). The KOF Globalisation Index produces three measures of globalisation: economic, political, and social (Dreher, 2006). The current study draws data from the KOF Social Globalisation Index exclusively. Social Globalisation measures a country's openness to and connections with other countries. The index is comprised of three parts: each section designed to proxy a separate aspect of global integration as the flow of ideas, information, and people. In order to compensate for yearly variations, this study takes a ten-year average (1993 - 2003) for each index dimension. These three index dimensions use a 0-100 scale with higher scores representing higher social globalisation levels.

2.5.1.4 World Bank

The World Bank provides a wide range of data to measure economic environment within a country. The current study draws on World Bank data from 2003 for GDP per capita (in constant year 2000 US$) and levels of population based on mid-year 2003.

2.5.2 Dependent Variables

2.5.2.1 Proportion of Innovative International Entrepreneurship

Data on a country's IIE proportion comes from the GEM Adult Population Surveys (APS) in 2004-2006. The IIE measure represents a specific type of high-growth entrepreneurship—the proportion of innovative entrepreneurial firms engaging with international customers. Calculation of a country's portion of IIE requires two steps. Step 1 calculates the proportion of innovative entrepreneurship within a country. Step 2 determines the level of international involvement by those innovative entrepreneurial firms (see Figure 2.3).

---

[11] www.globalization.kof.ethz.ch

Each country's proportion of innovative entrepreneurship is calculated based on two criteria. The first criterion is business ownership. The GEM criterion for business ownership is based on the proportion of the respondents who have paid salaries/wages for at least three months to employees or to themselves as owners. Although the GEM design allows for a distinction between ownership of a young firm (less than 3.5 years old) and established firms (over 3.5 years old), both types of firms are included in this study's innovative entrepreneurship measure. Responses indicating involvement in both young and established firms in a given year are only counted once (Reynolds et al., 2005). Following Stephan and Uhlaner (2010), the current research does not include nascent entrepreneurs in calculating innovative entrepreneurship. According to the GEM classification system, nascent entrepreneurs still remain in the start-up stages and do not meet the criterion for business ownership (see Koellinger, Minniti and Schade, (2007). Koellinger et al. (2007) find over confidence is common among entrepreneurs, entrepreneurial forecasting may be based on subjective perceptions, and optimistic biases are linked to institutional frameworks. As such, nascent entrepreneurs may be over confident about the international appeal of their innovative offerings. Excluding nascent entrepreneurs provides a more conservative measure of innovative entrepreneurship and answers calls for research to examine previously established firm internationalisation rather than new activity alone (Moen & Servais, 2002).

The second criterion is based on the proportion of business owners who consider their product offerings to be new to all or most of their customers and to have little or no competition. Innovative offerings with little or no competition are classified as new-to-the-market or new-to-the-world innovations, proving greater potential for international commercialisation (Garcia & Calantone, 2002). This definition of innovative follows similar classifications by Koellinger (2008) and Stephan and Uhlaner (2010).

The next step in calculating the IIE proportion within a country is categorising innovative business entities by their response to the 'percentage of foreign customers' question. In this manner, the proportion of IIE is classified as latent, moderate, or substantial. Latent IIE essentially represents the proportion of

innovative entrepreneurial firms who have no foreign customers, essentially domestic innovators. This category is only included as a baseline because the researches focus is on innovative entrepreneurs with foreign customers. Innovative entrepreneurial firms reporting 1-25% of their customers as foreign represent the proportion of moderate IIE within a country and firms reporting more than 25% foreign customers represent the proportion of substantial IIE.

Classifying a firm's level of international activity based on the percentage of foreign customers is an imperfect measure. First, a firm may only have a single foreign customer but that customer may account for a large percentage of the firm's total sales. Therefore, a more commonly used measure of international exchange activity is a firm's percentage of foreign sales to total sales. However, GEM does not provide that data. As such, this study follows previous GEM researchers such as De Clercq, Hessels, and van Stel (2008), Hessels and van Stel (2009) and Terjesen and Hessels (2009) and classifies firms with over 25% foreign customers as substantially internationally active. A second limitation of using the foreign customer data is the ambiguous nature of the classification. Whereas in the current research, the level of foreign customer engagement is referred to as 'international orientation', in most previous GEM –based research the term 'export orientation' is used (De Clercq et al., 2008; Hessels et al., 2008; Hessels & van Stel, 2009; Terjesen & Hessels, 2009). Exporting refers to the sale of goods or services in countries other than that of the originating firm. Traditionally, indirect exporting is common for new or small ventures taking their first steps towards internationalisation (Jones, 2001). Therefore, the term export orientation is appropriate for research on new ventures. However, because the current research's focus is on established innovative entrepreneurial firms, using the more general term 'international orientation' incorporates alternative means of foreign customer engagement (Jones & Young, 2009).

Data from the 51 countries, which participated at least once in the GEM-APS between the years 2004 and 2006, is used in this study. The decision to base the study on GEM data from 2004, 2005, and 2006 was influenced by three factors. First, the desire to include more recent data was hampered by a desire to include New Zealand data in the thesis research. New Zealand's more recent

participation in the GEM project was 2005. Second, the desire to include as many countries as possible in the data stimulated the decision to include GEM data from 2006 which increased the number of countries by 10. Finally, the decision to pool the GEM data was made to increase the stability to possible year-to-year fluctuations (Kwon & Arenius, 2010). The selection of three years of data for pooling follows exemplars of previous IE research using GEM data.

> *"Pooling the observations from three consecutive years in one dataset allows for controlling of fluctuations in the distribution of entrepreneurial innovativeness across countries and over time" (Koellinger, 2008, p. 27).*

To check the reliability of the measures, year-to-year correlations were calculated. Findings show all pairs are significantly correlated thereby supporting the use of the period 2004-2006. For latent IIE, the year-to-year correlations were $r=.69$ ($p<.01$) between 2004 and 2005 and $r=.61$ ($p<.01$) between 2005 and 2006. For moderate IIE, the year-to-year correlations were $r=.58$ ($p<.01$) between 2004 and 2005 and $r=.39$ ($p<.05$) between 2005 and 2006. For substantial IIE, the year-to-year correlations were $r=.40$ ($p<.05$) between 2004 and 2005 and $r=.68$ ($p<.01$) between 2005 and 2006.

Using GEM data to calculate a country's proportion of IIE is not without limitations. First, according to Reynolds et al. (2005, p. 220),

> *"The GEM procedures are based on using the same survey research methodology to identify those individuals active in the new firm creation and the ownership of existing firms across a wide range of countries. The major disadvantages are the relative small samples and the relatively small amount of information gathered on each business entity, start-up, or operating firm."*

GEM's relatively small sample sizes become even smaller when put through the inclusion criteria set forth in this study and illustrated in Figure 2.3. For example, of the 2,936 person's surveyed in New Zealand during the 2004-2006 period, only 314 (9.4%) met the IIE criteria as being an owner-manager of a new/existing firms with innovative products who answered the overseas customer question.[12] Overall, 6.8% of the 405,146 GEM surveys aggregated

---

[12] The GEM APS was not conducted in New Zealand in 2006. Although GEM targets 2,000 surveys per year, the New Zealand numbers are under the target with 1,933 surveys in 2004 and 1,003 surveys in 2005.

and pooled in this dataset met the IIE criteria (29,507 innovative entrepreneurial firms). Second, measures of innovation are quite subjective and may be biased by entrepreneurial over confidence (Koellinger et al., 2007). As previously discussed, the decision to include only established businesses attempts to compensate for this bias as does the requirement for innovations to be both new to customers and have little competition.

Figure 2.3 Proportion of Innovative International Entrepreneurship
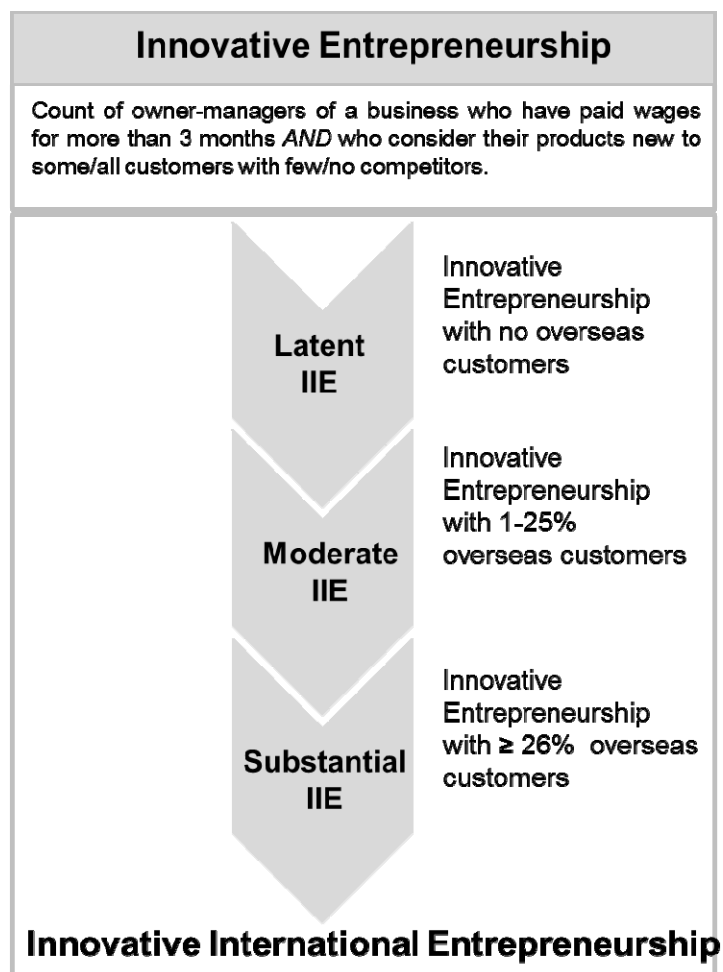
2.5.3 Independent Variables

The research model includes seven independent variables to represent the formal institutional, the informal institutional, and the economic environments in each country. Data for the independent variables come from three sources and are at a minimum average of two years prior to the dependent variables. The time lag of two years between the dependent and independent variables follows

relevant research on institutional influences on entrepreneurial types using GEM data (See Terjesen & Hessels, 2009). Each of the variables is discussed as follows.

2.5.3.1 Formal Institutional Environment

Two variables represent formal institutional forces which are hypothesised to influence the proportion of moderate IIE within a country. The first variable represents formal support for innovation development and commercialisation. The second variable represents formal support for international trade. Endorsement for these variables is found in Acs, Morck, Shaver, and Yeung's (1997) call for government policies which strength property rights or lower entry barriers for international trade as mechanisms to increase international activity by innovative smaller firms and to energise the global economy.

> "Ready access to global markets increases the returns to innovation and therefore the incentive to innovate. Rapid innovation, in turn, leads to further globalisation as firms seek greater economies of scale on which to apply their innovations. This positive feedback spiral is the motive force behind the emerging global economy" (Acs, et al., 1997, p. 17).

Measurement details for variables representing formal institutional support for innovation and for international trade are discussed below. Both variables are based on EWF index data from 2003. Formal institutions change slowly (Bowen & De Clercq, 2008; Salimath & Cullen, 2010; Spencer & Gómez, 2004) and therefore data with an approximate 2 year time lag before the dependent variable was deemed appropriate.

2.5.3.1.1 INNOVATION DEVELOPMENT AND COMMERCIALISATION

Measures of innovation output, such as patent data, do not equate with measures of institutional support or input for innovation development and commercialisation. Extant literature highlights institutional support for property rights in general, such as a fair legal and judicial system, and for intellectual property rights specifically to be important for innovation. However, the relationship between property rights, intellectual property rights (IPRs), and innovation is complex.

"The respect for property rights in general, and for IPRs in particular, can be crucial for the establishment of a well-function market system and can thus be crucial to economic development. The positive effects of IPRs on domestic innovations, therefore, should be viewed as part of broader effects on entrepreneurial activities" (Chen & Puttitanun, 2005, p. 490).

Park (2008) provides further insight into how measures of a country's legal structure and security for property rights may support innovation. In his review of theoretical and empirical literature on the relationship between innovation, IPRs, and international technology transfers, he argues the merits of using statutory-based measures to represent IPR strength at the country level.

"…one should not downplay the importance of statutory provisions. Having laws on the book constitute and explicit obligation on the part of the state to provide certain rights (much like a contract). Though in practice the enforcement of laws may not always be effective, the presence of laws on the books forms the basis for a grievance against another party for seeking redress. Statues and precedent provide guidance for judges and other officials as to how to apply the law" (Park, 2008 p. 305).

Park (2008) finds most studies examining the relationship between R&D (as a measure of innovation inputs) and IPR show statistically significant positive association. The importance of property rights for innovation is further supported by Acs et al., (1997, p. 9) who argue that "Society must protect innovators' property rights to the gains from their innovations". Although there is no universally established measurement variable for institutional support of innovation, the current study considers institutional support of property rights and legal structures as a reasonable proxy for innovation support.

In the current study, the EFW Area 2 index represents formal institutional forces supporting the development and commercialisation of innovation within a country. The 2003 Economic Freedom of the World (EFW) Area 2 index provides a measure of legal structure and security for a country's property rights. The EFW Area 2 index combines five indicators measuring a country's legal structure and security of property rights: judicial independence, impartial courts, protection of intellectual property, level of military interference in rule of law, and the integrity of the legal system (Gwartney, Lawson, & Gartzke, 2005).

Countries with a high score on this index reflect high quality formal institutions, which in the current study are considered to proxy support for the development or commercialisation of innovations.

2.5.3.1.2 INTERNATIONAL TRADE

The EFW Area 4 index measures freedom to trade internationally. The Area 4 index combines five indicators of a country's freedom to trade internationally: taxes on international trade, trade barriers, size of actual vs. expected trade sector, difference of official vs. black-market exchange rate, and control on international capital market. Previous research shows that lower prevalence of trade barriers positively affects the export orientation of new ventures (Terjesen & Hessels, 2009). The Area 4 index measures freedom from restraints affecting trade so that higher scores equate to higher levels of freedom (Gwartney et al., 2005). Countries with a high score on this index reflect support for quality formal institutions directly relevant to an innovation's international commercialisation. In the current research, the EFW Area 4 index represents formal institutional forces supporting international trade.

2.5.3.2 Informal Institutional Environment

The research model includes three informal institutional forces hypothesised to influence the proportion of substantial IIE within a country. These three variables symbolise social globalisation and represent networks at a country-level of analysis. This research uses a ten-year average (1993 - 2003) on each KOF Social Globalisation Index dimension. The decision to average the KOF data over ten years is based on the desire to provide a more conservative measure of this index; one which reflects potential yearly variations in the proxies. Year-to-year correlations were run and found to be significant, supporting this practice. Details on the measurement used for each of these variables follows.

2.5.3.2.1 CONVERGENCE OF GLOBAL DEMAND

A country's informal institutional support for cultural globalisation suggests a cosmopolitan orientation and normative acceptance of converging global

demand (Ritzer & Stillman, 2003). The KOF Social Globalisation Index considers the number of McDonald's restaurants per capita, the number of Ikea shops per capita, and international trade in books as a percentage of GDP to represent a country's level of global cultural proximity (Dreher, 2006). Entrepreneurial firms located in countries with high cultural proximity have greater potential for being exposed to new, foreign products. These firms have a greater opportunity to identify internationally attractive innovations. Countries with high cultural proximity provide normative support for converging global demand and as a result, social approval for innovative entrepreneurial firms to pursue niche-targeting strategies internationally.

2.5.3.2.2 INFORMATION FLOWS

A country's informal institutional support to create global communication networks represents normative acceptance of idea and information exchanges internationally. The KOF Social Globalisation Index considers the number of Internet users per 1,000 people, the number of televisions per 1,000 people, and international trade in newspapers as a percentage of GDP to represent a country's information flow level. As such, the information flow sub-index measures a country's level of infrastructure for providing entrepreneurial opportunities to access and serve international markets but is not a measure of direct interaction between people across borders.

2.5.3.2.3 INTERNATIONAL PERSONAL CONTACTS

A country's informal institutional support for direct interactions with people from other countries represents cosmopolitan orientation and normative acceptance of multiculturalism. KOF considers the level of inward and outward tourism, the immigrant population percentage, the level of international telephone traffic in minutes per person, the international exchange of letters per capita, and international transfers of wages as a percentage of GDP to represent direct interaction between people in different countries. Entrepreneurial firms located in countries with high levels of international personal interaction provide normative support for exposure to and involvement with international networks.

2.5.3.3 Domestic Economic Environment

The level of economic development and the domestic market size may combine to represent domestic economic environmental forces on the proportion of IIE within a country. Previous research on the export orientation of nascent entrepreneurs and new ventures often control for GDP per capita as representative measure of the level of economic development (Hessels & van Stel, 2009; Terjesen & Hessels, 2009) or to represent the country's home market size (De Clercq et al., 2008). The current study extends this research and draws on World Bank data to classify countries into four groups based on the median level of GDP per capita (in constant year 2000 US$) and median level of population (at mid-year 2003). Dummy variables are created to represent the two classifications of interest in this study: small population, high-income countries and large population, high-income countries. The measures of income and population reflect slow changing structural characteristics of an economy (See De Clercq et al. 2008) and therefore data with an approximate two year time lag before the dependent variable should reflect the environment accurately.

2.5.4 Control Variables

Selection of control variables should be based on findings from prior, relevant research. Including control variables in the model should offer alternative explanations for the variation in the dependent variables. To systematically evaluate possible control variables for inclusion in the current research, two cross-national entrepreneurship studies are summarised in Appendix B. In these studies, the dependent variables are the export orientations of nascent entrepreneurs and new ventures (De Clercq et al., 2008; Terjesen & Hessels, 2009).[13] The two studies include 16 different control variables, of which only six show significant relationships with export orientation. GDP per capita shows a positive relationship in Terjesen and Hessels (2009). Conversely, GDP shows a negative relationship to export orientation in De Clercq et al. (2008). Different

---

[13]In both studies export orientation is based on the percentage of foreign customers reported by nascent entrepreneurs or new ventures based on GEM-APS data although the years and countries differ.

results may be due to a missing moderator, use of different samples, or use of different measures for the dependent variables. GDP (in various forms) is a commonly applied control variable in cross-national entrepreneurship research (Bowen & De Clercq, 2008; De Clercq et al., 2010; De Clercq, Lim, & Oh, 2011; Hessels & van Stel, 2009; Stephan & Uhlaner, 2010). For the current study, GDP per capita is a component of domestic economic variables. Therefore, including GDP per capita as an additional control variable would be redundant.

Terjesen and Hessels (2009) show a positive relationship between prevalence of lower trade barriers and substantial export orientation. In the current study, prevalence of lower trade barriers (i.e., freedom to trade) is a component of the freedom to trade index used to measure formal institutional support for international trade. Again, including prevalence of lower trade barriers as an additional control variable would be redundant.

De Clercq et al. 2008 find three additional control variables with significant relationships to export-orientation: inflation rate (-), manufacturing as a percentage of employment (+), and services as a percentage of employment (+). Although these control variables are relevant to De Clercq et al.'s (2008) investigation into the influence of FDI, exports, and imports on export orientation, they are less relevant to the current investigation. A survey of the extant research suggests the two most relevant significant control variables are GDP per capita and prevalence of trade barriers. Both variables are included in the model. Table 2.2 provides a summary of the variables used in this study, including measurement and data source details.

Table 2.2 Summary of Variables

Dependent Variables			
Proportion of Innovative International Entrepreneurship (IIE)		Source	Year(s)
Moderate IIE	Percent of innovative entrepreneurial firms who report 1-25% foreign customers	GEM	2004-2006
Substantial IIE	Percent of innovative entrepreneurial firms who report 26% and over foreign customers	GEM	2004-2006
Independent Variables			
Formal Institutional Environment		Source	Year(s)
Innovation Development & Commercialisation	**Legal Structure & Security of Property Rights** A. Judical independence B. Impartial courts C. Protection of intellectual property D. Military interference E. Integrity of the legal system	EFW	2003
International Trade	**Freedom to Trade Internationally Index** *represents freedom from:* A. Taxes on international trade B. Regulatory trade barriers C. Actual vs.expected size of trade sector D. Official vs. black market exchange rate E. International capital market controls	EFW	2003
Informal Institutional Environment		Source	Year(s)
Convergence of Global Demand	**Social Globalisation Index: Cultural Proximity** A. Number of McDonald's restaurants(per capita) B. Number of Ikea shops (per capita) C. Trade in books (percent of GDP)	KOF	1993-2003
International Flow of Ideas and Information	**Social Globalisation Index: Information Flows** A. Internet users (per 1000 people) B. Television (per 1000 people) C. Trade in newspapers (percent of GDP)	KOF	1993-2003
International Personal Contacts	**Social Globalisation Index: Personal Contact** A. Telephone traffic B. Transfers (in percentage of GDP) C. International tourism D.Percentage foreign population/total population E. International letters (per capita)	KOF	1993-2003
Economic Environment		Source	Year(s)
Domestic Market Conditions	**Level of Economic Development & Market Size** A. Gross Domestic Product Per Capita B. Population	WB	2003

2.6 Results

This study aims to investigate a country's institutional and economic environment influence on innovative international entrepreneurship. It seeks to answer the question: How do variations in domestic market conditions influence the opportunities for innovative entrepreneurial firms to pursue moderate or substantial levels of internationalisation? The 51 countries in the data set fall into four different categories based on median GDP per capita and median population. Table 2.3 presents descriptive statistics for each of the four categories as well as for the total sample. The table includes the model's variables and the proportion of latent IIE. Latent IIE represents innovative entrepreneurial firms without foreign customers and as such is not included in the hypotheses, which are concerned with internationalisation of innovations. However, for the sake of completeness in describing the average proportion of IIE of all types in the sample, statistics for latent IIE are included in Table 2.3.

The descriptive statistics offer two interesting, preliminary observations. First, by combining GDP per capita and population, new insights are gained on the relationships between innovative international entrepreneurship and the institutional environment. For example, small high-income countries tend to have greater engagement with international customers, stronger formal support for innovation commericalisation and international trade, and stronger informal support for the flow of information and international personal contacts relative to large high-income countries. Conversely, large high-income countries tend to have greater moderate levels of international engagement and stronger support for converging demand relative to small high-income countries. If domestic market size was based exclusively on GDP per capita, as is commonly the case (See DeClercq et al., 2008; Hessels & van Stel, 2009), these observations might be missed.

Second, grouping countries by domestic market size or by income level reveals interesting patterns. For example, smaller countries tend to have higher levels of substantial international engagement compared to larger countries irrespective of their income level. This finding supports previous research showing smaller domestic markets relate to higher international orientation

(Bloodgood et al., 1996; Bosma & Levie, 2009; Etemad, 2004). When level of economic development is considered, higher income countries show higher levels of formal support for innovation and international trade and thus confirm previous research proposing higher economic development levels reflect higher quality formal institutions (Kiss & Danis, 2008; Terjesen & Hessels, 2009). Looking at the three informal institutional support variables, the economic development level continues to be influential with wealthier countries showing higher means. However, small low-income countries fall above or close to the mean for two of the three variables representing informal support for global integration. Due to their small size, these countries may have a greater need for cultural-cognitive and normative support for global interconnectedness than the large countries at an equivalent economic development level. The relationships between the variables and the four country groups are illustrated graphically in Appendix C.

Further, to explore these relationships, two sets of ANOVA tests were conducted. The first set of ANOVA runs examines which of the three possible levels of IIE differ from each other across the four groups of countries based on domestic economic environment conditions. An assessment of the assumptions of ANOVA in terms of normality and homogeneity of variance tests showed no major violations (Field, 2009). The first set of ANOVA tests show significant differences in the average proportion of all three types of IIE between at least two of the four groups of countries formed based on domestic market conditions: latent IIE ($F(3,48)=6.73$, $p<.01$); moderate IIE ($F(3,48)=7.80$, $p<.01$); substantial IIE ($F(3,48)=4.35$, $p<.01$). The second set of ANOVA runs indicated whether formal and informal institutions differ across the four groups of countries.[14] The ANOVA tests show significant difference in both the formal and informal institutional measures between at least two of the four groups of countries. Results show significant differences exist for: Innovation Commercialisation ($F(3,48)=32.70$, $p<.01$); International Trade ($F(3,48)=11.68$, $p<.01$); Convergence of Global Demand ($F(3,47)=18.10$, $p<.01$); Information Flows ($F(3,47)=19.06$, $p<.01$); and International Personal Interactions

---

[14] The Levene statistic was not significant for all variables except for Information Flows implying the assumption of homogenous variance was met for all but one of these variables.

(F(3,47)=46.61, p<.01). These preliminary test statistics support the conceptual framework and hypotheses.

Table 2.3 Descriptive Statistics

| | | Proportion IIE | | | Formal Institutions | | Informal Institutions | | |
| | | Latent 0 | Moderate 1<25% | Substantial >25% | Innovation Commercial. | International Trade | Converging Demand | Information Flows | Personal Contacts |
Country Grouping									
Small Low Income	Mean	.37	.37	.21	6.01	7.40	49.22	71.88	62.73
	Standard Deviation	.15	.12	.11	.66	.66	21.56	9.98	11.24
	Minimum	.12	.19	.11	5.00	6.60	30.48	57.43	38.54
	Maximum	.62	.58	.44	6.60	8.30	87.31	83.66	74.15
	Sample size = 9								
Small High Income	Mean	.34	.36	.27	8.34	8.01	76.76	84.12	80.39
	Standard Deviation	.16	.11	.18	1.07	.64	19.66	7.21	7.23
	Minimum	.11	.13	.00	6.00	6.60	42.24	68.22	68.49
	Maximum	.61	.52	.74	9.50	9.30	96.67	91.80	92.04
	Sample size =16								
Large Low Income	Mean	.58	.22	.11	4.67	6.71	39.03	56.41	33.49
	Standard Deviation	.18	.12	.08	1.37	.73	15.37	15.62	14.75
	Minimum	.22	.07	.00	1.40	4.4	9.10	23.11	12.41
	Maximum	.88	.55	.32	7.10	7.4	82.18	79.34	64.91
	Sample size =17								
Large High Income	Mean	.35	.46	.15	7.90	7.68	82.88	81.79	67.85
	Standard Deviation	.16	.16	.07	1.21	.58	15.97	8.29	12.15
	Minimum	.12	.18	.00	5.60	6.70	66.34	66.34	39.73
	Maximum	.58	.74	.24	9.20	8.50	94.60	94.60	79.68
	Sample size =9								
Total Sample	**Mean**	**.43**	**.33**	**.18**	**6.63**	**7.41**	**60.40**	**72.32**	**59.43**
	Standard Deviation	.19	.15	.14	1.96	.84	25.71	16.35	22.65
	Minimum	.11	.07	.00	1.40	4.40	9.10	23.11	12.41
	Maximum	.88	.74	.74	9.50	9.30	96.67	94.59	92.04
	Sample size =51								

Countries grouped by median split of population and GDP per capita based on 2003 World Bank data

IIE = the proportion of innovative international entrepreneurship within a country based on 2004-2006 GEM data

Table 2.4 presents the correlations for the variables. The Pearson correlation coefficients between the dependent variables and the five independent variables representing institutional forces indicate all relationships are in the direction hypothesised, and all are significant except for one. The relationship between formal support for international trade and the proportion of moderate IIE is positive but is not significant, implying it cannot be interpreted further. Point-biserial correlation results between the two dependent variables and the two dummy variables representing domestic economic environments confirm the hypothesised relationships. Small high-income countries show a significant association with substantial IIE whereas large high-income countries show a significant relationship with moderate IIE. The phi correlation results between the two dummy variables simply indicate that the variables explain different

measures. The negative sign is irrelevant and simply a product of coding selection (Field, 2009). The results displayed in Table 2.4 provide additional preliminary support for the conceptual framework and hypotheses regarding the differential influences of formal, informal, and domestic economic environmental forces on a country's proportion of moderate and substantial IIE.

Some correlation coefficients, as seen in Table 2.4, are above 0.5 for the independent variables, suggesting a possibility of multi-collinearity in the multiple regression analyses. According to Hair, Anderson, Tatham and Black (2006, p. 228), "Multi-collinearity creates 'shared' variance between variables, thus decreasing the ability to predict the dependent measure as well as ascertain the relative roles of each independent variable". To test for multi-collinearity, the variance inflation factor (VIF) is calculated for each of the independent variables in the regressions. The highest VIF score is 4.218 which is well below recommended maximum threshold of 10 (Hair et al., 2006). As such, multi-collinearity is not a concern.

Table 2.4 Correlation Matrix

Variables		1	2	3	4	5	6	7	8
1	Moderate IIE								
2	Substantial IIE	.092							
3	Innovation Commercialisation	.474 ***	.327 *						
4	International Trade	.194	.440 ***	.673 ***					
5	Convergence of Global Demand	.420 **	.445 ***	.706 ***	.565 ***				
6	Information Flows	.510 ***	.274 *	.633 ***	.519 ***	.760 ***			
7	International Personal Contacts	.432 **	.554 ***	.736 ***	.616 ***	.709 ***	.801 ***		
8	Small High-Income Countries	.134	.409 **	.595 ***	.484 ***	.434 ***	.493 ***	0.632 ***	
9	Large High-Income Countries	.383 **	-.127	.303 *	.149	.409 **	.271 *	.174	-.313 *

n=51; *p ≤ 0 .05; **p ≤ 0.01; ***p ≤ 0 .001; (2 tailed tests)

Table 2.5 Regression Results

	Moderate IIE			Substantial IIE		
	B	SE B	β	B	SE B	β
Constant	0.240	0.191		0.037	0.151	
Formal Institutional Support						
Innovation Commericalisation	0.034	0.017	.443 *	-0.032	0.013	-.468 *
International Trade	-0.052	0.029	-.294	0.039	0.023	.246
Informal Institutional Support						
Convergence of Global Demand	-0.001	0.001	-.144	0.003	0.001	.497 **
Flow of Ideas & Information	0.004	0.002	.409	-0.005	0.002	-.645 **
International Personal Contacts	0.000	0.002	.063	0.005	0.001	.814 ***
Economic Environment						
Small High-Income Countries	-0.023	0.070	-.069	0.056	0.055	.192
Large High-Income Countries	0.111	0.069	.272	-0.052	0.054	-.141
R^2	.427			.563		
Adjusted R^2	.333			.492		
Observations	51			51		

B: Unstandardised beta value; **SE B**: Standard error; **β**: Standardised beta value
*$p \leq 0.05$; **$p \leq 0.01$; ***$p \leq 0.001$

Multiple regression analysis investigated the influence of countries' institutional and economic environments on their proportion of IIE. Table 2.5 shows the results of the simultaneous ordinary least squares (OLS) regressions. The first set of hypotheses is concerned with the ability of strong formal institution's to influence creation of basic framework conditions facilitating a moderate proportion of IIE. The results show a significant positive relationship between formal institutional support of innovation commercialisation and the proportion of moderate IIE. Therefore hypothesis 1a is supported. Although not hypothesised, the results show a significant negative relationship between formal institutional support for innovation and substantial IIE. Formal support for international trade resulted in no significant relationship to moderate IIE.

The second set of hypotheses is concerned with informal institution's influence in creating global network conditions facilitating a substantial proportion of IIE at the country level. Hypothesis 2a is supported with a strong, positive relationship between forces reflecting the convergence of global demand and the proportion of substantial IIE. Surprisingly, tests results for Hypothesis 2b show a significant negative relationship between the support for

the flow of information and the proportion of substantial IIE. Hypothesis 2c is supported by a strong significant and positive relationship between international personal contacts and the proportion of substantial IIE.

The third set of hypotheses is concerned with the influence of domestic environmental conditions on the proportion of IIE at the country level. Neither hypothesis 3a nor 3b are supported at the 95% confidence level. Support of the study's hypotheses are summarised in Table 2.6.

Table 2.6 Hypotheses Summary

H1a: A country's level of formal institutional support for innovation commercialisation will positively influence its proportion of Moderate Innovative International Entrepreneurship.
Supported

H1b: A country's level of formal institutional support for international trade will positively influence its proportion of Moderate Innovative International Entrepreneurship.
Not Supported

H2a: A country's level of informal institutional support for global linkages increasing cultural convergence will positively influence its proportion of Substantial Innovative International Entrepreneurship.
Supported

H2b: A country's level of informal institutional support for global linkages increasing information flows will positively influence its proportion of Substantial Innovative International Entrepreneurship.
Not Supported

H2c: A country's level of informal institutional support for global linkages increasing international personal contacts will positively influence its proportion of Substantial Innovative International Entrepreneurship.
Supported

H3a: A country's level of environmental characteristics merging high-income levels and small domestic market will positively influence the proportion of Substantial Innovative International Entrepreneurship.
Not Supported

H3b: A country's level of environmental characteristics merging high-income levels and large domestic market will positively influence its proportion of Moderate Innovative International Entrepreneurship.
Not Supported

2.7 Discussion

Does a country's institutional and economic environment influence the international orientation of innovative entrepreneurial firms? This study merges findings from the two predominant streams of international entrepreneurship research to partly answer this question in order to address the knowledge gap found at 'the crux' (Jones et al., 2011) of these streams of research. The focus on innovation is critical. Findings from the cross-border stream of international entrepreneurship research highlight that innovation plays a catalytic role in stimulating international commercialisation opportunities (Bloodgood et al., 1996; Chetty & Campbell-Hunt, 2003; Knight & Cavusgil, 2004; McDougall et al., 2003). Findings from the cross-national stream of international entrepreneurship research highlight that a country's unique combination of institutional and economic environment plays a pivotal role fostering innovative entrepreneurship (Baumol, 1990; Baumol et al., 2007; Hessels et al., 2008; Shane, 1992). By focusing on established innovative entrepreneurial firms' tangible activities, rather than the aspirations of nascent entrepreneurs or newly formed ventures, the current research uniquely contributes to the field of international entrepreneurship by broadening the scope of study. The research investigates three contextual factors influencing the extent of internationalisation of innovative entrepreneurial firms: formal institutions supporting innovation and international trade; informal institutions supporting global networks; and domestic economic conditions.

2.7.1 Formal Institutional Environment

The two hypotheses dealing with formal institutions predict that high-quality formal institutions create basic framework conditions allowing innovative entrepreneurial firms to engage at moderate levels with foreign customers. Intellectual property rights protection is a basic condition required for the allocation of entrepreneurial efforts towards innovative international entrepreneurship (IIE). Quality institutional support to develop and commercialise innovations provides security for property rights with a fair and impartial judicial system (Gwartney et al., 2005). A positive relationship is found between institutional support for innovation and the proportion of moderate of

IIE. Although not hypothesised, an interesting finding from the current study is the significantly negative relationship between institutional support for innovation and the proportion of substantial IIE. Stronger support for intellectual property protection appears to reduce innovative entrepreneurial firms' contact with foreign customers. This finding lends support to Stephan and Uhlaner's (2010) proposal that efficient formal institutions create higher entrepreneurial opportunities, but they also create a more hostile and competitive environment for resource-constrained entrepreneurial firms. De Clercq et al. (2010) concur and propose efficient regulatory environments increase domestic and international competition, resulting in fewer new ventures. Although beneficial at a base level, excessive support for intellectual property protection may create competitive burdens for allocating substantial entrepreneurial efforts towards high-growth activities.

Freedom to trade internationally affects IIE. Quality institutional support for international trade reflects freedom from taxes, trade barriers, and other hidden constraints (e.g., black market exchange rates) (Gwartney et al., 2005). Contrary to expectations, a non-significant relationship exists between institutional support to trade internationally and IIE. Gwaretney et al. (2005) argue international exchange permeates modern globalised society. Most goods and services are either fully or partially produced abroad thus making support for free trade crucial. However, McMullen et al. (2008) also fail to find a significant relationship between freedom to trade internationally and opportunity-motivated entrepreneurship. Findings from the cross-border stream of international entrepreneurship provide insight into these unexpected results. Arbaugh et al., (2008) conclude perceived lack of international knowledge, cultural differences, and increased risk significantly hinder international expansion by innovative and entrepreneurial firms. Although formal institutional support is a key foundational ingredient for exchange to occur, this thesis finds that informal institutional support has a greater impact on international entrepreneurial efforts.

2.7.2 Informal Institutional Environment

The three hypotheses about informal institutions predict that higher levels of informal institutional support for social globalisation and will result in higher proportions of substantial IIE. Social globalisation represents the ability to develop international networks at a country level of analysis. Global networks are developed through cultural-cognitive and normative support for increased cultural proximity and thus the acceptance of converging global demand. In addition, informal support allowing opportunities to interact with people from other countries stimulates awareness and interest in international market opportunities.

Findings show a positive and significant relationship between converging global demand proximity and substantial IIE. These findings suggest that increasing cultural proximity reduces resistance to foreign ideas and products and therefore increases normative support for converging global demand. Through converging global demand, globally dispersed niche markets emerge. Prior cross-border international entrepreneurship research show that firms who successfully target globally dispersed niche market segments develop capabilities to achieve rapid and intensive internationalisation (Chetty & Campbell-Hunt, 2003; Madsen, Rasmussen, & Servais, 2000). A niche firm's international success depends on the ability to create specialised innovative products and to develop strong inter-firm relationships (Toften & Hammervoll, 2009). Therefore, greater normative support for cultural proximity and converging global demand provides opportunities for entrepreneurial firms to develop innovations targeting international niche markets. These conditions help achieve substantial internationalisation.

Contrary to expectations, informal institutional support of infrastructure for the exchange of information and ideas internationally does not result in a higher proportion of substantial IIE. The evidence suggests an opposite relationship may exist. Higher informal support of infrastructure for the exchange of ideas and information relates to a significantly negative relationship with the proportion of substantial IIE within a country. On the surface, this finding seems counterintuitive. Why would information technology advances fail to increase

internationalisation by innovative entrepreneurial firms? Digging deeper, insights emerge providing an explanation for the unexpected results. This study's information flow measure only examines the 'potential'[15] to exchange ideas and information. Therefore, this is more accurately a measure of infrastructure (Dreher, Gaston, & Marten, 2008). Perhaps countries with infrastructural conditions offering better Internet access, substantial trade in newspapers, and higher television ownership density creates sufficient conditions to initiate international activities. These conditions may also increase competitive pressures causing a negative relationship for more substantial engagement. As access to international knowledge increases, the firm-specific value of these resources may decrease (Barney, 1991). Manolova et al. (2002) unexpectedly find US exporters and non-exporters have equivalent international orientations. In today's interconnected world, all firms have instant access and awareness of international market information irrespective of their involvement. According to Etemad (2003, p. 223), "The drivers of globalisation are removing the barriers which segmented the competitive environment of small and large firms" forcing firms to be globally competitive, even if their operations are solely domestic. Research findings also complement Stephan and Uhlaner's (2010) observation that increasingly efficient institutional framework conditions improve a company's competitive environment, to the detriment of new entrepreneurial firms. In summary, infrastructural environments that increase access to international ideas and information are basic framework conditions for international activities, but they are not sufficient to facilitate substantial engagement.

A positive relationship between a country's informal institutional support for international personal contacts and proportion of substantial IIE provides macro-level confirmation of internationalisation network's importance. Countries providing greater opportunities for direct international personal contacts have proportionally more innovative entrepreneurial firms with substantial numbers of foreign customers. These results complement previous cross-national international entrepreneurship research showing that exposure to role models

---

[15] In the KOF Social Globalisation Index, information flows measure the potential flow of ideas and images whereas personal contact data captures measurable interactions among people from different countries.

results in more new ventures (De Clercq et al., 2011; Kwon & Arenius, 2010) as well as higher levels of internationally oriented entrepreneurship (De Clercq et al., 2008). The findings also complement research supporting the importance of networks and social capital for allocation of entrepreneurial efforts towards innovative entrepreneurship (Dakhli & De Clercq, 2004).

2.7.3 Domestic Economic Environment

The last two hypotheses predict the influence of domestic environmental conditions (economic development level and market size) on the proportion of IIE. These hypothesis build on previous international entrepreneurship research which shows substantial export orientation linked to new ventures from high-income countries (De Clercq, et al., 2008) and research which shows low international orientation linked to countries with large domestic markets (Bosma & Levie, 2009).

In the current study, high-income countries with small domestic markets should have proportionately more substantial IIE whereas those with large domestic markets are predicted to create conditions conducive to moderate IIE. Point-biserial correlations support these predictions as seen in Table 2.4. Small high-income countries show significant and positive correlation with the extent of substantial IIE. Large high-income countries show significant and positive correlation with moderate IIE. Nevertheless, the significance of these relationships disappears when the other variables in the model are included. In this study, only the direct effect of domestic economic environment on IIE is considered. However, this effect may be moderated by other variables which would indicate under what conditions the domestic environment will have an impact. One possibility is an interaction effect with the level of international personal contacts. For entrepreneurial firms possessing innovative products, a greater ability to develop networks through international personal contacts may moderate the relationship between economic conditions and the proportion of IIE in two ways. For small high-income countries, high levels of international personal contacts may increase the entrepreneurial firm's effectiveness as they 'push' to seek foreign markets capable of absorbing innovative offerings. For large high-income countries, higher levels of international personal contacts

may increase the opportunity to 'pull' innovative entrepreneurial firms into international engagements. Preliminary ANOVA analyses using contrasts shows support for this proposition and provides input for future research hypotheses.

2.8 Limitations and Future Research Opportunities

The current research provides important insights into how contextual factors influence innovative entrepreneurial firm's international orientation. As with all studies, these findings have limitations and offer opportunities for future research.

First, this study's international orientation measures are based on the extent to which a firm's customers are foreign. Proportionately more foreign customers represent a higher international orientation level. While this measure's use is common in cross-national international entrepreneurship studies (Bosma & Levie, 2009; De Clercq et al., 2008; Hessels & van Stel, 2009; Terjesen & Hessels, 2009), international orientation is arguably not a one-dimensional, market-seeking phenomenon. Future research could investigate additional aspects of international orientation in aggregate at the country level. For example, research into geographic, institutional, or psychic distance between the innovative entrepreneurial firms in a country and foreign customers served, might provide insights into the proportion of IIE.

Second, the study examines only two aspects of a country's formal institutional environment potentially influencing the proportion of IIE. Does support for innovation development and commercialisation adequately explain why international trade occurs? Future research could explore other formal institutional aspects related to developing and commercialising new-to-the-world innovations. Possible directions include levels of business enterprise research and development funding or levels of higher education. Future research also could examine other formal institutional support for international trade, such as government sponsored trade organisations.

A third study limitation is that industry effects are not included. The extant research shows country-specific factors influence the types of industries that emerge and thrive (Porter, 1990). Industry-specific factors likely influence international trade (Fernhaber et al., 2007; Leonidou et al., 2007; Madsen & Servais, 1997). Future investigations into the prevalence of different industries within a country will advance understanding of contextual factors influencing IIE.

A final limitation is the short time period and static nature of the data set. Institutions and entrepreneurship types are dynamic and co-evolve (Carney et al., 2009). Future research examining the change levels between variables is warranted. In addition, greater availability of longitudinal data will allow for a better understanding of how international entrepreneurship differs across countries over time.

2.9 Implications

Despite the aforementioned limitations, this study's findings make several theoretical and practical contributions. First, by incorporating findings from both international entrepreneurship research streams, this study is the first to investigate the international activities of established innovative entrepreneurial firms rather than the as yet unrealised aspirations of nascent entrepreneurs and new ventures. This approach overcomes the issue of overconfidence commonly associated with entrepreneurial the inclusion or study of entrepreneurial aspirations.

Second, this study extends previous cross-national entrepreneurship research by incorporating institutional and economic influences on the type of entrepreneurship. Findings concur with previous research that shows efficient formal institutions assist innovative entrepreneurship only to a certain level. At some point, formal institutions help create highly competitive environments and their role becomes less important. Informal institutions in the form of networks help move these high-growth firms to the next level. These results show that the value of interpersonal networks is relevant in developed as well as emerging economies.

For policy-makers, the findings show that institutions influence the proportion of innovative international entrepreneurship. Moreover, the results indicate that formal institutions alone may not be sufficient to stimulate a strong international orientation for innovative entrepreneurial firms. Rather, informal institutional forces push these firms to the next level of international engagement. Exposure to foreign products and interaction with foreigners increases diversity of knowledge, thus helping entrepreneurial firms develop innovative internationally appealing products. This supports the prior claim of creating a socially supportive culture as necessary for greater levels of quality entrepreneurship within a country (Stephan & Uhlaner, 2010). Supporting social globalisation by increasing cultural proximity and interpersonal contacts may open doors for innovative entrepreneurial firms to increase the extent of their international activities. Therefore, policy-makers wishing to influence a greater involvement in international markets may consider media use and other activities which promote the benefits of globalisation rather than treating it as a threat to the security of domestic entrepreneurs.

2.10 Conclusions

Positioned at the nexus of the two predominant international entrepreneurship research streams, the current study extends knowledge of the contextual factors influencing the extent of entrepreneurial firms' internationalisation in three ways.

First, the study examines a country's formal institutional environment for innovative international entrepreneurship. Findings show that formal institutional support to develop and commercialise innovations, as measured by security for property rights with a fair and impartial judicial system, positively influences initial engagement with foreign customers. However, the same institutions show a significantly negative relationship with more substantial levels of IIE. This study's findings support extant research proposing that efficient formal institutions create higher entrepreneurial opportunities, but they also create a more hostile and competitive environment for resource-constrained entrepreneurial firms (De Clercq et al., 2010; Stephan & Uhlaner, 2010).

Second, the study examines a country's informal institutional environment for innovative international entrepreneurship. This study's findings contribute to IE research by providing macro-level confirmation of network influences on the internationalisation of innovative entrepreneurial firms. Greater normative support for converging global demand provides opportunities for entrepreneurial firms to develop innovations targeting international niche markets. Global networks effective for achieving this objective may develop through informal institutional support allowing greater opportunities for international personal contacts. Through exposure to and involvement in international networks, innovative entrepreneurial firms gain international knowledge and develop awareness of international opportunities to commercialise innovations. Converging global demand and international personal contacts represent social globalisation and serve as a useful measure of networks at a country level of analysis. The greater the level of social globalisation in a country, the greater the opportunity for innovative domestic firm's to develop diverse network relationships facilitating internationalisation.

Finally, this study examines the domestic economic environment for innovative international entrepreneurship by evaluating the joint effects of level of economic development and domestic market size. Cross-border international entrepreneurship research consistently finds domestic market conditions influence the proactive international orientation of entrepreneurial firms. Firms from small high-income countries tend to aggressively seek international markets due to limited domestic opportunities. Correlations tested in this research support predictions that small high-income countries have higher levels of substantial international engagement by innovative entrepreneurial firms although the relationship disappear when the other variables in the regression model are included. Preliminary investigations into the moderating effect of high levels of international personal contacts show promising results.

In summary, the overarching aim of this research was to explore how country-level factors influence innovative entrepreneurial firm internationalisation. Based on the findings from this study, country-level network measures, which expose entrepreneurs to international products and people,

significantly influence the proportion of innovative entrepreneurial firms with substantial levels of international engagement. This study extends previous research in the field of international entrepreneurship by using a new measure of networks at a country level of analysis. Prior research at the firm level has shown developing and leveraging networks to be key competencies necessary for innovation development and for internationalisation. Therefore, this study supports cross-border international entrepreneurship research which finds a global mindset, represented as greater international experience gained through work and education, increases engagement in international activities (Manolova et al., 2002; McDougall et al., 1994). This study also extends cross-national international entrepreneurship research on how institutional environment influences the type of entrepreneurship that develops (Baumol, 1990; Baumol et al., 2007; Bowen & De Clercq, 2008; Stephan and Uhlaner, 2010). It demonstrates how a country's cosmopolitan orientation creates opportunities to interact with people and products from other countries and how these direct interactions facilitate a greater extent of innovative international entrepreneurship.

Chapter 3

SME Networks for Internationalisation:
A Systematic Review from the Software Industry

3.1 Chapter Overview

This chapter presents research exploring the relationship between networks and internationalisation of multiple firms operating within a single industry. The study investigates internationalisation activities of small and medium-sized enterprises (SMEs) within the globally integrated software industry to identify potential patterns of network influences on internationalisation strategies. In doing so, the study addresses a knowledge gap in international entrepreneurship (IE) research on how industry influences affect SME network development for internationalisation. This study moves the thesis' multilevel analysis of network relationships in SME internationalisation down a tier from a country level to an industry level perspective as illustrated by the highlighted section in Figure 3.1.

Figure 3.1 The Industry Focus

The Industry Focus
of the Multilevel Analysis

Cross-Country
GEM Study

The Software
Industry

Software
SMEs
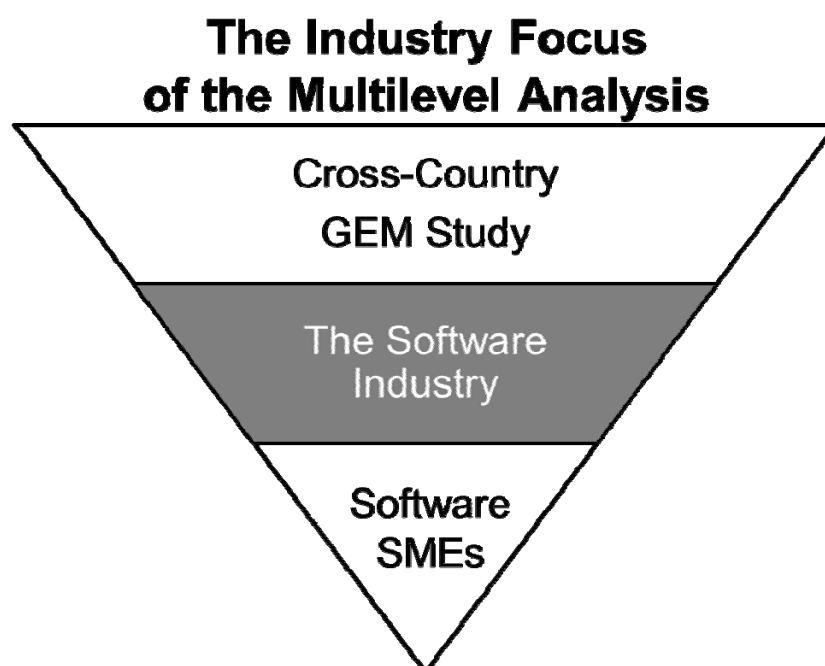
This study builds on findings from Chapter 2's global focus study whilst addressing one of the limitations. A significant finding in the global focus study is that country-level measures of networks results in higher proportions of substantial internationalisation by innovative entrepreneurial firms. As such, the research extends knowledge on external environmental conditions influencing network development for internationalisation. However, the global focus study does not consider industry-specific factors which influence the necessity for firms to trade internationally (Fernhaber, et al., 2007; Leonidou, et al. 2007; Madsen & Servais, 1997). Therefore, by adopting an industry focus, this study explores additional external environmental conditions influencing the relationship between networks and internationalisation.

The objective of this study is to synthesise global evidence on network roles in internationalisation processes of SMEs within a specific industry. To achieve this objective, the study presents a systematic literature review of 32 empirical articles representing SMEs from 11 countries, who participate in the global software industry. Findings show network relationships are prominently discussed in this internationalisation literature. This study identifies similar patterns of network influences on foreign market strategies of software SMEs including market selection and entry mode decisions. In addition, three characteristics of the software industry encourage the development of networks for internationalisation. First, the software industry has a high level of technology-, knowledge-, and service-intensity. Also highlighted are product, industry, and market-related differences which affect motivations for network development by internationalising SMEs.

Earlier versions of this study were presented at the 2009 International Business doctoral colloquium in Vaasa, Finland and the 2010 Academy of International Business conference in Rio de Janerio, Brazil.

3.2 Study Background

The importance of network influences on SME internationalisation is emerging as one of the theoretical cornerstones in the field of international entrepreneurship (IE) research (Jones et al., 2011; Oviatt & McDougall, 2005; Rialp et al., 2005). Networks extend the knowledge base of entrepreneurial firms, allowing them to identify opportunities and providing avenues to overcome obstacles (Hoang & Antoncic, 2003; Ucbasaran et al., 2001). Through their interaction with other firms, relational competencies develop. Lorenzoni and Lipparini (1999) argue that relational competencies are firm-level resources which facilitate internal and external knowledge integration. Extant IE research find SMEs develop and utilise their networks to compensate for scarce resources, to develop innovative offerings, and to serve as a catalyst for rapid internationalisation (Coviello & Munro, 1997; Johanson & Mattsson, 1988; Oviatt & McDougall, 2005). IE network research continues growing, as does the understanding of how networks influence internationalisation (Jones et al., 2011; Melén et al., 2011).

To date limited knowledge exists on how external conditions influence the relationship between networks and internationalisation (Melén et al., 2011). In their business network theory of internationalisation, Johanson and Vahlne (2009, p. 1415) emphatically link international expansion to business networks, arguing firms without relevant network relationships suffer a "liability of outsidership". However, an industry's distinctive structure may encourage firms to engage in international activities earlier and with more intensity (Fernhaber et al., 2007), escalating the need to develop networks. Madsen and Servais (1997) propose that an industry's idiosyncrasies, as well as its technological-intensity, influence the market internationalisation level. Highly competitive, technology-intensive industries require firms to develop strategic networks to avoid the 'liability of unconnectedness' (Powell, 1990). No one firm has access to all aspects of the rapidly changing technology. Therefore, the drive to develop networks may be amplified for firms following specialised niche strategies in globally integrated, technology-intensive industries. An abundance of IE

research coming from knowledge-intensive industries supports this proposition (Rialp et al., 2005).

The preceding evidence suggests both SME internationalisation and industry-based forces impact network development. According to Porter's (1980) industry-based view theory (IBV), a firm's industry crucially influences its strategic decisions. IBV focuses on the industry-level origins of competitive advantage. IBV argues that firms operating in the same industry face similar environmental pressures. These pressures influence strategic decision-making. Based on the theoretical logic of IBV, an underlying premise of this study is that the industry's idiosyncratic environment has the potential to influence a firm's internationalisation decisions as well as their decisions to develop and leverage networks.

However, several questions remain unanswered. Do firms operating in the same industry demonstrate similar patterns of network influences on their internationalisation process? Do these patterns reflect industry idiosyncrasies? How important is the industry environment in driving SMEs to form internationalisation networks? A two-step research process is needed to addresses this knowledge gap. First, research that explores the role of networks in SME internationalisation within a single industry will allow for observation of potential patterns. Second, research that compares single-industry findings will allow for generalisations between industry characteristics and network patterns. The current study addresses step one in this process.

Do firms operating in a single industry demonstrate similar patterns of network influences on internationalisation? Two challenges, both related to data collection, emerge in addressing this research question. First, because the topic of interest is internationalisation networks, firm-level data originating from a highly international industry are desirable. Second, because country-level factors influence industry development and growth (Porter, 1990), ideally data should represent firms from multiple countries. To address these challenges, a systematic review and assessment of firm-level empirical research provides a reasonable proxy. Whereas primary research is able to capture greater contextual detail, "...research synthesis advances knowledge in a field by

identifying transcendental features and patterns across a number of studies" (Suri & Clarke, 2009, p. 406). Therefore, the objective of the current study is to synthesise global evidence on network roles in SME internationalisation of firms within a single, internationally intensive industry, in order better understand environmental factors influencing the relationship between networks and internationalisation.

This study's originality lies in using a single industry lens to consolidate literature for review and analysis. In doing so, Porter's (1980) IBV theory guides the methodological design. According to Porter (1980, p. 3), "The essence of formulating a competitive strategy is relating a company to its environment ... the key aspects of a firm's environment is the industry or industries in which it competes". Consolidating empirical findings within a single industry allows researchers the opportunity to observe patterns (See Hoang & Antoncic, 2003). The results answer Coviello and McAuley's (1999) call for SME researchers to pool together industry-specific findings for a more holistic and synergistic understanding of the internationalisation process.

However, the single industry focus of this research is not without disadvantages. First, although the single industry focus allows for targeted observation of potential patterns in the relationship between networks and SME internationalisation, it does not allow for an understanding of how industry forces cause these patterns or which industry forces are most relevant in the process. Only by comparing similar industry-specific reviews can these factors be analysed. Second, like any synthesis of published empirical research, observations and interpretations are dependent on and limited to information provided in the primary studies. Therefore, although this research strives to capture information on firm activities from a single industry, the ability to interpret the industry's importance on network patterns in internationalisation is dependent on the primary researcher's discussion. However, the current research's narrow focus is a useful first step towards understanding how the external environment, in particular the industry within which a firm operates, drives network development.

The current research builds on and extends previous IE literature reviews. Networks often feature prominently in these reviews, as does an abundant research about knowledge-intensive industries (Coviello & Jones, 2004; Coviello & McAuley, 1999; Rialp et al., 2005). Jones et al. (2011, p. 15) review twenty years of IE research and find networks feature strongly in each of the three research streams. These authors query how industry context influences network practices in cross-country comparisons, a question echoed by Melén et al. (2011). The current study addresses this gap in the IE literature by reviewing network practices of internationally dispersed SMEs who operate within a single, globally integrated industry setting.

Which industry should be selected for the review and why? Case study research recommendations guide the industry selection process. Eisenhardt (1989) and Pettigrew (1990) recommend selecting cases where the phenomena is "transparently observable". As this study's aim is to increase understanding on the relationship between networks and internationalisation, an extension of "transparently observable" logic suggests the industry selected should encourage network development and be commonly featured in IE research (e.g., the software industry).

This study follows an inductive approach to address the central research question: Do firms operating in a single industry demonstrate similar patterns of network influences on their internationalisation? According to Bryman and Bell (2011, p. 13), "... the process of induction involves drawing generalisable inferences out of observations". As illustrated in Figure 3.2, three supporting questions direct the literature synthesis and inform the central research question. First, how is the phenomenon of SME internationalisation in this industry being studied? Second, how prominently do networks feature in this research? Third, what is the current state of knowledge concerning the relationship between networks and SME internationalisation in this industry?

Figure 3.2 Research Questions

Central Research Question:

Do firms operating in the same industry demonstrate similar patterns of network influences on their internationalisation?

Supporting Research Questions:

SME Internationalisation

Networks

?

Relationships

Software Industry

1) How is the phenomenon of SME internationalisation in the industry being studied?

2) How prominently do networks feature in this research?

3) What is the current state of knowledge?
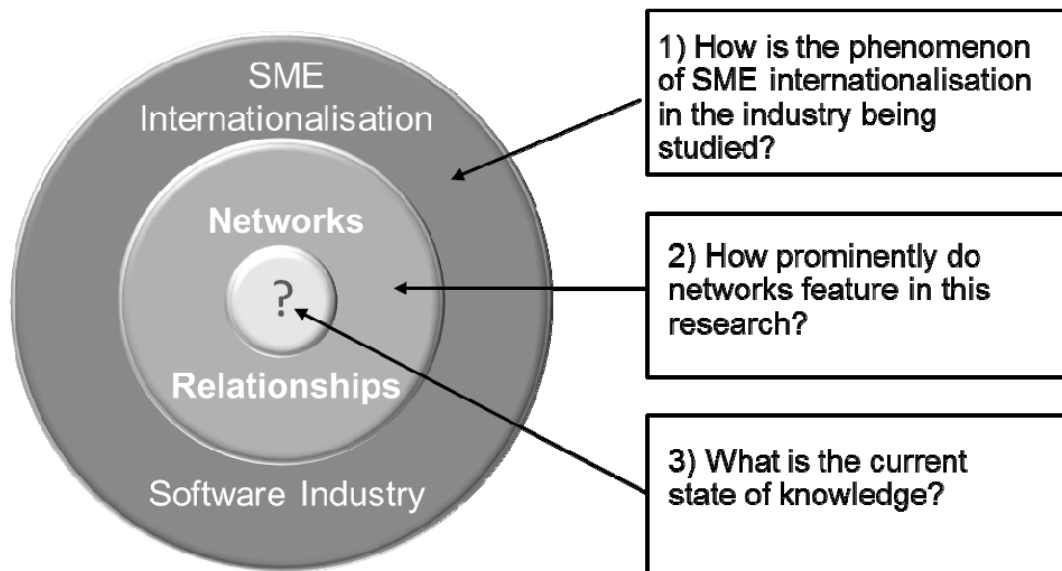
Section 3.3 provides the theoretical background for this study. This section also discusses the software industry's relevance as the target industry under review. Section 3.4 describes methodological protocol and parameters followed in this qualitative systematic literature review. Section 3.5 describes the review findings and highlights accumulated knowledge on network relationships for internationalisation. The discussion appears in Section 3.6 and Section 3.7 acknowledges the study's limitations whilst proposing future research opportunities. Section 3.8 presents the implications from the study and Section 3.9 draws conclusions.

3.3 Theoretical Framework

3.3.1 Networks, Internationalisation, and Knowledge-Intensive Industries

Knowledge-intensive SME studies often cite the importance of networks in their internationalisation process, particularly studies about born-global or international new ventures (INVs) (Dimitratos & Plakoyiannaki, 2003). Oviatt and McDougall (1994, p. 49) define an INV as a "business organisation that,

from inception, seeks to derive significant competitive advantage from the use of resources and the sale of outputs in multiple countries". Although networks are important to all SMEs, a distinguishing characteristic of INVs, is their extensive use of networks as "alternative governance structures" (Oviatt & McDougall, 1994, p. 54). INVs appear in industries where international competition for 'unique knowledge' is paramount. INVs use network governance structures to strategically build and protect competitive advantages derived from their unique knowledge (Oviatt & McDougall, 1994). Network relationships, market knowledge, and product knowledge serve as moderating forces affecting entrepreneurial firms' internationalisation speed. (See Oviatt & McDougall, 2005). Since Oviatt and McDougall's seminal 1994 article, the abundance of INV research has led to the emergence of IE as a distinct field of study (Autio, 2005). However, IE research encompasses more than INV research. Oviatt and McDougall (2005) define international entrepreneurship as "the discovery, enactment, evaluation, and exploitation of opportunities-across national borders-to create future goods and services". Therefore, the current study targets research on the process of internationalisation by SMEs in the knowledge-intensive software industry, whether or not they are classified as an INV.

Previous IE literature reviews support the influence of networks on the internationalisation process and highlight an abundance of research coming out of knowledge-intensive industries. Coviello and McAuley (1999) find 63% of the studies in their review referenced network theories either independently or in conjunction with other theories of internationalisation. A quarter of the studies feature firms from the knowledge-intensive information technology (IT) industry. Coviello and Jones (2004) report 55% of studies in their review feature high-technology firms. Half of the empirical studies in the literature review by Rialp, Rialp, and Knight (2005) are from high-technology industries. Their findings identify the growing significance of global networks and niche markets as influential in prompting INV emergence. Aspelund, Madsen, and Moen's (2007) review find support linking the top management team's (TMT's) personal networks to market selection and entry mode decisions. All of these reviews advance cumulative knowledge of the complex phenomena of SME

90

internationalisation. Each review highlights a possible association between networks, internationalisation, and SMEs in knowledge-intensive industries. However, each of the previous studies takes a cross-sectional approach to review the literature. As such, only a partial picture emerges regarding possible industry influences on network decisions and internationalisation of knowledge-intensive SMEs. This study builds on and extends previous IE literature.

3.3.2 Industry Influence on Networks

In dynamic, highly competitive industries, technological change is rapid; te exchange of knowledge-intensive assets is vital; and innovation is constant. Strategic management research finds that firms operating in these turbulent environments strategically develop networks to reduce their vulnerability and increase their survival rates (Eisenhardt & Schoonhoven, 1996; Pittaway et al., 2004).

Powell's (1990) seminal work identifies the emergence and growth of network forms of organisational structure with industries where the exchange of tacit knowledge, intense technological competition, and trust (as a governance mechanism) are vital. Networks develop in technology-intensive industries as a firm strategy to: 1) gain access to new technologies or new markets; 2) benefit from joint R&D or production economies of scale; 3) source intangible knowledge beyond the boundaries of the firm; and 4) share risks of high development costs and increasingly short product life cycles (Powell, 1990, p. 315). Powell, Koput, and Smith-Doerr (1996, p. 117) argue innovation's locus links to industry dynamics and network formation:

> *"When there is a regime of rapid technological development, research breakthroughs are so broadly distributed that no single firm has all the internal capabilities necessary for success ... Thus, new technologies are both a stimulus to and the focus of a variety of cooperative efforts that seek to reduce the inherent uncertainties associated with novel products or markets".*

Eisenhardt and Schoonhoven (1996, p. 136) agree, "… alliances form when firms are in vulnerable strategic positions either because they are competing in emergent or highly competitive industries or because they are attempting pioneering technical strategies". As such, the firm's internal needs to remain

competitive may push SMEs into creating networks. In this dynamic environment, firms cultivate networks of learning to avoid the "liability of unconnectedness" (Powell et al., 1996, p. 143).

3.3.3 Industry Influence on Internationalisation

International business research finds that the firm's industrial context influences the frequency, intensity, and importance of both motivations (Leonidou et al., 2007) and barriers (Leonidou, 2004) for SME exporting. Growth-stage industries provide new opportunities to satisfy global demand and serve as potential resources for SMEs (Andersson, 2004; Fernhaber et al., 2007). Oligopolistic industries encourage product differentiation and niche-oriented strategies by SMEs and facilitate inter-organisational cooperation (Fernhaber et al., 2007; McDougall et al., 2003; Rosenkopf & Schilling, 2007). Service-intensive industries may require SMEs to locate in foreign markets to efficiently serve customers (Kennedy, 2004; Lommelen & Matthyssens, 2004; Patterson & Cicic, 1995). Knowledge-intensive industries that are globally integrated often demand international presence by SMEs to capitalise on technological innovations and to maintain their competitive advantage (Bloodgood et al., 1996; Fernhaber et al., 2007; Zahra et al., 2000). As such, the industry's external forces often pull the SME into the international arena, influencing the firm's product strategy as well as their pattern and pace of internationalisation (Etemad, 2004b).

In summary, the dynamic, turbulent, and uncharted nature of business operations in knowledge-intensive industries acts as a catalyst for SMEs to create networks, expand into international markets, and utilise their networks as a means to facilitate this process.

3.3.4 Software Industry Relevance

Three characteristics make the software industry a relevant knowledge-intensive industry to choose for the literature review. First, software SMEs operate in a globally integrated rather than a multi-domestic industry (Reuber & Fischer, 2002). This classification is based on internationalisation patterns influenced by technological intensity, market barriers, international

requirements, and the competitive environment (Kobrin, 1991). Therefore, opportunities for software industry SMEs may be "unavoidably international and global in nature" (Shrader et al., 2000, p. 1234). A better understanding of how networks influence this process is relevant to IE researchers and software SMEs alike.

Second, the software industry is both technology- and service-intensive. Software firms produce high technology, 'hard services'.

> *"Hard services are those that are more tangible, and standardised and less customised. Standardisation is helpful in producing economies of scale and allows the separation of service consumption from its production. These services are internationally tradable. The producers of hard services possess a wider choice in foreign market entry. They can export, engage in foreign investment, or enter into contract arrangements" (Majkgård & Sharma, 1998, p. 15).*

Because software offerings can be seen as both products and services, empirical studies often feature software SMEs internationalising with firms offering technology-intensive products (e.g., biotechnology, electronics, or medical equipment) or firms offering service-intensive products (e.g., financial, engineering, or architectural services). Appendix D provides a collection of such articles. Although not part of this review, these studies show the propensity of software SMEs to internationalise.

Finally, the software industry is relevant because SMEs are the prevailing form of business operating in this industry worldwide (OECD, 2008b). Low-entry barriers and global niche market appeal make software an attractive industry for entrepreneurial ventures (OECD, 2007b). As such, policy makers often target the software industry for economic growth objectives (OECD, 2008a).

In summary, the software industry is a knowledge-intensive, globally integrated environment in which many SMEs operate. Consolidating, synthesizing, and sharing contemporary insights on how networks influence the internationalisation process of software SMEs is relevant and timely.

3.4 Methodology

The current research follows systematic review processes supporting qualitative syntheses of methodologically diverse studies (See Suri & Clarke, 2009). In general, methods for systematic reviews differ from narrative reviews by providing a transparent account of the inclusion criteria, selection process, and analysis. The systematic review emphasis on process attempts to minimise bias and facilitate replication (Bryman & Bell, 2011; Tranfield, Denyer, & Smart, 2003). To provide a clear audit trail, systematic reviews emphasise a priori protocols, comprehensive searches, quality measures, and stakeholder involvement (Suri & Clarke, 2009; Tranfield et al., 2003).

All systematic reviews aim to provide collective insights through theoretical synthesis (Tranfield et al., 2003). However, the method used in the synthesis depends on the type of studies under review. According to Bryman and Bell (2011) synthesis of quantitative studies (referred to as a meta-analysis) involves various analytical tests whereas interpretive techniques are preferred when reviewing qualitative studies (referred to as meta-ethnography). Suri and Clarke (2009, p. 402) argue that if the review includes both quantitative and qualitative studies, only qualitative interpretative approaches are appropriate for data synthesis since "...including qualitative studies in a quantitative synthesis is impractical owning to their lack of common metric". When making decisions regarding relevant studies for inclusion in a review and, as a result, the methodological approach for synthesis, Suri and Clarke (2009) advocate an "informed subjectively and reflexivity" approach. These authors argue,

> *"Every research synthesis method, such as meta-analysis or meta-ethnography, has its domain of applicability. No single method is superior to the rest for addressing all types of synthesis questions. Synthesists must make methodological choices that are coherently aligned with their synthesis purpose" (Suri & Clarke, 2009, p. 408).*

Inclusion of both quantitative and qualitative empirical research in this systematic literature review aligns with the thesis' critical realist research paradigm and its research objective. Critical realism encourages adopting a holistic approach to understand the phenomenon, gathering information from different modes, and evaluating critically the conflicting findings (Giddings &

Grant, 2006).[16] The research objective of this study is to synthesise global evidence on network roles in SME internationalisation processes of firms within a single, internationally intensive industry, in order to contribute towards understanding of environmental influences on the relationship between networks and internationalisation. Therefore, a qualitative interpretative approach based on inductive thematic analysis of the individual studies is appropriate.

Following established protocols, this review takes a two-step approach to select and assess the extant empirical literature (See Transfield et al, 2003; Pittaway et al., 2004, Macpherson & Holt, 2007). The first step involves setting the selection protocol and parameters. Establishing inclusion criteria, search procedures, and verification processes completes the first step. The second step relates to coding and synthesizing the selected articles.

3.4.1 Step 1: Selection Protocol

Inclusion criteria: The review's primary objective is to assess all contemporary empirical research on software SME's internationalisation process. Design of the inclusion criteria supports this objective. Only peer-reviewed, empirical articles published between 1994 and 2008 are included in the review. Each article empirically addresses some aspect of the internationalisation process exclusively from software industry SMEs. The articles **do not** need to include any reference to networks, only to international activities. Table 3.1 shows details and rationale for the six inclusion criteria.

---

[16] Please refer to Section 1.3 for a detailed discussion on the critical realism paradigm adopted in this thesis.

Table 3.1 Inclusion Criteria

No	Inclusion Criteria	Reasoning and Parameters
1	Empirical Studies: Quantitative/Qualitative	Emprical studies provide evidence of the phenomena under review. References to non-empirical research that influenced the theoretical foundations and working assumptions of this review are found within the body of the text but not included in the reviewed article.
2	Academic Journals: Peer-Reviewed Open Ranking English Language	The peer-review criterion is a basic robustness measure of academic research. Open journal ranking allows for inclusion of significant research in newer or lesser-ranked journals. The author's language competency restricts inclusion to studies in English.
3	Published between: 1994-2008	15 year timeframe starting from Oviatt and McDougalls' (1994) seminal article on International Entrepreneurship.
4	SME Exclusive	Specified in the review objective; no overriding SME size definition (determined by each specifice article; no age restriction.)
5	Process of Internationalisation	Specified in the review objectives; includes research on antecendents, drivers, barriers, cultural aspects, decisions-making processes, orientations, entry modes, market selection, performance measures, and global value chains; no restriction on speed, pace, intensity, or diversity of internationalisation; no resetion on theoretical base for study.
6	Software Industry Exclusive	Specified in the review objectives; includes content and software providers of service platform and management systems as well as pre-packaged software, enterprise solutions, and professional service firms; no restriction on NACE or SIC codes (determined by each specificed article).

Search Procedures: First, the article search identified appropriate keywords to capture research fitting the review parameters. These keywords targeted three concepts: 1) the internationalisation process, 2) SMEs, and 3) the software industry. Selected articles needed to discuss all three concepts and to base the findings on empirical data. Figure 3.3 summarises the concepts and keywords used. This task became challenging due to three aspects related to software firms. First, software is a generic term referring to both producers and products. To overcome this problem, the search included phrases such as 'software firm' and 'software exporters'. Second, computer software firms are often referred to as high technology, knowledge-intensive, high growth, hard services, IT, and/or ICT, among other such terms. Frequently, the details about the firm type studied lie deep within the methodology text. Therefore, search criteria included all fields, rather than just titles and abstracts. Third, studies often feature software firms together with other knowledge, technology, or service-intensive firms (See Appendix D). The only way to overcome this problem is by reading each article's methodology section. Electronic databases searched include Scopus, ScienceDirect, Business Source Premier, EmeraldInsight, and JSTOR.

The study's originality lies in the use of a single industry lens to consolidate literature. However, complexity resulting from the study's narrow review focus and search term ambiguity (e.g., software) required additional procedures to validate the sample. Following Pittaway et al. (2004, p. 139), a three-way cross-check system was used to assess the articles' veracity and to locate other relevant articles. First, the reference lists for both the selected articles and those articles appearing in Appendix D were searched for other publications. Second, a Google Scholar search looked for additional publications by authors who had published more than two articles on either list (eight authors in total). Third, IE scholars reviewed the selected list and recommended other articles for inclusion.[17]

---

[17] The list of articles and request for additional sources was distributed to approximately 20 scholars attending the presentation of this research at the Academy of International Business Conference (Session 2.1.5) on 28 June 2010. Several suggestions were received by these scholars.

Figure 3.3 Concepts and Related Keywords
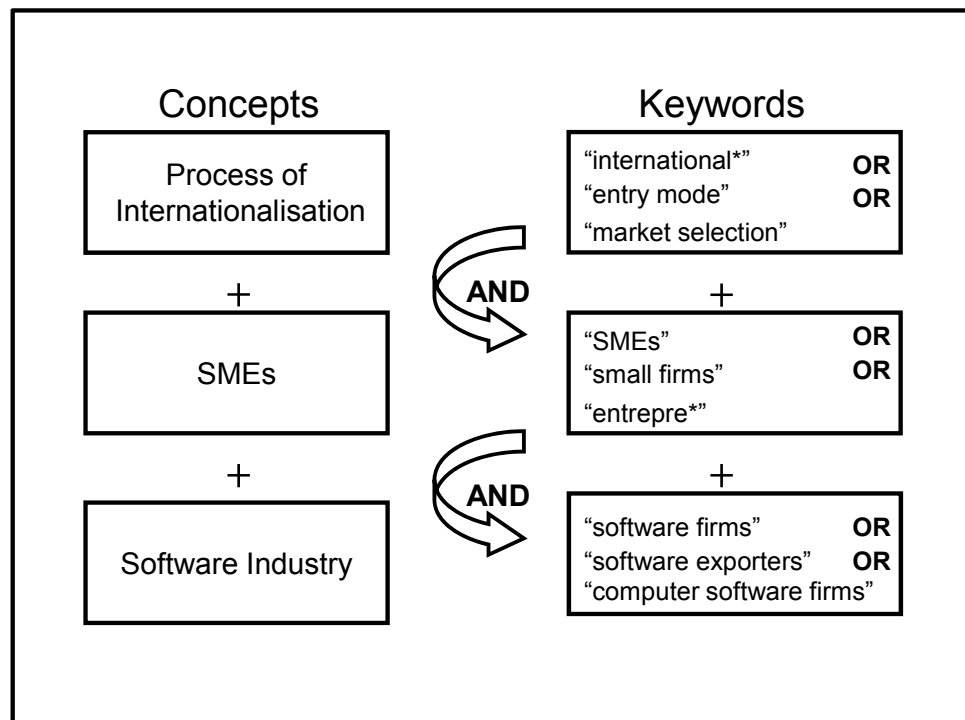
Verification process: The verification process included careful reading of each article to insure all six inclusion criteria from Table 3.1 were met. Articles not clearly discussing the internationalisation process but rather relating to strategies, evolution, or firm/management decision-making by software SMEs are excluded. For example, research focusing on the entrepreneurial, innovation, technology, or marketing orientation of software SMEs but that does not explicitly link how that orientation relates to the internationalisation process were excluded (e.g., Akman & Yilmaz, 2008; Alajoutsijärvi, Mannermaa, & Tikkanen, 2000; Stam & Elfring, 2008; Zahra & Bogner, 2000). Articles focusing on knowledge creation processes, exchanges, or networks of software SMEs (e.g., Collinson, 2000; Spraggon & Bodlica, 2008; Vainio, 2005), developing business model perspectives (e.g., Rajala & Westerlund, 2007a; Rajala & Westerlund, 2007b), or teaching cases (e.g., Coviello, 1996) also were excluded. Finally, articles with a cross-sectional approach to data collection, as listed in Appendix D are not eligible for inclusion in this review. As an example of this process, Table 3.2 shows the verification process for articles retrieved from the ScienceDirect database.

Table 3.2 Electronic Database Search Example

Database	ScienceDirect		
Date	15-Oct-09		
Total Articles Retrieved			51
Total Articles Excluded			44
	Theoretical/Literature Review	9	
	Multiple/Mixed Industries	15	
	Poor/No Link to Internationalisation	10	
	Including Large Firms	1	
	Other (e.g. patent propensity)	9	
Total Articles Eligible			7

3.4.2 Step 2: Analysis Protocol

Coding and Synthesizing: Content analysis identified each article's descriptive characteristics and general themes and followed an inductive approach (Bryman & Bell, 2011). An iterative coding process identified common themes between the various articles. To help identify relationships between the descriptive characteristics and general themes, a database including descriptive and thematic details was created and cross-tabulation analysis undertaken using SPSS17.

3.5 Findings

The following sections present findings from the 32 empirical articles. Section 3.5.1 presents descriptive characteristics of the studies which inform the research question, "How is the phenomenon of SME internationalisation in the software industry being studied?" Section 3.5.2 presents findings which inform the research question "How prominently do networks feature in this research?" The final section, 3.5.3 presents findings relating to the third research question "What is the current state of knowledge?"

3.5.1 Descriptive Characteristics

How is the phenomenon of SME internationalisation in the software industry being studied? Descriptive characteristic findings fall into eight categories:

publication, methodology, geographic, internationalisation, firm, product, industry, and theoretical foundations.

3.5.1.1 Publication Characteristics

Table 3.3 chronologically presents the 32 articles. Most articles (23, 72%) are collaborative efforts with 10 involving three or more authors. During the 15 years under review, 37 researchers from 33 universities in 16 countries are published on this topic. This finding supports the continued globalisation of business research (Coviello & Jones, 2004) and the influence of international networks for IE scholars. Eleven of the 32 articles are based on research from nine Finnish scholars representing Lappeenranta University of Technology, the Turku School of Economics, University of Jyväskylä, and the University of Kuopio.

Table 3.4 shows the journals and publication years for these articles. Seventeen articles (53%) appear in top ranking journals (Harzing, 2009); many articles are published in European Journal of Marketing and the International Business Review. Although publication in high-ranking journals is a common criterion used in IE reviews (Aspelund et al., 2007; Fischer & Reuber, 2008), an open-journal ranking allows for inclusion of relevant research from newer or lesser-ranked journals. For example, four articles appear in the Journal of International Entrepreneurship, founded only in 2003. Nineteen articles (59%) are published during the last five years within the review period.

Table 3.3 Software Industry Internationalisation by SMEs 1994-2008

No.	Year	Author/s	Journal
1	1995	Bell	European Journal of Marketing
2	1995	Brouthers	Management International Review
3	1995	Coviello & Munro	European Journal of Marketing
4	1996	Brouthers, Brouthers & Werner	International Business Review
5	1996	McNaughton	International Business Review
6	1997	Bell	International Business Review
7	1997	Coviello & Munro	International Business Review
8	1997	Reuber & Fischer	Journal of International Business Studies
9	1998	Majkgård & Sharma	Journal of Business to Business Marketing
10	2000	Harris & Ghauri	European Journal of Marketing
11	2001	McNaughton & Bell	Journal of International Marketing
12	2003	Moen, Endresen & Gavlen	Journal of International Marketing
13	2003	Zahra, Matherne & Carleton	Journal of International Entrepreneurship
14	2004	Moen, Gavlen & Endresen	European Journal of Marketing
15	2004	Nummela, Saarenketo & Puumalainen	Canadian Journal of Administrative Sciences
16	2004	Prashantham	Copenhagen Journal of Asian Studies
17	2004	Saarenketo, Puumalainen, Kuivalainen & Kyläheiko	International Journal of Production Economics
18	2005	Arenius	Journal of International Entrepreneurship
19	2006	Coviello	Journal of International Business Studies
20	2006	Coviello & Cox	Journal of International Entrepreneurship
21	2006	Ojala & Tyrvainen	Journal of International Entrepreneurship
22	2006	Prashantham & McNaughton	International Business Review
23	2006	Zain & Ng	Thunderbird International Business Review
24	2007	Kuivalainen, Lindqvist, Saarenketo & Aijo	Journal of Euromarketing
25	2007	Ojala & Tyrvainen (2007b)	Journal of International Marketing
26	2007	Ojala & Tyrvainen (2007a)	Thunderbird International Business Review
27	2008	Ojala	European Mangement Journal
28	2008	Ojala & Tyrvainen	Management Decision
29	2008	Ruokonen	Journal of High Technology Management Research
30	2008	Ruokonen, Nummela, Puumalainen & Saarenketo	European Journal of Marketing
31	2008	Saarenketo, Puumalainen, Kyläheiko & Kuivalainen	Technovation
32	2008	Terjesen, O'Gorman & Acs	Entrepreneurship & Regional Development

Table 3.4 Bibliographical Sources

Journal	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total
Canadian Journal of Adminstrative Sciences											1					1
Copenhagen Journal of Asian Studies											1					1
Enterpreneurship and Regional Development															1	1
European Journal of Marketing		2					1				1				1	5
European Management Journal															1	1
International Business Review			2	2									1			5
International Journal of Product Economics											1					1
Journal of Business-to-Business Marketing					1											1
Journal of Euromarketing														1		1
Journal of High Technology Management Research															1	1
Journal of International Business Studies				1									1			2
Journal of International Entrepreneurship										1		1	2			4
Journal of International Marketing								1		1				1		3
Management Decision															1	1
Management International Review		1														1
Technovation															1	1
Thunderbird International Business Review													1	1		2
Total	**0**	**3**	**2**	**3**	**1**	**0**	**1**	**1**	**0**	**2**	**4**	**1**	**5**	**3**	**6**	**32**

3.5.1.2 Methodological Characteristics

Researchers often collect data to use in multiple studies. Examining the data sources seems appropriate. The 32 articles come from 24 unique datasets. Six data sets produce two published articles each (Bell, 1995, 1997; Brouthers, 1995; Brouthers, Brouthers, & Werner, 1996; Coviello, 2006; Coviello & Cox, 2006; Coviello & Munro, 1995, 1997; Moen, Endresen, & Gavlen, 2003; Moen, Gavlen, & Endresen, 2004; Saarenketo, Puumalainen, Kuivalainen, & Kyläheiko, 2004; Saarenketo, Puumalainen, Kyläheiko, & Kuivalainen, 2008) and one data set results in three published articles (Ojala, 2008b; Ojala & Tyrväinen, 2006, 2007a). To avoid distortions in summarising the methodological and firm-level characteristics, only the 24 empirical data sets are referenced in this section. However, all other review sections consider the 32 articles individually.

Of the 24 data sets reviewed, only three use mixed methods for data collection. This finding supports Coviello and Jones's (2004, p. 495) contention that IE research "tends to be mono method, relying on either quantitative, aggregate-level data, or qualitative context-specific data". Other SME literature reviews confirm this finding (Aspelund et al., 2007; Macpherson & Holt, 2007). The single method data sets tend to use qualitative methodologies (57%),

strikingly more than the 20% Coviello and Jones report (2004). Due to computer software's knowledge-intensive and intangible nature, qualitative methods appear preferential for research exploring internationalisation's complex processes.

Geographic preferences for methodological approach offer another plausible explanation for the large percentage of qualitative research (Gartner & Birley, 2002). For example, the studies on North American firms exclusively use quantitative methods. Asian-Pacific region research, featuring firms from India, Malaysia, and New Zealand, uses qualitative methods exclusively or as part of a mixed methodology. Similar findings confirm the relationship between geographic preference and methodological approaches in IE research (Aspelund et al., 2007; Macpherson & Holt, 2007). Table 3.5 shows the relationships between methodology and region.

Qualitative study sample sizes range from a single case study (Prashantham & McNaughton, 2006) to 24 case studies (Bell, 1995, 1997). The sample sizes of the quantitative studies in this review are small compared to previous IE literature reviews (Coviello & Jones, 2004; Macpherson & Holt, 2007). The quantitative study sample sizes range from two Finnish SMEs (Ruokonen, Nummela, Puumalainen, & Saarenketo, 2008) to 159 US firms surveyed (Zahra, Matherne, & Carleton, 2003). Postal surveys were the main data collection methods; however, web-based surveys tend to dominate since 2004. Intuitively a good match exists between software firms and web-based surveys. However, in practice, the return rates of web based surveys average slightly lower than the postal surveys (32% versus 36%).

Table 3.5 Methodology and Geographic Region

	North America	Europe	Asia Pacific
Quantitative Methodology	(2/4), 5, 8, 11, 13, 28	**(1/6)**, 15, (17/31), **30**, 25	**3**
Qualitative Methodology		**(1/6)** 9, 10, (12/14), 18, 22, 24, (21/26/27), 29, **30**, *32*	(**3/7**), 16, (19/20), 23, *32*

Numbers reference articles from Table 3.3
Backets: a single dataset; Bold: mixed methodlogy; Italics: mixed regions.

3.5.1.3 Geographic Characteristics

Although SME internationalisation involves firm transactions between multiple countries, the number and distribution of countries researched varies. In 83% of data sets, researchers investigate firms originating from a single home country. Previous IE literature reviews also report a preponderance of single-country studies (Aspelund et al., 2007; Coviello & Jones, 2004). Four multiple-country studies were reviewed and only Bell (1995, 1997) investigates firms from more than two countries.

Fifty-eight percent of the 24 data sets are from European firms or involve at least one European firm, a similar ratio to Aspelund et al. (2007). Research about Finnish firms account for 38% of the data sets and 59% of the articles published since 2004. The high percentage of Finnish studies may be due to a large number of Finnish researchers publishing in this area, the Finnish government's support for research on software firms, and the ICT field's overall impact on the Finnish economy over the last 15 years.

As Table 3.6 shows, SME internationalisation research on firms in the software industry overwhelmingly focuses on firms from small high-income countries. Only four studies feature firms from a large high-income country, the USA. Three studies feature firms from large low-income countries (India and Malaysia). No studies in this review feature firms from small low-income

countries. Certainly, domestic market size (population) does not equate to the market size for the specific products being offered by the firms. It is only given as a reference to the potential market. These findings support previous observations that SME internationalisation comes primarily from countries with small domestic economies (Coviello & McAuley, 1999).

Table 3.6 Domestic Market Characteristics

	High Income	Low Income
Large Domestic Market	(2/4), 13, 28	16,23,**32**
Small Domestic Market	(1/6), (3/7), 5, 8, 9, 10, 11, (12/14), 15, (17/31), 18, (19/20), (21/26/27), 22, 24, 25, 29, 30, **32**	

Numbers reference articles from Table 3.3
Backets: a single dataset; Bold: multiple countries.

3.5.1.4 Internationalisation Characteristics

Most studies in the current review examine how internationalisation relates exclusively to the outward expansion process from a single home country into various host countries. Some exceptions to this approach exist. Ojala and Tyrväinen (2006, 2007a) and Ojala (2008a) compare the outward expansion of eight software firms from Finland into a single host country (Japan) to provide insights into product, management, and firm-level factors influencing this process. Three studies investigate the indirect effect of inward internationalisation by foreign MNCs. These studies examine subsidiary influence and relationships with local software firms, to gain insights into the subsequent outward expansion by the home country firms (Prashantham, 2004; Prashantham & McNaughton, 2006; Terjesen, O'Gorman, & Acs, 2008).

3.5.1.5 Firm Characteristics

Unlike traditional manufacturing industries, employee size is not a critical factor affecting international growth in the software industry.

> *"Small software developers with only a handful of staff can develop excellent packages which have great export potential" (Bell, 1995, p. 72).*

However, most studies use the number of employees to indicate firm size. The European Union's classification of an SME as a firm with between 10 and 250 employees is reported most frequently. The average employee size is 33 for the 16 studies that reported this information. Ten data sets targeted INVs specifically although less than half of them identify the specific INV criterion used. The most common INV criteria reported is firm age less than six years and international operations commencing within three years of inception.

Firm characteristics relating to the founder/s or TMT are often discussed as factors influencing internationalsation decisions (Arenius, 2005; Nummela, et al., 2004; Prashantham, 2004; Ojala, 2008; Rueber & Fischer, 1997). Reuber and Fischer (1997) find internationally experienced TMTs are firm resources which result in a greater degree of internationalisation.

> *"Firms with more internationally experienced management teams use more foreign strategic partners and delay less in obtaining foreign sales after start-up which leads to a greater degree of internationalisation" (Rueber & Fischer, 1997 p. 820).*

According to Ojala (2008), the TMT's perceptions of cultural differences may be more important than the actual variation in culture and are based on personal experiences, feelings, and awareness.

> *"Familiarity with the environment of the target country helps a manager implement right marketing practices and build networks with customers and other important actors in the market" (Ojala, 2008, p. 142).*

Findings by Arenius (2005) support the link between the international experiences of a firm's TMT and the attitudes towards internationalsation.

> *"The managers of our case companies had strong international experience. A few of them had been studying abroad, whereas*

others had international work experience. All the managers were open to internationalisation and expressed having an international vision early on. For the mangers, internationalisation was a logical step in the development of the company, and they did not appear to be hesitant or afraid internationalsation and targeting markets, which differed from the home market" (Arenius, 2005, p 122).

Similarly, research by Nummela, Saarenketo, and Puumalainen (2004) strongly supports the importance of TMT's global mindset as a driver for successful internationalsation for software SMEs. However, they caution that:

"…the push of industry-specific factors might have overemphasized the degree of global mindset among the respondents. This effect might even have been strengthen by the selection of a small open economy, such as Finland, as the context to internationalise" (Nummela, et al., 2004, p. 60).

3.5.1.6 Product Characteristics

Software offerings can be classified as services, products, or somewhere in between (Moen, et al., 2003). According to Majkgård and Sharma (1998), two features of software offerings classify them as 'hard services'.

"Firstly, like other hard services, the production of software is separated from its consumption. Consumers do not have to travel to the producer to acquire the software services provided. Electronic media are used to transport 'functions' from one place to another. This widens the geographical range of the goods on offer. Secondly, software services do not have to be consumed at the particular time; they are not perishable. This means that software services are internationally tradable and foreign market entry, through exporting, is feasible" (Majkgård & Sharma, 1998, p. 26).

Within this general classification, wide variations of offerings exist. Software ranges from standardised products, targeting a broad customer base, to project-based services, tailoring solutions for a single customer's needs (Kuivalainen et al. 2007; McNaughton, 1996; Ojala & Tyrainen, 2007a; Ruokonen, 2008).

"Some software products are highly standardised 'shrink-wrapped' applications that require little contact between the developer and final users. Other products require considerable customisation, and extensive contact with final users during both development and implementation" (McNaughton, 1996, p. 25).

Alajoutsijärvi, Mannermaa, & Tikkanen (2000, p. 155) provide a concise summary of the differences between 'project business' and 'product business' in

the software industry (See Table 3.7)[18]. These authors consider project and product businesses as "extreme polar opposites along a continuum" and highlight the movement of firms between the two ends at various stages in their evolution (Alajoutsijärvi, et al, 2000). According to Nambisan (2001), businesses in general should cater to either the product market or the service market; firms that bridge the chasm do it poorly. However, this review's findings from the software industry disagree:

> "Very few companies fit perfectly into either of the polar opposites [between standardised products and customised projects] because their offerings include both tangible and intangible elements….It is also typical for high-tech companies to shift their focus from services to products, and vice versa, during their first years of development (Alajoutsijärvi,et al, 2000; Cusmano, 2004; Roberts, 1990)" (Ruokonen, 2008, p.145).

Thus, distinct characteristics of software industry are the ambiguity between product and service offerings and the fluidity with which firms may adjust their portfolios. According to Alajoutsijärvi, Mannermaa, & Tikkanen (2000, p. 154-155), growth objectives drive these adjustments:

> "Internationalisation and 'productisation' can be seen as the key prerequisites for continued growth in the software business. In the context of the software industry, productisation typically includes a shift from unique service-intensive customer projects towards tangible standardised product aimed at international mass markets…The objective of many small companies to enter the more transactional product business can be seen as paradoxical from the marketing theory point of view that currently puts emphasis on the development of intensive long-term customer relationships. From an entrepreneurial viewpoint, this desire is not surprising. Bill Gates did not get rich through selling tailor-made, labour-intensive systems; he productised his expertise in operating systems and eventually achieved a huge world-wide mass-marketing success".

---

[18] See the theoretical discussion by Alajoutsijärvi et al.,(2000) on how the nature of software products influence a firm's marketing and internationalisation strategies.

Table 3.7 Software Offerings

	Project Business: Tailored Systems	Product Business: Packaged Software
Central capabilities	Project marketing and management	Productization, channel management, alliance building, strategic partners in the industry
Object of exchange	Unique project designed and implemented in cooperation with the customer; designed for a certain hardware environment, service content high	Standard and/or modular products, designed for several different operating systems and hardware environments, service content low
Production	Activities within projects, production 'after sales', connections between all functions of the company, discontinuity between projects, deadlines crucial	Duplication, the production of updates or 'versions,' production 'before sales.' production function rather independent of other company functions
Customer base	Narrow, well-known customers	Broad, faceless end-customers
Nature of Markets	Familiar local/domestic, closed and networked	Distant international, open, competitive
Branding	Not important, market assets concentrated on key individuals	Central area of interest
Nature of exchange	Interactive, mutual, multi-faceted, long-term oriented, project-related exchange	Opportunistic, simple, short-term oriented, product-related exchange
Type of organization	Ad hoc project organizations	Market, product, or matrix organizations

Based on Alajoutsijärvi, Mannermaa, and Tikkanen, 2000, p. 155 Table 1

Differences in product offerings relate to differences in international strategies. Findings from this review show that SMEs providing standardised product based software:

1) Require less interaction with customers:

"… what were formally high contact relations have been converted into low contact ones" (Majkgård & Sharma, 1998, p. 26).

2) Commonly use indirect channels of distribution (based on product complexity):

"… [Firms that] produce standard 'off the shelf' packages were more likely to appoint agents or distributors in the market. In some cases, software firms' existing relationship between the software developer and a computer manufacturer provided the ideal opportunity for the software firm to link into the latter's dealer network. This enabled them to 'adopt' existing distribution channels" (Bell, 1995, p. 69).

"The findings in this study indicate that the choice of the entry mode was based on the complexity of the firms' products, which required intensive cooperation with the customers in the sales process, implementation phase, and also made it possible to offer after-sales services near the customers" (Ojala, 2008, p. 141).

3) Develop networks to compensate for resource scarcity and acquire market information:

"… In the case of firms offering packaged software products, partnering and networking contributes to complementing the resource base of the firm, channel building in international markets, and to building alliances in the industry" (Kuivalainen et al., 2007, p. 13).

"For providers of standardised software products, cooperation with global lead customers plays a key role in obtaining the most accurate market intelligence and staying ahead of the competition" (Ruokonen, 2008, p. 153).

Alternatively, SMEs offering customised services, which have knowledge-intensive business service characteristics, face different internationalisation decisions. Findings from this review show that SMEs providing customised project based software:

1) Require greater interaction with customers:

"… many small, specialised software firms require greater face-to-face contact with [international customers] for the purposes of demonstration, customisation, upgrading, and training" (Moen et al., 2004, p. 1248).

2) Use direct channels of distribution:

"…software firms offering 'bespoke' or 'semi-bespoke' packages relied, almost exclusively, on their own export sales staff to deal with end-users" (Bell, 1995, p. 68).

3) Development networks in cooperation with customers:

"Tailored products and solutions as well as embedded software usually involve cooperation or co-development in projects with the (typically domestic) customer, and thus collaboration is inherent in firms involved in that type of business. Often products created within projects promotes long-term oriented, interactive, and multifaceted collaboration with the customer" (Kuivalainen et al., 2007, p. 13).

"Unlike the situation with the providers of standard software products, it is much easier to obtain customer-specific knowledge of tailor-made software project providers by meeting customers in the target counties and designing software solutions directly to meet their needs. Neither is it essential to follow the global lead customers for the solution when it is a question of tailor-made software because the

needs of single customers differ, and understanding one does not necessarily mean understanding another" (Ruokonen, 2008, p.151).

In summary, the previous discussion highlights the importance of understanding the type of software product offered and how it relates to internationalisation and network development decisions. As Ruokonen (2008, p.153) concludes:

"… the software-product strategy of the software company has an effect on the issues that should be stressed in the gathering of market information, disseminating it in the organisation, and responding to the needs of the customers".

However, surprising, few studies clarify the type of software product offered in their empirical investigations.

3.5.1.7 Industry Characteristics

As per the research design, all articles in this review exclusively focus on SME internationalisation activities from the software industry. Why the software industry is studied and what significance it plays in the empirical analysis varies substantially from study to study. Six general characteristics stimulate interest in the software industry: (1) the level of global appeal and integration; (2) environmental dynamism resulting from technological intensity, uncertainty, and rapid growth; (3) SME potential and concentration; (4) service intensity, (5) knowledge intensity; and (6) software specific intra-industry relationships. The following section discusses each of the six characterises in more detail.

First, the software industry's global appeal is commonly featured in this research stream. This finding is not surprising given the review's focus on internationalisation processes. Studies highlight both the ease by which software SMEs may enter international markets as well as the necessity for them to do so:

"…the software sector was selected because software can be easily modified for different market needs, i.e. language difference, and financial entry barriers are fairly low, once the initial development is complete" (Brouthers, 1995, p. 20).

"…unlike many traditional manufacturing industries, entry barriers are low and the size of the enterprise is not critical….high-value, low-

volume offerings make physical distribution easy. Transmission of software via electronic means can be an added advantage" (Bell, 1995, p. 72).

"…the impact of globalisation has been noticeable, and rapid internationalisation has become more the rule than the exception" (Nummela et al., 2004, p.52).

Zahra, Matherne, and Carleton (2003) also highlight that the existence of international operating platform standards helps to eliminate compatibility barriers faced in other industries, which combined with global demand, spur software SMEs to expand internationally.

Second, the software industry is characterised by high technological intensity, uncertainty, and rapid growth. Kuivalainen, Lindqvist, Saarenketo, and Aijo (2004, p. 8) argue that software SMEs face "special needs and challenges" when considering internationalisation: (1) constantly forming and growing new markets, (2) short and rapidly changing product lifecycles, (3) the law of increasing returns (high initial costs followed by lower subsequent costs), (4) network externalities (the value of the product depends on the number of other users), (5) the need to harness emerging technologies, and (6) the need to adapt to collapsing markets. These authors concede that firms operating in other high technology fields may face some of the same challenges but contend that:

> *"…it is important to notice that software business is distinctive in a sense that most firms operating in this field face all [six challenges]"* (Kuivalainen et al., 2004, p. 8).

The challenges of operating in a high technologically intensive industry may spur software SMEs to internationalise quickly:

> *"First, SMEs in the high-tech sectors frequently operate within a narrowly defined market niche. Specialisation necessitates international expansion if the firm aims to achieve sales growth. Second, firms are facing high R&D costs, which often come 'front-end', that is, before any sales have been made. If they are to survive, they must latch onto the growth track quickly in order to support these initial expenses. Third, the competition is intense and products become obsolete quickly. If the company is to take full advantage of the market potential, it has to penetrate all markets simultaneously Preece, Miles, & Baetz, 1999)"* (Nummela et al., 2004, p. 52).

A third reason for selecting the software industry is that, due to the prevalence of SMEs, software is an attractive industry for small firm internationalisation research (Coviello & Munro, 1995; Rueber & Fischer, 1997). Terjesen, O'Gorman, and Acs summarise why SMEs feature prominently in the software industry:

> *"…the software sector is an opportunity-rich environment for new products and services for new and incumbent firms. There are numerous market segments, and relatively low barriers to entry, which allow small, highly-skilled groups to participate in niche development. Consequently the software sector is populated by high numbers of new entrants and entrepreneurial firms" (Terjesen et al., 2008, p. 95).*

Fourth, the software industry's high level of service intensity makes it an interesting contrast to traditional internationalisation research on large, manufacturing firms (Bell, 1995; Coviello & Munro, 1995; Moen, et al, 2004). As discussed previously, software offerings vary in terms of product or service intensity where, depending on the market and the level of complexity, even standardised product based software may require a high degree of service (Ojala, 2008; Ruokonen, 2008). Bell (1995) accredits computer software's 'augmented nature' as an influence on SME market entry strategies.

> *"The need to provide extensive client support in terms of consultancy, systems design, customisation, installation, training, upgrading and after-sales service were important factors which led to close interaction between buyer and seller. The choice of more direct methods also reflected the fact that demonstration of the software's capability was a key element in the sales promotion effort" (Bell, 1995, p. 69).*

Fifth, the high level of knowledge intensity pervasive in the software industry is also a common reason for its selection. Knowledge spillovers facilitate development of innovative software products (Prashanthan, 2004). Ruokonen (2008) finds the dual challenges of operating in a technologically dynamic and knowledge-intensive environment motivates software companies to aggressively seek knowledge for new product development and long term competitive advantage. Due to the long lead-times required for new product development, providers of standardised product software continuously seek customer and market knowledge to anticipate future customer needs. In

contrast, providers of project software are better able to respond to current and latent customer needs due to the tailor-made nature of their services. However, their competitive advantage rests in possession of "head-start knowledge" over their existing customers. This advantage is temporary and tenuous. By implementing the service, the company's knowledge is shared and their competitive advantage is eroded. Therefore, according to Ruokonen (2008), these firms seek to accumulate:

> *"… diversified technological knowledge by employing new personnel and choosing knowledge-cumulative projects. It is with this acquired new knowledge that the software project company aims to develop a service offering that will satisfy customer demand in the future, and thus prolong its existing customer relationships" (Ruokonen, 2008, p. 152).*

The importance of acquiring both short- and long-term knowledge is identified as a software industry characteristic in Harris and Ghauri's (2000) exploration of how national values influence strategic aims:

> *"Both business leaders [Dutch and Scottish] shared similar concerns over new product development, and each emphasised both a search for success outcomes, a 'short-term' orientation, and a longer term concern for developing their staff's skills and capabilities. Both businesses expressed concern for developing their businesses' international capability (in manufacture and distribution) slowly through the formation of good relationships, as well as through international deals. In all these areas, global industry imperatives may be a forceful influence" (Harris & Ghauri, 2000, p. 138).*

An additional feature related to the knowledge-intensity of the software industry which draws researchers attention is the importance of protecting intellectual property and the associated concerns of its dissemination during international commercialisation (Bell, 1995; Terjesen et al. 2008). SMEs are often under resourced in this area and rely on alternative governance structures such a networks to protect their intellectual property.

Finally, the sixth reason IE researchers are drawn to the software industry is the high level of interdependency and interaction between firms. The software industry is characterised by intra-industry relationships, often between software providers and hardware or systems platform producers. The success of computer systems and their associated applications is driven by network

externalities where value and market leadership depends on the number of other users of the product (Kuivalainen et al, 2007). Bell (1995) considers the inter-firm cooperation between software developers and hardware vendors as a computer industry specific 'trend'; Coviello and Munro (1997) consider these relationships to reflect 'industry norms".

The cooperative relationship between software and hardware producers extends from new product development through to international commercialisation. Terjesen et al., (2008, p. 94) argue that large multinational firms serve as "international conduits" for new ventures' innovations. These assertions are supported by other studies in this review.

> *"…large computer manufactures were happy to assist small software developers with distribution as this improved their ability to offer a 'total solution' thereby increasing demand for their own products" (Bell, 1995, p. 69).*

> *"A common solution is to use partners where the firm's product constitutes a part of a complete package sold by the partner. This partner can be a consultant company delivering the product as part of their product. In some cases these other software companies will only use part of the firm's product as a core technology over which they develop other solutions" (Moen et al., 2004, p. 1245).*

> *"One specific factor that motivate software firms to take a collaborative pathway [for internationalisation] is the desire to complement business offering or product concept…Collaboration may occur in any area of business activity, such as product development, production, distribution, marketing, and financing to name a few. Collaboration may take the form of a horizontal partnership with firms offering complementary products or a vertical partnership, when partners are suppliers, resellers, or customers" (Kuivalainen et al., 2007, p. 13).*

In summary, researchers mention multiple attributes prompting the selection of software as the industry of interest for their studies. There is strong overlap between the six software industry characteristics previously mentioned and studies often citing several features as relevant to their industry selection criteria.

3.5.1.8 Theoretical Foundations

The articles in this review discuss multiple theories, drawn from several fields of study. This finding supports previous IE study results concluding the internationalisation process by knowledge-intensive SMEs cannot be explained by a single theory (Coviello & Martin, 1999; Crick & Spence, 2005; Johanson & Vahlne, 2003). Most studies incorporate more than one theory; several studies are multidisciplinary. Therefore the findings from this review support insights by Rialp, Rialp and Knight's (2005, p. 155):

> *"Much richer and theoretically robust explanations are likely to emerge from the combined use of multiple core theories and modern frameworks. Such mixed and improved conceptual approaches constitute an important step forward toward a more holistic understanding of early internationalisation processes, and should be encouraged and stressed in further research".*

The most common theories discussed in the 32 articles appear in Table 3.8. Presentation of the theories is first by subject area and then by frequency. The first row of theories relate to internationalisation. The second row of theories relate to networks, firm resources, or industry factors. The objective of this table is to summarise the most commonly discussed theories. A drawback of this summary is that not all articles in the review or theories discussed appear in the table. Another limitation to this summary table is that it measures frequency and not intensity. While some articles devote significant discussion to the theoretical relevance of the research, others barely mention it. Table 3.8 contributes to knowledge on which theoretical foundations are commonly used to support research on SME internationalisation in the software industry.

Considering that internationalisation was a key criterion for article selection, the abundance of internationalisation theories mentioned in the review is not surprising. Of the internationalisation theories, the 'Uppsala model' (Johanson & Vahlne, 1977; Johanson & Wiedersheim-Paul, 1975) appears most often and is discussed in 22 articles. Oviatt and McDougall's (1994) international venture (INV) theory appears in 16 articles. Interestingly, for studies examining INVs specifically, all but two discuss network influences on the process of internationalisation. This finding lends support to Oviatt and McDougall's (1994)

identification of network usage as a distinguishing INV characteristic. Other common internationalisation theories discussed in the studies under review include Dunning's (1988) eclectic theory (10 articles) and Williamson's (1981) transaction cost theory (6 articles). Network-related theories include the network approach to internationalisation (NAI)[19] (Bell, 1995; Coviello & Munro, 1997; Johanson and Mattsson, 1988) and social capital theories (Burt, 1992; Granovetter, 1983; Nahapiet & Ghoshal, 1998). Both NAI and social capital theories are of particular interest to the current research study due to their focus on either business and/or social network relationships. NAI theories build from Johanson and Mattsson's (1988) business network theory for internationalisation and includes early research on software SME's internationalisation by Bell (1995) and the team of Coviello and Munro (1997). Interestingly, NAI theories are the most commonly discussed theory in this review, appearing in 23 of the 32 articles. All articles in this review published after 2004 discuss NAI theories. Considering this study's inclusion criteria **do not** stipulate references to networks, the high percentage of articles using NAI theory to investigate software SME's internationalisation is enlightening.

Social capital theories (Burt, 1992, Grannovetter, 1983, Nahapiet & Ghoshal, 1998) are multidisciplinary in origin and definitions vary depending on the disciplinary foundation and level of analysis. Nahapiet and Ghoshal (1998, p. 243) define social capital as "the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit". As indicated in Table 3.8, seven articles discuss social capital theories. Each of these articles also includes a discussion of NAI theories suggesting an expansion of network theories from the earlier focus solely on inter-organisational relationships to a later focus which includes a focus on interpersonal relationships as well.

The other two commonly featured theories presented in Table 3.8 are views based on firm resources or industry influences. Resource-based view (RBV) theory focuses on the firm-level origins of competitive advantage to ask why firms in the same industry differ (Barney, 1991; Wernerfelt, 1984). Five studies

---

[19] NAI is an acronym used in this thesis in reference to the network approach to internationalisation and not an established term used in international entrepreneurship research.

discuss RBV theory; each of these five studies also includes a discussion of NAI theories. The link between networks and firm resources is intuitive, however, some studies consider networks to be firm resources (Zahra et al, 2003) while others see networks as also facilitators for the acquisition, mobilisation, development of firm resources (Coviello & Cox, 2006). The final theory in Table 3.8 is the industry-based view (IBV) theory (Porter, 1980). IBV focuses on the industry-level origins of competitive advantage to address how firms can best compete in the same industry. Interestingly, only three studies in this review discuss IBV, although each study selected a single industry for analysis.

Table 3.8 Main Theories

Uppsala Theory Johanson & Valhne (1977), Johanson & Wiedersheim-Paul (1975),	**International New Venture Theory** Oviatt & McDougall (1994)	**Eclectic Theory** Dunning (1988)	**Transaction Cost Theory** Buckley & Casson (1976), Williamson (1981)
1, 3, 7, 8, 9, 13, 14, 15, 17, 18, 19, 21, 22, 23, 24, 25, 27, 28, 29, 30, 31, 32	3, 7, 8, 13, 14, 15, 19, 20, 22, 23, 24, 25, 28, 29, 30, 32	4, 8, 13, 21, 23, 25, 26, 28, 31, 32	5, 11, 17, 21, 26, 31
Network Approach to Internationalisation Bell (1995), Coviello & Munro (1997), Johanson & Mattson (1988)	**Social Capital Theory** Burt (1992), Grannovetter (1983), Nahapiet & Ghoshal (1998)	**Resource-based View Theory** Barney (1991), Wernerfelt (1984)	**Industry-based View Theory** Porter (1980)
1, 3, 7, 9, 13, 14, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32	16, 18, 19, 20, 22, 23, 32	13, 17, 20, 26, 31	16, 17, 28

Numbers refer to articles from Table 3.3

3.5.2 Prevalence of Network Influence

How prominently do networks feature in empirical research on software SMEs' internationalisation? To address this research question, an iterative coding process is used to identify the main themes emerging from the 32 articles. As per the selection criteria, all studies feature research on internationalisation.

However, internationalisation research varied between a focus on general processes, networks, antecedents, and barriers. The articles are summarised by theme in Table 3.9.

The first research theme, with the largest number of studies, focuses on general aspects of the internationalisation process. The 18 studies classified under this theme reflect the baseline standard. Within this group, seven articles specifically investigate entry mode or distribution channel decisions of software SMEs. This topic is considered an element of the internationalisation processes and therefore classified as a sub-theme rather than a separate research theme. In Table 3.9, bold print highlights these sub-theme studies. Table 3.10 provides more detail on each study's aims and findings and specifically identifies the sub-theme studies.

Network influences on internationalisation is the second research theme and includes eight articles. It is enlightening that 25% of the studies under review have networks as their primary focus. The importance of network relationships in research from the software industry is further highlighted by the fact that 23 of the 32 articles in the review discuss network theories as part of the internationalisation process.

The last two research themes consider the antecedents and barriers to internationalisation. Although only a few studies focus on these themes, the emphasis on these topics within the studies justifies separate research theme classifications.

These four themes are general and not specifically related to issues faced in the software industry. For example, Jones et al. (2011), in their review of 20 years of IE research, classify 222 articles as Type A or research on cross-border activities of entrepreneurial firms (See Section 1.2.1). Within that group of studies, Jones et al. (2001) identify five thematic areas: internationalisation (96 articles), venture types (54 articles), organisational issues (34 articles), networks and social capital (23 articles), and entrepreneurship specific issues (15 articles). The comprehensive review by Jones et al. (2011) encapsulated a wide variety of research under the IE banner and thus comparisons between

the findings are not possible. However, it is interesting to note that 10% of the articles in the Jones et al. (2011) review featured network themes whereas in this industry specific review, the percentage is much higher at 25%. Does this imply networks are more important in the software industry or simply more intensely researched? Only through comparisons with other industry-specific literature reviews can inferences be drawn.

Table 3.9 Research Themes

Process of Internationalisation	Networks & Internationalisation
2, **4**, **5**, 9, **11, 12**, 13, 14, 17, **21**, 24, 25, 27, 28, 29, 30, 31, **32**	3, 7, 16, 18, 19, 20, 22, 23
Antecendents to Internationalisation	**Barriers to Internationalisation**
1, 8, 10, 15	6, 26

Numbers refer to articles from Table 3-3.
Bold numbers: research specific to mode of entry

3.5.3 Network Influence on SMEs' Internationalisation

This section strives to synthesise data from the 32 articles to increase understanding of what the current state of knowledge is in the relationship between networks and internationalisation by SMEs in the software industry. The findings are presented in the following manner. First, the discussion summarises how the term network is defined and has evolved in this body of research. Second, the discussion illustrates network influences on internationalisation strategies in terms of reactive/proactive foreign market strategies, market selection, and entry mode decisions. Finally, the discussion links network influences on internationalisation to challenges specific to the software industry.

Table 3.10 Aim and Main Findings

No.	Author	Journal	Aim and Main Findings	Theme
1	Bell (1995)	European Journal of Marketing	**Aim:** To explore initial export decisions and internationalisation process **Findings:** Process influenced by client followership, targeting of niche markets and industry-specific context rather than psychic or geographic proximity	Antecendents
2	Brouthers (1995)	Management International Review	**Aim:** To test integrated model of international risk and relationship between risk perception and strategic entry mode choice **Findings:** Firms should consider total international risks when making entry mode decisions	Mode of Entry
3	Coviello & Munro (1995)	European Journal of Marketing	**Aim:** To focus on the use of network relationships in internationalisation activities **Findings:** Network perspective enriches understanding of internationalisation process in terms of market selection and entry decisions. Rapid and dispersed pattern of internationalisation linked to network opportunities.	Networks
4	Brouthers, Brouthers & Werner (1996)	International Business Review	**Aim:** To investigate entry-mode selection based on Dunning's Eclectic Theory **Findings:** Increases in ownership advantages and perception of locational advantages result in increase usage of integrated entry-modes	Mode of Entry
5	McNaughton (1996)	International Business Review	**Aim:** To explore foreign market channel integration mode decisions **Findings:** Software firms follow fine niche strategy: customisation relates to channel choice and sales subsidaries; alliances becoming a necessity	Mode of Entry
6	Bell (1997)	International Business Review	**Aim:** To present findings on export problems of small computer firms in four countries. **Findings:** Industry specific factors allow firms to enter export markets via networks; direct dealing end-users and client followership common, usage of export promotion organisations is low	Barriers
7	Coviello & Munro (1997)	International Business Review	**Aim:** To further understanding of how network relationships impact internationalisation patterns **Findings:** Firms externalise their international market development activities through investment in network relationships;networks drive market expansion including mode choice; can both facilitate and inhibit product development and market diversification activities	Networks
8	Reuber & Fischer (1997)	Journal of International Business Studies	**Aim:** To examine the role of management teams' international experiences in internationalisation **Findings:** Teams with international experience use strategic partners to obtain international sales quickly and have higher degree of internationalisation	Antecendents
9	Majkgård & Sharma (1998)	Journal of Business to Business Marketing	**Aim:** To supply a process view of how service firms enter foreign markets **Findings:** Identify two different market entry strategies: client-followering and market-seeking each arising out of different resource exchange network of firms	Internationalisation Process
10	Harris & Ghauri (2000)	European Journal of Marketing	**Aim:** To explore how national values of business leaders influence strategic aims, decisions and processes **Findings:** Different national orientations result in different aims and processes; similar issues reflecting global industry norms	Antecendents

Table 3.10 Continued:

No.	Author	Journal	Aim and Main Findings	Theme
11	McNaughton & Bell (2001)	Journal of International Marketing	**Aim:** To further understanding of how managers choose channels in international markets **Findings:** Integrated channels common in both domestic and foreign markets because allow protection of knowledge assets and interaction with customers	Mode of Entry
12	Moen, Endresen & Gavlen (2003)	Journal of International Marketing	**Aim:** To explore how small exporting firms use the Internet in their internationalisation activities **Findings:** Internet used for support and post-purchase activities; to strenghten trust and relationship bonds and to as source of credibility	Mode of Entry
13	Zahra, Matherne & Carleton (2003)	Journal of International Entrepreneurship	**Aim:** To exlpore the impact of leveraging technological resources on the speed and degree of internationalisation **Findings:** Intangible technological resources (networks and reputation) play an important role in internationalisation	Process of Internationalisation
14	Moen, Gavlen & Endresen (2004)	European Journal of Marketing	**Aim:** To explore if entry forms and market selection processes follow theoretical expectations **Findings:** Network relationships are determinant for entry forms and to some extent markets; forms differ in markets depending on networks	Process of Internationalisation
15	Nummela, Saarenketo & Puumalainen (2004)	Canadian Journal of Administrative Sciences	**Aim:** To explore the role of global mindset in the successful internationalisation of SMEs **Findings:** Global mindset affects decision to set high level internationalisation objectives; global mindset positively related to industry globalness, market turbulence and manager's international work experience but not international education	Antecendents
16	Prashantham (2004)	Copenhagen Journal of Asian Studies	**Aim:** To explore how domestic network relationships influence internationalisation in developing economy **Findings:** Endowment of network relationships are based on prior education/work experience of entrepreneur; firms with global mindset proactively leverage local networks; role of local cluster network often passively related to credibility/reputation and perceived quality.	Networks
17	Saarenketo, Puumalainen, Kuivalainen & Kyläheiko (2004)	International Journal of Production Economics	**Aim:** To identify how development of knowledge and capabilities may contribute to the rapidity and extensiveness of internationalisation **Findings:** Firms utlise increasingly more partners and networks enabling SMEs with limited resources to learn and get to the foreign markets sooner	Process of Internationalisation
18	Arenius (2005)	Journal of International Entrepreneurship	**Aim:** To revise psychic distance postulate in light of recent finding on market selection, time, and social capital. **Findings:** Psychic distance is less significant on market selection, has negative effect on speed and is moderated by social capital for software firms.	Networks

122

Table 3.10 Continued:

No.	Author	Journal	Aim and Main Findings	Theme
19	Coviello (2006)	Journal of International Business Studies	**Aim:** To assess the network dynamics of INVs network evolution from conception to internationalisation to growth **Findings:** Social capital increases as INV's network evolves because network range increases & density decreases, network size increases & constraints decrease, centrality increases. Network is both path-dependent & intentionally managed; is dominated by economic rather than social ties; is unstable & idosyncratic	Networks
20	Coviello & Cox (2006)	Journal of International Entrepreneurship	**Aim:** To exlpore how networks facilitate resource development in INVs **Findings:** Network offers INV a mechanism for acquisition, mobilisation and/or development of resources	Networks
21	Ojala & Tyrvainen (2006)	Journal of International Entrepreneurship	**Aim:** To investigate the relationship between the business model and the entry mode **Findings:** The product strategy,service and implementation model of software firms are closely connected to the entry mode choice; distribution model of intagible software products does not impact on operation mode	Entry Mode
22	Prashantham & McNaughton (2006)	International Business Review	**Aim:** To explore social capital relationships between SMEs and local subsidiaries of MNC **Findings:** MNC subsidiaries are potental souce of social capital; although barriers to building the social capital exist they can be lowered by credible intervention	Networks
23	Zain & Ng (2006)	Thunderbird International Business Review	**Aim:** To examine how Malaysian SMEs use network relationships to facilitate internationalisation process **Findings:** Networks influence pace & pattern of internationalisation; including triggers,motivations,market selection & entry mode decisions by providing credibility,	Networks
24	Kuivalainen, Lindqvist, Saarenketo & Aijo (2007)	Journal of Euromarketing	**Aim:** To present a conceptual growth model with typical starting points, pathways and outcomes of international growth **Findings:** Distinguished three types of internationalisation pathyways: born global, collaborative & organic with four outcomes; Difficult to create and maintain long lasting strategic relationship in dynamic industry; Episodic internationalisation	Process of Internationalisation
25	Ojala & Tyrvainen (2007b)	Journal of International Marketing	**Aim:** To examine influence of cultural distance, geographic distance, & three market size variables on the target country preferences **Findings:** 70% of country choices explained by software market size and geographic distance; SME's entry priorties shift quickly from close geographic markets to markets with high purchasing power at greater geographic distance.	Process of Internationalisation

Table 3.10 Continued:

No.	Author	Journal	Aim and Main Findings	Theme
26	Ojala & Tyrvainen (2007a)	Thunderbird International Business Review	**Aim:** To examine entry barriers foreign SMEs in the software industry have in Japanese market **Findings:** Most entry barriers are firm-specific, related to resources/capabilities. Common barriers relate to customisation & localisation needs for software	Barriers
27	Ojala (2008)	European Mangement Journal	**Aim:** To investigate market entry & entry mode choice of Finnish software firms in the Japanese market **Findings:** Despite high psychic distance, firms entered Japan early due to market size, industry structure, & customer needs. Psychic distance based manager's experiences rather than cultural differences	Process of Internationalisation
28	Ojala & Tyrvainen (2008)	Management Decision	**Aim:** To investigate market entry decisions of US software SMEs in terms of cultural & geographic distance, country risk, & market size variables **Findings:** Vertical market size is single best indicator for market entry decision	Process of Internationalisation
29	Ruokonen (2008)	Journal of High Technology Management Research	**Aim:** To examine how market orientation is manifested in the context of rapidly internationalising software SMEs **Findings:** Reactive & proactive market orientation interwine; Strategies depend on type of software offering: firms with standardised products cooperate with leading customers for market intelligence/keep competitive; firms with customised products emphasise interfunctional coordination	Process of Internationalisation
30	Ruokonen, Nummela, Puumalainen, Saarenketo (2008)	European Journal of Marketing	**Aim:** To analyse the role of market orientation in the internationalisation of small software firms **Findings:** Market orientation consists of three elements: customer orientation, competitor orientation, and value-network coordination	Process of Internationalisation
31	Saarenketo, Puumalainen, Kyläheiko & Kuivalainen (2008)	Technovation	**Aim:** To test model exploring influence of six knowledge determinants on choice of entry mode & market concentration/diversification decisions **Findings:** Model shows strategy linked to uncertainty, asset specificity, knowledge asset appropriability, & economies of scale/scope; no link found with opportunism	Process of Internationalisation
32	Terjesen, O'Gorman & Acs (2008)	Entrepreneurship & Regional Development	**Aim:** To enhance understanding of the intermediated form of internationalisation by new ventures **Findings:** Intermediated mode means using MNE as intermediaries; appropriate when faced with high entry barriers, including lack of firm resources; includes transaction costs & threat of rent extraction	Mode of Entry

3.5.3.1 Definitions

Findings from this review show no universally accepted definition for the term 'networks'. While some researchers consider networks primarily as inter-organisational or economic relationships (Bell, 1995; Kuivalainen, Lindqvist, Saarenketo, & Aijo, 2007), others incorporate social relationships into the system (Arenius, 2005; Coviello & Munro, 1995, 1997; Prashantham, 2004; Zain & Ng, 2006). Coviello and Cox (2006, p. 115) offer an inclusive definition:

> *"The term 'network' is a metaphor used to represent a set of connected actors ... network ties may occur between firms, between individuals, or between firms and individuals".*

Most studies discuss network influences on the internationalisation process, referencing business network theory of internationalisation (Johanson and Mattsson, (1988) as well as the seminal work of Bell (1995) and Coviello and Munro (1997).

As noted in Section 3.5.2, more recent studies that use NAI theoretical foundations also include social capital theories. Social capital theory's importance is growing. All studies specifically discussing social capital appear after 2004 (Arenius, 2005; Coviello, 2006; Coviello & Cox, 2006; Prashantham, 2004; Prashantham & McNaughton, 2006; Terjesen et al., 2008; Zain & Ng, 2006). Social capital's definition varies by author. Arenius (2005, p. 116) describes social capital as "… the amount and quality of the external relationships possessed by the firm and the individual involved in the firm".

The relationship between networks and social capital is dynamic. Terjesen et al. (2008) see the TMT's social capital developed through prior work experiences as an important network resource for the firm. According to Coviello and Cox (2006), social capital encompasses different resources available through the network and every network tie reflects the firm's stock of social capital. These authors argue:

> *"… the network is shown to be, on its own, a salient resource for the INV in terms of generating social capital. The network also offers the INV a mechanism for the: (1) acquisition, (2) mobilisation and/or (3) development of resources" (Coviello & Cox, 2006, p.127).*

In summary, although no single definition of networks has evolved, network definitions tend to be more inclusive in possible recognition that for small firms, the distinction is blurred between the firm's networks and the entrepreneur's or TMT's networks. Networks are seen as resources as well as avenues to generate additional resources for the firm.

3.5.3.2 Foreign Market Strategies

Findings from the 32 articles in this review suggest networks encourage software SMEs to enter international markets, both reactively and proactively. Reactive internationalisation occurs when a firm receives unsolicited foreign orders, follows a customer overseas, or distributes worldwide through a customer's established network. Alternatively, proactive internationalisation denotes when the firm leverages established networks to enter new markets. The following section further discusses these findings.

Unsolicited Orders: A firm's reputation, developed through their economic, social, or technology networks, often results in unsolicited foreign enquiries triggering international market expansion (Bell, 1995, 1997; Coviello, 2006; Coviello & Munro, 1995; Prashantham, 2004; Zahra et al., 2003). Coviello and Munro (1995, p. 55) find 64% of the firms in their study attribute their initial foreign expansion to "... opportunities presented by contacts in a formal or informal network, rather than resulting from their own proactive identification process". Prashantham (2004) observes SMEs in Bangalore software cluster receive unsolicited foreign orders based on the cluster's overall positive reputation.

Client-following: Several studies report firms enter foreign markets to serve their domestic customers (Bell, 1995; Coviello & Munro, 1995; Majkgård & Sharma, 1998). Bell (1995, p. 65) finds client-followership to be "... the key influence on both the initial decision to export and on the choice of foreign markets" in 62.5% of the firms. However, Brouthers et al. (1996, p. 380) argue that:

> *"... client-following activities are usually not required in the software industry because software development is highly mobile, can easily*

cross national borders, and packaged software can be exported to almost any location in the world within a few days. Thus, US software firm expansion appears to be driven primarily by the motivation of seeking new markets for existing products".

Degree of product customisation and domestic market size possibly account for the conflicting findings.

Piggybacking: The term piggybacking refers to an agreement between two companies involving the selling on one firm's products alongside the products of the other firm in foreign markets (Czinkota & Ronkainen, 2007). According to Lewis and Housden (1998) firms are motivated to engage in a piggybacking agreement when the combination of products will complement and enhance the presence of both firms. "Piggybacking is a viable alternative for firms with limited exporting activities, limited resources and lack of foreign market knowledge" (Terpstra & Yu, 1990, p. 52). According to McNaughton (1996, p. 31), "The most common example of piggybacking is the selling of a software product through a channel developed by a hardware firm". Terjesen et al. (2008, p. 90) refer to this relationship as 'intermediated internationalisation' and argue that software SMEs can exploit niche innovations by utilising the existing MNEs' supply chains. Several studies describe not only the facilitating but also the potentially constraining influence of network ties with large multinational enterprises (MNEs) (Bell, 1995, 1997; Coviello & Munro, 1995, 1997; McNaughton, 1996; Moen et al., 2004; Zain & Ng, 2006).

Market-seeking: Findings from this review indicate three factors influence a firm's proactive network internationalisation strategy. First, the TMT's global mind set (Nummela, Saarenketo, & Puumalainen, 2004) and international experience (Kuivalainen et al., 2007; Reuber & Fischer, 1997) influence the propensity and speed to develop international strategic networks. Second, home country characteristics, such as market size (Arenius, 2005; Bell, 1997; McNaughton, 1996; Nummela et al., 2004) and country-of-origin reputation (Bell, 1997; Zain & Ng, 2006), also influence international network development.

> *"[For Finnish software SMEs] the act of going international does not represent a choice of whether or not to do it, but rather, when" (Arenius, 2005 p. 117).*

Third, review findings show networks developed through inward internationalisation (importing) often leads to proactive exploration of outward expansion (Bell, 1995; Coviello & Munro, 1997; Majkgård & Sharma, 1998).

3.5.3.3 Foreign Market Selection

The most commonly reported reason for foreign market selection by software SMEs is established or newly formed network relationships. However, Ojala and Tyrväinen (2007b, 2008) suggest software market size and geographic distance also explain market selection decisions. Ojala and Tyrväinen (2008) suggest their findings complement earlier previous market selection studies (Bell, 1995; Coviello, 2006; Coviello & Cox, 2006; Coviello & Munro, 1997) and illustrate how network development evolves from a passive, client-following role to an active, market-seeking role.

> *"Although the initial market entries might be related to networks available and be targeted to geographically and/or psychically nearby markets (Coviello, 2006; Coviello & Munro, 1997; Moen et al., 2004; Zain & Ng, 2006), the findings here imply that subsequent market entries seem to follow the firms' strategic decisions to enter the leading markets" (Ojala & Tyrväinen, 2008, p. 196)*

Other researchers acknowledge a similar two-stage evolution of network development to market selection (Coviello & Munro, 1997; Majkgård & Sharma, 1998; Moen et al., 2004; Ojala, 2008b).

3.5.3.4 Foreign Market Entry Modes

The studies report varying levels of network influences on software SMEs' entry mode selections. Moen et al. (2004, p. 1244) report "... the firm's network relations are determinant when deciding which foreign entry forms". Whereas Majkgård and Sharma (1998, p. 25) find "the choice of market entry mode abroad is primarily determined by an effort to reduce uncertainty". Since software SMEs use a variety of entry modes or change the modes within a single market, these divergent findings are not surprising. Bell (1995) reports that firms generally use exporting for new markets. McNaughton and Bell (2000) find the mode used in the domestic market likely extends into foreign markets

unless a compelling reason to switch exists. Market volatility and rapid technology obsolescence create a need for flexibility.

> *"The firm may choose one entry form in one market and a different one in another similar market, very much depending on the options available according to their network relationships" (Moen et al., 2004, p. 1245).*

3.5.3.5 Software Industry

Characteristics of the software industry motivate network formation in three ways. First, the software industry has a high level of technology-, knowledge-, and service intensity. Dynamic environments, as illustrated in the software industry, stimulate firms to form networks in order to source and monitor rapid technological changes. Powell (1990) argues that since no one firm has access to all aspects of the rapidly changing technology, firms operating in highly competitive, technology-intensive industries develop strategic networks to avoid the 'liability of unconnectedness'. Findings from this review support Powell's assertions.

> *"Due to the dynamic nature of the industry, it has been proposed that it is a necessary for software companies to create both formal partnerships and informal collaborative networks" (Kuivalainen, et al., 2007, p.13).*

> *"In high technology industries, companies need to maintain strong internal R&D capabilities, while staying abreast of technological advances in their field (Kodama, 1995). Success in sustaining technological skills often requires supplementing companies' internal efforts by obtaining knowledge from external sources (Fontes & Coombs, 1997). Consequently, companies form mutually beneficial relationships with their suppliers, buyers, other companies, trade associations, universities, and research centres (Zahra, 1996; Zahra & Bogner, 2000). In the software development industry, networks transmit important information about forthcoming technological advances (Jarillo, 1988; Powell et al., 1996), which improves the firm's knowledge base (Kodama, 1995)" (Zahra, et al. 2003, p. 168).*

Second, as a result of the short product life cycles and rapid changing technology, software firms are driven to quickly commercialise their offerings in international markets and to develop networks for this purpose.

> *"… companies operate in emerging technology sector and therefore face the dual challenge of market creation and international expansion. They are involved in highly knowledge-intensive and*

interaction-intensive delivers for customers situated in more or less dense value networks" (Arenius, 2005, p. 117).

"Firms in high-technology industries compete in niche markets characterised by short product life cycles. When based in small domestic markets, new firms are often forced to internationalise in order to survive and grow (Jones, 1999). They may do so through a symbiotic relationship with MNEs…New ventures form strategic linkages with foreign firms to limit liabilities of newness, foreignness and small size and enable access to markets, technology, and reputation" (Terjesen et al., 2008, p. 93).

The third software industry-specific characteristic motivating SMEs to form internationalisation networks is the high level of interdependency between software providers and hardware or system platforms. As previously discussed in Section 3.5.1.7, the software industry is affected by network externalities; where value and market leadership depends on the number of other users of the product. Network externalities and the systemic nature of software drive intra-industry relationships.

In summary, similar patterns of network influences on SME internationalisation are found through the research synthesis. Software SMEs follow similar reactive and proactive foreign market strategies based on network influences. Software SMEs tend to rely on network influences for foreign market selection decisions, most notably for their initial markets with other criteria influencing subsequent market selections. Software SMEs rely on network influences when making mode of entry decisions. Finally, software SMEs form networks in response to high-technological intensity, rapid international dissemination, and high levels of intra-industry relationships characteristics of the software industry.

3.6 Discussion

This study addresses a knowledge gap in IE research. Specifically, this systematic review examines the relationship between networks and internationalisation by SMEs, taking into account the industry influences on firm strategies as per IBV theory (Porter, 1980). The overriding research question asks whether firms operating in the same industry demonstrate similar patterns in network influences for internationalisation. In order to address this primary

research question, the study takes an inductive approach, directed by three secondary research questions as illustrated in Figure 3.2. The following discussion summarises findings from each supportive research question and references Table 3.11. This table provides a summary of the descriptive characteristics from the articles discussed in Section 3.5.1 and relates them to the four research themes discussed in Section 3.5.2.

The first research question asks how the internationalisation process of SMEs in the software industry is being studied. Syntheses of descriptive characteristics show that research on the internationalisation process of software SMEs primarily comes from Europe. Typically, researchers focus on firms located in small, high-income countries. Many studies are published in internationally focused top-rated research journals. Researchers from Finland contribute greatly to the extant literature on this subject. Qualitative research techniques are most common; however, studies featuring North American firms tend to be quantitative. A few studies include mixed methodologies. The majority of studies feature firms from a single country and consider only outward internationalisation.

Interestingly, country-level environmental forces (e.g., domestic market conditions) seem to encourage research on this topic from small, high-income countries. This finding supports work previous IE research showing firms in larger countries, in terms of either population and/or land mass, tend to exhibit comparatively lower levels of internationalisation (Bosma & Levie, 2009). Extant IE research also finds firms from small, open economies driven to enter foreign markets to find sufficient market for their innovative, niche products (Bloodgood, et al., 1996; Chetty & Campbell-Hunt, 2003; Etemad, 2004b; Madsen & Servais, 1997; Schweizer, Vahlne, & Johanson, 2010). Table 3.11 provides further evidence as six out of the eight studies investigating network relationships examine firms from small, high-income countries. The remaining two studies focused on the network theme feature firms from large countries. Yet the two large countries (India and Malaysia) are characterised as emerging economic environments. Network research on large, low income countries support arguments by Peng and colleagues (Peng & Shekshnia, 2001; Peng et al.,

2008) that firms use their networks to overcome inefficient institutional frameworks. As such, findings from this review contribute to knowledge on how external environmental forces may influence the relationship between networks and internationalisation.

Table 3.11 Themes and Descriptive Characteristics

	Process of Internationalisation Themes				
	General	**Networks**	**Antecedents**	**Barriers**	**Totals**
Article Topic	18	8	4	2	32
Theoretical Framework					
Uppsala Model	11	6	5	0	22
International New Venture	6	6	4	0	16
Eclectic	7	1	1	1	10
Transaction Cost	5	0	0	1	6
Network Approach	11	8	3	1	23
Social Capital	1	6	0	0	7
Resource-Based View	3	1	0	1	5
Industry-Based View	2	1	0	0	3
Methodology					
Qualitative	7	7	2	1	17
Quantitative	9	0	2	0	11
Mix Methods	0	1	2	1	4
Region					
Europe	9	2	5	2	18
North America	6	0	1	0	7
Asian Pacific	0	6	0	0	6
Multiple Regions	1	0	0	0	1
Market Size					
Small Country	11	6	6	2	25
Large Country	4	2	0	0	6
Multiple Countries	1	0	0	0	1
Economic Development					
High Income Countries	15	6	6	2	29
Low Income Countries	0	2	0	0	2
Multiple Countries	1	0	0	0	1

Note: Totals refer to the 32 articles based on the 24 unique data sets.

The second research question asks how prominently networks are featured in SME internationalisation research. Findings presented in Section 3.5.2 provide evidence that for research on SMEs operating in the software industry, network relationships are important for internationalisation. Networks are discussed in 23 of the 32 studies and are the primary focus in eight studies. The evidence supports network influences on the internationalisation process for

software SMEs. As argued by Powell (1990), the dynamic and highly competitive environment in which software firms operate motivate them to develop and utilise networks to access new technology. These findings also support the role networks play in helping resource constrained SMEs to source intangible knowledge outside the firm. Specifically, these networks provide technology and international market knowledge. Software SMEs utilise their network resources to share risks of high development costs and short product life cycles (Powell et al., 1996) as well as to service customers in globally integrated markets (Coviello & Munro, 1997; Johanson & Mattsson, 1988; Johanson & Vahlne, 2003; Oviatt & McDougall, 2005).

The third research question explores the current state of knowledge concerning the relationship between networks and SME internationalisation in the software industry. Syntheses of the 32 studies indicate the appearance of four general patterns in network influences on internationalisation. First, networks influence both reactive and proactive internationalisation strategies. Second, networks influence the selection of foreign markets. Third, networks influence the choice of entry modes in those markets. Fourth, firm motivations to create and leverage networks for internationalisation develop from software industry-specific characteristics. Discussion of each of these findings follows.

First, findings presented in Section 3.5.3 illustrate SMEs follow similar patterns of network influences on both reactive and proactive internationalisation strategies. Depending on the reactive or proactive nature of the internationalisation strategy, SMEs rely on different stimuli to create and leverage networks. Through interaction with different firms in their network, software SMEs develop relational competencies, thus accelerating internal and external knowledge integration (Lorenzoni & Lipparini, 1999).

Network relationships influence reactive strategies primarily through unsolicited orders, client-followership, or piggybacking. Network relationships formed through social, economic, or technology ties often result in unsolicited foreign enquiries which trigger international expansion. This finding supports previous work by Ellis and Pecotich (2001, p.125) showing that:

> *"… the communication of information regarding foreign opportunities is largely determined by the degree of social contact linking decisions makers [buyers, sellers, or mutually related third party] with others abroad".*

Software SMEs also follow existing customers overseas. The close relationships between software SMEs and hardware manufacturers or system platform providers described in Section 3.5.1 illuminates why client-followership or piggybacking are common internationalisation strategies. SMEs producing project-based software need to maintain a close alliance with internationalising customers and therefore follow their customers into foreign markets. Alternatively, SMEs producing product-based software often provide only one piece of the complete computer package. Therefore, these SMEs often align themselves with major hardware producers; following them overseas or piggybacking on the other firm's existing distribution channels firms for international expansion.

The review findings also indicate patterns of network influences concerning proactive internationalisation strategies. Country-of-origin characteristics, such as a small domestic market size, encourage software SMEs to proactively seek markets for their niche offerings. Product characteristics, such as short product life cycles and heavy front-end R&D costs spur software SMEs to develop and leverage network relationships for rapid internationalisation. In addition, the entrepreneur or TMT's previous international experience influences the level and direction of proactive internationalisation, often based on previously established networks.

Patterns of network influences on internationalisation by software SMEs are also found in both market selection and entry mode decisions. The review findings indicate that network influences on foreign market selection decisions seem to be strongest when the SME is initiating internationalisation. When starting to expand internationally, software SMEs rely on their established networks (developed domestically or based on previous TMT experiences) to provide direction on which markets to enter and/or the pathway to follow internationally. Once the firm becomes established internationally and gains experiential knowledge, market selection decisions may change to a more pre-

emptive search for locations with product-market potential. Interestingly, the review findings show no similar change in network influences in terms of entry mode decisions. SMEs tend to remain guided by network influences on how they should enter foreign markets, irrespective of their stage of internationalisation. Changes in entry modes often depend on customer needs in the market.

Finally, the patterns of network influences in internationalisation previously discussed seem to be linked to three characteristics specific to the software industry. First, the high technological intensity and turbulent environment found in the software industry drives SMEs to form networks in order to source and monitor rapid product and market changes. Second, the augmented nature of software, whether product-based or project-based, encourages high levels of network collaboration. Third, the symbiotic relationship between software providers and hardware manufacturers and/or system platform operators creates mutual incentives to create value through network relationships. In summary, characteristics of the software industry encourage SMEs to create networks, expand into international markets, and utilise their networks as a means to facilitate this process.

The review's findings extend previous IE research comparing internationalisation strategies of SMEs in knowledge-intensive and traditional industries. Irrespective of the industry, Bell, Crick and Young (2004) find favourable/unfavourable domestic market conditions, industry trends, and globalisation trends important external conditions influencing SME internationalsation and find network relationships important for the process. However, they also found knowledge-intensive SMEs follow more rapid and proactive strategies including:

> *"…an international orientation from inception; a new product development process focusing upon the requirements of international markets; gravitation towards lead markets in a particular industry section; a planned and structured approach to overseas markets; rapid internationalisation; and more variety in market servicing modes" (Bell, et al., 2004, p. 46).*

The current review identifies patterns of network influences on internationalsation strategies within the globally integrated, knowledge-intensive software industry. In doing so, this research contributes to a better understand of why SMEs operating in these dynamic, turbulent industries develop networks for internationalisation.

3.7 Limitations and Future Research Opportunities

Through the qualitative interpretative approach and systematic review methodology, this study's findings take a first step towards increasing knowledge on how industry-based forces influence network development by internationalising SMEs. However, the methodological choices taken in this study also create several limitations. Three limitations are discussed in the following section as are several future research opportunities.

First, a limitation of the single-industry research design is that it does not allow for a comparative perspective. How can idiosyncratic characteristics of the software industry be assessed without comparison to other industries? Although common patterns emerge from this single-industry review, the causes or the more relevant industry forces in the process are unclear. These factors can only be understood through a comparison of similar industry-specific reviews. However, this review takes the first step towards understanding how industry idiosyncrasies influence the relationship between networks and SME internationalisation. Systematic literature reviews of other industry-specific empirical research are needed to complete the next step.

Second, although a thorough attempt has been made to provide a clear audit trail, emphasising a priori protocols and providing search procedure details, a limitation of this systematic review is that it is based on a sole author's interpretation of the literature. To minimise this limitation, findings were presented at the 2009 Vaasa International Business doctoral colloquium and at the 2010 Academy of International Business conference. From these venues, the author received written and verbal feedback from noted IE scholars, including five authors whose work are featured in this review. However, future research undertaking qualitative inductive approaches to systematic literature

reviews should incorporate additional mechanisms for verification by other scholars.

Finally, the decision to undertake a review of empirical published literature rather than conduct primary research limits observations and interpretations to information provided in the original studies. A surprising lack of product, industry, and country-specific discussion appears across the studies. This observation informs future empirical research opportunities and suggests three areas of inquiry.

First, findings from this review indicate network relationships and internationalisation strategies differ based on the type of software product offered (Bell, 1995; Kuivalainen et al. 2007; Ojala & Tyryäinen, 2007a; Ruokonen, 2008). Offerings in the software industry can range from pre-packaged products requiring little customer interaction to highly customised services. Future research on the internationalisation process of software SMEs should explore in greater depth how product characteristics influence the relationship between networks and internationalisation.

Second, extant strategic management and international business literature show industry influences may affect a firm's motivation to create networks, to expand into international markets, and to utilise these networks in the processes. This review highlights the prevalence of network influences in research on software SME internationalisation and isolates six software industry characteristics commonly discussed as important for their studies. However, few studies actually discuss the influence of the industry on SME internationalisation decisions and specifically on the decision to form networks for this process. Future research on the internationalisation process of software SMEs should explore in greater depth how industry characteristics influence internationalisation networks.

Third, findings from this review highlight country-of-origin influences in terms of the location of researched firms. These country-level influences might account for the strong presence of network-related research. As seen in Tables 3.5 and 3.6, research on software SME internationalisation primarily targets

firms originating from small, wealthy European countries. The question arises as to how domestic market conditions (e.g., domestic market size, level of economic development, and cultural cooperative norms) influence the relationship between networks and internationalisation by software SMEs. Future research on the internationalisation process of software SMEs should explore in greater depth how country-related characteristics affect network development decision-making.

3.8 Implications

The findings provide implications for researchers, managers, and policy-makers. For IE scholars, this study contributes towards expanding cumulative knowledge on the relationship between networks and internationalisation. Specifically, this study argues that external environmental conditions, in terms of the industry in which a firm operates, influence the relationship between networks and internationalisation. Synthesis of the data indicates that firms operating in the same industry follow relatively similar patterns of network influences on internationalsation strategies. In addition, industry-specific characteristics, such as the high level of technological dynamism, seem to drive SMEs to develop and leverage networks for internationalisation. Given the important role industry forces seem to play in internationalisation process of software SMEs, an implication for future IE research is to consider which industry forces are most relevant in the process. In addition, care should be taken to acknowledge possible industry-related influences when developing network theories of internationalisation based on firms from knowledge-intensive, high-technology industries such as software. Do all SMEs rely heavily on network influences for internationalisation or do the motivations, opportunities, and necessities for SMEs to develop networks differ by industry? Future research in this area is needed.

What implications do the review's findings have for software entrepreneurs or TMTs? First, although software managers are most likely already cognizant of industry pressures to internationalise and to develop networks to facilitate this process, this review confirms that these pressures not simply firm-specific but rather industry-specific. In addition, the pressures are more intense for firms

originating from small domestic markets. Therefore, an implication for software managers is to incorporate a greater awareness of external environmental pressures on internal decision-making regarding network influences for internationalisation.

A second managerial implication emerging from this review is that the motivations to develop networks differ depending on product-based or project-based offerings. However, distinct characteristics of software industry are the ambiguity between product and service offerings and the fluidity with which software firms may adjust their portfolios. Therefore, findings imply software managers need to incorporate a greater awareness of this fluidity into their network development agenda.

A third managerial implication based from the review findings is the significant role network relationships play in several aspects of internationalisation strategies ranging from the reactive/proactive nature of the strategy to the market selection and the entry mode decisions. The noteworthy role that the entrepreneur's or TMT's networks plays in the initial stages of internationalisation is also insightful. This finding has implications for software managers considering international expansion. Entrepreneurs with previous international work and educational experiences may leverage these relationships to provide a jump-start for gaining international market knowledge. Entrepreneurs without these relationships, who would like to proactively pursue international markets, may look towards domestic networks as a means to source international contacts. Because network relationships provide access to external resources, firms that invest in building their relational competencies may be able to compensate for internal resource scarcity and gain international market knowledge more efficiently.

For policy-makers, findings from this review indicate that network relationships play a significant role in stimulating international commercialisation options for domestic SMEs operating in knowledge-intensive industries like software. Two implications arise from these findings for policy-makers striving to grow knowledge-intensive industries domestically. First, industry-specific factors encourage internationalisation and the need to develop networks for this

process. These networks include domestic relationships from local clusters and foreign multinational firms. Therefore, an implication for government is that policy support which encourages SMEs to interact with each other, with experienced international entrepreneurs, and with foreign multinationals may assist domestic SMEs to develop networks and duly inspire them to internationalise. Second, prior international experience allows entrepreneurs to leverage these networks to grow their businesses overseas. Therefore, policies supporting international education or business experience may provide future entrepreneurs the opportunity to develop foreign networks which may prove useful in future new ventures.

3.9 Conclusions

In one of the earliest reviews of IE literature, Coviello and McAuley (1999) call for SME researchers to pool together industry-specific findings for a more holistic and synergistic understanding of the internationalisation process. The current review of IE literature takes a first step towards answering their call. The objective of this systematic literature review is to synthesise global evidence on patterns of network influences in SME internationalisation of firms within a single industry. In doing so, the research aims to contribute towards reducing the knowledge gap on how industry-related environmental forces influence the relationship between networks and internationalisation.

Careful analysis of 32 articles representing software SMEs in 11 countries, finds patterns of network influences in internationalisation. Network relationships influence both reactive and proactive internationalisation strategies. Reactive influences occur when a firm receives unsolicited foreign orders, follows a customer overseas, or distributes worldwide through a customer's established network. Alternatively, proactive influences happen when the firm leverages established networks to enter new markets. The global mind-set and international experience of the entrepreneurial team act as the primary catalyst for adopting a proactive strategy of utilising networks for internationalisation. Another common feature for SMEs operating in the software industry is the influence of network relationships on a firm's foreign market selection and mode of entry decisions. Firms following reactive

strategies tend to initially enter foreign markets based on the location of established or newly formed network relationships and rely on these relationships to jump-start experiential learning. Firms following proactive strategies often utilise network relationships held by the TMT to direct the initial market decisions. In either strategy, subsequent market selection decisions gradually become driven by specific market opportunities rather than established networks. In summary, a common pattern found in this analysis is that network relationships seem to provide direction or a pathway by which software SMEs can initiate internationalisation.

Differences in why software SMEs are motivated to develop networks and to internationalise can be classified as product-related or market-related. Product-related differences refer to the type of software offered. As discussed in Section 3.5.1.6, software offerings vary dramatically in terms of their product or service intensity. Based on the characteristics of the software, interactions with network partners may be casual or critical. Market-related differences motivating software SMEs to develop and leverage networks for internationalisation refer to institutional domestic market conditions. Home-country characteristics such as market size and country-of-origin reputation influence international network development.

Two contributions to IE literature from this research are as follows. First, the unique methodological design provides a narrow focus on specific industry-level factors while simultaneously proving a wide scope to accommodate the globally integrated nature of the software industry. Thus, this study presents the first comprehensive review of SME internationalisation and the influence of networks in this process, for a single industry. In doing so, this review takes a first step towards understanding how industry idiosyncrasies influence the relationship between networks and SME internationalisation. Systematic literature reviews of other industry-specific empirical research are needed to complete the next step. Through a comparison of similar industry-specific reviews understanding on how industry forces cause the network patterns or which industry forces are most relevant in the process can be gained. Second, the review highlights industry-level similarities on how and why SMEs develop relational

competencies for internationalisation. In the dynamic, turbulent, and uncharted nature of business operations in knowledge-intensive industries, characteristic of the industry influence SMEs to create networks, expand into international markets, and utilise their networks as a means to facilitate this process.

Chapter 4

Innovation and Internationalisation Network Relationships:
New Zealand Software SMEs

4.1 Chapter Overview

This chapter takes a micro-level perspective to explore the relationship between networks and internationalisation for firms operating in the same country and the same industry. It presents a firm focus study investigating types of innovation, internationalisation, and networks used by New Zealand small and medium-sized enterprises (SMEs) operating within the globally integrated software industry. Whereas the studies in previous chapters address country and industry-related issues influencing network development for internationalisation, this study explores internal firm factors. As a result, this study moves the analysis of network relationships in SME internationalisation down to a firm-level perspective as shown in the shaded area in Figure 4.1.

Figure 4.1 The Firm Focus
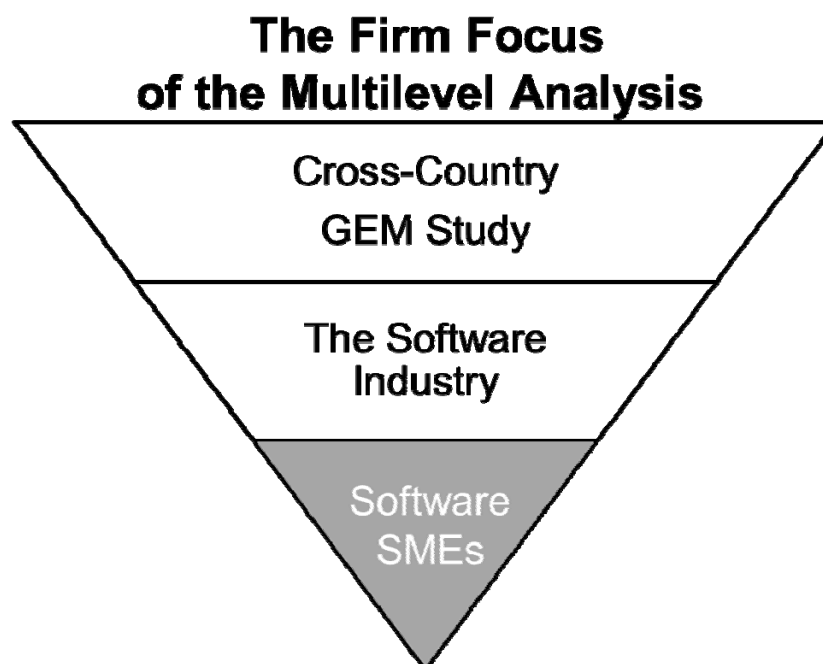
This study's objective is to better understand what network relationships are used by SMEs to develop innovations and to market those innovations internationally. Findings from the previous studies support the research design in two ways. First, Chapter 2's global focus study highlights country-level institutional and domestic market conditions theoretically relevant for international engagement by innovative entrepreneurial firms. New Zealand characterises an institutional environment supportive of innovation, international trade, and networks. New Zealand's domestic market conditions epitomise a small, open, developed country populated by innovative entrepreneurial firms (NZ-MED, 2007; OECD, 2007a). Based on these characteristics, both New Zealand's institutional environment and domestic market conditions encourage SME internationalisation. Therefore, New Zealand presents an ideal case to explore the research objectives.

Second, Chapter 3's industry focus study highlights software industry characteristics which encourage SMEs to create networks, expand into international markets, and utilise their networks as a means to facilitate this process. Findings presented in Chapter 3 show SMEs operating in the global software industry demonstrate similar patterns of network influence on foreign market strategies, market selection, and entry mode decisions. The industry focus study's findings also propose that differences in the international experience of the SMEs' founder and/or top management team (TMT) as well as domestic market conditions may affect the firm's motivations to develop internationalisation networks. Based on findings from the industry focus study, research on software SMEs provide an opportune case to explore more in-depth what network relationships are used in internationalisation and innovation processes. Therefore the selection SMEs from the New Zealand software industry as a focus for the study's exploration into the relationship between innovation, internationalisation, and networks builds on the previous study's research and follows Eisenhardt (1989) and Pettigrew's (1990) recommendations to select "transparently observable" cases.

Using multiple case study methods, this research explores what network relationships are used by SMEs in the process of innovation and

internationalisation. This study builds on the resource-based view theory (Barney, 1991; Wernerfelt, 1984) and argues network relational competencies to be heterogeneous firm resources that impact both innovation and internationalisation strategies (Loane & Bell, 2006). Understanding of internal factors influencing network development is gained through in-depth case study analysis of 10 SMEs. Findings indicate patterns in network usage related to the founder's prior entrepreneurial experience and the firm size, as well as the type of innovation (incremental/radical) and the type of internationalisation (incremental/radical). Findings also highlight a strong relationship between the entrepreneur's prior international business experience and/or exposure to foreign technology with the formation of the new venture. External environmental influences from both New Zealand and the software industry feature prominently in the innovation, internationalisation, and network decision-making processes.

An earlier version of this study was published in 2010 together with Professor Sylvie Chetty in the *European Journal of Marketing*, Volume 44, No 11-12, pages 1725-1743. This journal is a product of Emerald Publishing. Emerald Publishing's copyright agreement states that the authors' version of the research (with or without editorial changes) may be presented in the PhD thesis whereas the Emerald brand printed version may not. The direct link to the published article is available at the following internet address: http://www.emeraldinsight.com/journals.htm?issn=0309-566&volume =44&issue=11&articleid=891427l. Massey University's Statement of Author's Contribution (Form DRC16) appears in Appendix E. The study presented in this chapter however substantially extends the material previously published to provide a comprehensive description of the research findings as aligned with thesis objectives.

4.2 Study Background

Innovation and internationalisation are important for a small open economy such as New Zealand where 96% of businesses have less than 20 employees (NZ-MED, 2007). Other small open economies such as Australia, Sweden, Finland, and Denmark also have recognised the importance of encouraging their SMEs to innovate and to internationalise in order to grow their economies. In such countries, government initiatives aim to enhance innovation and to facilitate the internationalisation of these SMEs through technology grants, and export promotion programmes.

Indeed, innovation is considered to be an important source of competitive advantage for firms to compete in the global marketplace (Hämäläinen & Schienstock, 2000; Pla-Barber & Alegre, 2007). The genesis, essence, and management of innovation have emerged over the last 20 years as growing academic research topics (Gopalakrishnan & Damanpour, 1997; OECD, 2005; UK-HM Treasury & Sainsbury, 2007). Political and technological transformations increase global economic integration and highlight the importance of innovation for economic growth and productivity. Although numerous empirical studies investigate the multidimensional aspects of innovation, surprisingly little attention has been given to SME innovation in international business even though SMEs are the predominant business form in most countries (OECD, 2010). The role of innovation and internationalisation in SMEs is still an emerging area of academic research (Darroch & McNaughton, 2003; Nassimbeni, 2001; Pla-Barber & Alegre, 2007; Tödtling & Kaufmann, 2001).

SMEs tend to compensate for fewer internal resources available for innovation (Hämäläinen & Schienstock, 2000; Teece, 1986) and internationalisation (Chetty & Wilson, 2003) by acquiring external resources and complementary assets through their network relationships. Network relationships include the firm's customers, suppliers, competitors, government, and educational institutions (Johanson & Mattsson, 1988). Network relationships also provide the SME with 'diversity of knowledge', a key ingredient for recognising potential new innovations (Möller et al., 2005) and

opportunities in international markets (Johanson & Vahlne, 2006). The SME's ability to generate, build, and/or leverage network relationships for innovation and internationalisation constitutes a unique and valuable resource for the firm.

Although the extant literature includes several studies of networks and innovation or networks and internationalisation, a dearth of SME research combines all three research streams, namely, internationalisation, innovation, and networks. Thus, a greater understanding of innovation and the internationalisation of SMEs in the context of networks addresses a gap in the literature. Consequently, the purpose of this research is to examine what network relationships are used in SME innovation and internationalisation processes.

The study is structured as follows. Section 4.3 reviews the related literature pertaining to innovation, internationalisation, and networks whilst proposing an integration of these concepts under the resource-based view theory. Section 4.4 describes the method of research used in this study. Section 4.5 presents the study findings relating to firm, innovation, internationalisation, and network characteristics. The discussion appears in Section 4.6 and Section 4.7 acknowledges the study's limitations whilst proposing future research opportunities. Section 4.8 presents the implications from the study and Section 4.9 draws conclusions.

4.3 Theoretical Framework

This research endorses a holistic perspective to explore the relationship between innovation, internationalisation, and networks. The resource-based view (RBV) theory provides a useful framework to integrate these concepts in the context of SME internationalisation. RBV theory focuses on the firm-level origins of competitive advantage to ask why firms in the same industry differ (Barney, 1991; Wernerfelt, 1984). Resources that are valuable, rare, inimitable, and non-substitutable create a competitive advantage for the firm (Barney, 1991). RBV theory highlights how capabilities to access, mobilise, and leverage internal and external tacit knowledge create competitive advantages for SME internationalisation (Coviello, 2006; Liesch & Knight, 1999; Peng, 2001). RBV

theory supports research into the relationship between innovation, internationalisation, and networks by reinforcing the idea that firms need not own the resources to create a competitive advantage. Rather, the firm's ability to generate and leverage networks for innovation and for internationalisation is, in itself, an important resource for creating competitive advantage (Coviello, 2006; Lu et al., 2010). RBV theory explains how through the creation of relational capabilities competitive advantage may be achieved. Lorenzoni and Lipparini (1999, p. 317) define relational capabilities as the capability to interact with other companies. These authors propose that relational capabilities accelerate internal and external knowledge integration resulting in greater innovation and growth. IE scholars support RBV theory as proving a useful foundation on which to explore the entrepreneurial firm's ability to build and/or leverage resources and capabilities for international expansion.

> *"Thus, the decision to internationalise incrementally or rapidly and whether to adopt atomistic or networks approaches are not only based on perceptions of opportunity, but also upon the resources the firm has at its disposal or can leverage from external sources" (Bell, Crick & Young, 2004, p. 47).*

4.3.1 Innovation

Innovation is a multidimensional process implying newness. For this study innovation is defined as "the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation, or external relations" (OECD, 2005, p. 48). This definition takes a holistic approach to innovation thus accounting for 'soft innovations', which often associate with knowledge-intensive and service industries (OECD, 2007a; Sheehan, 2006). Furthermore, this definition has sufficient depth to classify the innovations according to products, processes, marketing, or organisational typologies.

Following the OECD's (2005) definition, product innovations are goods or services significantly improved to increase sales or improve customer benefits whereas process innovations are new production or delivery methods aimed at decreasing costs, increasing quality, or improving services. Marketing innovations significantly improve product design or packaging, placement,

pricing, promotion, or positioning strategies aimed to increase firm sales. Organisational innovations change business practices or workplace organisation trying to reduce administrative costs or increase employee satisfaction.

An innovation's impact on the firm can be radical or incremental (Damanpour, 1991; Dewar & Dutton, 1986; Gopalakrishnan & Damanpour, 1997). The dichotomy between radical and incremental innovation relates to the degree of change associated with the innovation and the resulting impact on a firm's perceived risk and existing core competencies. This study uses Gopalakrishnan and Damanpour's (1997) classification of radical innovations as those which "produce fundamental changes in the activities of an organisation or an industry and represent clear departures from existing practices" and incremental innovations as those which "merely call for marginal departure from existing practices; they mainly reinforce the existing capabilities of organisations" (Gopalakrishnan & Damanpour, 1997, p. 18).

4.3.2 Internationalisation

The term internationalisation can include inward as well as outward involvement in international business. This study uses Calof and Beamish's (1995, p.116) definition of internationalisation as, "the process of adapting firms' operations (strategy, structure, resources, etc.) to international environments". This definition includes the concept of de-internationalisation, suggesting a firm's withdrawal from international markets, reduction of international sales, or dropping a product. Other options include pulling out from foreign direct investment and reverting to exporting (Chetty, 1999), or completely ceasing international activities (Benito & Welch, 1997).

One of the most frequently cited traditional approaches to internationalisation is the 'Uppsala model' (Johanson & Vahlne, 1977; Johanson & Wiedersheim-Paul, 1975). According to this model, the firm starts in the domestic market and has no exports. After establishing a strong domestic market, the firm starts exporting through an agent, then sets up a sales subsidiary in the foreign market, and then finally opens a manufacturing subsidiary in the foreign market.

This process also is referred to as the internationalisation mode with direct exports and agents considered to be low commitment mode, and sales and manufacturing subsidiaries to be high commitment mode. The first foreign market the firm exports to will have a close psychic distance to the firm's domestic market. Psychic distance includes factors such as, similar language, culture, economic development, and business practices as in the firm's domestic market (Johanson & Wiedersheim-Paul, 1975). Johanson and Vahlne (1977) emphasise experiential knowledge's value and they propose that internationalisation is an incremental process. As the firm gains more market knowledge, more resources are committed to that market.

The emerging literature on international new ventures and born globals challenges the traditional view that firms internationalise incrementally (Jolly, Alahuta, & Jeannet, 1992; Knight & Cavusgil, 1996; Laanti, Gabrielsson, & Gabrielsson, 2007; Oviatt & McDougall, 1994; Rennie, 1993). Researchers on born globals argue rapid technological change and economic liberalisation forces firms to expedite their internationalisation process rather than to internationalise incrementally. Innovations also are launched globally to benefit from first mover advantage (Chetty & Campbell-Hunt, 2004; Jones, 1999). Bell (1995) and Majkgård and Sharma (1998) find that firms in the software industry tend to internationalise rapidly.

Various definitions describe the term 'born global'. Rennie (1993) defines born globals as firms that internationalise within two years of inception and have 75% or more of their sales in international markets. Chetty and Campbell-Hunt (2004) define the born global firm as having either a small or no domestic market before starting to internationalise. These firms start to internationalise within two years of inception and have 80% or more of total sales to foreign markets.

4.3.3 Network Relationships

According to Håkansson and Snehota (1989) 'no business is an island' because business takes place in a network context and an interdependency exists amongst network members. Similarly, Johanson and Mattsson (1988) state that

international business occurs in a network setting. Innovation researchers also emphasise that innovation does not occur in isolation but within a network setting (Mohannak, 2007; Möller et al., 2005; Pittaway et al., 2004; Powell et al., 1996; Shane & Venkataraman, 2000; Tödtling & Kaufmann, 2001). Johanson and Mattsson (1988) define a firm's network as the long-term business relationships with customers, distributors, suppliers, competitors, and government. This network also includes the interconnected relationships of these partners, (e.g. customer's customer, customer's suppliers, and customer's competitors). The dyadic relationship between two parties is influenced by the partner's other relationships as they provide opportunities as well as constraints (Anderson et al., 1994; Grabher, 1993). Other researchers (Chetty & Wilson, 2003; Hite & Hesterly, 2001; Lechner & Dowling, 2003) highlight the importance of social relationships in SME networks. These social relationships provide the SMEs with information, finance, access to other networks, and reputation assets. For this study, the term network relationship refers to the dyadic relationship between two parties, such as a firm and business partners, as well as social relationships. Network also refers to the interconnected relationships, such as distributors' other relationships with customers and competitors.

4.3.4 Innovation, Internationalisation, and Network Relationships

Network influences appear in both the innovation and internationalisation literature streams. In their review of 174 studies linking innovation and network behaviour of firms, Pittaway et al. (2004, p. 145) identify six innovation benefits that firms receive from their networks namely: risk sharing, access to new markets and technologies, commercialisation speed, accumulation of complementary assets, protection of property rights, and the role networks play as avenues to external knowledge. The innovation process relies on the firm's ability to acquire knowledge and other resources from external organisations such as customers, suppliers, competitors, business support organisations, trade bodies, and public institutions (Mohannak, 2007; Möller et al., 2005). SMEs tend to work closely with their customers to obtain ideas for new innovations which they cannot develop on their own (Chetty & Campbell-Hunt,

2004; Tödtling & Kaufmann, 2001). Tödtling and Kaufmann (2001) find SMEs tend to collaborate mainly with customers, resulting in an abundance of incremental innovations. Suppliers and consultants also are important in SME innovation; however, comparatively few firms collaborate with competitors (Tödtling & Kaufmann, 2001). The close interactions with customers and distributors provide a feedback loop to the firm about performance improvement and new innovations (Kline & Rosenberg, 1986).

Networks also identify opportunities during the firm's internationalisation process (Johanson & Vahlne, 2006). Several studies find SMEs rely on their network relationships to learn about internationalisation, to select their mode of internationalisation, to acquire information about new markets and to acquire resources from them in order to internationalise (Chetty & Blankenburg Holm, 2000; Chetty & Wilson, 2003).

In summary, the three streams of literature show innovation and internationalisation are linked. The evidence suggests a firm's innovation and internationalisation occur in a network setting. For example, Granstrand and Sjölander (1990) show the linkage between innovation and internationalisation when large firms acquire small ones for their technology. Firms internationalise by scouting around for the latest innovation in a global market. Through a review of the literature, however, various gaps are identified. Consequently, by combining the extant literature on innovation, internationalisation, and networks this research aims to identify what network relationships are used in the innovation and internationalisation processes and how these relationship vary depending on the type of innovation and the type of internationalisation.

4.4 Methodology

Qualitative methods are deemed appropriate for this exploratory study and for addressing 'what', 'how', and 'why' questions. In addition, qualitative methods provide the opportunity to obtain rich detail on what network relationships are used by SMEs to develop innovations for entering and expanding into international markets. An in-depth qualitative research based on a historically retrospective approach allows an opportunity to gain deep insight into this

phenomenon. The unit of analysis is the firm, and multiple cases are used rather than a single case. Strauss and Corbin (1990) and Yin (1989) mention multiple cases but Eisenhardt (1989) writes in detail about their theory-building properties.

The selection of the software industry for study of SME innovation, internationalisation, and network relationships in the software industry is motivated by two reasons. First, SMEs are the prevailing form of business operating in the software industry worldwide (OECD, 2008b). The software industry is an attractive industry for entrepreneurial ventures due to the low-entry barriers and global niche market opportunities (OECD, 2007b). As such, policy-makers often target the software industry for economic growth objectives (OECD, 2008a). Second, the fast-paced and dynamic environment of the technology-driven software industry highlights the importance of innovation for these firms (Möller et al., 2005). Limited resources, however, constrain their development and commercialisation abilities (Tödtling & Kaufmann, 2001). Thus, this research heeds advice that cases be selected where the phenomenon under study is transparently observable (Eisenhardt, 1989; Pettigrew, 1990; Yin, 1989).

Purposeful sampling selected ten firms from the software industry in New Zealand. A panel of six experts assisted with identifying these firms. This panel included members from economic development agencies, software cluster facilitators, business consultants, and industry boards of directors. The panel used the following criteria given to them to select the ten firms. First, they were chosen for their history of survival and growth. Second, they were at different stages of the internationalisation process. Third, the firms were deemed successful because they had won awards for their achievements in innovation and/or exports. Fourth, the firms employ between 10 and 250 employees.[20] Fifth, the founders and/or senior management had to be committed and available for participation in this study.

---

[20] This research follows the European Unions' definition of an SME as a firm with between 10 and 250 full time employees (OECD, 2010). Please refer to Section 1.2.2, page 11 for further discussion on SME definitions.

Multiple data collection sources were used but the main method of data collection was through semi-structured interviews. The interviews generally involved two interviewers, lasted between two and three hours, and followed a list of research topics. Secondary data included written documents, such as internal reports and archival data provided by the firms wherever possible and publicly available information from websites and press releases. In total, 13 respondents were interviewed in the 10 firms as seven firms had one respondent and three firms had two respondents. To get the long historical coverage the chosen source in each organisation was the founder or Chief Executive Officer (CEO) or equivalent. On occasion, other senior managers such as the International Business Manager or Marketing Manager were also interviewed. The original founders were interviewed in six firms, and the current CEOs were interviewed in the remaining four firms. If two people were interviewed in an organisation, they were asked different questions, which related to their area of decision-making.

Secondary data sources were also used in this study. External data sources such as publicly available information from websites and press releases were used as well as internal data sources provided by the firms such as internal reports. Prior to the interviews, the secondary data was collated to create a background profile documenting the firm's innovation, internationalisation, and critical event timeline. Network details including prime customers, distributors, and competitors both domestically and internationally were documented based on available information. Details of associations with industry, research institutions, and government agencies were also documented. Finally, evidence of education and work experiences for the firms' founders and/or CEOs were summarised as part of the firm profile.

During the interviews, the profile information was validated, substantiated, and/or altered as a result of primary information collected therein. The reliability of respondents' accounts was reinforced by using the techniques suggested by Huber and Power (1985). The profile data was used to probe for more details as well as to aid and check respondents' recall of events. For example, in one case, the profile information helped remind a firm's CEO of their Canadian

distributor's licensing agreement which deviated from their standard practice. In this interview, the CEO was impressed with the thorough background research done on the firm. However, in another interview, the CEO of the firm was overwhelmed by the full array of information already collected. In this case, care had to be taken to reassure the executive that his insight was not only valuable but critical to understanding the motivations and strategies behind the historical facts. Clearly the detailed firm profiles, developed from secondary data sources, provided a strong foundation to begin the interview process. However, it was the primary data, collected through the personal interviews, which verified, enhanced, and enriched secondary data cognition. Through this iterative process, a more holistic understanding of the firm's complex relationships evolved.

After the interviews, triangulation was conducted by comparing information acquired from the respondents with the pre-interview profiles. If the primary and secondary data conflicted, additional telephone interviews were conducted to clarify any points of confusion. This occurred in three cases. As a further verification, the interview transcripts were sent to the respondents to confirm their accuracy prior to commencing data analysis.

The approved interview transcripts were then combined with documentary evidence to produce a detailed case history of each firm. An independent case study writer, who was not involved in the data collection, combined the transcripts and secondary data to write up the cases. The two interviewers and the case study writer checked transcripts for accuracy, their interpretation, and inter-coder agreement. The case study writer was an independent observer and thus addressed reliability issues by checking for biases and accuracy in data interpretation. In addition, the case study writer's data interpretation acted as a neutral check-point to deal with differences of opinion that occasionally arose between the two interviewer's interpretations of the data. As with the original transcripts, the formal case histories were reviewed and approved by the respondents.

The analysis involved a systematic search of the transcripts and case studies of the ten firms. Qualitative data analyses techniques advocated by Miles and

Huberman (1984) were employed as was NVivo software. Tables and models were constructed based on the transcripts and case studies. Analysis included regularly moving backwards and forwards between the tables, case studies, and transcripts to confirm conclusions and interpretations. The research findings also were presented to respondents and to members of the software industry through seminars allowing for open challenge of the event interpretations.

In order to achieve the research aims of identifying the types of innovation, internationalisation, and networks used by the software SMEs, the analysis followed a three-step process. In step one, each firm's innovation type and degree of change (radical versus incremental) was identified. Firms can be involved in different overlapping phases of the innovation process, often with multiple innovations spawned from initial concepts (Palmberg, 2006). As such, two key objectives were isolating the specific innovation from the participant's perspective as critical to the firm's internationalisation process and identifying at what stage this innovation occurred in the company's history. To capture this facet of the study, respondents were asked to select an innovation, they perceived to be the most critical to their firm's international success. Product innovations were selected by seven firms; consistent with Tödtling and Kaufmann's (2001) research, showing that high-technology SMEs mainly introduce product innovations. Three firms selected processes as their innovation for this study.

In order to determine the degree of change associated with the innovation, patterns in the empirical data were compared with extant literature definitions of radical versus incremental innovation (Damanpour, 1991; Gopalakrishnan & Damanpour, 1997). The transcripts were studied systematically to identify words, phrases, or explanations that helped determine the degree of change associated with an innovation. Firms with products or processes representing a clear departure from existing practices with fundamental changes to the firm's capabilities were categorised as having radical innovation, whereas firms with products or processes representing a marginal departure from existing practices, which enhances the firm's capabilities, were categorised as having

incremental innovation. Due to the definitional ambiguity regarding the terms incremental and radical, and possible associated biases, the inductive processes used in this study was deemed more reliable a method to assess the incremental/radical nature of the innovation as compared to simply asking the respondents.

In step two, the firm's internationalisation process and pace of change (radical versus incremental) was identified. Definitions for radical versus incremental internationalisation in the literature (Rennie, 1993; Chetty & Campbell-Hunt, 2004) were compared with the data. The three areas of comparison included: internationalisation from year of inception, percentage of international sales, and the number of countries in which the firm does business. Consequently, radical internationalisation is categorised as firms that started to internationalise within three years of inception and have more than 75% of their sales in over 20 countries. Incremental internationalisation refers to firms that internationalise after three years of inception and have sales of fewer than 75% in less than 20 countries.

In step three, the firm's type of network relationships (e.g., social, customer, supplier, etc.) was identified. In addition, the networks were classified as relating to innovation or internationalisation based on the context of the discussion. As with the previous two steps, a systematic review of the transcripts was undertaken in order to identify network relationships involved in the firm's innovation development and international expansion stages. A limitation of this process is that no measure of network strength was identified or clarified during the interviews. For example, two firms may have discussed using university relationships in their innovation develop stage and therefore both will be classified as such. However, the CEO in one firm may have a casual alumni involvement with the university which influenced their innovation development whereas another firm may have a strong co-development agreement with the university including funding PhD research and internships. Although the strength of the network ties is not captured in the current study, the types of network relationships and their association with either innovation or internationalisation are identified.

4.5 Findings

Table 4.1 provides an overview of the ten software firms involved in this study. In order to maintain anonymity, the real names of these firms are not disclosed. The identification numbers, G01-G10, represent the order in which the interviews took place. A discussion of the firm, innovation, internationalisation, networks, and external environmental characteristics follows.

Table 4.1 Case Study Firms

Characteristics	G01	G02	G03	G04	G05	G06	G07	G08	G09	G10
Firm										
Established	1985	1978	1996	1978	1999	1995	1978	1992	1993	1994
Entrp Type	Serial	Novice	Novice	Novice	Serial	Serial	Novice	Novice	Serial	Serial
Entp Intl Exper	UK:i,UK:w	~	UK:w,US:w	~	UK:i,US:w	US:w	UK:w	UK:i,UK:w	UK:w	US:w
Management	Entrp	Entrp	Entrp	Exec	Entrp	Entrp	Exec	Exec	Entrp	Entrp
Employees	30	85	10	60	25	18	250	250	250	100
Innovation										
Developed	1985	1979	2003	1981	1999	1995	1990	2007	1993	1995
Source	Com/AU	Cus/US	Entp/NZ	Cus/NZ	Entp/NZ	Entp/US	Entrp/NZ	Exec/NZ	Entrp/NZ	Entp/NZ
Prod./Process	Prod	Prod	Proc	Prod	Prod	Proc	Prod	Proc	Prod	Prod
Type	Incr	Rad	Incr	Incr	Rad	Incr	Rad	Rad	Rad	Incr
Internationalisation										
1st Sale	1988	1980	1996	1981	2005	2004	1997	2000	1993	1996
1st Market	AU	UK	US	AU	AU	AU	AU	AU	US	AU
No. Markets	20	56	4	27	3	1	4	4	20	21
Foreign Sales	75%	97%	20%	90%	20%	5%	60%	20%	80%	75%
Type	Rad	Rad	Incr	Rad	Incr	Incr	Incr	Incr	Rad	Rad

Network Type	G01		G02		G03		G04		G05		G06		G07		G08		G09		G10	
	INV	INT	INV	INT	INV	INT	INV	INT	INV	INT	INV	INT	INV	INT	INV	INT	INV	INT	INV	INT
Social	X		X	X	X	X	X	X	X	X	X	X	X		X					
Supplier	X				X		X				X	X				X			X	X
Distributor		X		X			X	X		X				X		X		X	X	X
Customer	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Financial	X	X					X	X						X		X	X	X	X	X
Competition		X	X	X				X	X	X	X		X	X	X	X	X	X	X	X
Industry	X	X	X				X	X		X		X	X	X	X	X			X	X
University	X		X	X	X		X	X	X	X	X	X	X			X	X		X	X
Research Inst							X										X			X
Government		X	X	X			X	X	X	X	X								X	X

Key

Entp Type:	**Novice**-first business ownership experience OR **Serial**-previous ownership experience
Entp Intl Exper:	Location and type of entrepreneur's personal international experience prior to starting the company: i-mmigrant, w-work.
Firm Management:	**Entrp**. - Entrepreneur and/or original company founder OR **Exec**- Professional executive hired after the company was founded
Innovation Source:	Origin of idea in terms of person and country: Com-competitor; Cus-customer; Entp-entrepreneur; Exec-Professional management
Innovation Type:	**Incr**-Incremental/enhances current capabilities OR **Rad**-Radical/challenges current capabilities
Country:	**AU**-Australia, **NZ**-New Zealand, **UK**-United Kingdom, **US**-United States of America
International Type:	**Incr**-Incremental:1st sale>3 yrs;Markets< 20;Foreign Sales<75% OR **Rad**-Radical:1st sale<3 yrs;Markets>20;Foreign Sales>75%
Network Type:	**INV**-Networks identified as important for this innovation & **INT**-Networks identified as important for internationalisation

4.5.1 Firm Characteristics

Two aspects of firm characteristics are presented. First findings related to the firm's formation are discussed; specifically the establishment year and the entrepreneur's prior experience. Second, findings on the firm's current status in terms of its management and size are discussed. The characteristics surrounding the firm's formation and its current status are relevant to achieving the aims of this research as these factors may influence the innovation, internationalisation, and network relationships used by the firms.

4.5.1.1 Establishment

Does age influence internationalisation, innovation, or networks? Three of the firms in this study, G02, G04 and G7, were established prior to 1984 and therefore had their infancy in the era of New Zealand protectionism. In 1984 New Zealand underwent radical free trade economic reforms which removed import tariffs and export subsidies.[21] The increased levels of international competition resulted in high numbers of domestic firm failures (OECD, 1990). However, the three older firms in this study not only survived this turbulent economic period, two of them, G02 and G04, have proceeded to develop substantial international business; each reporting foreign sales accounting for 90% or more of their total sales. However, youth is not a handicap for internationalsation as seen by G09 and G10. Both of these firms, formed in the early 1990s, report 75% or more of their total sales credited to foreign sales. Therefore, although the firms in this study have a 21 year range in age, the type of internationalisation is not age dependent. Age also seems to be unrelated to innovation. Two of three older firms indicate radical innovations relevant for their internationalisation. However in the case of G07, the innovation was not developed until 2007 and internationalisation is limited to a few markets. Finally, in terms of networks, no distinct patterns appear between the types of networks used and the age of the firms. Social networks are often associated with younger firms (Lechner & Dowling, 2003; Möller et al., 2005). However, all three older firms in this study rely on social networks for innovation with two of the

---

[21]New Zealand's economic reforms of 1984 are historically referred to as "Rogernomics" after the Minister of Finance, Roger Douglas. See Lattimore and McKeown, (1995).

three also indicating social networks influence their internationalisation. The two firms which do not indicate social networks as influential in their innovation and internationalisation processes, G09 and G10, were both formed in the mid-1990s. In summary the findings of this study show no clear relationship between firm age and the types of internationalisation, innovation, or networks used in these processes.

Does the entrepreneur's prior experience result in different innovation and internationalisation networks? According to Venkataraman (1997), individuals possess 'knowledge corridors' which develop through idiosyncratic prior work, education, or other experiences. These knowledge corridors explain why one person recognises and opportunity whilst another does not. Two aspects of the entrepreneur's prior experiences are relevant to the current study's aims: the founders' experiences in forming businesses and their international experiences.

According to Westhead, Ucbasaran, and Wright (2005), entrepreneurs can be classified into three types based on their previous/current business ownership experiences: novice entrepreneurs are individuals with no prior business ownership experience, serial entrepreneurs have previously sold/closed a business, and portfolio entrepreneurs concurrently own two or more businesses.

> *"It is reasonable to assume that serial and portfolio entrepreneurs, drawing upon their prior business ownership experience, will exhibit more effective information search behaviour than novice entrepreneurs, with regard to the opportunity identification process"* *Westhead et al. (2005, p. 396).*

Based on this classification, five firms were established by serial entrepreneurs and five firms were established by novice entrepreneurs. In their study of 354 UK entrepreneurs, Westhead, Ucbasaran, and Wright (2005), found that both novice and serial entrepreneurs relied heavily on social networks and customers as sources of information. However, novice entrepreneurial firms were significantly less likely to seek information from government agencies than serial entrepreneurial firms. The current study supports Westhead et al.'s findings. Table 4.1 highlights social networks as influential in all five novice

entrepreneur firms with three of them reporting social network important for both innovation and internationalisation. Firms started by serial entrepreneurs report social networks less often, with two firms, G09 and G10, excluding social networks from their list. Customer networks are influential for all firms. Two of the novice entrepreneurial firms report government networks as influential in their innovation and/or internationalisation processes as compared to four of the five serial entrepreneurial firms. In summary, the SMEs in this study that were established by entrepreneurs with previous business ownership experiences utilized less social networks and more government networks than firms formed by novice entrepreneurs.

The entrepreneur's prior experience internationally may also affect their innovation, internationalisation, and networks. Reuber and Fischer (1997), in their study of 49 Canadian software SMEs, find internationally experienced top management teams (TMTs) are resources for firm's which lead to a greater degree of internationalisation.

> *"Firms with more internationally experienced management teams use more foreign strategic partners and delay less in obtaining foreign sales after start-up which leads to a greater degree of internationalisation" (Rueber & Fischer, 1997 p. 820).*

Of the ten firms in this study, eight founders had international business experience prior to establishing their firms in New Zealand. Three of these firms, G01, G05, and G08, were founded by UK immigrants, the remaining five were native New Zealanders. With the exception of G01 and G09, the international work experience of the entrepreneurs greatly influenced the formation of their businesses in New Zealand. For example, the CEO of G06 had knowledge of an overseas technology which, combined with New Zealand-specific opportunities, created a catalyst for the entrepreneur to close one business and start another.

> *"Initially it was a social network-two or three of us thinking, 'Hey, this [the new technology] is kind of neat!'…But I liked it from a hobby perspective because I had another company and I wasn't doing that…So I opted to sell out of that business and came back here [New Zealand]….I thought it was a great opportunity to say to myself, right I'm going to pursue something that I'm actually passionately interested in rather than just because I know how to do it…I saw the*

> *potential…when I came back to New Zealand I could see applications where I could enhance, where I could take what they were doing [in the USA] and use it slightly differently".*

Similar the founder of G06, the founders of G03 and G10 initially applied overseas technology to opportunities uniquely available in New Zealand.

Although the findings indicate that a high percentage of this study's firms were founded by internationally experienced entrepreneurs, unlike Rueber and Fischer's (1997) study, no clear link appears between the internationally experienced entrepreneurs and greater international networks, reduced time to obtain foreign sales, or greater overall internationalisation. On the surface, it seems as if the two entrepreneurs with no prior international experience, G02 and G04, utilize above average internationalisation networks, began internationalisation within three years of formation, and are classified as having radical internationalisation. However, the facts do not reveal the entire story. In the case of G02, the radical product which propelled them into international markets and changed the trajectory of their firm, originated unsolicited from a US lawyer holding the license to new technology. In the case of G04, the New Zealand founders recognized they had no international experience and no interest to pursue that avenue of their business. As such, within six months of developing their innovative offering, the founders awarded the worldwide distribution rights to their domestic distributor.

> *"Our founders are both engineers and they always avoided issues of selling and marketing because they were more comfortable in the engineering world" (International Business Manager, G04).*

In 2007, G04 went through a lengthy legal battle and regained their international distribution rights. During that same time, the founders passed on the management of the company to an internationally experienced, well-networked CEO. G04 is now aggressively growing the company with 90% of sales coming from overseas.

Thus, the findings from this study indicate that the personal international business experience of the entrepreneurs and/or their exposure to international technology greatly influenced the formation of the New Zealand businesses. Details on how these factors influenced the formation of the innovative offerings

are discussed further in Section 4.5.2.2. In terms of the relationship between this prior experience and the types of networks utilized by the firms, no distinct patterns emerge from the findings.

4.5.1.2 Current Status

Two aspects of the firm's current status discussed in this section are the management characteristics and the firm size. A two-step process is undertaken to address the question: Does the management of the SME influence innovation, internationalisation, or their networks? First, findings regarding similarities between the three firms classified has having executive managers is discussed. Second, a comparison between the executive and entrepreneurial managed firms is made to identify possible patterns and trends. Following that discussion, the findings regarding firm size are presented.

Three of the firms in this study are classified as having 'executive' management: G04, G07, and G08. This term is used to identify in which firms the original entrepreneurs have handed over management of the firm to an independent and purposely hired executive. The distinction is important as the new CEO who may bring into the firm a new philosophy towards innovation, internationalisation, and network relationships. Although the timing for this management change is firm-specific, a common finding is that the firm and the original entrepreneurs' age, at some point, triggers a transition in management. At what age did the three firms in this study change management? G04 made the change after 29 years in business, G07 after 27 years, G08 after 13 years. In the words of one of G08's founders, "When we started, we had a magnificent dream that one day we would have 100 people and turn over $NZ10 million". By 2005, with the dream realized, the original founders stepped down and hired a proven executive to run the company. No other common patterns are found between the age, size, innovation, internationalisation, or network characteristics of the three executive managed firms.

Special mention needs to be made in the case of G02, founded in 1978. The management of this firm is considered to be still entrepreneurial rather than executive. This classification is based on the fact that G02's management

gradually passed on from one of the original founders to his sons. According to the one of the sons, and the current CEO, "The family joined the business". This sense of family permeates G02 still today and is seen in the importance they place on developing personal relationships with their various network actors (See Section 4.5.4). The original CEO is still involved in the firm and, in fact, gave the final approval of G02's case study- even though he did not personally participate in the interview. As such, G02's philosophy towards innovation, internationalisation, and networks is considered to be an extension of the original entrepreneurs' mindset.

Are there differences between firms under executive management compared to those under entrepreneurial management in terms of innovation, internationalisation, and networks? As summarised in Table 4.1, two of the three executive managed firms credit radical innovation for their internationalisation. The percentage is smaller for the entrepreneurial managed firms with only three of the seven firms indicating radical innovations. Therefore, based on these findings, radical innovation seems more prevalent under executive managed firms. However, if innovation development date is taken into consideration, only in the case of G08 does the innovation occur during the tenure of the executive manager. As such, there seems to be no pattern in the relationship between type of management and type of innovation.

Regarding internationalisation, all three executive managed firms had begun international sales prior to the management change, in the case of G04, 26 years before. However, as discussed in the previous section, G04's management change coincided with a change in the importance of international growth for the firm. Bell, McNaughton, Young and Crick (2003) find that often a critical incident, such as a change in management or influx of capital, causes a firm to change from an incremental internationalisation path and undergo radical changes in their internationalisation strategy. Referred to as a 'born-again global' phenomenon, the firm often utilizes newly acquired networks to facilitate internationalisation (Crick & Spence, 2005). How many of G04's 27 markets have been entered since the management change? How much of the 90% foreign sales reflect the new CEO's priority on international sales? A limitation

of these findings is that no chronological measure of international growth rate is provided. As such, it is impossible to draw conclusions on the relationship between the type of management and the type of internationalisation.

No clear patterns emerge from the data in terms of network usage and firm management. For example, G04, an executive managed firm, has the highest level of network usages, followed by G10, an entrepreneur managed firm. The companies showing the least amount of networks, G03 and G09, are both entrepreneur managed firms. However, they report only one less network than G07, an executive managed firm. Network usage seems to be a factor of the firm's philosophy and market rather than the distinct characteristics of the type of management. The following quotes illustrate this point:

> *"… the old networks failed to deliver revenue that was profitable. We did a number of contracts for people and lost money on them. It's always easy to be charitable. Some of those networks proved not to be viable sources of sustainable revenue or profitable revenue. So today….we just don't do business that isn't profitable now" (Managing Director, G07-executive managed).*

> *"Partners are easy to replace and there's usually quite a few….because the partners, all these systems integrators always worry they're being cut out of the action. Because ultimately software vendors don't need system integrators-they can eventually go direct…Yes, there's always contention, it's not just ourselves-it's all software vendors and system integrations, there's always a contention going on. Sometimes they're good relationships but sometimes they're not. It's pretty mixed up" (CEO, G09-entrepreneur managed).*

> *"I tend to want to work with people that develop a better understanding of the business and the culture and what we're trying to achieve and have long-term partnerships" (CEO, G04- executive managed).*

> *"One of the strength of [G02] would be relationship management. We all enjoy doing business with each other….So the relationships are very strong on that level...I mean in a number of areas there are personal relationships, like holiday and visiting between people….So you take them home, meet the family, that sort of thing. So we try and get that level from the first visit, that's the way we are" (CEO, G02-entrepreneur managed).*

Does the size of the firm influence its type of innovation, internationalisation, and networks? The firms in this study fall within the pre-defined size limitations of an SME. The smallest firm, G03, has 10 full time employees. The largest

firms (G07, G08, and G09) each have 250 full-time employees. Is it possible to compare innovation, internationalisation, and networks characteristics of firms with such a range of employee sizes? Three aspects of the research design enable such comparisons. First, due to the intangible nature of software, employee size is not a critical factor affecting international growth. According to Bell (1995, p.72), "Small software developers with only a handful of staff can develop excellent packages which have great export potential". This point is, reiterated by the CEO of G05:

> *"We don't want people. We want to be a very small company. We want to be like Trade Me. We want to be like eBay. We want to be a huge company revenue-wise with a very small number of people".*

Second, extant literature on the relationship between innovative capabilities and firm size is mixed with both smaller and larger firms being deemed 'most innovative' (Camisón-Zornoza, Lapiedra-Alcamí, Segarra-Ciprés, & Boronat-Navarro, 2004). The origins of the size-innovation debate have been linked to Schumpeter who offered conflicting views about firm size and innovation capabilities (Damanpour & Wischnevsky, 2006; Teece, 1986, 1992). In the current study, the type of innovation, in terms of the degree of change associated with the innovation, relates to the firm's internal capabilities, and therefore is a relative dimension. For example, although both G05 and G10 credit product innovations as instrumental in their internationalisation process, G05, with 25 employees, has a radical innovation whereas G10, with 100 employees, has an incremental innovation.

Third, the type of internationalisation, as classified in this study, relies on a combination of three factors: age at initial international engagement, percentage of foreign sales to total sales, and total markets served. Based on these criteria, G01, with 30 full-time employees, meets the conditions for radical internationalisation whereas G08, with 250 full-time employees, does not. Thus, employee size is not indicative of internationalisation capabilities. Therefore although the firms range significantly in number of employees, as demonstrated above, comparisons between their innovation and internationalisation are possible, as are cumulative understandings of their network relationships.

In terms of types of innovation, the findings indicate that of the five smaller firms (G01, G03, G04, G05, and G06) only G05 credits a radical innovation for internationalisation. The ratio is reversed when examining the five larger firms (G02, G07, G08, G09, and G10) all but G10 designate radical innovations as critical in their international operations. Based on these findings, there seems to be a relationship between the size of the firm and the type of innovation influential for internationalisation.

However when innovation type is considered in relation to the combination of age and size, the findings are less clear. The three oldest firms, G02, G04, and G07, were all established in 1978. However their size and innovation type vary. The three youngest firms, in order of age are G05, G03, and G06. These firms are also the three smallest in terms of employee numbers. However, this can be misleading. For example, G05 was formed in 1999 to commercialise a radical innovation, has sales growth of a phenomenal 700% over the first three-years, and, as quoted previously, strategically aims to keep employee numbers small. As such, any discussion regarding the relationship between firm size and innovation should include various measures for size and take into consideration firm age, industry influences, and entrepreneurial strategy.

In terms of the relationship between firm size and type of internationalisation, the findings from this study indicate no clear patterns. Two of the smaller firms, G01 with 30 employees and G04 with 60 employees, are both classified as having radical internationalisation. Conversely, two of the largest firms, G07 and G09, each with 250 employees, are classified has following incremental internationalisation.

The relationship between firm size and the types of networks used is reviewed in two ways: first by total networks, and then by specific types of networks. When the total network usage is considered, three of the smaller firms, G01, G04, G05, report higher than average network usage. G04 is ranked highest in overall network usage with nine innovation and eight internationalisation networks mentioned. However, the firms ranked lowest, with only four innovation and four internationalisation networks mentioned are the smallest firm, G03, and one of the largest firms, G09. As such, the findings from

this study fail to show a clear link between employee size and total network usage.

Looking at specific types of networks used in relation to firm size, the findings indicate that of the five smaller firms (G01, G03, G04, G05, and G06) only G01 does not include social networks as important for internationalisation. The ratio is reversed when examining the five larger firms (G02, G07, G08, G09, and G10) none but G02 include social networks for internationalisation. Based on these findings, there seems to be a relationship between the size of the firm and the use of social networks for internationalisation. Possibly as a firm's size increases so does its managerial procedures which reduce the importance of social networks? A point elaborated on by the CEO of G07,

> *"Most technology acquisition, particularly for enterprise solutions, is no longer 'I know you, we trust each other, let's do it'. Most organisations have built pretty sophisticated processes around procurement that are not easily hijacked by a chief executive shaking hands with another chief executive. So the process of engagement requires two chief executives to trust each other but they won't override the normal due process of evaluating and choosing and managing procurement" (Managing Director, G07).*

Another interesting difference between the type of networks and the firm size is the use of competitor networks. All of the larger firms indicate using competitor networks in both their innovation and internationalisation processes. Although competitor networks are mentioned by the smaller firms, only G04 includes them for both innovation and internationalisation. Based on these findings, there seems to be a relationship between the size of the firm and the use of competitor networks for both innovation and internationalisation. Possibly as the firms get larger their relationships with competitors get more complex? In the case of G10, their relationship with certain key multinational companies changes from customer to competitor to cooperative, depending on the country and the context.

> *"…we have a very, very interesting, challenging relationship with all [large multinational customers]. They, depending on the country, depending on the part of the market, depending on a range of factors, they will either like us or dislike us in different markets.…So the relationship depends and changes absolutely where you are. [Company A] on platform [X], which is a smaller platform, they quite like us. They endorse us, they support us. On the bigger platform [Y],*

they hate us, lots and lots and lots. So, depending on which market you're in, which product, what platform, it is really, really different" (CEO, G10).

In summary, finding from this study indicate larger firms use less social networks for internationalisation and more competitor networks in both innovation and internationalisation than smaller firms.

4.5.2 Innovation Characteristics

The following section highlights two aspects of the firm's innovation. First the section discusses findings related to the innovation development; specifically the timing of the innovation and influential factors influencing its development. Second, the section describes the innovation classification regarding its nature and impact on the firm.

4.5.2.1 Development

The innovation's timing in the firm's development process illustrates whether or not the innovation was the stimulus for establishing the business or for internationalisation of an existing business. Five firms focused on innovations that were the initial stimulus for setting up the company: G01, G05, G06, G09 and G10. The other five firms selected an innovation that was implemented several years after the firm's inception. This latter innovation differs from the original stimulus for the business. Some firms radically changed their trajectory to follow the path of the new offering whilst others chose to carry-on with their main line of work.

An interesting finding based on the timing of the innovation and the firm's development is the role of the entrepreneur's prior experience. In all five firms where the innovation was the stimulus for the business, the founder was a serial entrepreneur. In the case of G05 and G10, non-competitive agreements from their previous businesses forced them to enter new niche markets. G06 and G09 closed down one business in order to pursue the opportunities associated with the innovative offering. The formation of G01 differs from the other four firms. G01 was originally formed as a partnership between a large manufacturing company and a software consultant to manage and develop

software for a specific industry. G01 gained the New Zealand license for the software from an Australian company, which held the international marketing rights. Over time, G01 gained access to international rights of the old software, parted ways with the manufacturing company, and proceeded to significantly redevelop the software into a new offering with global appeal.

Conversely, the five firms which report innovative offerings developed later in the history of the firm were all formed by novice entrepreneurs. For example, the founders of G02 originally targeted a very different business segment than where they are today. But within a year of forming the company, an opportunity arrived to license an overseas technology. The founders recognized an opportunity to apply the new technology to a different niche. They seized the opportunity, changed the direction of their firm, and aggressively pursued the new opportunity as illustrated in the following passage:

> *"The [US] lawyer brings the opportunity. 'Yes, we can make this. We can develop it into [X]'. Typical Kiwi thinkers…within six weeks we've got people coming over here saying, 'We want to buy it. So there's the technology, there's the money, the letter of credit'. Ok, we can do this. There wasn't a lot of planning and foresight. It was "There's an opportunity. We can do this. We can get into that space"* (CEO, G02).

Not all founders were so adventurous. The founders of G04, as previously discussed in Section 4.5.1.1, chose to pass on the international marketing rights for the innovation developed four years after formation to a local distributor and carry-on with their main domestic businesses. Twenty-six years later, the company changed management and restructured the business around the internationally successful product. Crick and Spence (2005) find the ability of entrepreneurs or TMTs to identify and react to serendipitous events in order to exploit international opportunities resulted in higher performance, regardless of whether the firms internationalise soon after the start-up phase or years later.

The above discussion links to the origins of the innovative idea. Seven of the firms report the innovation was inspired by the founders or TMT. Often the entrepreneurs recognized an opportunity based on unique characters of the New Zealand market either itself or in conjunction with the application of foreign technology. Two of the firms report customers as the source of the innovative

idea and one reports competition. In all cases, the original idea evolved through a iterative process involving a variety of network relationships.

In summary, the findings from this study indicate a relationship between the previous business experience of the entrepreneur/s and the timing of the innovation with the firm's development. Findings also show the entrepreneurs or TMT as most influential in recognizing the innovative opportunity.

4.5.2.2 Type of Innovation

Although the definition of innovation accommodates four varieties, only two were selected by the firms in this study. Seven firms identified product innovations as important for their international success and three selected process innovations. As the following quote illustrates, the process innovation selected by G03 was designed originally to simplify and speed up production of their customised software:

> *"… we were continually designing and developing the same element of components over and over again and accordingly charged the customers for it … What we realised is we could do what we were doing better, faster and cheaper by putting a little bit of focus, out to the side [developing the process innovation], rather than always focusing on individual products" (Marketing Manager, G03).*

This innovation allowed G03 to provide customised products more efficiently, helping to secure a successful contract with a large multinational customer.

The innovations are also classified by the impact they have on the firm, either incremental or radical. Incremental innovations build or extend the firm's existing capabilities whereas radical innovations represent clear departures from existing practices (Gopalakrishnan & Damanpour, 1997, p. 18). A point brought out through the case studies is that the distinction between a radical and an incremental innovation is not always clear. For example, according to the CEOs of G09 and G10:

> *"Probably there was a few break through ideas, however after that improvements were incremental….It's not phased. So you have an original product and you start selling it and you say, "Well, if I added these extra features here, I'd probably sell it into slightly different areas as well, and if I enhanced it in this way then…" [and] suddenly*

your market grows all the time. It's just a continual process of adding features to it and making a sale. There's no start and stop" (CEO, G09).

"…we were always innovating as hard as we could. We always realised the product was critical, and that was the thing that was going to get us into anywhere" (CEO, G10).

Five of the firms in the study experienced radical innovation and five had incremental innovation. Tödtling and Kaufmann (2001) find SMEs commonly produce incremental innovations although other researchers credits smaller firms for being the main source of radical innovations. Firms introducing radical innovations often face challenges in creating a market for their new-to-the-world offering, as the following quote illustrates:

"We're the only company that I know of in the world that has that solution….Coca Cola is Coke because they have a secret formula that produces Coke. Now lots of other people produce cola, Pepsi Cola, etc. but nobody has the Coke formal. So we're the only ones with the formula for describing [X]…we don't operate in a field that exists….The biggest competitor for us is actually not doing anything or doing things a different way. In other words, we don't lose out to another product, we lose out to a totally different way of doing something… our competitor is a lack of education" (CEO, G05).

Laanti, et al. (2007) found that firms with radical innovation also internationalised rapidly. However, as Table 4.1 illustrates, two of the firms with radical innovation, G02 and G09, experienced radical internationalisation whereas the other three firms, G05, G07 and G08, experienced incremental internationalisation. The findings were reversed for the five firms with incremental innovation: three had radical internationalisation and two had incremental. As such, based on the finding from this study, the type of innovation does not have a clear influence on the type of internationalisation.

4.5.3 Internationalisation Characteristics

In order to establish the type of internationalisation, firms were queried regarding the beginning of their internationalisation process: the year of their first international exchange and the first market they entered. In addition, they were asked about their current state of international engagement: the total number of markets actively engaged in at the time of the interview and the

percentage foreign sales account for out of the firm's total sales. Based on these variables, and in accordance with common classification for born global or international new ventures, internationalisation was considered incremental or radical.

4.5.3.1 Initial Engagement

Six of the ten SMEs in this study engaged in internationalisation within three years of forming the business. Two of the firms, G03 and G09 had their first international sale the same year as formation. These findings support Toften and Hammervoll (2009) who also find SMEs operating in niche markets and from countries with small domestic markets quickly enter international markets. G07 appears to have the longest period of domestic-only sales with 19 years showing between firm formation and the first international sale. However, the number of years is reduced substantially when the innovation development date is considered. G07 developed the innovation they consider important for international sales in 1990 and report their first overseas sale seven years later.

Seven of the ten firms' first international sales were to customers based in Australia. This is not surprising given the close proximity in both distance and culture. This point is expressed by the following quote:

> *"We weren't at all really prepared for export. Our documentation was inadequate. Our product was really inadequate. It was relatively pretty buggy…We didn't have training courses, so we were a classic, I think, software company, particularly a New Zealand software company taking a product offshore. We would never have succeeded in the US had we gone at that point- not a chance….It's three and a half hours across [to Australia]. The crap hits the fan, and you can put somebody on a plane and they can be there by tomorrow morning, and they can fix it if they need to if we do need to go onsite. Whereas the States, it's just way harder. You've got to have people there and, even then, it's a [twelve] hour flight and it's just too hard. Also, I think Americans are way less tolerant of, way less tolerant because they've got more choice. It's like, 'That didn't work, go get another one'. Whereas I think New Zealanders and Australians are more prepared to give it a go and give it a shot, and they're probably a little bit more laid back, a little more relaxed" (CEO, G10).*

Three of the firms went directly to the United States or the United Kingdom. Although the United States and the United Kingdom are geographically distant

from New Zealand, other aspects such as language, politics, culture, and business institutions suggest they represent a close psychic distance to New Zealand. Ronen and Shenkar's (1985) sociocultural clustering confirms New Zealand, Australia, United Kingdom, and United States have close psychic distance as the Anglo-Saxon cluster. As such, first foreign market entry for all firms in this study confirms Johanson and Wiedersheim-Paul's (1975) psychic distance concept.

4.5.3.2 Current Status

All firms in this study are actively engaged in international operations. G02 has the highest breadth of countries reporting 56 markets in which it is involved. G04 currently has sales in 27 countries and G01, G09, and G10 report sales in approximately 20 countries. A large gap appears between these five firms and the other firms in terms of the number of markets served. The other firms report from one to four foreign markets. G06 has the lowest breadth of countries reporting active engagement exclusively in the Australian market.

In terms of the importance of international sales to the firms, G02 and G06 retain their highest/lowest positions with G02 reporting 97% of its total sales coming from foreign markets and whereas G06's percentage is 5%. G04 reports 90% of their sales are from the 27 foreign markets in which they are involved. The four companies actively engaged with approximately 20 markets each report between 75-80% of their sales from overseas. Interestingly, G07, reports 60% of their sales from their four international markets.

In summary, there seems to be a relationship between a greater number of markets served and higher foreign sales to total sales ratio. However, there are no clear patterns between firm characteristics, innovation type, or network types and the number of foreign markets involved in internationalisation or the percentage of foreign sales.

4.5.3.3 Type of Internationalisation

As seen in Tables 4.1, five firms internationalised incrementally and five internationalised radically. Incremental internationalisation refers to firms that

internationalise after three years of inception and have sales of fewer than 75% in less than 20 countries. Radical internationalisation is categorised as firms that started to internationalise within three years of inception and have more than 75% of their sales in over 20 countries. As discussed in the previous sections, no clear patterns are found between the firm characteristics and the type of internationalisation. In addition, the relationship between the type of innovation and the type of internationalisation is unclear. Three of the firms with incremental innovation achieve radical internationalisation. And likewise, three of the firms with radical innovation have incremental internationalisation.

In terms of the total number of networks used, four of the five firms with radical internationalisation report the highest number. G04 reports a total of 17 networks; G10 has 15 networks; G01 and G03 each report 12 networks. Interestingly, G09 reports only 8 networks used for innovation and internationalisation, the lowest number of networks (tied with G03). If only internationalisation networks are considered, G04 and G10 tie at 8 networks each. Five firms indicate six internationalisation networks important. Three of these firms, G05, G06, and G08 are classified as experiencing incremental internationalisation. The relationship between each type of network and the type in internationalisation is discussed in Section 4.5.4.

In summary, the type of internationalisation seems related to the number of networks. Firms classified as having rapid internationalisation indicate a wider breadth of network relationships, although the strength of the network relationships is unknown.

4.5.4 Network Characteristics

In Table 4.1, each firm's networks are summarized and classified by the type of network, as well as its application, in terms of either innovation or internationalisation. Table 4.2 takes a different approach and looks at networks in comparison to the type of innovation and the type of internationalisation. Network types are grouped into four categories: social, vertical, horizontal, and institutional. Social networks include relationships with family, friends, and colleagues whereas vertical networks refer to suppliers, distributors, and

customers (Chetty & Wilson, 2003). The term horizontal networks, as used in this study, comprises relationships with firms not classified as being in the vertical networks such financial, competitor, or industry related associations. Institutional networks refer to relationships with universities, research institutes, and government agencies.

Table 4.2 Innovation, Internationalisation, and Network Summary

Networks	Innovation										Internationalisation									
	Incremental					Radical					Incremental					Radical				
	G01	G03	G04	G06	G10	G02	G05	G07	G08	G09	G03	G05	G06	G07	G08	G01	G02	G04	G09	G10
Social	X	X	X	X		X	X	X	X		X	X	X				X	X		
Vertical																				
Supplier	X	X	X	X	X							X		X						X
Distributor			X		X							X		X	X	X	X	X	X	X
Customer	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Horizontal																				
Financial	X				X		X					X		X	X	X		X	X	X
Competition			X		X	X	X	X	X	X	X			X	X	X	X	X	X	X
Industry	X		X			X		X	X		X	X	X		X	X		X		
Institutional																				
University	X	X	X	X	X	X	X	X	X	X		X	X				X	X		X
Research Inst		X								X										X
Government		X			X	X	X					X	X			X	X	X		X

G01-G10 represent firm identification numbers based on Table 4.1

4.5.4.1 Social Networks

As previously discussed in Section 4.5.1, social networks seem to be more prominently used by smaller firms and those established by novice entrepreneurs. An interesting finding from Table 4.2 is the role social networks play in both incremental and radical innovation. In each case, four of the five firms indicate social networks important to their innovation development. An example of this relationship is provided by G06. The entrepreneur had an innovative idea of applying US technology to an opportunity specific to the New Zealand regulatory environment. However, he needed an actual customer prior to being able to complete the innovation. The following quote illustrates his dilemma.

> *"I hadn't developed a working demonstration, a working example, so I had nothing to show to a potential client. I had to explain in words*

and through using examples that I got from other people in the States. I had to present a jigsaw puzzle, however, I hadn't actually done. But it was funny, I couldn't make one up. I actually had to work on a real project because it was actually impossible to make it up, because I couldn't have access to the datasets that I needed. I needed all these datasets to build a prototype, and so I had to convince a client to take me on, on a project, on the possibility of what could be done" (CEO, G06).

With the help of an old acquaintance, G06's CEO managed to secure an introduction to a large company requiring his service. Through this referral and his own perseverance, he managed to create the offering, secure his first contract, and provide a base from which to grow his company.

Two firms, G09 and G10, do not include social networks in their innovation processes. Although these firms have different types of innovation, they have several features in common. Both firms were the third business started by serial entrepreneurs. Both entrepreneurs had international business experience from their previous ventures. Both entrepreneurs started the new business to capitalise on an innovation which was the stimulus for the business and represented a New Zealand specific opportunity, one which ultimately had global appeal.[22] For example, the CEO of G10 recognized an opportunity aligned with the deregulation of one the telephone industry but credits the small size and demanding nature of New Zealand business as a source of innovation.

"And New Zealanders are fairly, from functionality and technology point, they're fairly demanding and innovative. They come up with some damn good ideas and, particularly, in the smaller [company] environment. Smaller [companies] need to be smart and functional because you don't get the efficiencies of scale…Whereas when you've got a [larger company], the inefficiencies are almost, well, the scale spreads them out and people are not so demanding" (CEO, G10).

The fact that these two firms do not indicate social networks as important to their innovations may be related to their previous business experiences and the prior identification of an innovative offering on which to base their new business. More research is needed in this area. Based on the findings from this study, social networks are often associated with innovation development by New

---

[22] See Cambell-Hunt (2001), World Famous in New Zealand: How New Zealand's Leading Firms Became World-Class Competitors for examples of other New Zealand firms following similar growth paths.

Zealand SMEs in the software industry, irrespective of the type of innovation developed.

Social networks are mentioned less often in terms of internationalisation. Three of firms with incremental internationalisation discuss social networks as do two firms with radical internationalisation. Extant IE research shows social networks quite important for SMEs identify international opportunities as well as a means to gain access into foreign markets (Ellis, 2000; Ellis & Pecotich, 2001; Zhou et al., 2007).

4.5.4.2 Vertical Networks

Vertical networks include suppliers, distributors, and customers. Suppliers are often credited as important networks for SMEs as a source of innovation (Tödtling & Kaufmann, 2001). Interestingly, all five firms reporting incremental innovation indicated suppliers as important in this process. None of the firms reporting radical innovation nominated suppliers.

A firm's suppliers can also influence internationalisation. Software SMEs often begin the process of internationalisation through importing foreign licenced technology (Bell, 1995; Coviello & Munro, 1997). An example of this, from the current study, is G03. The entrepreneur who founded G03 spent 10 years working in the UK and the US for a British technology company, and upon his return to New Zealand, became the official distributor of the technology domestically

> *"I didn't want to leave the [foreign technology company] world….it's been the case of evangelising the technology and telling everyone to use it" (CEO, G03)*

The process of adapting the imported technology to the domestic environment often results in innovative new offerings suitable to exporting. Four firms in this study, G01, G02, G03, and G06 follow a similar process. However, of these four firms only G06 mentions suppliers as influential in their internationalisation.

Whereas suppliers feature heavily in incremental innovation networks, distributors dominate the opposite end of the Table 4.2 and are prominently mentioned as influential for radical internationalisation. Several firms in this

study discussed the positive and also the negative mediating role that distributors play in relaying product and market information from customers to the manufactures.

> *"So there is an example of a strategic partnership where we do what we do best, which is develop and support software. And they do what they do best, which is be present in the local market, known and referenceable in their domain of expertise…So, yes, we have built those new relationships with people who are on the ground in the markets that we want to be in-who can underwrite some of the business risk" (Managing Director, G07).*

> *"…at that point we lost all direct contact with the end user of our [offering]. We were dealing only with distributors and lost the ability to observe and know how people were using our product. We're having to change and are becoming more proactive in being involved in this area" (CEO, G02).*

> *"Because we sold through that company, their objective was to maximise their value in this distribution chain, which partly consisted of keeping us isolated from the market. They didn't want us getting access to their customers because we might see how much money they were making and effectively reduce the value of their business…New equity came into the company and we used that equity to purchase our distribution channel. So, since that time, it's a totally different world….And that's gradually having an effect and, as a result, we're getting lots more, in fact we're at the point now where we have so many opportunities, because we get directly exposed to the market that one of our biggest problems is trying to decide what to say no to these days" (International Marketing Manager, G04).*

The previous two quotes highlight the frustration and challenges faced by the New Zealand SMEs in their attempts to keep close to their customers. Customers, not surprisingly, feature as the key network mentioned for both innovation and internationalisation. The importance of keeping close to customers is emphasised by several of the firms in this study:

> *"I think one of the big lessons is that innovations need to be close to the customer and close to the market but we built technologies that were stunning but were possibly a little further ahead of their time; that we focused on developing the best technology rather than figuring out how to get it to market; that we thought we could push our technology into the marketplace without really understanding the need for it to be pulled into the marketplace" (CEO, G07).*

> *"...have a very narrow focus on a niche group of customers, and have a very clear understanding of what they're using your product for and what the value is, and just service the hell out of that and don't get distracted by any other opportunities. Just initially build the*

business around that. Get your international platform built and build around that" (CEO, G04).

In summary, findings from this study indicate that although suppliers are influential for incremental innovations and distributors are influential for radical internationalisation, customers are the most important network for both innovation and internationalisation.

4.5.4.3 Horizontal Networks

Networks classified as horizontal for this study include financial, competitive, and industry. Financial networks are more often discussed in terms of internationalisation rather than innovation by the firms in this study. Four of the five firms classified as having radical internationalisation mention financial networks as important in this process. For example, the founder of G10 was considering selling the firm to a large US multinational when he received an offer of $NZ 2 million in venture capital (VC).

> *"So we set back for another three of four months and said, "Well, what are we going to do with this thing? Shall we just continue as we are? Shall we grow it?"…and then the venture capital thing came along and that sort of sent us on the next path in terms of what we were going to do…So was it a conscious plan to go and get VC? No. Once we got the VC, then we started hatching some very concrete plans" (CEO, G10).*

The result was a move by the CEO to the US to formally grow the business in that market. However, the experience also allowed G10's CEO to make some poignant comparisons between New Zealand and US venture capital markets and they relate to international growth.

> *"Hell, I now realise in hindsight, $2 million Kiwi…was nothing. So we really didn't understand venture capital, and I think this is actually one of the huge issues that New Zealand has. New Zealand entrepreneurs are really good at bootstrapping things and doing it on the cheap and making money last, but we don't understand how to invest in businesses and grow them fast…We think differently. New Zealanders think on a way smaller scale because they can't understand $200 or $300 million, and I'm not pretending I can either. But it's interesting" (CEO, G10).*

Financial networks are discussed in both the innovation and the internationalisation processes of three firms: G01, G05, and G10. For G05, the

need to finance the development of a radical innovation resulted in incremental internationalisation, as this quote illustrates:

> *"It took us a year to raise $1 million and we estimated we needed $2.5 million but we realised we weren't going to get that, so we said, 'We'll raise a million and start on that'. We put out our first version of products and…we'd been going about three months and then suddenly realised we didn't have the foggiest idea of what we were doing technology-wise because the technology had moved so rapidly … It was like we'd stepped off and we couldn't get back on again easily" (CEO, G05).*

In summary, firms in this study rely on financial networks to help commercialise their innovative products rapidly in international markets. These findings support Bell's (1995) assertion that the most significant problem facing software exports revolve around financial issues. The firms in this study that develop financial networks have more advanced levels of internationalisation compared to those without these network relationships.

Competitor networks, as discussed in Section 4.5.1, are more commonly reported by larger firms. However, an interesting finding from Table 4.2 is the importance of competitor networks for both radical innovation and radical internationalisation; irrespective of firm size. The link between radical internationalisation and competitor networks confirms prior research by Chetty and Wilson (2003) highlighting the use of domestic competitor networks to facilitate international expansion. A difference between Chetty and Wilson's (2003) findings and those of this study is the focus on domestic versus international aspect of the relationships. In their study, firms competed domestically but collaborated for international expansion. In the current study, the domestic competition was less of an issue. Rather, the relationships between the firms vacillated between that of a customer, distributor, or competitor depending on the product offering and the market. An example of this complex relationship is illustrated in the following passage.

> *"So the relationship depends and changes absolutely where you are. [Company A]…they quite like us. Actually, when I say [they] like us on the [product X] side. They do not like us on the [product Y] side because they have a competitive product to [product Y]. So it's a real tiptoe through the tulips on eggshells type thing. We've got to be*

careful…we're so small to them, we're not a point of consequence to them at all, which kind of surprises us in terms of, well, why they get so offended by us because we do two sales a month and they do 50? But we just put it down to the fact that we make it very obvious that their children are ugly, all the time. The problem is, when you throw that in the product manager's face...they get offended" (CEO, G10).

Industry networks are mentioned in innovation and internationalisation processes. Industry networks are most commonly associated with smaller firms and with incremental internationalisation. The founders of G04 were actively involved in industry associations early in the company's history.

"It was about exchanging idea of how they approach everything from internal design problems to how you organise the structure of your company, to how do you get government funding for things, to helping each other with resources, exchanging resources" (International Marketing Manager, G04).

The link between industry networks and size is interesting. As the firms grow, the informational resources found through industry networks may decline as illustrated in the following quote by a large, well established firm.

"…Part of [G07's] issue is we can do everything. So for a long time we've looked closed and threatening. I mean, we build our own tools; we build our own applications that we host in our own shop that we look after end to end. So it's not like we've left anything over for anybody else" (Managing Director, G07).

Another aspect of relating to the usefulness of industry networks is the 'do-it-yourself' mentality of many entrepreneurial firms.

"I think there's also a lot of that 'founder-owner knows best'; a lot of about 'We're going to the world' rather than 'We're coming to each other'; the independent pioneering, "I can do it myself" [attitude]…It's like the vineyards. It's pretty clear you're taking your own case of wine to the world. The costs of finding and selling are too high. If you had a New Zealand Sauvignon Blanc brand, you have a better chance of people making some money. But, essentially, each vineyard has got to suppress their own ideology, and that's' where you get this trade-off between a good business and the entrepreneurial desire to be the best" (Managing Director, G07).

In summary, horizontal networks play an important role in both innovation and internationalisation for the software firms in this study. Financial networks aid radical internationalisation. Competitor networks are important for both radical innovation and for radical internationalisation, especially for larger firms.

Industry networks are influential for smaller firms and for incremental internationalisation.

4.5.4.4 Institutional Networks

Networks classified as institutional for this study include universities, research institutes, and government agencies. Universities are seen as an important network for innovation both incremental and radical. However, as previously discussed in Section 4.4, no measure of network strength was created. Therefore the magnitude of the influence is not captured. For example, both G04 and G09 show universities in their innovation networks. However, G04 funds several scholarships at a local university, considers the relationship important to their new product development, and hopes to strengthen the relations further. Whereas, G09's involvement is illustrated in this quote:

> *"Yeah, we probably do a little tiny bit of research coming in and small amounts of R&D from universities, mainly Auckland. I should [say] the word is small, very small" (CEO G09).*

Therefore although all ten firms indicate some involvement with universities in their innovation development, caution should be taken in interpreting these results. Internationally, New Zealand ranks 16th out of 23 countries in terms of SME-university collaboration (OECD, 2009).[23] Only 2.8% of New Zealand SMEs collaborate with universities, as compared to 4.2% in Denmark, 6.9% in Austria, and 16.3% in Finland. New Zealand is ranked last out of the 23 countries in terms of large firm-university collaboration with only 7.9%, as compared to 13.1% in Denmark, 35.8% in Austria, and 59.1% in Finland. More research into the propensity of software firms to collaborate with universities is needed.

The least mentioned network in this study are research institutes. Two firms, G04 and G09 mentioned these institutes as part of their innovation networks and only G10 mentions them as part of their internationalisation network. According to G04, the lack of network relationships between SMEs and research institutes stems from differing priorities.

---

[23] New Zealand SMEs are classified in this OECD (2009) report as being between 10-99 employees whereas SMEs in other countries are considered to have between 10-250 employees.

"…the only way that you can build effective relationships with CRIs [Crown Research Institutes] or universities from a commercial point of view is to put a lot of investment in upfront and around establishing some shared understanding of an opportunity. I think from both sides there isn't the willingness to put that investment in. From a commercial point of view, they [the firms] haven't got time because they want some technology or they want some expertise to fix a problem, and they're not prepared to go in and build a relationship with the key people and the administration in that department…And from the technology point of view, all they [the universities and research institutes] want is to fund their research…So the role of a CEO or a senior manager or someone heading a department is to support that process and not be too concerned that it takes a while to engage, because it will take a while to engage. But a problem in New Zealand is that there aren't many companies that have the time or money to create that space and the time for it to happen" (CEO, G04).

Government agencies are mentioned in both innovation and internationalisation networks, and as discussed in Section 4.5.1.1, are more frequently mentioned by firms founded by serial entrepreneurs. As Table 4.2 indicates, firms with radical internationalisation are the most likely to indicate government networks.

4.5.5 External Environment

4.5.5.1 Country Factors

Case study firms indicate that being located in New Zealand affects decisions to innovate, to internationalise, and to form networks. The small size of the domestic market propels New Zealand firms to seek larger markets overseas (Chetty & Wilson, 2003; Coviello & Munro, 1995). The spatial distance to major markets makes this process more difficult. The case study firms consistently proclaim they face country-specific challenges by being located in New Zealand.

"… we'd been told on a number of occasions, 'Yes, this is a great application, it's a great technology but we don't want to buy it from you. You're too small. You're too remote' … The consequence of that was a decision that we would sell the intellectual property in those applications to somebody who was all of those things; who were larger than we were in terms of that line of business; who were focused on that line of business; who were based in the UK. And

that's why we did the deal with [the resellers]" (Managing Director, G07).

"The biggest challenge you have in New Zealand is you don't know what you don't know and because we operate in a small market, I mean like a goldfish in a small pond. What was it?... Finding Nemo. He's in a little bowl and now he's in the ocean. It's a very different place. And of course the little fishes in New Zealand swim and they think they're really good and then they get out in the ocean and they find it's a whole new world….We should probably make Finding Nemo our national symbol of the tech sector because it's just so challenging" (CEO, G05).

"Have an absolutely crystal clear idea of who the end user of the product is and why they're using it….And the reason for that is particularly important from New Zealand because its' so much harder to build an international business from here than it is from building a business in the States, or you don't have to go international in the States because the market's there. Things get lost in translation unless you have a very strong and intimate knowledge of the end users, and that's why you have to have that focus because, otherwise, the message gets lost and you end up missing the target and getting your emphasis diluted, and you've got a long supply chain back to New Zealand and it just comes unstuck" (CEO, G04).

"You're never going to find enough market in New Zealand. It's not big enough for anything short of horseshoes for cows or something. There's just not enough things of anything in New Zealand to make a market out of it so you've got to go offshore" (CEO, G10).

However, findings also show that, New Zealand's small domestic market offers some advantages. A relatively small, isolated market allows firms more time to test and improve innovations. New Zealand's flat hierarchical system permits relatively easy access to important stakeholders. Finally, an efficient regulatory environment supports SMEs.

In summary, the case study research provides empirical support for incorporating institutional theory into the research framework for Study 1, presented in Chapter 2, and indicates domestic market conditions influence the relationship between networks and internationalisation.

4.5.5.2 Industry Factors

Participants in this study consistently mention how the software industry inspires their innovation development, international market exploration, and interdependence on network creation. The software industry is globally

integrated, service, and knowledge-intensive. The following case study quotes reveal the complexities New Zealand SMEs face operating within the software industry.

> *"The whole point about what we do is very high-touch and therefore we need to be in places where we can be in high-touch and it's hard to do if you don't speak the language" (CEO, G08).*

> *"And at the end of the day, particularly in the IT business, because people don't know what they're buying usually; they can't see it; they can't take it home and put it on the shelf. So, it's all buying people. It's all buying trust. It's buying relationships" (CEO, G05).*

Therefore, the case study research supports findings from Study 2, presented in Chapter 3, which highlights the industry-specific forces driving relational competencies for internationalisation.

4.6 Discussion

Through the in-depth case studies of 10 New Zealand SMEs operating in the software industry several new insights emerge on the interrelationship between innovation, internationalisation, and networks. The central research question of this study is: What network relationships are used by these SMEs in the process of innovation and internationalisation? This section first discusses each network type in conjunction with summary findings. Following that discussion, overall observations are made.

Social networks are important for innovation, for novice entrepreneurs, and smaller firm internationalisation. Social networks influence innovation development whether that innovation is classified as incremental or radical. Interestingly, the two firms that did not involve social networks in their innovations were formed by serial entrepreneurs who established their new businesses to commercialise previously identified innovations. The role of social networks in innovation is not age dependent. Five of eight firms that report social networks important for their innovation, developed these innovations later in the firm's history. However, social networks are used more by novice entrepreneurs with three of the five novice-entrepreneur firms, reporting social networks important for both their innovation and their internationalisation.

Finally, social networks are more often used by smaller firms for internationalisation, irrespective of the firm's age.

Supplier networks are important for incremental innovation. All five firms classified as having incremental innovation report suppliers important in that process. Two of these firms also report suppliers important for their internationalisation. Interestingly, none of the five firms reporting radical innovation mention suppliers in this process.

Distributors are important for radical internationalisation. All five firms classified as having radical internationalisation report distributors influential in that process. However, three of the five firms with incremental internationalisation also indicate distributors as important for their internationalisation. The two firms that do not include their distributors in this process are also the two smallest firms with the least amount of international activities. For New Zealand SMEs, distributors play an important role in servicing customers in far distance markets and facilitating international growth. However, selecting the right firms is critical. Issues of distributors restricting growth by blocking communication channels between the firm and the end-users were also reported in this study.

Customers are the key network for all firms in both innovation and internationalisation regardless of the firm-specific characteristics of age, entrepreneur, management, or size. The importance of maintaining close links to end-users is often mentioned in terms of innovation. In addition, firms emphasise the importance of targeting niche markets and having a very clear idea of what problem the software is solving and for whom.

Financial networks are more important for internationalisation than innovation. Firms in this study rely on financial networks to help commercialise their innovative products rather than develop them. Radical internationalsation is more reliant on financial networks than incremental. Firm-specific characteristics such as age and size are unrelated to use of financial networks. However, each of the three firms reporting no involvement of financial networks is entrepreneur managed.

Competitors are important for radical innovation, radical internationalisation, and larger firms. All radical innovation firms mention competitors as important in their innovation networks; two of the incremental innovation firms report competitors. All radical internationalisation firms report competitors important in their internationalisation networks; three of the incremental internationalisation firms report the same. Only one firm does not include competitors in either network category. The high percentage of firms indicating competitor networks support previous IE research showing a willingness to access external resources from competitor networks to be a defining aspect of the international firm (Chetty & Wilson, 2003).

Industry networks are more often mentioned by smaller firms than by larger firm for innovation and internationalisation. Five of the six firms who indicate using industry networks in their internationalisation are small.

Universities are mentioned by all firms in this study as important for in relations to innovation, irrespective of the type of innovation. However, caution on interpreting these findings is given due to the lack of information on the strength of the network ties. New Zealand ranks low on international scoreboards in the level of firm-university collaboration.

Research institutes are the least used networks by firms in the study. Timeframe and research priority differences are discussed as potential contributing factors to the low collaborative nature between SMEs and New Zealand research institutions.

Government agencies represent important networks for SMEs with radical internationalisation and for serial entrepreneurs. Double the number of firms mention government agencies as part of their internationalisation networks as compared to their innovation networks. All but one firm classified as having radical internationalisation indicate government networks uses in this process. Serial entrepreneurs are more likely to use government networks as compared to novice entrepreneurs.

Overall, firms use a variety of networks for both their innovation and internationalisation. Firm-level attributes influence the choice of networks, especially features related to the prior experience of the entrepreneur. Although the findings from this study indicate that the personal international business experience of the entrepreneurs and/or their exposure to international technology greatly influenced the formation of the New Zealand businesses, no distinct patterns emerge regarding the relationship between this prior experience and the types of networks utilized by these firms. In addition, network usage seems to be a factor of the firm's philosophy and market rather than the distinct characteristics of the management type.

External environmental factors influence network usage. New Zealand's small domestic facilitates innovation and stimulates internationalsation. Both of these factors encourage network development. However, the independent nature of the New Zealand entrepreneur appears as hindering domestic collaboration in some cases. Firms also discuss the intangible nature of software as encouraging network development. These country and industry factors interact with internal firm characteristics to influence the network decision making.

4.7 Limitations and Future Research Opportunities

This study is not without limitations. The following section discusses six limitations and suggests associated future research opportunities. First, since this study is based on an in-depth qualitative methodology a limitation is that these findings only offer analytical generalisations. However several of the findings suggest future direction for a large quantitative study designed to test the relationships identified through this exploratory research.

Second, the innovation featured in this study is selected by the participant as that which is most important in their firm's internationalisation. Innovations are classified as either incremental or radical based on the level of associated change to the company's core competencies. Incremental innovations support core competencies whilst radical innovations disrupt them (Dewar & Dutton, 1986; Damanpour, 1991). Classification was identified through the course of the

personal interviews rather than by direct questioning to avoid potential bias based on the different interpretations on the terms. However, a limitation of this methodology is that it does not capture the dynamic nature of innovations. Radical innovations may quickly become incremental or vice-versa. As such, it is difficult to evaluate the influence of specific networks at specific stages in the innovation process. Future research is needed that maps the innovation life cycle and relevant network relationships to understand how these variables related to the firm's internationalisation process.

A third limitation of this study is related to the classification of internationalisation as either incremental or radical. The classification was based on three criteria from extant literature: age of first international sale, number of foreign markets, and ratio of foreign sales to total sales. However, as previously discussed in Section 4.5.1.2, a limitation of this classification method is that it does not take into account the firm's international growth rate. Rather the classification is based on beginning and ending points within the firm's internationalisation process. Future research is warranted which captures the dynamic nature of this process, identifies what networks are used at each phase, and evaluates the changes in network relationships. Coviello (2006) provides a good model capturing three stages of network dynamics including internationalisation.

The methodology used to classify types of networks used by SMEs also represents a limitation of this study. Networks classifications are based on seven types and their association with either innovation or internationalisation. However, the strength of the network ties is not captured. Ellis and Pectoich (2001) argue a tie-approach superior to a network approach as it highlights the varying degrees of associations from casual to critical. More work is needed in this area.

The fifth limitation to this study is deficient information regarding the type of software the company produces. Software offerings are classified as either project-based or product-based (See Alajoutsijärvi, et al, 2000). Extant literature shows a connection between the type of software offered and the internationalisation network developed (Bell, 1995; Ojala, 2008; Ruokonen,

2008). Future research into the connection between software SME internationalisation and networks should pay heed to the types of software provided.

Finally, a limitation of this study is the lack of clarity on the role prior experience of the entrepreneur and/or TMT plays in forming networks and identifying innovative opportunities that result in firm formation and internationalisation. Coviello (2006, p. 723) argues that the intangible resource represented by networks are "… essential pre-internationalisation, pre-growth, and even pre-commercialisation, that is, from the very earliest stage of firm development: conception". Future research is needed to examine how the decision-maker's previous experience and network relationships facilitate the firm's innovation, internationalisation, and future network development.

4.8 Implications

The findings from this study provide implications for IE researchers, managers, and policy-makers. An implication for researchers is to embrace a holistic perspective when evaluating the role networks play in internationalsation. Network theories of internationalisation provide strong theoretical explanations of SME internationalisation processes but variables relating to the specifics of the type of innovation need to be considered along with firm, industry, and country characteristics.

Managerial implications from this study emerge regarding the variety of networks used, the overlap between innovation and internationalisation networks, and the targeted influence of specific networks to facilitate these processes. Not surprisingly, this study confirms customers are critical for both innovation development and international expansion. However the study also shows that developing and leveraging additional networks can help SMEs to overcome scarce internal resources. Managers wishing to develop innovations should not overlook the influence of social and supplier networks. Social networks also assist in incremental internationalisation. However, if more radical internationalsation is desired, distributor networks should be strengthened. The link between competitor networks and both radical innovation and radical

internationalisation implies managers should consider these firms as possible sources for external resources.

For New Zealand policy makers, this study reveals the under-utilized role institutional networks play in both innovation and internationalisation. In particular, the low level of interaction between software SMEs, research institutions, and government agencies for innovation development is enlightening. In 2003, the Information and Communications Technology (ICT) sector was identified by the New Zealand government as a Growth and Innovation Framework sector and has been the target of various growth oriented policies (NZ-MED, 2005). Further exploration is needed to understand the effects of these policies on institutional network relationships and software SMEs.

4.9 Conclusions

This study contributes towards expanding cumulative knowledge on the relationship between networks and internationalisation. It extends previous research suggesting innovation and internationalisation occur in a network setting and explores the interrelationship between innovation, internationalisation, and networks. The findings illustrate a matrix of network relationships used by software SMEs to develop innovations and to commercialise these innovations in international markets. However, patterns between specific types of networks with types of innovation and/or internationalisation do not imply causality. The firm's networks may facilitate innovation development, which in turn facilitates internationalisation, which results in new networks for both innovation and internationalisation. The process is connected, turbulent, and dynamic.

In general, patterns from this study indicate customer networks important for both innovation and internationalisation. Other networks influential for innovation development include social and university networks. In terms of innovation types, incremental innovation aligns more often with supplier networks and radical innovation with competitor networks. In terms of

internationalisation types, distributor, competitor, and government networks tend to be associated with more radical internationalisation.

Although patterns emerge on the types of networks used in innovation and internationalisation, internal firm characteristics impact these relationships. Most notably, the importance of the entrepreneur's prior international business experience and exposure to foreign technology strongly influences firm formation; prior business ownership affects the types of networks used.

This study also highlights external environmental factors stimulating the innovation and internationalisation processes. The software industry is characterised by high levels of technological, knowledge, and service-intensity which encourages innovation, internationalisation, and network formation. The intangible nature of software increases the importance trust between network partners. In terms of domestic market conditions, SMEs from New Zealand face several barriers to innovate and commercialise their innovations internationally. Their ability to leverage network dynamics is hampered by the spatial distance from international markets and the sparse domestic market compared to SMEs from other developed countries. These challenges are succinctly expressed in 2007 by New Zealand's Minister of Research, Science, and Technology:

> *"Compare Finland and New Zealand- two countries with similar populations and strengths in natural resources. Within a 2,200 km radius of Helsinki live 300 million people in 39 different countries, while within a 2,200 km radius of Wellington there are just 4 million New Zealanders. Against factors like this, merely matching average OECD country conditions will not be good enough. We need to go beyond "good", we need to be great" (Maharey, 2007, p. 3).*

Future research on the relationship between networks and internationalisation for software SMEs needs to take a holistic approach to the phenomenon, one which includes understanding of the embedded context in which network decisions are made.

Chapter 5

Conclusion

The multilevel design of this thesis employs a holistic approach to understanding the relationship between networks and internationalisation. It encapsulated three discrete studies, as illustrated in Figure 5.1. Together, the three studies contribute towards an integrated understanding of the central research question of this thesis:

What is the multilevel relationship between networks and internationalisation for innovative entrepreneurial firms?

Figure 5.1 Multilevel Analysis
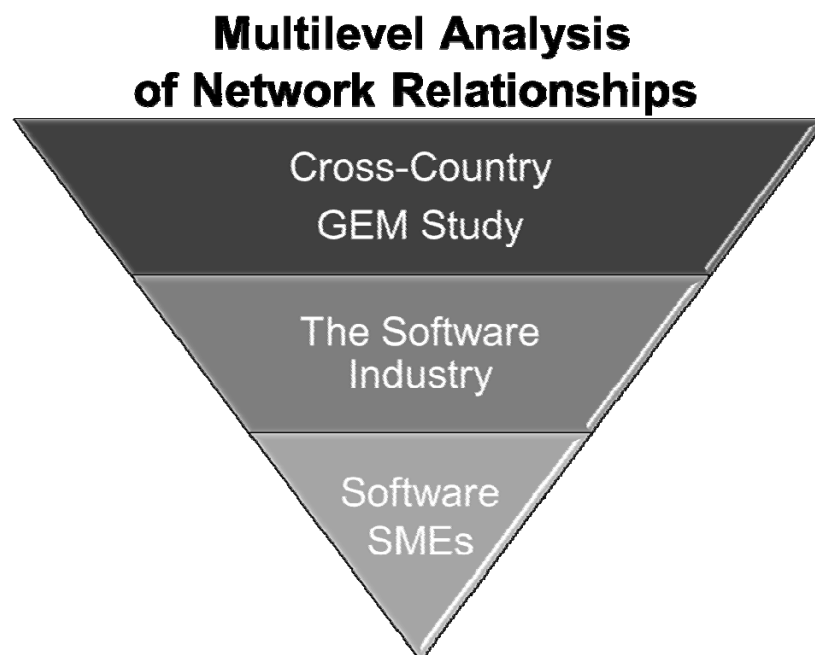
The analysis of the thesis moves from a macro to a micro level. Each study is informed by and extends knowledge from the previous studies. The underlying premise of this thesis is that external environmental forces influence the propensity for small and medium-sized enterprises (SMEs) to develop internationalisation networks. This thesis argues international entrepreneurship develops in the interplay between the firm and its environment (Melén et al.,

2011). Cross-border international entrepreneurship (IE) research proposes a firm's ability to develop and leverage network relationships serves as a catalyst for innovation and internationalisation. The thesis extends extant IE findings by exploring country and industry-level influences on a firm's opportunity and motivation to develop these relational competencies. In doing so, this thesis integrates institutional, industry, and firm perspectives to increase understanding of the multilevel relationship between networks and internationalisation for innovative entrepreneurial SMEs.

This thesis applies logic from multiple theories to examine the relationship between networks and internationalisation for innovative entrepreneurial SMEs. The network approach to internationalisation (Coviello & Munro, 1997; Johanson & Mattsson, 1988) provides the core theoretical logic underlying each of the three discrete studies whilst guiding the overall research objective. However, as each study approaches the research from a different level of analyses, each study builds on relevant theoretical reasoning for its specific research frame. Institutional theory (DiMaggio & Powell, 1991; North, 1990; Scott, 1995) informs research at the country level of analysis as presented in Chapter 2. The industry-based view theory (Porter, 1980) informs research with an industry focus as seen in Chapter 3. Whereas, the firm-level research presented in Chapter 4 builds on the resource-based view theory (Barney, 1991; Wernerfelt, 1984).

This thesis uses mixed methods to gather information from different modes for critical evaluation. In doing so, this thesis follows the logic of Newman et al. (2003) and applies qualitative and quantitative research techniques as appropriate for each study's specific objective. The overall thesis benefits from this holistic approach.

The first study in this thesis, presented in Chapter 2, is globally focused and investigates country-level factors, which may influence the opportunities for innovative entrepreneurial firms to engage in international business. Variables representing country-level measures of networks are identified and tested in this first study. Findings illustrate that country-level measures of networks are significantly associated with increased proportions of innovative entrepreneurial

firms with over 25% of their customers foreign. From this study, conclusions can be drawn that country-level support for informal institutional measures of networks, in terms of the exposure to foreign products and interaction with foreign persons, increases the proportion of innovative entrepreneurial firms substantially engaged in international business. However, this global focus study does not consider industry-specific factors, which may also influence the necessity for firms to trade internationally (Fernhaber, et al., 2007; Leonidou, et al. 2007; Madsen & Servais, 1997).

The second study in this thesis, presented in Chapter 3, explores the relationship between networks and internationalisation within a specific industry. This study argues industry-specific forces influence a firm's decision to develop networks for internationalisation. Using systematic literature review methods, 32 empirical articles are investigated to evaluate whether firms operating in the same industry demonstrate patterns of network relationships for internationalisation. The study identifies similar patterns of network influence on foreign market strategies of software SMEs including market selection and entry mode decisions. The study also highlights three software industry-specific characteristics which combine to encourage network development for internationalisation: high levels of technological, knowledge, and service intensity; rapid technological changes; and high levels of interdependency between hardware manufacturers and software developers. The industry focus study's findings also propose that differences in the SMEs' domestic market conditions and product characteristics may affect the firm's motivations to develop internationalisation networks.

The final study in this thesis, presented in Chapter 4, moves the level of analysis down a tier to focus on firm-specific factors influencing the relationship between networks and internationalisation. Using multiple case study methods, this study explores what network relationships are used by SMEs in the process of innovation and internationalisation. Knowledge accumulated from the country and industry level studies support the selection of New Zealand software SMEs for the case study analyses. Findings indicate patterns in network usage related to the founder's prior entrepreneurial experience and the firm size, as well as

the type of innovation (incremental/radical) and type of internationalisation (incremental/radical). Findings also highlight a strong relationship between the entrepreneur's prior international business experience and/or exposure to foreign technology with the formation on the new venture. External environmental influences from both New Zealand and the software industry feature prominently in the firms' innovation, internationalisation, and network decision-making processes.

Together the three studies contribute towards better understanding of the multilevel relationship between networks and internationalisation for innovative entrepreneurial firms. Table 5.1 summarises the research for each of the three studies. The table presents a concise account of each study's knowledge gap, research aim, and research questions. It also presents the theoretical framework and methodology for each study. Additionally, Table 5.1 summarises the findings from each study as well as the primary contribution to the field of international entrepreneurship.

Table 5.1 Study Summaries

	Global Focus Cross-Country GEM Study	**Industry Focus** Software Industry	**Firm Focus** Software SMEs
Knowledge Gap	At research nexus of: • Firm-level cross-border International Entrepreneurship • Country-level cross-national International Entrepreneurship • Institutional Environment	At research nexus of: • SME Networks • Internationalisation Networks • Industy Effect	At research nexus of: • SME Networks • Internationalisation Networks • Innovation Networks
Research Aim	To understand the influence of a country's institutional and economic environment on its proportion of Innovative International Entrepreneurship (IIE)	To systematically review and assess empirical literature on SME internationalisation in software industry to appraise patterns of network influences	To examine what network relationships are used by SMEs to develop innovations and to internationalise.
Research Question	How are national level institutions (supporting innovation, international trade and network) and economic factors (domestic market size and wealth conditions) related to the levels of internationalisation of innovative entrepreneurial firms?	Do firms operating in a single globally integrated industry demonstrate similar patterns of network relationships for internationalisation?	What network relationships are used in the innovation and internationalisation processes of New Zealand software SMEs?
Theoretical Framework	Country-Level Framework Theory • Institutional Theory Entrepreneurship Theory • Entrepreneurial Type Globalisation Theory • Social Globalisation Theory	Industry-Level Framework Theory • Industry-Based View Network Theories • Network Approach to Internationalisation	Firm-Level Framework Theory • Resource-Based View Network Theories • Network Approach to Internationalisation • Innovation Network Theory Internationalisation Theories • Uppsala & Born-Global Theory
Methodology	• Confirmatory Research • Data type: Secondary • Quantitative-Multiple Regression • Unit of Analysis: Country • Sample size: 51	• Descriptive Research • Data type: Secondary • Sytematic Literature Review • Unit of Analysis: Empirical Study • Sample size: 32	• Exploratory Research • Data type: Primary • Qualitative: Case study • Unit of Analysis: Firm • Sample size: 10
Study Findings	• Informal institutions which proxy country-level measure of networks postively influences higher levels of internationalisation (IIE) • Informal institutions supporting international personal contacts postively influences substantial IIE • Informal institutions supporting converging global demand positively influences substantial IIE • Formal institutions supporting innovation positively influences moderate IIE • Formal institutions supporting innovation negatively influences substantial IIE	• Software industry characteristics encourage network development for internationalisation • Networks influence both reactive and proactive internationalisation • Entrepreneur's prior international experience linked to proactive internationalisation • Networks direct market selection and mode of entry decisions • Software industry's high level of technology, knowledge, and service intensity encourages both networks and internationalisation • Systemic nature of software encourages intra-industry networks • Software product type motivates networks for internationalisation • Domestic market influences motivation to internationalise • Research primarily qualitative from small, high-income European countries	• Firm-level attributes influence the types of networks used • Entrepreneur's prior international work experience and/or foreign technology influential for new firm formation • Network patterns relate to entrepreneur's prior business experience: novice use more social networks, serial use more government networks • Network patterns relate to firm size: small use more social, large use more competitor networks • Network patterns relate to type of innovation: incremental use more suppliers; radical use more competitor networks • Network patterns relate to type of internationalisation: radical use more distribution, financial, competition and government • Small domestic market drives SMEs to internationalise • Software industry drives SMEs network and internationalise
Contribution	Identifies contextual factors influencing innovative entrepreneurial internationalisation. Macro-level confirmation of network influence on internationalisation	Presents a comprehensive review of SME internationalisation and the influence of networks in this process for the software industry	Merges network, innovation, and internationalisation research to identify types of networks used by New Zealand software SMEs to innovate and to internationalise

5.1 Integrated Findings

Through integration of the country, industry, and firm-level study findings, insights emerge on factors influencing the multilevel relationship between networks and internationalisation for innovative entrepreneurial firms. Findings from this thesis indicate that at each level of analysis, domestic market, product, and personal factors influence the relationship between networks and internationalisation. Table 5.2 summarises these findings.

Table 5.2 Multilevel Integration of Findings

Factors	Global Focus **Cross-Country GEM Study**	Industry Focus **Software Industry**	Firm Focus **Software SMEs**
Domestic Market	• Formal institutions supporting innovation positively influence moderate innovative international entrepreneurship (IIE)	• Domestic market influences motivation to internationalise • Research primarily qualitative from small, high-income European countries	• Small domestic market encourages SMEs to internationalise
Product	• Informal institutions supporting converging global demand postiviely influences substantial IIE	• Software industry's high level of technology, knowledge, and service intensity encourages both networks and internationalisation • Systemic nature of software encourages intra-industry networks • Software product type motivates networks for internationalisation	• Software industry encourages SMEs to network and to internationalise • Network patterns relate to type of innovation: incremental use more suppliers; radical use more competitor networks • Network patterns relate to type of internationalisation: radical use more distribution, financial, competition, and government networks • Network patterns relate to firm size: small use more social, large use more competitor networks
Personal	• Informal institutions supporting international personal contacts postively influences substantial IIE	• Networks influence both reactive & proactive internationalisation • Entrepreneur's prior international experience linked to proactive internationalisation • Networks direct market selection and mode of entry decisions	• Entrepreneur's prior international work experience and/or foreign technology influential for new firm formation • Network patterns relate to entrepreneur's prior business experience: novice use more social networks, serial use more government networks

The first integrated finding from this thesis shows the domestic market condition in which a firm is embedded provides a multilevel influence on internationalisation. At a country level of analysis, findings from the global focus study, show that high-quality formal institutional support for innovation creates basic framework conditions allowing innovative entrepreneurial firms to internationalise. Quality institutional support to develop and commercialise innovations provides security for property rights, including intellectual property rights, and demonstrates a fair and impartial judicial system (Gwartney et al., 2005). Countries supporting these institutions show a significantly positive relationship with proportion of firms reporting up to 25% of their customers foreign. Thus, the domestic market conditions provide an opportunity for firms to innovate. With innovate products; firms have higher opportunities to pursue international markets.

At the industry level of analysis, findings from the software industry study show domestic market conditions impact firm motivations to internationalise. Research on SMEs located in small, high-income countries shows that these firms proactively internationalise in search of sufficient market for their products and use established or purposefully built networks to facilitate this process. Not surprisingly, research on software SME internationalisation primarily comes from small, high-income European countries indicating the importance of this research topic in these markets.

At the firm level of analysis, findings from the New Zealand software study illustrates the influence the small domestic market has on driving SMEs to actively seek international markets. Consistently, the SMEs in the case studies report the small domestic market conditions in New Zealand as driving their need to pursue overseas markets for their innovative products and stimulating their need to develop relational competencies to facilitate this process.

In summary, the relevance of domestic market conditions appears in each of the discrete studies as either providing an environment conducive to creating innovative products, and thus facilitating internationalisation opportunities, or as a motivating factor driving innovative entrepreneurial firms to engage in international expansion. This finding supports previous IE research showing

firms in larger countries tend to exhibit comparatively lower levels of internationalisation (Bosma & Levie, 2009) whereas firms from smaller countries tend to be driven to enter foreign markets to find sufficient market for their innovative, niche products (Bloodgood, et al., 1996; Chetty & Campbell-Hunt, 2003; Etemad, 2004b; Madsen & Servais, 1997; Schweizer, Vahlne, & Johanson, 2010).

The second integrated finding from this thesis shows product related factors provide a multilevel influence on both internationalisation and networks. At the country level of analysis, findings from the global focus study show that informal institutional support for converging global demand positively and significantly relates to the proportion of innovative entrepreneurial firms with over 25% of their customers foreign. These findings suggest that increasing cultural proximity reduces resistance to foreign ideas and products and therefore increases normative support for converging global demand. A by-product of converging global demand is the emergence of globally dispersed niche markets. A niche firm's international success depends on the ability to create specialised innovative products and to develop strong inter-firm relationships (Toften & Hammervoll, 2009). Therefore, greater normative support for cultural proximity and converging global demand provides opportunities for entrepreneurial firms to develop innovations targeting international niche markets, resulting in higher proportions of substantial internationalisation.

Findings at the industry level of analysis indicate product factors influence internationalisation and network development. The software industry study illustrates that factors relating to high levels of technology, knowledge, and service intensity motivate firms to internationalise and to develop networks for this process. The systemic nature of software encourages intra-industry networks. These network relationships provide opportunities for firms to share high development cost and risks associated with this dynamic and turbulent industry. The software industry's global nature encourages product differentiation and niche-oriented strategies. These strategies appeal to agile and innovative SMEs who capitalise on rapid technological advancement,

converging global demand, and interconnected economies to create competitive advantages.

Findings at the firm level of analysis also support product factors as influential in both internationalisation and network decisions. As with the industry level study, findings show that software specific characteristics encourage both internationalisation and network development. In addition, the firm level study provides deeper insights into network patterns which emerge in relation to the type of innovation, the type of internationalisation, and the size of the firm. Firms with incremental innovative offerings use more supplier networks whereas those with radical innovative offerings use more competitor networks for their innovation development. Firms with more radical internationalisation rely on distribution, financial, competitor, and government networks more consistently than firms with incremental internationalisation. Finally, smaller firms utilise social networks more consistently than larger firms; the converse relationship holds for competitor networks.

In summary, the relevance of product factors appears in each of the discrete studies although in different forms. In the country level study, the institutional conditions create opportunities to develop niche innovative products with international potential. The industry and firm level studies pinpoint product related factors from the software industry that influence both the motivation to internationalise and the necessity to develop networks for this process. Whereas the industry study identifies patterns across multiple countries and multiple firms, the firm level study provides a deeper understanding on the relationship between the types of networks used and innovation, internationalisation, and firm-specific characteristics. The integrated finding from this thesis on the multilevel relevance of product factors extends previous IE research by adding to the existing knowledge on how external conditions (from the country and the industry) and internal firm conditions (types of innovation and firm size) influence the relationship between networks and internationalisation.

The third integrated finding from this thesis shows personal factors provide a multilevel influence on both internationalisation and networks. At the country level of analysis, findings from the global focus study show that informal institutional support for international personal contacts significantly and positively influences the proportion of innovative entrepreneurial firms with over 25% of their customers foreign. The opportunity to gain international experience and to develop global networks increases in countries which provide greater opportunities for international personal contacts. Contact occurs through educational or work experiences, as well as tourism and immigration. Through exposure to and involvement in international networks, innovative entrepreneurial firms have the opportunity to gain international knowledge and develop awareness of international opportunities.

Findings at the industry level of analysis indicate personal factors influence internationalisation and network development. The software industry study illustrates that networks influence the selection of which foreign markets to enter, the mode of entry decisions, and the initial internationalisation strategies the firm follows, regardless of whether these strategies are proactive or reactive. However, proactive strategies are linked to the entrepreneur's prior international experience either through work, education, or immigration. This finding supports extant IE research highlighting the importance of the entrepreneur and/or top management team's prior international experience in driving internationalsation decisions (Arenius, 2005; Nummela, et al., 2004; Prashantham, 2004; Ojala, 2008; Rueber & Fischer, 1997).

Findings at the firm level of analysis also support personal factors as influential in both internationalisation and network decisions. As with the industry level study, findings show that the entrepreneur's prior experience influences the relationship between networks and internationalisation. The qualitative nature of the firm level study provides more detailed understanding of this phenomenon and finds that prior international experience and/or exposure to foreign technology is influential in new firm formation. For example, the founders of eight of the ten firms in the study had international business experience prior to forming their new venture. Of the remaining two firms, one

received unsolicited exposure to foreign technology that allowed it to radically transform the business, catapulting it into international markets. The founders of the tenth firm, recognising that they had no international experience and no desire to gain it, quickly granted worldwide distribution rights to their domestic distributor; a decision reversed upon the transition to an internationally experienced CEO. Interestingly, although international experience was an important factor for firm formation, it was not indicative of patterns of network usage whereas prior business ownership was. In general, novice entrepreneurs used more social networks for both innovation and internationalisation whereas serial entrepreneurs used more government networks.

In summary, the relevance of personal factors, and specifically the international experience of the entrepreneurs, appears in each of the discrete studies. In the country level study, the institutional conditions which create opportunities for entrepreneurs to be exposed to international networks and environments results in higher levels of international engagement. The industry and firm level studies support these findings and provide greater depth into increasing understanding of how personal factors influence the relationship between networks and internationalisation. This finding supports Venkataraman (1997) and illustrates how an individual possessing a 'knowledge corridor', developed through prior international work, education, or other experiences, may recognise an internationally viable opportunity and build or leverage international networks to pursue this opportunity, whilst another does not.

5.2 General Conclusions

Based on the integrated findings of this multilevel analysis, the following general conclusions can be inferred. Although the specifics of the relationship between networks and internationalisation differ based on the level of analysis, at each level, network relationships help firms to overcome antecedent conditions to achieve internationalisation. However, because antecedent conditions differ at the country, industry, and firm level of analysis, the way in which network relationships help firms to achieve internationalisation also differs as illustrated in Table 5.3.

Table 5.3 The Multilevel Role of Network for Internationalisation

Antecedents	Networks	Outcomes
Country Institutional Conditions	Creates Awareness	Opportunity to Internationalise
Industry Competitive Necessity	Creates Pathways	Motivation to Internationalise
Firm Resource Scarcity	Creates Competencies	Ability to Internationalise

At the country level, institutional conditions related to domestic market, product, and personal factors help develop innovations and expose innovative entrepreneurial firms to international products and people. Firms operate within a social framework representing a country's idiosyncratic economic, social, and political history. National environments operate differently and the home environment influences firm strategy. A country's institutional matrix includes formal institutions (e.g., laws and regulations) and informal institutions (e.g., shared cultural beliefs and social norms). Through a supportive institutional environment, an awareness of opportunities to internationalise is created. Innovative products develop through regulatory support that protects intellectual property and provides a fair judicial system. Global networks develop through cultural-cognitive and normative support for increasing converging global demand and international personal contacts. These characteristics represent social globalisation or a measure of networks at a country level of analysis. The greater the level of social globalisation is within a country, the greater is the opportunity for domestic innovators to develop diverse network relationships facilitating internationalisation.

At the industry level, network relationships help software SMEs to overcome industry specific competitive influences by providing pathways or direction, which facilitate motivated firms to internationalise. Domestic market, product,

and personal factors influence this phenomenon. International expansion to find sufficient markets for their technologically, knowledge, and service-intensive niche offerings is an important strategy for firms operating in small domestic markets. Product related factors for firms operating in the globally integrated, knowledge-intensive, dynamic, and turbulent software industry encourage both internationalisation and network development. Networks provide intangible knowledge which helps to facilitate the process of internationalisation and direct the market selection, mode of entry, and internationalisation strategies. However, personal factors in terms of prior international experience simulate a more proactive approach to both internationalisation and network development.

At the firm level, network relationships help New Zealand software SMEs to overcome resource scarcity by creating relational competencies. Domestic market and product factors encourage both internationalisation and network development. Network usage relates to the type of innovation, the type of internationalisation, and the size of the firm. However personal factors in terms of the prior international experience and prior entrepreneurial experience assist firms to develop relational competencies. Relational competencies are firm-specific resources, which help SMEs to mobilise and leverage internal and external tacit knowledge about global markets and opportunities. Firms that develop relational competencies interact with other companies in a manner that accelerates internal and external knowledge integration (Lorenzoni & Lipparini, 1999) and thus allows for creation of competitive advantages.

5.3 Limitations and Future Research Opportunities

The current research undertakes a multilevel analysis to extend knowledge on the nature of the relationship between networks and internationalisation of innovative entrepreneurial SMEs. As with all studies, limitations from the research provide opportunities for future enquiries.

In terms of the country level study, the primary limitation is that the international orientation measures are based on the extent to which a firm's customers are foreign. While this measure is common in cross-national international entrepreneurship research, future research could investigate

additional aspects of international orientation, in aggregate at the country level. For example, research into geographic, institutional, or psychic distance between the innovative entrepreneurial firms in a country and foreign customers served might provide insights into the extent or proportion of innovative international entrepreneurship within the country.

A key limitation from the software industry level study is that the narrow focus taken to conduct the literature review restricts the ability to generalise from the findings. Replicating this methodology by examining different industries opens the possibility to find industry-level differences in the relationship between networks and internationalisation.

The case study methodology used in the firm-level study represents a limitation as the findings only offer analytical generalisations. However, other methodological limitations in terms of innovation, internationalisation, and network classifications open up several future research opportunities as discussed in the chapter.

Overall, this research takes a multilevel approach to investigate several key aspects of the complex phenomenon of SME networks and internationalisation. Future research into this area is needed to extend the current limited body of knowledge. Future research undertaking a multilevel approach might follow two paths. First, based on the finding of this thesis, future research, which moves down yet a further level to explore the relationship between networks and internationalisation at the individual-level of the entrepreneur, is warranted. Second, future research, which employs a linked approach, using consistent data sets, to undertake a multilevel analysis in the reverse order of this thesis is also warranted. For example, research starting at the firm-level could conduct an exploratory study to investigate firm-specific relational competencies. The level of analysis would move up a tier in the second study to incorporate industry-level networks in which the firm operates. The third study could raise the level of analysis up again to further investigate the country-level institutional environments in which the firm and industry operate. Studying the nature of the relationship between networks and internationalisation at all three levels, in a

reverse order would provide a complimentary understanding of the multilevel influences on the relationship between networks and internationalisation.

5.4 Contributions

This thesis contributes to the IE research field in several ways. First, the thesis extends understanding of external and internal environmental influences on the relationship between networks and internationalisation. In doing so, this research contributes to the network approach to internationalisation. Findings demonstrate that external environmental forces influence the relationship between networks and internationalisation at both the country and industry level. At the country level, institutional conditions that provide entrepreneurial firms with opportunities to develop innovations and to interact with foreign products or people increase awareness of international opportunities and result in higher levels of international engagement. At the industry level, in globally integrated industries such as software, network relationships provide direction or pathways assisting SMEs to enter international markets. At the firm level, findings show internal firm-specific attributes influence the ability to develop and leverage network relationships. Firms with relational competencies create competitive advantages for innovation and internationalisation. Through the multilevel analysis, this thesis provides insights into how external environmental forces interact with internal firm attributes to influence network development for internationalisation.

A second contribution of this thesis to IE research is the introduction of the multilevel approach as a means of examining how SMEs develop and leverage networks for internationalisation. The multilevel approach provides a comprehensive framework under which the complex phenomenon of IE may be explored holistically. This approach complements the network approach to internationalisation and supports this research's core assumption about the choice to develop and leverage network relationships for internationalisation as a complex strategic decision influenced as multiple levels. Influences on strategic decisions at the national level come from institutional and economic conditions within the country; at the industry level from competitive positioning; and at the firm level from internal resource heterogeneity. Integration of

theoretical reasoning from institutional, industry, and firm perspectives provides a holistic evaluation of the embedded nature of international business decision making (Peng, Wang, & Jiang, 2008). This thesis embraces and explores the multiple levels of interaction that epitomise the IE phenomena (Etemad, 2004a).

The final contribution this thesis makes to IE research is methodological. It employs a synergistic mixed method research design under a critical realism research paradigm. Mixed methods often are recommended for IE research (Coviello & Jones, 2004; Rialp et al., 2005); however, this approach is difficult to achieve due to the editorial constraints of academic journals (Hohenthal, 2006). This thesis employs three discrete, yet interconnected studies and thus allows multilevel exploration of the IE phenomena through mixed methods. Because each study approaches the thesis' central research question from a different level of analysis, the individual research objectives dictate the appropriate methodology. These three studies flow from a central starting point, combining to create a unique, holistic contribution. Future IE research may adopt similar cumulative research projects as a way to investigate complex phenomena.

5.5 Managerial Implications

This thesis shows that a managerial implication of the integrated findings is the importance of acquiring international experience and relational competencies either personally, through employment practices, or by building and/or leveraging networks. This implication is of specific relevance to SMEs operating in small domestic markets and within knowledge-intensive, globally integrated industry such as software. Admittedly, most SME's have limited resources in terms of time, money, and manpower. As such, spending these limited resources on acquiring or leveraging international experience through networks might seem like a luxury to many managers. However, the current research contends that acquiring relational competencies, which help integrate internal and external international business knowledge, is an investment that will influence the firm's ability, motivation, and opportunity to internationalise.

A second implication is that managers need to recognise that developing network relationships, both domestically and internationally, is a long-term

process. Therefore, firms should take care when selecting customers and distributors so as to retain flexibility which allows the relationships to develop. Both the industry and firm level studies illustrate that trust between network partners develops gradually and grows as interdependence grows. The network approach to internationalisation supports firm strategies that understand building relationships is a dynamic process that requires investment and commitment. Managers need to recognise that relationships may play multiple roles. At the country level, networks help firms to create awareness of international opportunities. At the industry level, networks help firms to create pathways to assist and possibly facilitate internationalisation. At the firm level, networks help to create competencies that compensate for resource scarcity and improve a firm's ability to internationalise.

5.6 Policy Implications and Recommendations

Given SMEs prevalence in many countries, policy makers striving to grow their economies often develop programmes targeting SME innovation, entrepreneurship, and export capabilities (OECD, 2008a, 2009, 2010). These goals were expressed succinctly in 2006 by New Zealand's Minister for Economic Development:

> *"We need a bold, aspirational strategy and a clearly defined action plan to raise productivity and innovation and become a more active global participant … Now, the challenge is to drive innovation and internationalise our economy" (Mallard, 2006).*

How can policy-makers stimulate SMEs to develop internationally appealing innovations? What can governments do to motivate exports? The thesis's overarching policy implication is the vital role networks play in allowing innovative entrepreneurial firms to overcome internal resource scarcity and external environmental constraints thus increasing their ability to internationalise.

Policy-makers can help firms to develop networks and acquire international experience in several ways. First, governments striving to grow their economies through exports should promote programmes encouraging informal international interconnectedness, or social globalisation. A country's informal support for

social globalisation increases the international engagement of innovative entrepreneurial firms in two ways. First, awareness for foreign products, as represented by cultural proximity and converging global demand, allow domestic firms to connect with global trends and develop internationally appealing products. Second, interaction with foreign people exposes domestic entrepreneurs to new ways of doing things and broadens their opportunity recognition horizons. Therefore, government programmes supporting exposure to foreign products and people through educational and work experiences, tourism, and immigration increases domestic awareness of international opportunities for innovative entrepreneurial SMEs. By supporting international interconnectedness, policy-makers provide opportunities for domestic entrepreneurs to develop relational competencies and build network breadth.

Second, government support for programmes that facilitate inter-industry learning and collaboration will help firms to develop networks. Programmes targeting industry level associations or that promote the benefits of inter-industry learning and collaboration provide opportunities for firms to learn 'best-practices' from other industries and to expand their knowledge base. It is worthwhile for policy-makers to support such programmes since SMEs in knowledge-intensive industries rely heavily on networks for innovation and internationalisation. Findings also show firms in the software industry exhibit similar patterns with SME network relationships providing the initial direction for their internationalisation efforts. SMEs operating in knowledge-intensive, globally integrated industries, such as the software industry, provide 'transparently observable' examples of how network relationships influence SME internationalisation. Thus policies that encourage cross-fertilisation between industries create opportunities for SMEs to develop relational competencies.

Finally, government support for programmes facilitating inter-organisational contact will help firms to develop relational competencies. It is worthwhile for policy-makers to support such programmes since SMEs use diverse network relationships for internationalisation. In addition, SMEs that include competitors in their innovation and internationalisation networks develop more radical

innovations. Examples of government programmes supporting inter-organisational interchanges are regional business development agencies, business success awards, and mentoring programmes. In addition, government programmes encouraging SMEs to interact with experienced international entrepreneurs will assist entrepreneurial firms to develop networks and integrate international knowledge.

5.7 Concluding Comments

International entrepreneurship is a young field exploring a complex phenomenon. This thesis contributes to the international entrepreneurship field of research by extending knowledge on the relationship between networks and internationalisation at the country, industry, and firm levels. In doing so, this research investigates simultaneously the roles that external environmental conditions and network relationships play in international entrepreneurship. Through multilevel analysis, this thesis provides insights into how networks create awareness, pathways, and competencies for internationalisation of innovative entrepreneurial firms. Like the famous Russian matryohska stacking dolls, each level of this thesis reveals a further aspect of the multifaceted phenomena. However, given the role SMEs play in the world's economies and the role networks play in SME internationalisation, much more work is needed. This thesis has moved understanding of interconnected, complex, and multilevel relationship between networks and internationalisation a step forward. Hopefully it will encourage further research in this direction.

APPENDICIES

Appendix A Domestic Environment Country Groupings GCI Index

Global Focus Study
Country Comparison to 2008 Global Competitiveness Index
Stage of Development Classification

Domestic Economic Environment

	Low Income		High Income	
Large	L Argentina	L Phillipines	H Australia	
	L Brazil	L Poland	H Canada	
	L China	L Russian Federation	H France	
	L Columbia	L South Africa	H Germany	
	L India	L Thailand	H Italy	
	L Indonesia	L Turkey	H Japan	
	M Malaysia	L Uganda	H Spain	
	L Mexico	L Venezuela	H United Kingdom	
	L Peru		H United States	
Small		M Chile	H Austria	H Netherlands
		L Croatia	H Belgium	H New Zealand
		M Czech Repulic	H Denmark	H Norway
		M Hungary	H Finland	H Portugal
		L Jamaica	H Greece	H Singapore
		M Jordan	H Iceland	H Sweden
		M Latvia	H Ireland	H Switzerland
		H Slovenia	H Isreal	M United Arab Emirates
		M Uruguay		

Population level: Median population based for mid-year 2003 figures   World Bank data

Income level: Median GDP per capita for 2003 based on constant 2000 USS

L: Low Stage of Development

M: Medium Stage of Development

H: High Stage of Development

Bold print indicates mismatch between median split group and Global Competitive Index group

Appendix B Control Variables

Study: Terjesen & Hessels (2009)

DV	Data	IV		Data	Control Variables		Data	Year	DV	Sig.	DV	Sig.
Export 1-100%	1	1	Flexible Wages	3, 4	1	GDP per capita	4	2005-2006	1	0.69*	2	n/a
Export 26%+	1	2	Vocational Training	3, 4	2	Real exchange rate	4	2005-2006	1	n/a	2	n/a
		3	Corporate Governance	3, 4	3	Inflation	4	2005-2006	1	n/a	2	n/a
		4	Firm-Gov Relations	3, 4	4	Firm-level technology absortpiton	3, 9	2005-2006	1	n/a	2	n/a
		5	Cooperative Employee Relations	3, 4	5	Previlance of trade barriers	3, 9	2005-2006	1	n/a	2	3.84*
					6	FDI & technology transfer	3, 9	2005-2006	1	n/a	2	n/a
					7	Prevlance of foreign tech licensing	3, 9	2005-2006	1	n/a	2	n/a
					8	Asian Country dummy variable	n/a	n/a	1	n/a	2	n/a
					9	Year dummy variable	n/a	n/a	1	n/a	2	n/a

Study: De Clercq, Hessels & van Stel (2008)

DV	Data	IV		Data	Control Variables		Data	Year	DV	Sig.	DV	Sig.
Export 26%+	2	1	Inward FDI	8	1	Manufactioning % of Employment	9	2000	1	0.26*		
	2	2	Outward FDI	8	2	Services % of Employment	9	2000	1	0.29**		
		3	Export Level (% GDP)	6	3	Lower-Income dummy variable	5	n/a	1	n/a		
		4	Import Level (% GDP)	6	4	Economic Growth	7	2002-2005	1	n/a		
					5	Company-University Cooperation	9	2001	1	n/a		
					6	Ease of Access to Loans	4	2001	1	n/a		
					7	Tertiary Education	4	1997	1	n/a		
					8	GDP (log)=Size of Domestic Market	6	2002-2005	1	-3.30**		
					9	Inflation rate	7	2002-2005	1	-0.74**		
					10	Change in Exchange Rate	3	2002-2005	1	n/a		
					11	Time dummy variable	n/a	n/a	1	n/a		

Data Key:

1. GEM-TEA Index (2006-2007)
2. GEM-TEA Index (2002-2005)
3. Economic History Services & OANDA.com (2005-2006)
4. Global Competitive Report-World Economic Forum (2005-2006)
5. World Bank
6. World Development Indicator (1995-2004)
7. World Economic Outlook from International Monetary Fund
8. World Investment Report from UNCTAD's (1995-2004)
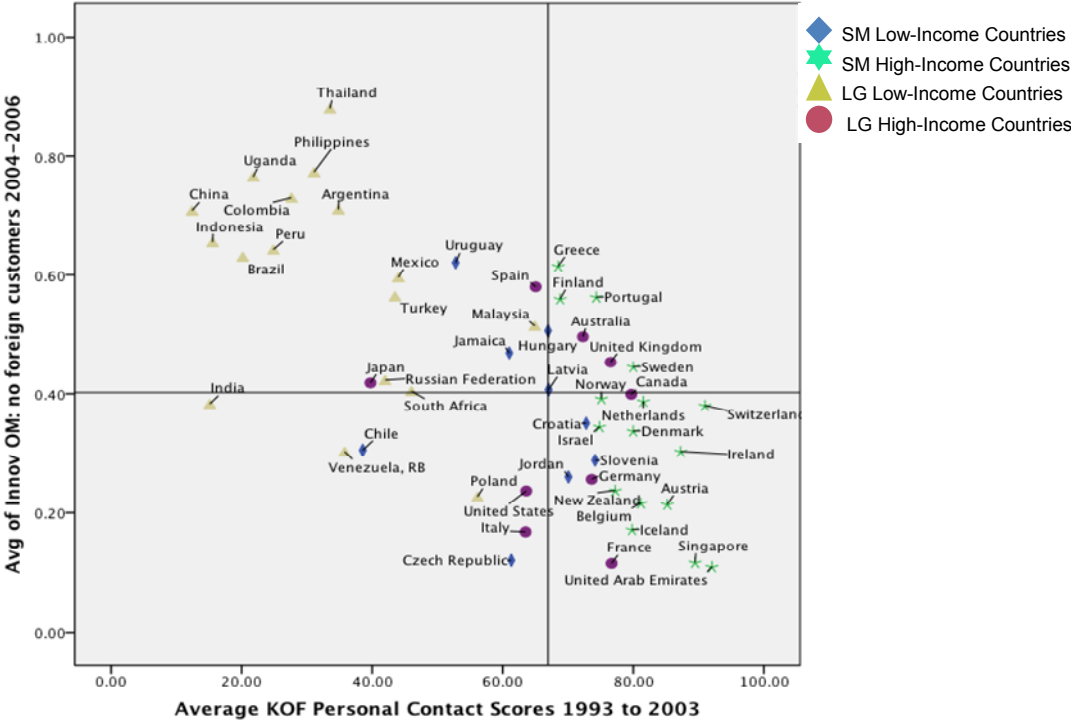9. World Competitiveness Yearbook

Appendix C Maps

Latent Innovative International Entrepreneurship and Informal Institutional Variables
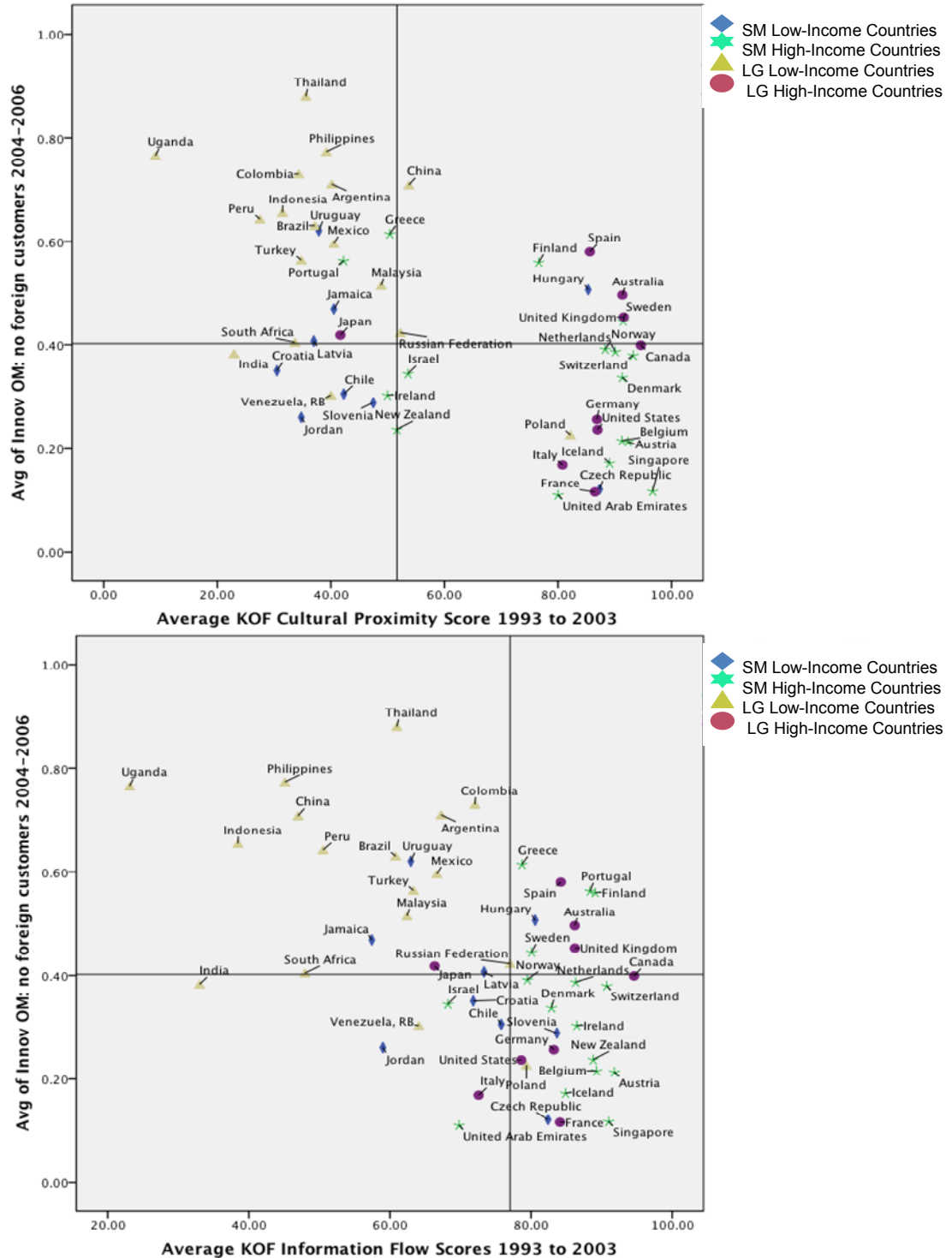
Appendix C Continued

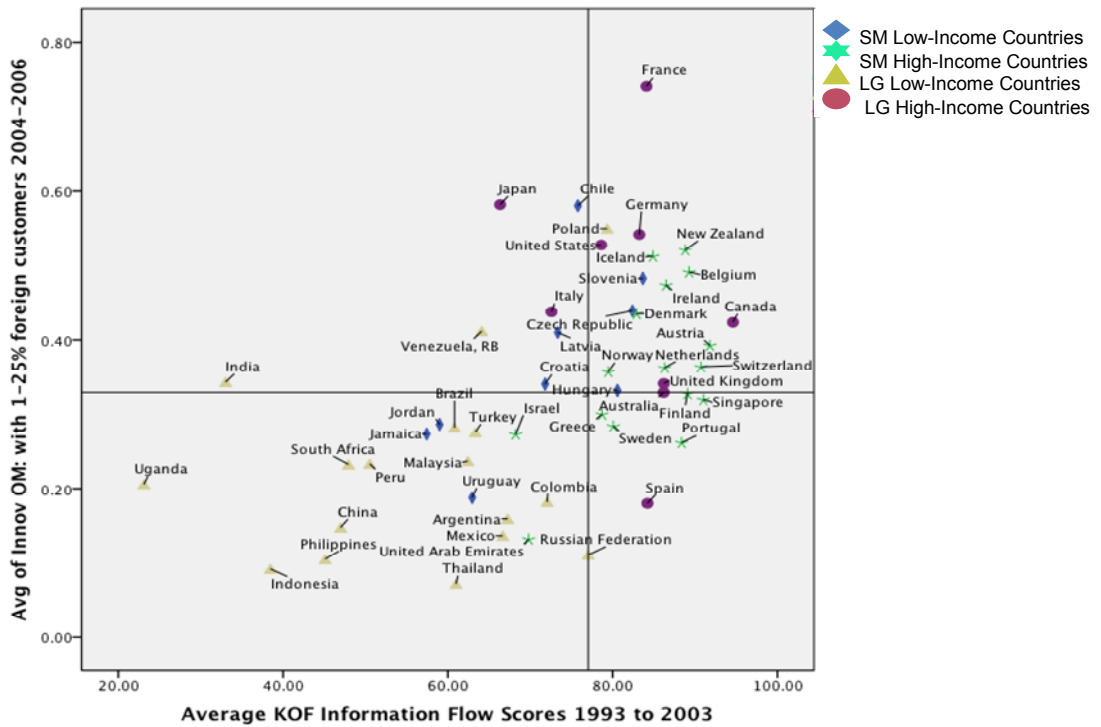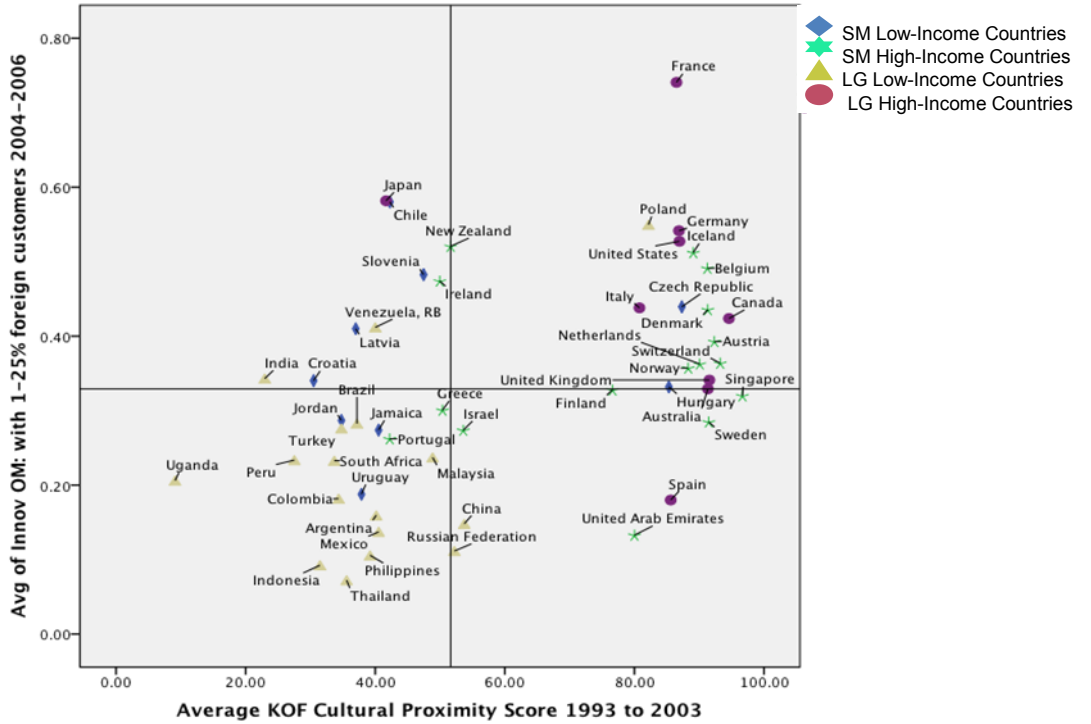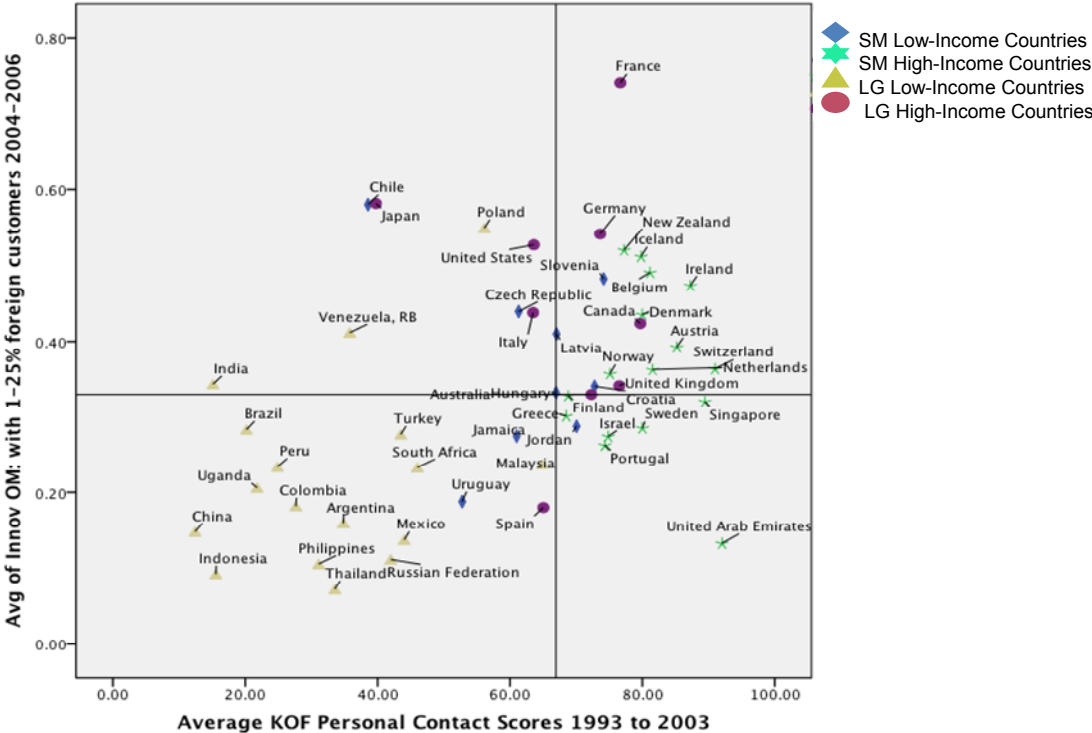## Informal Institutions and Latent IIE

Moderate Innovative International and Informal Institutional Variables
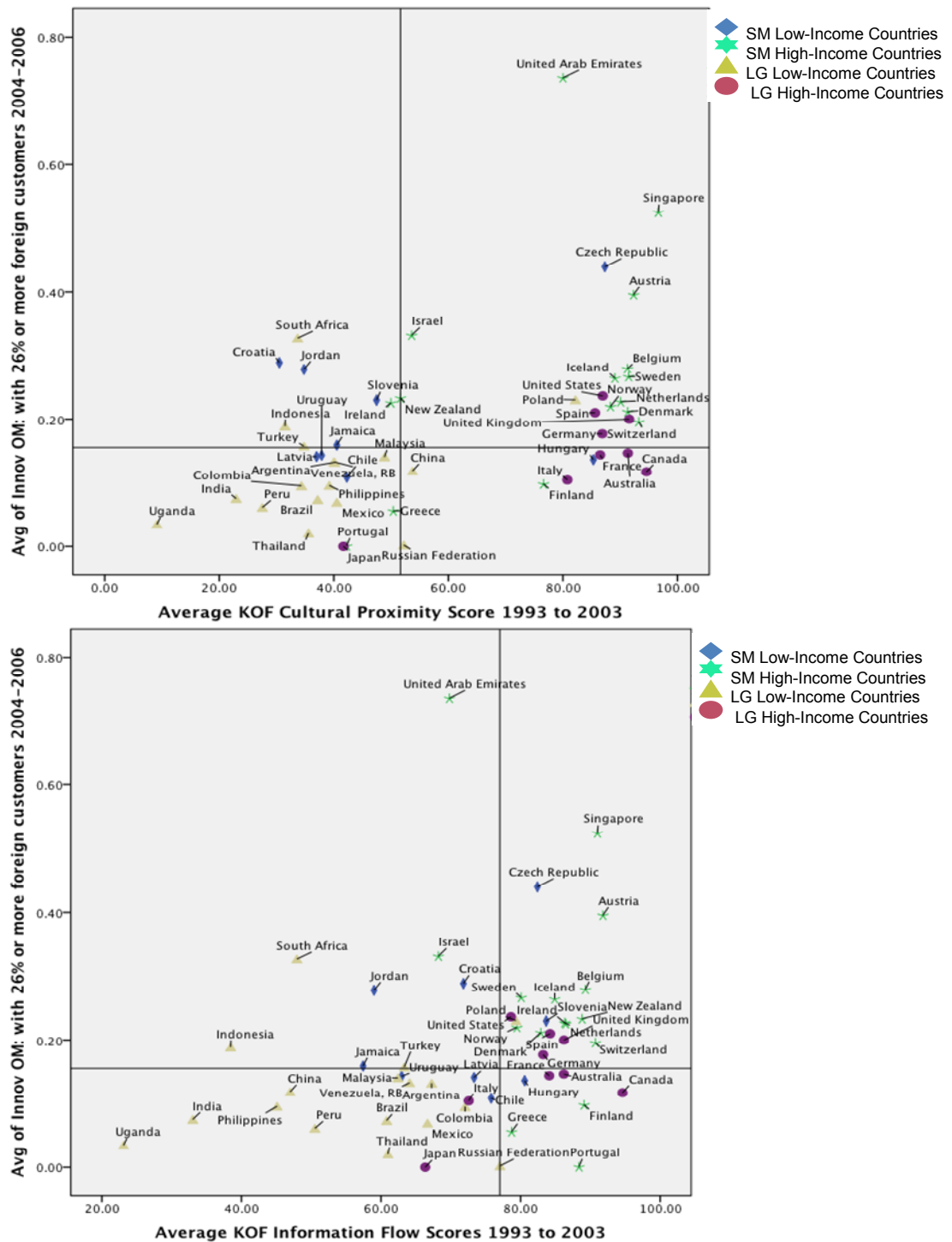
Informal Institutions and Moderate IIE

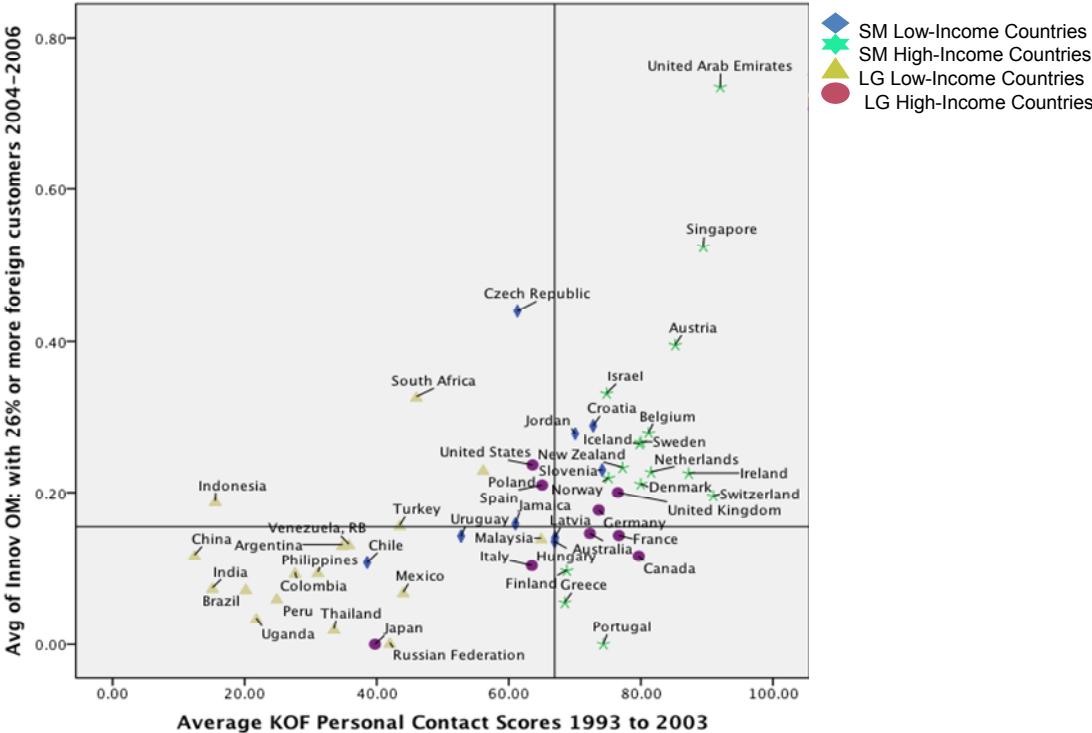Substantial Innovative International and Information Institutional Variables

Appendix D Software Research

SME Internationalisation including but not exclusive to software

Author (Year)	Journal	Method		Description of Data
		Quant	**Qual**	**SMEs in addtion to Software**
Andersson (2004)	Journal of Business Venturing		X	Rubber products
Bell et al. (2001)	Journal of Intl. Management		X	INV SMEs*
Burgel & Murray (2000)	Journal of International Marketing	X		High-tech SMEs
Chetty & Wilson (2003)	International Business Review	X		Electronic manufacturers
Collinson & Houlden (2005)	Management International Review	X	X	Misc SMEs
Coviello et al. (1998)	Journal of International Marketing	X		Engineering
Crick & Jones (2000)	Journal of International Marketing		X	High-tech SMEs
Dimitratos et al. (2003)	European Management Journal		X	Electronics, Clothing
Domke-Damonte (2000)	Management International Review	X		Lodging, Restaurant services
Elfring & Hulsink (2003)	Small Business Economics		X	Biotechnology
Eriksson et al. (2000)	Management International Review	X		Business consultants
Francis & Collins-Dodd (2000)	Journal of International Marketing	X		Computer hardware, Telecom
Freeman & Cavusgil (2007)	Journal of International Marketing		X	INV SMEs
Gabrielsson & Kirpalani (2004)	International Business Review		X	INV SMEs
Gabrielsson et al. (2008)	International Business Review		X	INV SMEs
Gemser et al (2004)	Management International Review		X	Mechanical Engineering
Hashai & Almor (2004)	International Business Review	X		Electronics, ICT
Jantunen et al.(2008)	Journal of World Business	X		ICT, forestry, machinery
Knight & Cavusgil (2004)	Journal of Intl. Business Studies	X		INV SMEs
Knight & Kim (2008)	Journal of Intl. Business Studies	X	X	Medical Devices, Misc. SMEs
Lee et al. (2001)	Strategic Management Journal	X		Biotechnology, Electronics
Loane & Bell (2006)	International Marketing Review	X	X	INV SMEs
Loane et al. (2007)	Journal of World Business	X	X	INV SMEs
McDougall et al. (1994)	Journal of Business Venturing		X	INV SMEs
O'Farrell et al. (1998)	International Small Business Jrnl	X		5 Industries:
Park & Bae	Journal of Business Venturing		X	Misc SMEs
Perks & Hughes (2008)	International Business Review		X	Misc SMEs
Preece et al. (1999)	Journal of Business Venturing	X		Electronics, Manufacturing
Presutti et al (2007)	International Business Review	X		Computer, Electronics, Telecom
Reuber & Fischer (2002)	Entrepr. Theory & Practice	X		Food processing
Shrader et al. (2000)	Academy of Management Journal	X		High-tech & Low-tech SMEs
Styles & Genua (2008)	Journal of World Business		X	Medical Devices
Zahra et al. (2000)	Academy of Management Journal	X		INV SMEs: 12 industries

*INV SMEs designates studies on SMEs with rapid internationalisation: Born globals, Born-again globals, Micromultinationals, or INVs

Appendix E Massey DRC 16 Form

MASSEY UNIVERSITY
GRADUATE RESEARCH SCHOOL

STATEMENT OF CONTRIBUTION
TO DOCTORAL THESIS CONTAINING PUBLICATIONS

(To appear at the end of each thesis chapter/section/appendix submitted as an article/paper or collected as an appendix at the end of the thesis)

We, the candidate and the candidate's Principal Supervisor, certify that all co-authors have consented to their work being included in the thesis and they have accepted the candidate's contribution as indicated below in the *Statement of Originality*.

Name of Candidate: Lorraine (Loren) M. Stangl

Name/Title of Principal Supervisor: Professor Sylvie Chetty

Name of Published Research Output and full reference:

Name: Internationalization and Innovation in a Network Relationship Context
Full Reference: Chetty,S. and Stangl, L. Internationalization and Innovation in a Network Context. European Journal of Marketing, Vol. 44 No. 11-12 pp.1725-1743.

In which Chapter is the Published Work: Chapter 2

Please indicate either:

- The percentage of the Published Work that was contributed by the candidate:

  and / or

- Describe the contribution that the candidate has made to the Published Work:

  The candidate worked jointly with the principal supervisor in the following activities to produce this published work:pre-interview research, some of the interviews, triangulation of interview transcripts with external data, data analysis, creation of figures and tables, sections of the written text, conference presentation, formatting of documents for journal submission, revise and resubmit procedures.

Loren M. Stangl	12 Oct 2011
Candidate's Signature	Date

Digitally signed by Loren M. Stangl
DN: cn=Loren M. Stangl, o=Massey University,
ou=School of Communication, Journalism, and
Marketing, email=l.stangl@massey.ac.nz, c=NZ
Date: 2011.10.12 09:40:15 +13'00'

Sylvie Chetty	14 October 2011
Principal Supervisor's signature	Date

Digitally signed by Sylvie Chetty
DN: cn=Sylvie Chetty, o=Massey University,
ou=College of Business,
email=s.chetty@massey.ac.nz, c=NZ
Date: 2011.10.14 09:45:26 +13'00'

REFERENCES

Acs, Z. J., Amorós, J. E., Bosma, N., & Levie, J. (2009). From entrepreneurship to economic development: Celebrating ten years of Global Entrepreneurship Monitor. *Frontiers of Entrepreneurship Research, 29*(16), 1-15.

Acs, Z. J., Desai, S., & Hessels, J. (2008). Entrepreneurship, economic development and institutions. *Small Business Economics, 31*, 219-234.

Acs, Z. J., Morck, R., Shaver, J. M., & Yeung, B. (1997). The internationization of small and medium-sized enterprises: A policy perspective. *Small Business Economics, 9*(1), 7-20.

Acs, Z. J., & Szerb, L. (2010). *The global entrepreneurship and development index.* Paper presented at the DRUID-Summer Conference 2010: Opening Up Innovation: Strategy, Organization and Technology.

Akman, G., & Yilmaz, C. (2008). Innovative capability, innovation strategy and market orientation: An empirical analysis in Turkish software industry. *International Journal of Innovation Management, 12*(1), 69-111.

Alajoutsijärvi, K., Mannermaa, K., & Tikkanen, E. (2000). Customer relationships and the small software firm: A framework for understanding challenges faced in marketing. *Information and Management, 37*(3), 153-159.

Álverez, C., Urbano, D., & Amorós, J. E. (2010). The GEM research: Achievements and challenges. Unpublished Working Paper. Universitat Autónoma de Barcelona.

Anderson, J. C., Håkansson, H., & Johanson, J. (1994). Dyadic business relationships within a business network context. *Journal of Marketing, 58*(4), 1-15.

Andersson, S. (2004). Internationalization in different industrial contexts. *Journal of Business Venturing, 19*(6), 851-875.

Arbaugh, J. B., Camp, S. M., & Cox, L. W. (2008). Why don't entrepreneurial firms internationalize more? *Journal of Managerial Issues, 20*(3), 366-382.

Arenius, P. (2005). The psychic distance postulate revised: From market selection to speed of market penetration. *Journal of International Entrepreneurship, 3*(2), 115-131.

Arenius, P., & De Clercq, D. (2005). A network-based approach on opportunity recognition. *Small Business Economics, 24*(3), 249-265.

Aspelund, A., Madsen, T. K., & Moen, Ø. (2007). A review of the foundation, international marketing strategies, and performance of international new ventures. *European Journal of Marketing, 41*(11/12), 1423-1448.

Audretsch, D. B., & Sanders, M. (2011). Technological innovation, entrepreneurship and development. In A. Szirmai, W. Naudé & M. Goedhuy (Eds.), *Entrepreneurship, Innovation, and Economic Development* (pp. 35-65).

Autio, E. (2005). Creative tension: The significance of Ben Oviatt's and Patricia McDougall's article 'toward a theory of international new ventures'. *Journal of International Business Studies, 36*(1), 9-19.

Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99-120.

Baumol, W. J. (1990). Entrepreneurship: Productive, unproductive, and destructive. *The Journal of Political Economy, 98*(5), 893-921.

Baumol, W. J., Litan, R. E., & Schramm, C. J. (2007). *Good Capitalism, Bad Capitalism, and the Economics of Growth and Prosperity*. New Haven: Yale University Press.

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

Bell, J. (1997). A comparative study of the export problems of small computer software exporters in Finland, Ireland and Norway. *International Business Review, 6*(6), 585-604.

Bell, J., McNaughton, R., Young, S., & Crick, D. (2003). Towards an integrative model of small firm internationalisation. *Journal of International Entrepreneurship, 1*(4), 339-362.

Bhaskar, R. (1975). *A realist theory of science*. Hemel Hempstead: Harvester Press.

Bloodgood, J. M., Sapienza, H. J., & Almeida, J. G. (1996). The internationalization of new high-potential US ventures: Antecedents and outcomes. *Entrepreneurship Theory and Practice, 20*(4), 61-76.

Bosma, N., & Levie, J. (2009). *Global Entrepreneurship Monitor 2009 Report*. Babson Park, MA,USA: Babson College,Universidad del Desarrollo,Reykjavík University, London Business Schoolo. Document Number)

Bowen, H. P., & De Clercq, D. (2008). Institutional context and the allocation of entrepreneurial effort. *Journal of International Business Studies, 39*, 747-767.

Boyer, R. (2005). How and why capitalisms differ. *Economy and Society, 34*(4), 509-557.

Brass, D. J., Galaskiewicz, J., Greve, H. R., & Tsai, W. (2004). Taking stock of networks and organizations: A multilevel perspective. *Academy of Management Journal, 47*(6), 795-817.

Brouthers, K. D. (1995). The influence of international risk on entry mode strategy in the computer software industry. *Management International Review, 35*(1), 7-28.

Brouthers, K. D., Brouthers, L. E., & Werner, S. (1996). Dunning's eclectic theory and the smaller firm: The impact of ownership and locational advantages on the choice of entry-modes in the computer software industry. *International Business Review, 5*(4), 337-394.

Bruton, G. D., Ahlstrom, D., & Li, H.-L. (2010). Institutional theory and entrepreneurship: Where are we now and where do we need to move in the future? *Entrepreneurship Theory and Practice, 34*(3), 421-440.

Bryman, A., & Bell, E. (2011). *Business Research Methods* (Third ed.). New York: Oxford University Press.

Burt, R. S. (1992). *Structural Holes: The Social Structure of Competition.* Cambridge, MA: Harvard University Press.

Busenitz, L. W., Gómez, C., & Spencer, J. W. (2000). Country Institutional Profiles: Unlocking Entrepreneurial Phenomena. *The Academy of Management Journal, 43*(5), 994-1003.

Calof, J. L., & Beamish, P. W. (1995). Adapting to foreign markets: Explaining internationalization. *International Business Review, 4*(2), 115-131.

Camisón-Zornoza, C., Lapiedra-Alcamí, R., Segarra-Ciprés, M., & Boronat-Navarro, M. (2004). A meta-analysis of innovation and organizational size. *Organization Studies, 25*(3), 331-361.

Carney, M., Gedajlovic, E., & Yang, X. (2009). Varieties of Asian capitalism: Toward an institutional theory of Asian enterprise. *Asian Pacific Journal of Management, 26*, 361-380.

Chen, Y., & Puttitanun, T. (2005). Intellectual property rights and innovation in developing countries. *Journal of Development Economics, 78*, 474-493.

Chetty, S. K., & Blankenburg Holm, D. (2000). Internationalisation of small to medium-sized manufacturing firms: A network approach. *International Business Review, 9*(1), 77-93.

Chetty, S. K., & Campbell-Hunt, C. (2003). Paths to internationalisation among small- to medium-sized firms: A global versus regional approach. *European Journal of Marketing, 37*(5/6), 796-820.

Chetty, S. K., & Campbell-Hunt, C. (2004). A strategic approach to internationalization: A traditional versus a "born-global" approach. *Journal of International Marketing, 12*(1), 57-81.

Chetty, S. K., & Wilson, H. I. M. (2003). Collaborating with competitors to acquire resources. *International Business Review, 12*(1), 61-81.

Collinson, S. (2000). Knowledge networks for innovation in small Scottish software firms. *Entrepreneurship and Regional Development, 12*(3), 217-244.

Coviello, N. E. (1996). Foreign market entry and internationalization: The case of Datacom Software Research. *Entrepreneurship Theory and Practice, 20*(4), 95-109.

Coviello, N. E. (2005). Integrating qualitative and quantitative techniques in network analysis. *Qualitative Market Research, 8*(1), 39-60.

Coviello, N. E. (2006). The network dynamics of international new ventures. *Journal of International Business Studies, 37*(5), 713-731.

Coviello, N. E., & Cox, M. P. (2006). The resource dynamics of international new venture networks. *Journal of International Entrepreneurship, 4*(2-3), 113-132.

Coviello, N. E., & Jones, M. V. (2004). Methodological issues in international entrepreneurship research. *Journal of Business Venturing, 19*(4), 485-508.

Coviello, N. E., & Martin, K. A.-M. (1999). Internationalization of service SMEs: An integrated perspective from the engineering consulting sector. *Journal of International Marketing, 7*(4), 42-66.

Coviello, N. E., & McAuley, A. (1999). Internationalisation and the smaller firm: A review of contemporary empirical research. *Management International Review, 39*(3), 223-256.

Coviello, N. E., & Munro, H. J. (1995). Growing the entrepreneurial firm: Networking for international market development. *European Journal of Marketing, 29*(7), 49-61.

Coviello, N. E., & Munro, H. J. (1997). Network relationships and the internationalisation process of small software firms. *International Business Review, 6*(4), 361-386.

Creswell, J. W. (2003). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (2nd ed.). Thousand Oak, CA: Sage.

Creswell, J. W. (2009). Editorial: Mapping the field of mixed methods research. *Journal of Mixed Methods Research, 3*(2), 95-108.

Crick, D., & Spence, M. (2005). The internationalisation of 'high performing' UK high-tech SMEs: A study of planned and unplanned strategies. *International Business Review, 14*, 167-185.

Czinkota, M. R., & Ronkainen, I. A. (2007). *International Marketing* (8th ed.). Mason, OH: Thomson Higher Education.

Dacin, M. T., Goodstein, J., & Scott, W. R. (2002). Institutional theory and institutional change: Introduction to the special research forum. *Academy of Management Journal, 45*(1), 43-56.

Dakhli, M., & De Clercq, D. (2004). Human capital, social capital, and innovation: A multi-country study. *Entrepreneurship and Regional Development, 16*, 107-128.

Damanpour, F. (1991). Organizational innovation: A meta-analysis of effects of determinants and moderators. *The Academy of Management Journal, 34*(3), 555-590.

Damanpour, F., & Wischnevsky, D. J. (2006). Research on innovation in organizations: Distinguishing innovation-generating from innovation-adopting organizations. *Journal of Engineering and Technology Management, 23*(4), 269-291.

Dana, L.-P., & Wright, R. W. (2009). International entrepreneurship: Research priorities for the future. *International Journal of Globalisation and Small Business, 3*(1), 90-134.

Darroch, J., & McNaughton, R. (2003). Beyond market orientation: Knowledge management and the innovativeness of New Zealand firms. *European Journal of Marketing, 37*(3/4), 572-593.

Davidsson, P., Delmar, F., & Wiklund, J. (2006). Entrepreneurship as growth: Growth as entrepreneurship. In P. Davidsson, F. Delmar & J. Wiklund (Eds.), *Entrepreneurship and the Growth of Firms* (pp. 21-38). Cheltenham, UK: Edward Elgar Publiser.

Dawson, J. W. (2007). The empricial institutions-growth literature: Is something amiss at the top? *Economics Journal Watch, 4*(2), 184-196.

De Clercq, D., Danis, W. M., & Dakhli, M. (2010). The moderating effect of institutional context on the relationship between associational activity and new business activity in emerging economies. *International Business Review, 19*, 85-101.

De Clercq, D., Hessels, J., & van Stel, A. (2008). Knowledge spillovers and new ventures' export orientation. *Small Business Economics, 31*(3), 283-303.

De Clercq, D., Lim, D. S. K., & Oh, C. H. (2011). Individual-level resources and new business activity: The contingent role of institutional context. *Entrepreneurship Theory and Practice*(DOI 10.1111/j.1540-6520.2011.00470.x), 1-28.

de Haan, J., Lundström, S., & Strum, J.-E. (2006). Market-oriented institutions and policies and economic growth: A critical survey. *Journal of Economic Surveys, 20*(2), 157-191.

Denzin, N. K., & Lincoln, Y. S. (1994). *Handbook of Qualitative Research*. Thousand Oaks, CA: Sage.

Dewar, R. D., & Dutton, J. E. (1986). The adoption of radical and incremental innovations: An empirical analysis. *Management Science, 32*(11), 1422-1433.

DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review, 48*(2), 147-160.

DiMaggio, P. J., & Powell, W. W. (1991). Introduction. In W. W. Powell & P. J. DiMaggio (Eds.), *The New Institutionalisam in Organizational Analysis* (Vol. 17, pp. 1-38). Chicago: University of Chicago Press.

Dimitratos, P., Johnson, J., Slow, J., & Young, S. (2003). Micromultinationals: New types of firms for the global competitive landscape. *European Management Journal, 21*(2), 164-174.

Dimitratos, P., & Jones, M. V. (2005). Future directions for international entrepreneurship research. *International Business Review, 14*(2), 119-128.

Dimitratos, P., & Plakoyiannaki, E. (2003). Theoretical foundations of an international entrepreneurial culture. *Journal of International Entrepreneurship, 1*(2), 187-215.

Drazin, R., & Schoonhoven, C. B. (1996). Community, population, and organization effects on innovation: A multilevel perspective. *The Academy of Management Journal, 39*(5), 1065-1083.

Dreher, A. (2006). Does globalization affect growth? Evidence from a new index of globalization. *Applied Economics, 38*, 1091-1110.

Dreher, A., Gaston, N., & Marten, P. (2008). *Measuring globalization-Guaging its consequence*. New Your: Springer.

Drucker, P. F. (1985a). The discipline of innovation. *Harvard Business Review, 63*, 67-72.

Drucker, P. F. (1985b). *Innovation and Entrepreneurship: Practice and Principles*. New York: Harper & Row.

Easton, G. (2002). Marketing: A critical realist approach. *Journal of Business Research, 55*, 103-109.

Easton, G. (2010). Critical realism in case study research. *Industrial Marketing Management, 39*(1), 118-128.

Economist, T. (2011). Schumpeter: Uncorking enterprise.   Retrieved 19 August 2011, from http://www.economist.com/node/18227144

Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of Management Review, 16*(3), 620-627.

Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic capabilities: What are they? *Strategic Management Journal, 21*, 1105-1121.

Eisenhardt, K. M., & Schoonhoven, C. B. (1996). Resource-based view of strategic alliance formation: Strategic and social effects in entrepreneurial firms. *Organization Science, 7*(2), 136-150.

Ellis, P. (2000). Social ties and foreign market entry. *Journal of International Business Studies, 31*(3), 443-469.

Ellis, P., & Pecotich, A. (2001). Finding international exchange partners: The role of social ties. *Global Focus, 13*(2), 121-133.

Enderwick, P., Tung, R., & Chung, H. F. L. (2011). Immigrant effect and international business activity: An overview. *Journal of Asia Business Studies, 5*(1), 6-22.

Etemad, H. (2003). Managing relations: The essence of international entrepreneurship. In H. Etemad & R. W. Wright (Eds.), *Globalization and Entrepreneurship: Policy and Strategy Perspectives* (pp. 223-242). Cheltenham: Edward Elgar Publishing.

Etemad, H. (2004a). International entrepreneurship as a dynamic adaptive system:Towards a grounded theory. *Journal of International Entrepreneurship, 2*, 5-59.

Etemad, H. (2004b). Internationalization of small and medium-sized enterprises: A grounded theoretical framework and an overview. *Canadian Journal of Administrative Sciences, 21*(1), 1-21.

Fagerberg, J. (2005). Innovation: A guide to the literature. In J. Fagerberg, D. C. Mowery & R. R. Nelson (Eds.), *The Oxford Handbook on Innovation* (pp. 1-27). Oxford: Oxford University Press.

Fernhaber, S. A., McDougall, P. P., & Oviatt, B. M. (2007). Exploring the role of industry structure in new venture internationalization. *Entrepreneurship Theory and Practice, 31*(4), 517-542.

Field, A. (2009). *Discovering Statistics using SPSS: (and Drugs and Sex and Rock 'n' Roll)* (3rd ed.). Los Angeles: Sage Publishing.

Fischer, E., & Reuber, A. R. (2008). *Which SMEs internationalize most extensively and effectively? A literature review and examination of implications for Canadian SME policy.* Paper presented at the McGill International Entrepreneurship Conference.

Gao, G. Y., Murray, J. T., Kotabe, M., & Lu, J. (2010). A "strategy tripod" perspective on export behaviors: Evidence from domestic and foreign firms based in an emerging economy. *Journal of International Business Studies, 41*, 377-396.

Garcia, R., & Calantone, R. J. (2002). A critical look at technological innovation typology and innovativeness terminology: A literature review. *The Journal of Product Innovation Management, 19*, 110-132.

Gartner, W. B., & Birley, S. (2002). Introduction to the special issue on qualitative methods in entrepreneurship research. *Journal of Business Venturing, 17*(5), 387-395.

Giddings, L. S., & Grant, B. M. (2006). Mixed methods research for the novice researcher. *Contemporary Nurse, 23*, 3-11.

Gopalakrishnan, S., & Damanpour, F. (1997). A review of innovation research in economics, sociology and technology management. *Omega, 25*(1), 15-28.

Grabher, G. (1993). *The Embedded Firm: On the Socioreconomics of Industrial Networks.* London, England: Routledge.

Granovetter, M. (1983). The strength of weak ties: A network theory revisited. *Sociological Theory, 1*, 201-233.

Granstrand, O., & Sjölander, S. (1990). The acquisition of technology and small firms by large firms. *Journal of Economic Behavior and Organization, 13*, 367-386.

Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of Qualitative Research* (pp. 105-117). Thousand Oaks, CA: Sage.

Gupta, A. K., Tesluk, P. E., & Taylor, M. S. (2007). Innovation at and across multiple levels of analysis. *Organization Science, 18*(6), 885-897.

Gwartney, J. D., Lawson, R., & Emerick, N. (2003). *Economic Freedom of the World:2003 Annual Report*. Vancouver, BC: The Fraser Instituteo. Document Number)

Gwartney, J. D., Lawson, R., & Gartzke, E. (2005). *Economic Freedom of the World: 2005 Annual report*. Vancouver: Fraser Instituteo. Document Number)

Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (2006). *Multivariate Data Analysis* (6th ed.). Upper Saddle River, NJ: Pearson/Prentice Hall.

Håkansson, H., & Snehota, I. (1989). No business is an island: The network concept of business strategy. *Scandinavian Journal of Management, 5*, 187-200.

Hall, P. A., & Soskice, D. (2001). *Varieties of Capitalism: The Institutinal Foundations of Comparative Advantage*. New York: Oxford University Press.

Hämäläinen, T. J., & Schienstock, G. (2000). *Innovation networks and network policies* (First draft): OECDo. Document Number)

Harris, S., & Ghauri, P. N. (2000). Strategy formation by business leaders: Exploring the influence of national values. *European Journal of Marketing, 34*(1/2), 126-143.

Harris, S., & Wheeler, C. (2005). Entrepreneurs' relationships for internationalization: functions, origins and strategies. *International Business Review, 14*, 187-207.

Harzing, A.-W. (2009). Journal Quality List (Publication. Retrieved 3 July 2009, from University of Melbourne: http://harzing.com

Healy, M., & Perry, C. (2000). Comprehensive criteria to judge validity and reliability of qualitative research within the realism paradigm. *Qualitative Market Research, 3*(3), 118-126.

Hessels, J. (2008). *International Entrepreneurship: Value Creation Across National Borders.* Unpublished PhD, Erasmus Univeristy, Rotterdam.

Hessels, J., van Gelderen, M., & Thurik, R. (2008). Entrepreneurial aspirations, motivations, and their drivers. *Small Business Economics, 31*, 323-339.

Hessels, J., & van Stel, A. (2009). Entrepreneurship, export orientation, and economic growth. *Small Business Economics, Published Online 23 October 2009.*

Hite, J. M., & Hesterly, W. S. (2001). The evolution of firm networks: From emergence to early growth of the firm. *Strategic Management Journal, 22*, 275-286.

Hoang, H., & Antoncic, B. (2003). Network-based research in entrepreneurship: A critical review. *Journal of Business Venturing, 18*(2), 165-187.

Hofstede, G. (1980). *Culture's Consequences: International Differences in Work Realted Values.* Beverly Hills, CA: Safe Publications.

Hohenthal, J. (2006). Integrating qualitative and quantitative methods in research on international entrepreneurship. *Journal of International Entrepreneurship, 4*, 175-190.

Hoskisson, R. E., Covin, J. G., Volberda, H. W., & Johnson, R. A. (2011). Revitalizing entrepreneurship: The search for new research opportunities. *Journal of Management Studies, 48*(6), doi:10.1111/j.1467-6486.2010.00997.x.

Huber, G. P., & Power, D. J. (1985). Retrospective reports of strategic-level managers: Guidelines for increasing their accuracy. *Strategic Management Journal, 6*(2), 171-180.

Jack, S. L. (2010). Approaches to studying networks: Implications and outcomes. *Journal of Business Venturing, 25*(1), 120-137.

Johanson, J., & Mattsson, L.-G. (1987). Interorganizational relations in industrial systems: A network approach compared with the transaction-cost approach. *International Studies of Management and Organization, 17*(1), 34-48.

Johanson, J., & Mattsson, L.-G. (1988). Internationalization in industrial systems: A network approach. In N. Hood & J.-E. Vahlne (Eds.), *Strategies in Global Competition* (pp. 287-314). London: Croom Helm.

Johanson, J., & 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., & Vahlne, J.-E. (2003). Business relationship learning and commitment in the internationalization process. *Journal of International Entrepreneurship, 1*(1), 83-101.

Johanson, J., & Vahlne, J.-E. (2006). Commitment and opportunity development in the internationalization process: A note on the Uppsala internationalization process model, *Management International Review* (Vol. 46, pp. 165-178).

Johanson, J., & Vahlne, J.-E. (2009). The Uppsala international process model revisited: From liability of foreignness to liability of outsidership. *Journal of International Business Studies 40*(4), 1411-1431.

Johanson, J., & Wiedersheim-Paul, F. (1975). The internationalization of the firm-Four Swedish cases. *Journal of Management Studies*(October), 305-322.

Johanson, M., & Kao, P. T. (2010). Networks in internationalisation. In J. Pla-Barber & J. Alegre (Eds.), *Progress in International Business Research* (Vol. 5, pp. 119-142): Emerald Group Publishing.

Jones, M. V., Coviello, N. E., & Tang, Y. K. (2011). International entrepreneurship research (1989-2009): A domain ontology and thematic analysis. *Journal of Business Venturing, 10.1016/j.jbusvent.2011.04.001*, 1-28.

Kaasa, A. (2009). Effects of different dimensions of social capital on innovative activity: Evidence from Europe at the regional level. *Technovation, 29*, 218-233.

Kennedy, A. (2004). Entry mode choice in service firms: A review of contemporary research. In *Research on International Service Marketing: A State of the Art Advances in International Marketing* (Vol. 15, pp. 119-145): Elvsevier Ltd.

Kiss, A. N., & Danis, W. M. (2008). Country institutional context, social networks, and new venture internationalization speed. *European Management Journal, 26*, 388-399.

Kline, S. J., & Rosenberg, N. (1986). An overview of innovation. In R. Landau & N. Rosenberg (Eds.), *The Positive Sum Strategy* (pp. 275-305). Washington, DC: National Academy Press.

Klyver, K., Hindle, K., & Meyer, D. (2008). Influences of social network structure on entrepreneurship participation: A study of 20 national cultures. *International Entrepreneurship Management Journal, 4*, 331-347.

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

Knight, G. A., & Cavusgil, S. T. (1996). The born global firm: A challenge to traditional internationalization theory. In S. T. Cavusgil & T. Madsen (Eds.), *Advances in International Marketing* (Vol. 8, pp. 11-26). Greenwich, CT: JAI Press.

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

Knight, G. A., & Kim, D. (2009). International business competence and the contemporary firm. *Journal of International Business Studies, 40*, 255-273.

Kobrin, S. J. (1991). An empirical analysis of the determinants of global integration. *Strategic Management Journal, 12*(Special Issue:Global Strategy), 17-31.

Koehane, R. O., & Nye, J. S. (2000). Introduction. In J. S. Nye & J. D. Donahue (Eds.), *Governance in a Globalizing World* (pp. 1-44). Washington D.C.: Brookings Institution Press.

Koellinger, P. (2008). Why are some entrepreneurs more innovative than others? *Small Business Economics, 31*, 21-37.

Koellinger, P., Minniti, M., & Schade, C. (2007). "I think I can, I think I can": Overconfidence and entrepreneurial behavior. *Journal of Economic Psychology, 28*, 502-527.

Kostova, T. (1997). *Country institutional profiles: Concept and measurement.* Paper presented at the Academy of Management.

Kostova, T., & Roth, K. (2002). Adoption of an organizational practice by subsidiaries of multinational corporations: Institutional and relational effects. *Academy of Management Journal, 45*(1), 215-233.

Krauss, S. E. (2005). Research paradigms and meaning making: A primer. *The Qualitative Report, 10*(4), 785-770.

Kuivalainen, O., Lindqvist, J., Saarenketo, S., & Aijo, T. (2007). International growth of Finnish software firms: Starting points, pathways and outcomes. *Journal of Euromarketing, 16*(1 & 2), 7-22.

Kwon, S.-W., & Arenius, P. (2010). Nations of entrepreneurs: A social capital perspective. *Journal of Business Venturing, 25*, 315-330.

Lattimore, R., & McKeown, P. (1995). *New Zealand's international trade performance pre and post degregulation: 1970-1985 and 1985-1993* (No. 231). Cantebury, New Zealand: Lincoln Universityo. Document Number)

Lechner, C., & Dowling, M. (2003). Firm networks: External relationships as sources for the growth and competitiveness of entrepreneurial firms. *Entrepreneurship and Regional Development, 15*, 1-26.

Leonidou, L. (2004). An analysis of the barriers hindering small business export development. *Journal of Small Business Management, 42*(3), 279-302.

Leonidou, L., Katsikeas, C. S., Palihawadana, D., & Spyropoulou, S. (2007). An analytical review of the factors stimulating smaller firms to export:

Implications for policy-makers. *International Marketing Review, 24*(6), 735-770.

Levy, O., Taylor, S., Boyacigiller, N. A., & Beechler, S. (2007). Global mindset: A review and proposed extensions. In T. Devinney, T. Pedersen & L. Tihany (Eds.), *The Global Mindset. Advances in International Management* (Vol. 19, pp. 11-47): Emerald Publishing Group.

Lewis, K., & Housden, M. (1998). *An Introduction to International Marketing: A Guide to Going Global.* London: Kogan Page Ltd.

Liesch, P. W., & Knight, G. A. (1999). Information internalization and hurdle rates in small and medium enterprise internationalization. *Journal of International Business Studies, 30*(2), 383-394.

Liu, X., Wright, M., Filatotchev, I., Dai, O., & Lu, J. (2010). Human mobility and international knowledge spillovers: Evidence from high-tech small and medium enterprises in an emerging market. *Strategic Entrepreneurship Journal, 4*, 340-355.

Loane, S., & Bell, J. (2006). Rapid internationalisation amoung entrepreneurial firms in Australia, Canada, Ireland and New Zealand: An extension to the network approach. *International Business Review, 23*(5), 467-485.

Lommelen, T., & Matthyssens, P. (2004). The internationalization process of service providers: A literature review. In *Research on International Service Marketing: A State of the Art Advances in International Marketing* (Vol. 15, pp. 95-117): Elsevier Ltd.

Lorenzoni, G., & Lipparini, A. (1999). The leverging of interfirm relationships as a distinctive organizational capability: A lognitudinal study. *Strategic Management Journal, 20*, 317-338.

Lu, Y., Zhou, L., Brunton, G., & Li, W. (2010). Capabilities as a mediator linking resources and the international performance of entrepreneurial firms in an emerging economy. *Journal of International Business Studies, 41*, 419-436.

Luk, C.-L., Yau, O. H., Sin, L. Y., Tse, A. C., Chow, R. P., & Lee, J. S. (2008). The effects of social capital and organizational innovativeness in different institutional context. *Journal of International Business Studies, 39*, 589-612.

Macpherson, A., & Holt, R. (2007). Knowledge, learning and small firm growth: A systematic review of the evidence. *Research Policy, 36*(2), 172-192.

Madsen, T. K., Rasmussen, E., & Servais, P. (Eds.). (2000). *Differences and similarities between born globals and other types of exporters* (Vol. 10). Amsterdam: JAI/Elsevier Inc.

Madsen, T. K., & Servais, P. (1997). The internationalization of born globals: An evolutionary process? *International Business Review, 6*(6), 561-583.

Majkgård, A., & Sharma, D. D. (1998). Client-following and market-seeking strategies in the internationalization of service firms. *Journal of Business -to-Business Marketing, 4*(3), 1-41.

Mallard, T. (2006). *Economic Transformation: Securing New Zealand's Future Prosperity*. Wellington: New Zealand Ministry of Economic Developmento. Document Number)

Manolova, T. S., Brush, C. G., Edelman, L. F., & Greene, P. G. (2002). Internationalization of small firms: Personal factors revisited. *International Small Business Journal, 20*(9), 9-31.

Mathews, J. A., & Zander, I. (2007). The international entrepreneurial dynamics of accelerated internationalisation. *Journal of International Business Studies, 38*, 387-403.

Mayer-Schöenberger, V., & Hurley, D. (2000). Globalization of communication. In J. S. Nye & J. D. Donahue (Eds.), *Governance in a Globalizing World* (pp. 135-154). Washington D.C.: Brookings Institution Press.

McDougall, P. P., Oviatt, B. M., & Shrader, R. C. (2003). A comparison of international and domestic new ventures. *Journal of International Entrepreneurship, 1*(1), 59-82.

McDougall, P. P., Shane, S., & Oviatt, B. M. (1994). Explaining the formation of international new ventures: The limits of theories from international business research. *Journal of Business Venturing, 9*(6), 469-487.

McMullen, J. S., Bagby, D. R., & Palich, L. E. (2008). Economic freedom and the motivation to engage in entrepreneurial action. *Entrepreneurship Theory and Practice, 32*(5), 875-895.

McNaughton, R. (1996). Foreign market channel integration decisions of Canadian computer software firms. *International Business Review, 5*(1), 23-52.

McNaughton, R., & Bell, J. (2000). Channel switching between domestic and foreign markets. *Journal of International Marketing, 9*(1), 24-39.

Melén, S., Nordman, E. R., Tolstoy, D., & Sharma, D. D. (2011). International entrepreneurship at the foreign market level: Towards a network perspective. In C. G. Asmussen, T. Pedersen, T. Devinney & L. Tihany (Eds.), *Dynamics of Globalization: Location-Specific Advantages or Liabilities of Foreignness?* (Vol. 24, pp. 357-387): Emerald Group Publishing Limited.

Meyer, J. W., & Rowan, B. (1991). Institutionalized organizations: Formal structure as myth and ceremony. In W. W. Powell & P. J. DiMaggio (Eds.), *The New Institutionalism in Organizational Analysis* (pp. 41-62). Chicago: University of Chicago Press.

Miles, M., & Huberman, M. (1984). *Qualitative Data Analysis.* Beverly Hills, CA: Sage Publications.

Minniti, M. (2008). The role of government policy on entrepreneurial activity: Productive, unproductive or destructive? *Entrepreneurship Theory and Practice, 32*(5), 779-790.

Moen, Ø., Endresen, I., & Gavlen, M. (2003). Use of the internet in international marketing: A case study of small computer software firms. *Journal of International Marketing, 11*(4), 129-149.

Moen, Ø., Gavlen, M., & Endresen, I. (2004). Internationalization of small, computer software firms: Entry forms and market selection. *European Journal of Marketing, 38*(9/10), 1236-1251.

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

Mohannak, K. (2007). Innovation networks and capability building in the Australian high-technology SMEs. *European Journal of Innovation Management, 10*(2), 236-251.

Möller, K., Partanen, J., Rajala, A., Westerlund, M., Rajala, R., & Svahn, S. (2005, 3.9.2005). *Role of partnerships and networks in SME innovation and growth.* Paper presented at the IMP Conference, Rotterdam, Netherlands.

Morse, J. M. (1991). Approaches to qualitative-quantitative methodological triangulation. *Nursing Research, 40*, 120-123.

Nahapiet, J., & Ghoshal, S. (1998). Social capital, intellectual capital, and the organizational advantage. *The Academy of Management Review, 23*(2), 242-266.

Nambisan, S. (2001). Why service businesss are not product businesses. *MIT Sloan Management Review, 42*(4), 72-80.

Nassimbeni, G. (2001). Technology, innovation capacity, and the export attitude of small manufacturing firms: A logit/tobit model. *Research Policy, 30*, 245-262.

Newman, I., Ridenour, C. S., Newman, C., & DeMarco, G. M. P. (2003). A typology of research purposes and its relationship to mixed methods. In

A. Tashakkori & C. Teddlie (Eds.), *Handbook of mixed methods in social and behavioural research*. Thousand Oaks, CA: Sage.

Nkongolo-Bakenda, J.-M., Anderson, R., Ito, J., & Garven, G. (2010). Structural and competitive determinants of globally oriented small- and medium-sized enterprises: An empirical analysis. *Journal of International Entrepreneurship, 8*, 55-86.

North, D. C. (1990). *Institutions, Institutional Change, and Economic Performance*. Cambridge: Cambridge University Press.

Nummela, N., Saarenketo, S., & Puumalainen, K. (2004). A global mindset-A prerequisite for successful internationalization? *Canadian Journal of Administrative Sciences, 21*(1), 51-64.

NZ-MED. (2005). *The growth and innovation framework sector taskforces: progress with implementation*. Wellington: New Zealand Ministry of Economic Developmento. Document Number)

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

OECD. (1990). *Progress in structural reform*. Paris: OECDo. Document Number)

OECD. (2005). *Oslo Manual. Guidelines for Collecting and Interpreting Innovation Data*. Paris: OECD and Eurostat.

OECD. (2007a). *OECD Reviews of Innovation Policy: New Zealand*. Paris: OECD.

OECD. (2007b). *Summary report of the study on globalisation and innovation in the business services sector*. Paper presented at the OECD's 2005 Ministerial Council Meeting, Paris.

OECD. (2008a). *Enhancing the Role of SMEs in Global Value Chains*. Paris: OECD Publishing.

OECD. (2008b). *OECD Information Technology Outlook 2008*. Paris: OECD.

OECD. (2009). *Science, Techonology and Industry Scoreboard 2009*. Paris: OECDo. Document Number)

OECD. (2010). *SMEs, Entrepreneurship and Innovation*. Paris: OECD.

Ojala, A. (2008a). Entry in a psychically distant market: Finnish small and medium-sized software firms in Japan. *European Management Journal, 26*(2), 135-144.

Ojala, A. (2008b). *Internationalization of software firms: Finnish small and medium-sized software firms in Japan.* Unpublished dissertation, University of Jyväskylä, Jyväskylä.

Ojala, A., & Tyrväinen, P. (2006). Business models and market entry mode choice of small software firms. *Journal of International Entrepreneurship, 4*(2-3), 69-81.

Ojala, A., & Tyrväinen, P. (2007a). Entry barriers of small and medium-sized software firms in the Japanese market. *Thunderbird International Business Review, 49*(6), 689-705.

Ojala, A., & Tyrväinen, P. (2007b). Market entry and priority of small and medium-sized enterprises in the software industry: An empirical analysis of cultural distance, geographic distance, and market size. *Journal of International Marketing, 15*(3), 123-149.

Ojala, A., & Tyrväinen, P. (2008). Market entry decisions of US small and medium-sized software firms. *Management Decision, 46*(2), 187-200.

Oviatt, B. M., & McDougall, P. P. (1994). Toward a theory of international new ventures. *Journal of International Business Studies, 25*(1), 45-64.

Oviatt, B. M., & McDougall, P. P. (2005). Defining international entrepreneurship and modeling the speed of internationalization. *Entrepreneurship Theory and Practice, 29*(5), 537-553.

Palmberg, C. (2006). The sources and success of innovations: Determinants of commercialisation and break-even times. *Technovation, 26*, 1253-1267.

Park, W. G. (2008). Intellectual property rights and international innovation. In K. Maskus (Ed.), *Frontiers of Economics and Globalization* (Vol. 1, pp. 289-328). New York: Elsevier Science.

Patterson, P. G., & Cicic, M. (1995). A typology of service firms in international markets: An empirical investigation. *Journal of International Marketing, 3*(5), 57-83.

Paul, H. (2001). Creating a mindset. *Thunderbird International Business Review, 42*(2).

Peng, M. W. (2001). The resource-based view and international business. *Journal of Management, 27*(6), 803-829.

Peng, M. W. (2006). *Global Strategy.* Cincinnati: South-Western Thomson.

Peng, M. W. (2009). *Global Strategy* (2nd ed.). Cincinnati, OH: South-Western Cengage Learning.

Peng, M. W., & Shekshnia, S. V. (2001). How entrepreneurs create wealth in transition economies. *The Academy of Management Executive, 15*(1), 95-110.

Peng, M. W., Sun, S. L., Pinkham, B., & Chen, H. (2009). The institution-based view as a third leg for a strategy tripod. *Academy of Management Perspectives*(August), 63-91.

Peng, M. W., Wang, D. Y., & Jiang, Y. (2008). An institution-based view of international business strategy: A focus on emerging economies. *Journal of International Business Studies, 39*, 920-936.

Peng, M. W., & Zhou, J. Q. (2005). How network strategies and institutional transitions evolve in Asia. *Asian Pacific Journal of Management, 22*, 321-336.

Pettigrew, A. M. (1990). Longitudinal field research on change: Theory and practice. *Organization Science, 1*(3), 267-292.

Pittaway, L., Robertson, M., Munir, K., Denyer, D., & Neely, A. (2004). Networking and innovation: A systematic review of the evidence. *International Journal of Management Reviews, 5/6*(3&4), 137-168.

Pla-Barber, J., & Alegre, J. (2007). Analysing the link between export intensity, innovation and firm size in a science-based industry. *International Business Review, 16*(3), 275-293.

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common Method Biases in Behavioral Research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879-903.

Porter, M. E. (1980). *Competitive Strategy*. New York: Free Press.

Porter, M. E. (1990). The competitive advantage of nations. *Harvard Business Review, March-April*, 73-93.

Porter, M. E., Sachs, J. J., & McArthur, J. W. (2002). *Executive Summary: Competitiveness and Stages of Economic Development*. New York. (O. U. Press o. Document Number)

Powell, W. W. (1990). Neither market nor hierarchy: Network forms of organization. In B. Staw & L. L. Cummings (Eds.), *Research in Organizational Behavior* (Vol. 12, pp. 295-336). Greenwich, CT: JAI Press.

Powell, W. W., Koput, K. W., & Smith-Doerr, L. (1996). Interorganizational collaboration and the locus of innovation: Networks of learning in biotechnology. *Administrative Science Quarterly, 41*(1), 116-145.

Prashantham, S. (2004). Local network relationships and the internationalization of small knowledge-intensive firms. *The Copenhagen Journal of Asian Studies, 19*, 5-26.

Prashantham, S., & McNaughton, R. (2006). Facilitation of links between multinational subsidiaries and SMEs: The Scottish Technology and Collaboration (STAC) initiative. *International Business Review, 15*(5), 447-462.

Rajala, R., & Westerlund, M. (2007a). A business model perspective on knowledge-intensive services in the software industry. *International Journal of Technoentrepreneurship, 1*(1), 1-20.

Rajala, R., & Westerlund, M. (2007b). Business models: A new perspective of firms' assets and capabilities. *International Journal of Entrepreneurship and Innovation, 8*(2), 115-126.

Rauch, J. E. (2001). Business and social networks in international trade. *Journal of Economic Literature, 39*(December), 1177-1203.

Reuber, A. R., & Fischer, E. (1997). The influence of the management team's international experience on the internationalization behaviors of SMEs. *Journal of International Business Studies, 28*(4), 807-825.

Reuber, A. R., & Fischer, E. (2002). Foreign sales and small firm growth: The moderating role of the management team. *Entrepreneurship Theory and Practice, 27l*(1), 29-45.

Reynolds, P., D., Bosma, N., Autio, E., Hunt, S., Servais, I., Lopez-Garcia, P., et al. (2005). Global Entrepreneurship Monitor: Data collection design and implementation 1998-2003. *Small Business Economics, 24*, 205-231.

Rialp, A., Rialp, J., & Knight, G. A. (2005). The phenomenon of early internationalizing firms: What do we know after a decade (1993-2003) of science inquiry? *International Business Review, 14*(2), 147-166.

Ritzer, G., & Stillman, T. (2003). Assessing McDonaldization, Americanization and Globalization. In U. Beck, N. Sznaider & R. Winter (Eds.), *Global America? The Cultural Consequences of Globalization* (pp. 30-48). Liverpool: Liverpool University Press.

Rosenkopf, L., & Schilling, M. A. (2007). Comparing alliance network structure across industries: Observations and explanations. *Strategic Entrepreneurship Journal, 1*(3/4), 191-209.

Rothaermel, F. T., & Hess, A. M. (2007). Building dynamic capabilitites: Innovation driven by individual-, firm-, network-level effects. *Organization Science, 18*(6), 898-921.

Rousseau, D. M. (2011). Reinforcing the micro/macro bridge: Organizational thinking and pluralistic vehicles. *Journal of Management, 37*(2), 429-442.

Ruokonen, M., Nummela, N., Puumalainen, K., & Saarenketo, S. (2008). Market orientation and internationalisation in small software firms. *European Journal of Marketing, 42*(11/12), 1294-1315.

Ruzzier, M., Hisrich, R. D., & Antoncic, B. (2006). SME internationalization research: Past, present, and future. *Journal of Small Business and Enterprise Development, 13*(4), 476-497.

Saarenketo, S., Puumalainen, K., Kuivalainen, O., & Kyläheiko, K. (2004). Dynamic knowledge-related learning processes in internationalizing high-tech SMEs. *International Journal of Production Economics, 89*(3), 363-378.

Saarenketo, S., Puumalainen, K., Kyläheiko, K., & Kuivalainen, O. (2008). Linking knowledge and internationalization in small and medium-sized enterprises in the ICT sector. *Technovation, 28*(9), 591-601.

Schumpeter, J. A. (1934). *The Theory of Economic Development.* Cambridge: Harvard University Press.

Schweizer, R., Vahlne, J.-E., & Johanson, J. (2010). Internationalization as an entrepreneurial process. *Journal of International Entrepreneurship*(Online 25 May 2010).

Scott, W. R. (1995). *Institutions and Organizations.* Thousand Oaks, CA: Sage.

Scott, W. R. (2008). Approaching adulthood: The maturing of institutional theory. *Theory and Society, 37*(5), 427-442.

Shane, S. (1992). Why do some societies invent more than others? *Journal of Business Venturing, 7*, 29-46.

Shane, S. (2000). Prior knowledge and the discovery of entrepreneurial opportunities. *Organization Science, 11*(4), 448-469.

Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Journal, 25*(1), 217-226.

Sheehan, J. (2006). Understanding service sector innovation. *Communications of the Acm, 49*(7), 42-47.

Shepherd, D. A. (2011). Multilevel entrepreneurship research: Opportunities for studying entrepreneurial decision making. *Journal of Management, 37*(2), 412-420.

Shrader, R. C., Oviatt, B. M., & McDougall, P. P. (2000). How new ventures exploit trade-offs among international risk factors: Lessons for the

accelerated internationalization of the 21st Century. *Academy of Management Journal, 43*(6), 1227-1247.

Spencer, J. W., & Gómez, C. (2004). The relationship among national institutional structures, economic factors, and domestic entrepreneurial activity: A multicountry study. *Journal of Business Research, 57*, 1098-1107.

Spraggon, M., & Bodlica, V. (2008). Knowledge creation processes in small innovative hi-tech firms. *Management Research News, 31*(11), 879-894.

Stam, W., & Elfring, T. (2008). Entrepreneurial orientation and new venture performance: The moderating role of intra- and extraindustry social capital. *Academy of Management Journal, 51*(1), 97-111.

Stephan, U., & Uhlaner, L. M. (2010). Performance-based vs socially supportive culture: A cross-national study of descriptive norms and entrepreneurship. *Journal of International Business Studies, 41*, 1347-1364.

Strauss, A., & Corbin, J. (1990). *Basics of Qualitative Research: Grounded Theory, Procedures, and Techniques*. Newbury Park, CA: Sage

Suri, H., & Clarke, D. (2009). Advancements in research synthesis methods: From a methodologically inclusive perspective. *Review of Educational Research, 79*(1), 395-430.

Szirmai, A., Naudé, W., & Goedhuy, M. (2011). Entrepreneurship, innovation and economic development: An overview. In A. Szirmai, W. Naudé & M. Goedhuy (Eds.), *Entrepreneurship, Innovation, and Economic Development* (pp. 3-32). New York: Oxford University Press Inc.

Teece, D. J. (1986). Profiting from technological innovation: Implications for integration, collaboration, licensing and public policy. *Research Policy, 15*, 285-305.

Teece, D. J. (1992). Competition, cooperation, and innovation: Organizational arrangements for regimes of rapid technological progress. *Journal of Economic Behavior and Organization, 18*(1), 1-25.

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal, 18*(7), 509-533.

Terjesen, S., Acs, Z. J., & Audretsch, D. B. (2010). International business, entrepreneurship and the global economy. In Z. J. Acs & D. B. Audretsch (Eds.), *Handbook of Entrepreneurship Research* (pp. 431-456): Springer Science+Business Media.

Terjesen, S., & Hessels, J. (2009). Varieties of export-orientated entrepreneurship in Asia. *Asian Pacific Journal of Management, 26*, 537-561.

Terjesen, S., O'Gorman, C., & Acs, Z. J. (2008). Intermediated mode of internationalization: New software ventures in Ireland and India. *Entrepreneurship and Regional Development, 20*(January), 89-109.

Terpstra, V., & Yu, J. C. (1990). Piggybacking: A quick road to internationalisation. *International Marketing Review, 7*(4), 52-63.

Thurik, R., Wennekers, S., & Uhlaner, L. M. (2003). Entrepreneurship and economic performance: A macro perspective. *International Journal of Entrepreneurship Education, 1*(2), 157-179.

Tödtling, F., & Kaufmann, A. (2001). The role of the region for innovation activities of SMEs. *European Urban and Regional Studies, 8*(3), 203-215.

Tödtling, F., Lehner, P., & Kaufmann, A. (2009). Do different types of innovation rely on specific kinds of knowledge interactions? *Technovation, 29*, 59-71.

Toften, K., & Hammervoll, T. (2009). Niche firms and marketing strategy: An exploratory study of internationally oriented niche firms. *European Journal of Marketing, 43*(11/12), 1378-1391.

Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *British Journal of Management, 14*(3), 207-222.

Tung, R. L., & Chung, H. F. L. (2010). Diaspora and trade facilitation: The case of ethnic Chinese in Australia. *Asian Pacific Journal of Management, 27*(3), 371-392.

Ucbasaran, D., Westhead, P., & Wright, M. (2001). The focus of entrepreneurial research: Contextual and process issues. *Entrepreneurship Theory and Practice, 25*(4), 57-80.

UK-HM Treasury, & Sainsbury. (2007). *The race to the top. A review of government's science and innovation policies*. London: HM Treasuryo. Document Number)

Vainio, A. M. (2005). Exchange and combination of knowledge-based resources in network relationships: A study of software firms in Finland. *European Journal of Marketing, 39*(9/10), 1078-1095.

Venkataraman, S. (1997). The Distinctive Domain of Entrepreneurship Research: An Editor's Perspective. In J. A. Katz & R. Brockhaus (Eds.), *Advances in Entrepreneurship, Firm Emergence, and Growth* (Vol. 3, pp. 119-138). Greenwich, CT: JAI Press.

Vinig, G. T., & de Kluijver, J. (2007). Does globalization impact entrepreneurship? Comparative study of country level indicators. Universiteit van Amsterdam.

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

Westhead, P., Ucbasaran, D., & Wright, M. (2005). Decisions, actions, and performance: Do novice, serial, and portfolio entrepreneurs differ? *Journal of Small Business Management, 43*(4), 393-417.

Whitley, R. (1999). *Divergent Capitalisms: The Social Structuring and Change of Business Systems.* Oxford: Oxford University Press.

Williamson, O. (1981). The economics of organizations: The transaction cost approach. *American Journal of Sociology, 87*(3), 548-577.

Wong, P.-K., Ho, Y. P., & Autio, E. (2005). Entrepreneurship, innovation and economic growth: Evidence from GEM data. *Small Business Economics, 24*, 335-350.

Yeung, H. W.-C. (2002). Entrepreneurship in international business: An institutional perspective. *Asia Pacific Journal of Management, 19*, 29-61.

Yin, R. (1989). *Case Study Research: Design and Methods.* Newbury Park, CA: Sage Publications.

Zahra, S. A., & Bogner, W. C. (2000). Technology strategy and software new ventures' performance: Exploring the moderating effect of the competitive environment. *Journal of Business Venturing, 15*(2), 135-173.

Zahra, S. A., & George, G. (2002). International entrepreneurship: The current status of the field and future research agenda. In M. A. Hitt, R. D. Ireland, M. Camp & D. Sexton (Eds.), *Strategic Leadership: Creating a New Mindset* (pp. 225-288). London: Blackwell.

Zahra, S. A., Ireland, R. D., & Hitt, M. A. (2000). International expansion by new venture firms: International diversity, mode of market entry, technological learning, and performance. *Academy of Management Journal, 43*(5), 925-950.

Zahra, S. A., Matherne, B. P., & Carleton, J. M. (2003). Technological resource leveraging and the internationalisation of new ventures. *Journal of International Entrepreneurship, 1*(2), 163-186.

Zahra, S. A., Ucbasaran, D., & Newey, L. R. (2009). Social knowledge and SMEs' innovative gains from internationalization. *European Management Review, 6*, 81-93.

Zain, M., & Ng, S. I. (2006). The impact of network relationships on SMEs' internationalization process. *Thunderbird International Business Review, 48*(2), 183-205.

Zhou, L., Wu, W.-p., & Luo, X. (2007). Internationalization and the performance of born-global SMEs: the mediating role of social networks. *Journal of International Business Studies, 38*(4), 673-690.