Creating Purposeful Networks in the Internationalization Process

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Doctor of Philosophy

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Submitted: October 2014

Accepted: February 2015

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Appendices

Networks have emerged as an important area of study in the resource-seeking behaviour of international entrepreneurs. For many international entrepreneurs, sourcing and managing resources are key challenges in the pursuit of international markets, and increasingly, a network approach to internationalization is seen by internationalizing entrepreneurs as a means to access vital resources. Studies on a network approach to internationalization tend to focus on the benefits that networks provide but most fall short of describing how networks are developed and the network characteristics that might influence access to network resources. This thesis presents four studies to examine the role of networks as resource providers for entrepreneurs in their pursuit of international markets.

Study I explores the processes by which international entrepreneurs develop networks while Study II examines the role of collaboration networks as resource providers. Both Studies I and II are designed to detect structural network characteristics that influence access to network resources. Results suggest that while serendipity might play a role in network development, international entrepreneurs are strategic and intentional in their approach to developing networks. Pre-existing ties are crucial in providing the first connections to many resource opportunities such as information and knowledge but more importantly, pre-existing ties provide vital referral links to other networks which, directly and indirectly, help to expand entrepreneurs' networks. The social network analyses from Study I and II indicate the importance of both strong and weak ties. Strength of ties is important because different tie strength presents different resource opportunities. Social network

analyses also indicate the necessity of multiplex relationships where entrepreneurs engage in building multiple roles through various collaborative activities with actors in the network. This implies strategic economies of network management, as deepening network ties strengthen relationships and strong relationships potentially lead to more efficient exchanges.

Despite the many resource opportunities that pre-existing ties provide, there are limits to the breath and diversity of resources available. To expand the range of resource opportunities, public networks such as government agencies and industry associations present viable options for resource-seeking international entrepreneurs. Study III is a qualitative exploration into the role of government agencies and industry associations as resource providers. From interviews with internationalizing entrepreneurs, results suggest that government networks are instrumental in providing information resources but it is industry networks that tend to provide links to knowledge resources. Despite this positive finding, both government and industry associations fall short of entrepreneurs' expectations in terms of providing experiential knowledge and connections to international markets.

Study IV is a quantitative enquiry to obtain statistical evidence of the relationships between networks and export income likelihood. A government dataset comprising 2263 'small and medium-sized' enterprises (SMEs) is used. Results indicate positive and significant relationships between networks and export income likelihood. Specifically, government networks have the most influence on export likelihoods among SMEs, followed by industry networks and professional networks. Furthermore, results indicate that SMEs increase their likelihood to export if all networks in the sample are accessed between one to three times a year, controlling

for other factors, such as firm size, firm age, foreign ownership, types of legal organization and industry segments.

From a practitioners' perspective, this thesis provides meaningful insights for resource-seeking international entrepreneurs. Evidence supports prior studies that networks provide links to resources. Moreover, it is the nurturing of network relations based on mutually beneficial value exchanges that result in multiplex relationships. Multiplex relationships lead to repeated exchanges and vice versa, thus creating a rich pool of network resource opportunities.

Theoretical and empirical studies from resource-based views, resource dependency, social exchange and social network analysis provide the underpinning for this thesis. This integrated approach contributes to knowledge and offers a wider research framework for future studies of networks as a means to resource opportunities for internationalizing entrepreneurs.

STATEMENT OF ORIGINAL AUTHORSHIP

I certify that the work embodied in this thesis, ***Creating Purposeful Networks in the Internationalization Process,*** has not been submitted for a higher degree to any other university or institution. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made.

Undertaking this thesis has involved human intervention, for which I have received approval from the Ethics Committee at Macquarie University, Approval No. Reference: 52501100772(D) on 26 October 2011.

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October 2014

While I am the principal author of all the papers in this thesis, I acknowledge the contributions of both my supervisors, Associate Professor Cynthia Webster (Principal Supervisor) and Dr Robert Jack (Associate Supervisor). In particular, I am indebted to Cynthia for her constructive comments, patience and advice throughout the tenure of my PhD candidature. I continue to be inspired and motivated by Cynthia's knowledge, her commitment and her passion for research-driven work.

Rob came in a little later as Associate Supervisor and I also want to acknowledge Rob's contribution of ideas and advice to my studies, as well as his patience and encouragement.

Outlined below is the authors' contribution ratio to the four studies in this thesis:

Study I: Examining network processes and structure for internationalization: The role of pre-existing networks and multiplex ties

Frances Chang	60%
Cynthia M Webster	40%

Study II: Collaboration networks: Resources opportunities for international entrepreneurs

Frances Chang	60%
Robert Jack	20%
Cynthia M Webster	20%

Study III: The role of government and industry networks for internationalizing entrepreneurs

Frances Chang	70%
Robert Jack	10%
Cynthia M Webster	20%

Study IV: Influence of Government, Industry and Professional Networks on SME Export Likelihood

Frances Chang	70%
Cynthia M Webster	30%

Other academics in the Department of Marketing and Management at Macquarie University also provided timely suggestions and ideas during my studies. I wish to thank them, and they are Associate Professor Hume Winzer, Professor Steve D'Alessandro, Dr Meena Chavan and Dr Hamin Hamin.

I would like to thank anonymous reviewers from the following conferences: Global Conference on SMEs, Entrepreneurship and Service Innovation (2012), Australia, New Zealand International Business Academy (2013), Academy of

International Business (2013), European International Business Academy (2013) and Australia, New Zealand Academy of Management (2014). Their insightful comments and suggestions have provided the groundwork for improving the studies for this thesis.

The first three studies would not have been possible without the generosity of time and information provided by the participating entrepreneurs and CEOs for the face-to-face interviews. Their participation contributed immensely to the qualitative research aspect of this thesis.

My very sincere thanks to my PhD friends: to Stanley Choi and Julio Sarmiento who introduced and guided me through the wonderful world of Stata Analytic software. To Jennifer Ruskin for her unselfish support and encouragement and to other PhD friends who kept me sane and made me laugh – Ade, Dominik, Edward, Gaby, Hector, Lauren, Onur, Sany and Tandy.

Last but certainly not least, huge thanks to my family for their patience and undying love - husband (Alex) and children (Nicole, Joyce and Jonathan).

CHAPTER 1: INTRODUCTION

Introduction to Thesis

Pursuing international markets is typically considered by many entrepreneurs as an opportunity for organization growth. Growth can take the form of developing new geographical markets, opportunities to seek more efficient supply sources or a combination of both (Kylaheiko, Jantunen, Puumalainen, Saarenketo, & Tuppura, 2011; Vachon & Klassen, 2008). Any growth strategy requires substantial resources. Most entrepreneurial ventures start small and starting small suggests limited resources (Drucker, 1985; Wernerfelt, 1995). Growth for any entrepreneurial firm is therefore dependent on entrepreneurial capabilities to orchestrate and acquire resource inputs (Hitt, Ireland, Sirmon, & Trahms, 2011). Networks are one such channel that provide opportunities for international entrepreneurs to link with external resources (Ahuja, Soda, & Zaheer, 2012; Coviello, 2006; Gulati, Nohria, & Zaheer, 2000).

This thesis aims to contribute to the empirical literature on networks as resource providers for resource-constrained international entrepreneurs. The focus of this thesis is the international entrepreneur who actively seeks growth opportunities through creation of products, services and geographical markets. Extant theoretical and empirical studies on international entrepreneurs, resources and networks guide this work. As such, the introduction briefly examine scholarly definitions of international entrepreneurs followed by a discussion of resources and the role of networks, resource dependency and social exchanges in the context of resource acquisition for entrepreneurial ventures in international markets, and structural

network characteristics that influence access to resource networks. Identification of gaps precedes the research aims and provides the justification of this research. Chapter 1 concludes with a framework that outlines subsequent chapters of this thesis.

Defining International Entrepreneurs

Observations are made by many internationalization scholars on the theoretical link between entrepreneurs and international entrepreneurs (Jones, Coviello, & Tang, 2011; Zahra & George, 2002). The study of entrepreneurship has been an area of interest since the days of Schumpeterian economics (Schumpeter, 1934). Entrepreneurs add value to their entrepreneurial ventures as well as contribute to economic growth through a combination of developing new products, introducing new methods of production, opening new markets, conquering of new sources of supplies and organizing or re-organizing an industry by, for example, creating a monopoly or breaking up a monopoly (Schumpeter, 1934: 66). The author adds that entrepreneurs are motivated not just by profits but also by the joy and satisfaction their value creations give them (Schumpeter, 1934: 93). Value creation, in the form of actively pursuing new opportunities and new markets and transforming them into profitably ventures, is a key characteristic of entrepreneurs (Shane & Venkataraman, 2000).

In international entrepreneurship, McDougall (1989: 388) provides one of the first empirical definitions as *"the development of international new ventures or start-ups that, from their inception, engage in international business, thus viewing their operating domain as international from the initial stages of the firms' operation."* Additional dimensions from entrepreneurship literature, such as, opportunity-seeking, value adding, profit making and the tenacity to make things happen, provide

further relevant theoretical links to international entrepreneurship (Jones et al., 2011; Zahra & George, 2002). Actors (either individuals or organizations) who cross national borders to discover and exploit opportunities to create value are thus, international entrepreneurial actors (Oviatt & McDougall, 2005: 540). Accordingly, this thesis takes the definition of international entrepreneurship as a "*combination of innovative, proactive and risk-seeking behaviour that crosses national borders and is intended to create value in organizations"* (McDougall & Oviatt, 2000: 903).

Resources and the Role of Networks

Efficient utilization of resources drive organizational growth (Penrose, 1960, 2009). This is particularly significant for entrepreneurial firms which typically start small as they tend to be resource constrained. Resource limitations are accentuated for international entrepreneurs because entry mode strategies, such as direct exports or setting up a wholly owned subsidiary, are determined by resource availability (Cadogan, Kuivalainen, & Sundqvist, 2009). Extant studies suggest that networks play instrumental roles in providing resource opportunities for international entrepreneurs (Agndal & Chetty, 2007; Al-Laham & Souitaris, 2008; Chetty & Holm, 2000). Some studies indicate that networks help determine entry mode decisions (Mort & Weerawardena, 2006; Sharma & Blomstermo, 2003) while other studies show that networks provide crucial links for rapid entry to international markets (Freeman, Edwards, & Schroder, 2006).

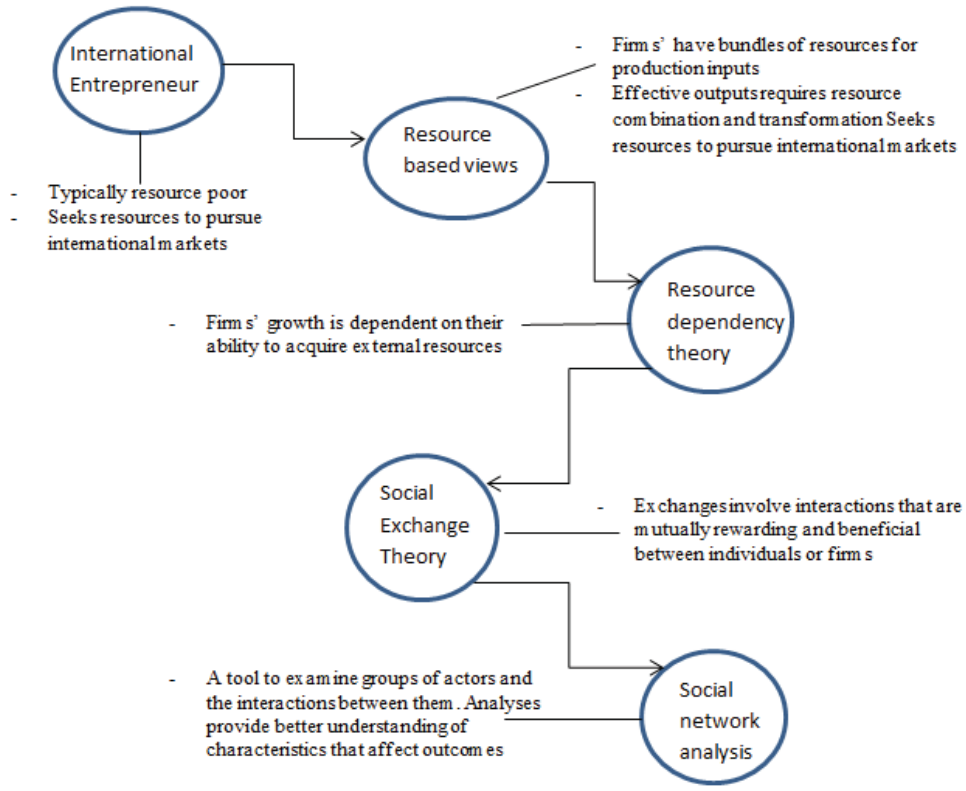
Despite increasing studies on the role of networks for resource-constrained international entrepreneurs, scholars continue to urge for research that embraces a more holistic approach in studying the "hows" and "whys" of networks as resource opportunities for international entrepreneurs (Ahuja, 2000; Hillman, Withers, & Collins, 2009). This thesis takes up this call by integrating empirical and theoretical

insights from resource-based views (RBV), resource dependency (RDT), social exchange (SET) and social network analysis (SNA) to gain a deeper understanding of networks as resource providers.

Penrose's (1960: 2) RBV suggests that resources are either inherited or have to be acquired from external sources. Acquisition of external resources is a key tenet of resource dependency (RDT) views where Pfeffer and Salancik (2003) posit that no organization is self-sufficient and thus has to depend on external organizations to fill resource gaps. This implies an interdependency of organizations where organizational growth is dependent on the ability to source, acquire and exchange resources with external networks. Exchange relationships are formed by an evaluation of costs, benefits and alternatives whereby exchange of value items takes place (Blau, 1975; Emerson, 1976), indicating a "*two-sided, mutually contingent and mutually rewarding process involving transactions or simply exchanges*" (Emerson, 1976: 336). As exchanges take place within networks of actors, it is important to appreciate structural network characteristics that might enhance or impede effective exchange of resources. To understand structural network characteristics, this thesis includes social network analysis (SNA) to provide a systematic approach to examine a collection of actors, the relational ties among them and the positions of actors within a network as these characteristics affect outcomes of exchanges (Borgatti, Everett, & Johnson, 2013; Wasserman & Faust, 1999). While many studies show the benefits that networks provide for resource-constrained international entrepreneurs, scholars continue to urge for a deeper understanding of network characteristics that influence access to resource opportunities (Hoang & Antoncic, 2003; Slotte-Kock & Coviello, 2010).

Figure 1.1 gives a representation of the foregoing discussion of how the integration of theoretical insights from RBV, RDT, SET and SNA provide a better understanding of the resource-seeking behaviour of international entrepreneurs. Relevant insights of each of these theoretical underpinnings are discussed next.

Figure 1.1: Framework of theoretical discussion



Resource based views

Resources are both tangible and intangible assets that a firm uses as production inputs for the purpose of effective outputs (Barney, Wright, & Ketchen, 2001; Grant, 1991; Penrose, 2009). According to Barney (1991), resources can be physical (land, plants, machinery, materials and stocks), financial (assets and money), technological (specialized, complex knowledge), human (management skills

and staff, skilled and unskilled labour), reputation (image, credibility) and organizational (efficient planning, controlling, decision-making). Key tenets from RBV theorists are given in Table 1.1 while the different types of resources and the outcomes of these resources are given in Table 1.2. Theoretical and empirical studies on RBV provide the underpinning for Study I and III.

Table 1.1: Key Tenets of RBV based on Seminal Papers

Resource Definition	Key tenets	Seminal work and
A bundle of valuable, interchangeable and heterogeneous resources, both tangible and intangible.	Criteria of resources are value-creation, rare, inimitable and non-substitutable. Resources are mere production inputs, services are needed to render valuable outputs. Inherited resources (production capacity, accumulated experience and knowledge) shape and limit firm's growth. New resources must be obtained from the market to capture growth opportunities.	(Penrose, 1960, 2009)
Tangible and intangible assets which are tied semi-permanently to the firm.	Firms need to consider circumstances by which resources lead to high future returns. Resources need to sustain a resource position barrier and likely to face few competitive activities. Resources and products are two sides of the same coin (p.171), implying the futility of a resource in isolation.	(Wernerfelt, 1984, 1995)
Resources are inputs to the production process and form the basis for firm's profitability	Few resources are productive on their own. Cooperation and coordination of resources are required to achieve productive outputs. Resources are firm's capabilities and capabilities provide competitive advantage.	(Grant, 1991)
All assets, capabilities, processes, attributes, information and knowledge controlled by a firm	Not all resources are valuable. Firms need to identify resources that provide sustainable competitive advantages.	(Barney, 1991; Barney et al., 2001)

Table 1.2: Types of Resources and Outcomes

Resources	Descriptions	Outcomes	Reference
Financial resources	Assets and money	Profits and Growth.	(Grant, 1991; Penrose, 2009; Wernerfelt, 1984)
Physical resources	Plant, equipment, machinery, land, location, raw materials, stocks.	Finished goods and services.	(Barney, 1991; Penrose, 2009; Wernerfelt, 1984)
Human resources	Skilled and unskilled labor, admin, financial, legal, technical and managerial staff. Accrued expertise and knowledge, intelligence, judgment and insight. Management teams' ability to obtain financial resources and new businesses.	Decision making which has positive effects on firm's growth such as in new products and services, new markets both domestic and international.	(Penrose, 2009) (Barney et al., 2001; Hitt, Bierman, Uhlenbruck, & Shimizu, 2006) (Lockett, Thompson, & Morgenstern, 2009)
Technological resources	Specialized, typically complex, knowledge in a certain field.	Patents, trademarks, licenses, New products and services	(Chetty & Wilson, 2003; Grant, 1991; Penrose, 1960, 2009; Wernerfelt, 1984; Wheeler, Ibeh, & Dimitratos, 2008)
Reputation resources	Stakeholders' perceptions of the firm. Brand names, image, credibility, country of origin effects.	Brand loyalty leading to better market share. Positional advantages, credibility and reputation have positive effects on domestic and international markets.	(Grant, 1991; Wernerfelt, 1984) (Chetty & Wilson, 2003; Fernhaber & McDougall-Covin, 2009; Sapienza, Autio, Gerard, & Zahra, 2006; Tomz, 2007)
Organizational resources	Efficient procedures of a firm, including reporting structure, planning, coordinating, controlling, decision making	Efficiency and quality service which have positive effects on firm's operations such as planning for export markets.	(Barney et al., 2001; Beleska-Spasova, Glaister, & Stride, 2012; Grant, 1991; Wernerfelt, 1984)

While a description of resources provides a useful platform to understand types of resources, more recent RBV arguments provide a more expansive coverage from the perspective of internationalizing entrepreneurs. Four of these expanded resource types are entrepreneurial resources, knowledge resources, information resources and relational resources. Although the essence of these four resources are implicit in the resource types as described by Barney (1991), these expanded resources deserve special mention in view of their particular relevance to international entrepreneurs and the following section expands on this discussion.

First, on entrepreneurial resources, while Penrosean (2009) RBV suggests that firms comprise a bundle of resources, resources by themselves rarely add value to a firm. Firms are differentiated by the unique combinations of outputs that results from planning, coordinating, combining and transforming bundles of resources (Barney et al., 2001; Grant, 1991; Penrose, 2009). These effective outputs are driven by entrepreneurial energies and ambitions. It is the entrepreneur who makes things happen (Hitt et al., 2011; Lamb, Sandber, & Liesch, 2011; Weerawardena, Mort, Salunke, Knight, & Liesch, 2014)

Knowledge resources are generally referred to as complex, non-codifiable, hard to articulate and acquired through experience. Studies suggest that it is knowledge that provides competitive advantages through the development of new products and services (Fernhaber, McDougall-Covin, & Shepard, 2009; Phelps, Heidl, & Wadhwa, 2012). In a study of 206 new ventures, Fernhaber et al. (2009) find that external networks are rich sources of knowledge for firms with experienced, as well as firms with limited experienced management teams.

Information resources are generally described as simple knowledge, involving intelligence gathering and disseminating that provide inputs for better decision-making (Child & Hsieh, 2014). In an internationalization context, information is particularly crucial in view of higher uncertainties and potential risks, such as decision making in selection of international partners and entry modes (Chung, 2012; Vasilchenko & Morrish, 2011).

Relational resources involve trust and interactions which provide the basis for information and knowledge transfer and joint problem solving (Liu, Ghauri, & Sinkovics, 2010). Studies suggest that individuals rely on, and prefer to work with, other individuals with whom they have a relationship (Granovetter, 2005; Uzzi, 1997). In a study of professional service firms, the authors find that relational resources have a positive effect on internationalization (Hitt et al., 2006). Relational resources are particularly pertinent for resource-limited international entrepreneurs. This is seen in the growing body of literature on organizations that take a network approach to internationalization. This network approach suggests that internationalization strategy is influenced by business ties (Chetty & Stangl, 2010; Coviello & Munro, 1997; Fernhaber & Li, 2013), implying that international entrepreneurs need to cultivate relations with existing network ties as well as develop new network ties as means to access resource opportunities to enter international markets. A summary of the discussion of these four expanded resource types are given in Table 1.3.

Table 1.3: Expanded Resources

Resources	Descriptions	Outcomes	Reference
Entrepreneurial resources	Entrepreneurial input includes process of cognition, discovering, recognizing and undertaking market opportunities.	Wealth and value creation.	(Alvarez & Busenitz, 2001; Kor, Mahoney, & Michael, 2007; Penrose, 2009)
Relational resources	Composed of trust, information transfer and joint problem solving. Understanding other parties through shared meanings, norms of reciprocity and commitment.	Benefits embedded in relationships. Access to knowledge and information, and external resource opportunities.	(Granovetter, 2005; Hitt et al., 2006; Liu et al., 2010; Uzzi, 1997)
Knowledge resources	Complex or experiential knowledge which is acquired through experience. Non codifiable and hard to articulate. Both internal and external knowledge sources are key intangible resources for internationalization.	Creation of new knowledge, new products and new markets. Providing a source of competitive advantage.	(Hitt et al., 2006; Penrose, 2009; Tolstoy, 2010) (Anand, Gardner, & Tim Morris, 2007; Phelps et al., 2012; Zhang, Soh, & Wong, 2010) (Fernhaber et al., 2009)
Information resources	Referred to as simple knowledge or objective knowledge. Intelligence gathering and disseminating. Codifiable facts and structured data that are easily transmittable.	Better information allows for better decision making. Particularly relevant in situations of high uncertainties and risks, such as in internationalization.	(Chung, 2012; Penrose, 2009; Vasilchenko & Morrish, 2011) (Barney, 1991; Child & Hsieh, 2014)

Resource dependency theory

One of the key tenets of RDT suggests that survival of firms depends on their ability to acquire external resources. The seminal work on resource dependency by Pfeffer and Salancik (2003) provides a robust framework in the study of firms'

interdependency on each other in the search for resources, and the quest for control of resources. Control of resources is important as firms that depend on other firms for resources have less power than firms which have control of resources. For example, international entrepreneurs who rely on networks of overseas distributors and suppliers are in weaker positions based on having to depend on others for distribution and supplies. Firms therefore, aim to decrease dependency on other firms while at the same time, aim to increase other firms' dependency on them through various inter-firm cooperative relationships such as alliances, joint ventures, mergers and acquisitions (Drees & Heugens, 2013). These cooperative relationships provide the foundation for effective exchanges (Jarillo, 1988). Cooperative relationships suggest voluntary exchanges which can involve informal as well as formal collaborations. Informal collaborations of loose and social exchanges have the potential to evolve to more formal legal forms of partnership such as alliances, joint ventures and mergers (Cook & Whitmeyer, 1992). These collaborative networks provide the means to capture resources that firms do not possess. For example, collaborative arrangements with research institutions enable firms to access knowledge and technology without the cost of in-house R&D (Cassiman & Golovko, 2011; Golovko & Valentini, 2011) and cooperative arrangements with international partners enable firms to be better informed about the markets they are entering without the cost of physical presence in the markets (Fernhaber & Li, 2013).

Many studies also suggest that greater speed of internationalization is achievable through cooperative arrangements as it is quicker to appoint an agent or distributor compared to setting up an international office (Chetty, Johanson, & Martín, 2014 (in press); Freeman et al., 2006). In studies of supply chain management, research suggests that there are better outputs from cooperative

activities rather than merely engaging in contracts-driven transactions with suppliers (Christopher, Mena, Khan, & Yurt, 2011; Williamson, 2008). In Christopher et al.'s (2011) multi-case study of fifteen cases across seven different industries, the authors find that informal and multidimensional approaches in managing suppliers' relationships provide better management and control of risks, thus minimizing risk exposure in international markets.

The ability to acquire external resources requires interactions with different external organizations and involves exchanges of both social and economic dimensions. The next segment on social exchange theory provides an overview of effective exchanges.

1.2.3 Social exchange theory

The core idea of social exchange involves interactions between individuals or firms that are mutually rewarding and beneficial. These interactions are typically motivated by expected returns and involve exchanges of tangible and intangible valued items (Emerson, 1987). In a business environment, firms exchange valued resources with other firms, with these exchanges being motivated by potential gains of new or additional resources. These value resources include material goods, services, processes, information, knowledge, reputation and even friendship (Eisenhardt & Schoonhoven, 1996). The authors stress further that "*firms must have resources to get resources*" (:137). Emerson (1976: 351) suggests that effective exchange relationships are guided by rules and norms. Five of these rules and norms that are particularly relevant to internationalizing entrepreneurs are reciprocity, trust, commitment, power and status. All five components are important as they influence outcomes of exchange relationships for resource-constrained international entrepreneurs.

Cropanzano and Mitchell (2005: 876) describe "*reciprocity as interdependent exchanges…and involves mutual and complementary arrangements*". Other authors look at reciprocity as being negotiated exchanges or simple exchange arrangements (Molm, Collett, & Schaefer, 2007). Negotiated exchanges require bargaining and tends to be economic driven while simple exchange arrangements, which does not necessarily include explicit bargaining, encourages better relationships and helps build trust and commitment (Molm, 2010). Better relationships lead to more favourable exchanges which in turn promote repeated and frequent exchanges. Repeated exchanges developed over time result in positive outcomes of trust and commitment (Moorman, Zaltman, & Deshpande, 1992; Nyaga, Whippleb, & Lynch, 2010). These SET components of reciprocity, trust and commitment provide the platform for multiplex relational roles in internationalization studies (Luo, Hsu, & Liu, 2008; Santangelo & Meyer, 2011). Multiplex relationships, where layers of social and economic ties are embedded, present further resource opportunities for international entrepreneurs (Ferriani, Fonti, & Corrado, 2012; Shipilov & Li, 2012). In a study of 205 Italian multimedia firms, Ferriani et al, (2012) find that firms tend to reciprocate multiplex ties, thus leading to new resource opportunities, such as a trusted overseas supplier becomes a joint-venture partner in new product development.

Two other components that influence social exchanges are power and status. In RDT, firms that have control of resources have power over firms that depend on them for resources, but in SET, power lies with the actor who is in a position to control flow of resources (Cook, Emerson, Gillmore, & Yamagishi, 1983). Power and dependency are thus inter-related, i.e. firms that depend on other firms for valued resources are in less powerful positions and vice versa. The value of

exchanges is also influenced by the status of the individuals in the exchange relationship. SET theorists suggest that resources connected with high status individuals are perceived as more valuable and so high status individuals are much sought after and tend to receive more favourable exchanges (Lovaglia, 1995; Thye, 2000).

The discussion of power and status in exchange relations, at a general level, implies weak bargaining positions for resource-constrained international entrepreneurs. This is not necessarily true as even small entrepreneurial firms might possess valued resources to be exchanged (Eisenhardt & Schoonhoven, 1996). For example, studies on scientific collaborations indicate that small biotechnology firms that have new scientific technology (valuable knowledge resources) possess more bargaining power when negotiating with firms that are bigger and better financed because these bigger firms are in need of the new technology that the smaller entrepreneurial firms possess (Powell, 1998; Powell, White, Koput, & Owen-Smith, 2005; Zheng, Liu, & George, 2010). Outcomes of negotiations and other exchanges within networks of actors are influenced by network structural characteristics. As such, the next section on social network analysis outlines some key network characteristics.

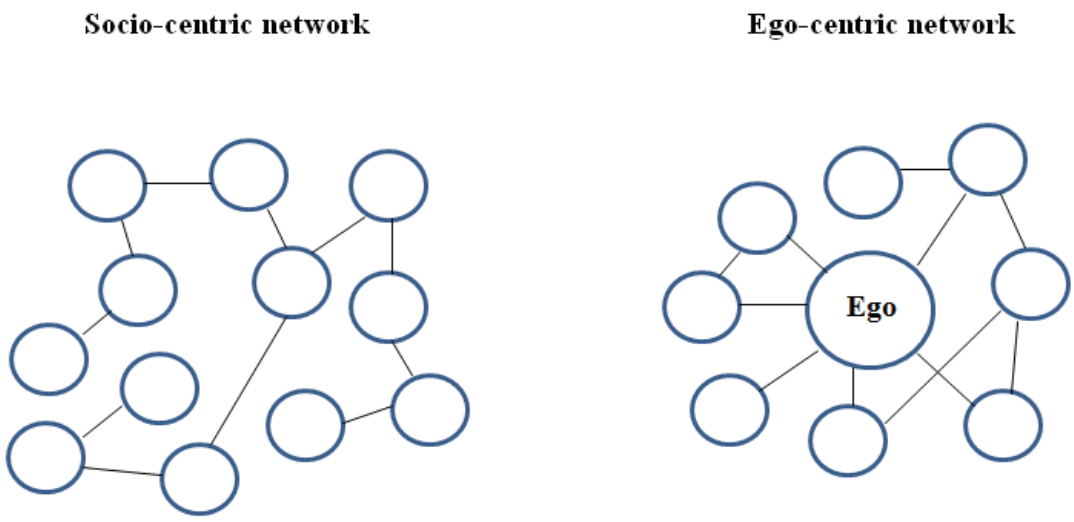
Social network analysis

Social network analysis (SNA) provides an analytical approach and tools to examine collections of actors and the connections between them. A network consists of "*a set of nodes and the set of ties representing some relationship, or lack of relationship, between the nodes*" (Brass, Galaskiewicz, Greve, & Wenpin Tsai, 2004). Nodes refer to actors (individuals or firms) and ties are simply connections between actors. SNA

focuses on actors and their relations with each other rather than actors' attributes. Equally, SNA looks at structure and actors' positions in the network and how these affect the outcomes of the relations being studied (Borgatti & Foster, 2003; Hanneman & Riddle, 2005).

Two approaches in studying networks are (1) at full network level and (2) at individual network level (Provan, Fish, & Sydow, 2007). The full network approach, also referred to as socio-centric or complete networks, looks at each actor's ties with all other actors in the network. For example, analysing a supplier's network requires data collection from every actor with whom the supplier has connections, as well as asking every actor to identify their connections with all other actors. An ego-centric network approach, on the other hand, analyses the network of a focal actor (referred to as ego) and the connections of all other actors (referred to as alters) identified by ego in the network. Figure 1.2 gives a typical graphic representation of a socio-centric network and an ego-centric network. Each circle in the graph represents an actor and each line represents a link between actors.

Figure 1.2: Graph representation of socio-centric and ego-centric network



As the international entrepreneur is the focal actor in this thesis, an ego-centric network approach is taken for Study I and Study II to examine the networks of the entrepreneur (ego). In examining the entrepreneur's networks, SNA theorists suggest structural characteristics such as network size, cohesion, structural holes, subgroups and centralization influence the flow of communication as well as access to resources (Borgatti et al., 2013). These structural characteristics and their measurements are discussed in greater detail in Study I and Study II.

In Study II, theoretical and empirical studies on Resource Dependency Theory, Social Exchange Theory and Social Network Analysis underpin the holistic approach taken in examining collaboration networks as resource providers for international entrepreneurs. The interconnections of these theories are summarized in Table 1.4.

Table 1.4: Interconnections of key theoretical components of Resource dependency, Social exchange and Social Network Analysis

Key components	Resource Dependency Theory	Social Exchange Theory	Social Network Analysis
Structure		Emphasis on social structure as a causal link to power and influence (Blau, 1975, 1986). Positions and social relations of actors in exchange networks (Cook & Emerson, 1978).	Patterns of direct and indirect connections and interactions among actors involving social and economic links (Cook & Whitmeyer, 1992; Granovetter, 2005). Small world networks and scale free, typically larger networks (Aldrich & Kim, 2007).
Subgroups	Various forms of inter-firm formations such as, consortia, co-ops, trade associations are in fact groups of firms with common interests. (Hillman et al., 2009; Pfeffer & Salancik, 2003).	Coalitions are formed to overcome power imbalance. To be effective coalitions must include all power disadvantaged actors thus giving no alternatives to power-advantage actors (Bienenstock & Bonacich, 1992).	Subgroups are sets of actors and the links among them while cliques are subsets of subgroups. (Wasserman & Faust, 1999). Subgroups and cliques with cohesive, dense interactions can exact influence and power in a network (Bodin & Crona, 2009; Moody & White, 2003).
Power	Firms with more resources tend to be more powerful. Firms will use relationships to gain power and access to resources (Bae & Gargiulo, 2004; Lomi & Pattison, 2006)..	Actors' position in a social exchange determine their rewards outcome (Cook & Emerson, 1978). Status influences value in an exchange. Resources associated with high status actors perceived to have higher status. High status actors are more influential, and receive more favourable exchange. (Lovaglia, 1995; Thye, 2000).	Power lies with actors who are located strategically within a network as locations give control of information and access to resources (Freeman, 1979; Simpson, Markovsky, & Steketee, 2011).

Key components	Resource Dependency Theory	Social Exchange Theory	Social Network Analysis
Dependency	Firms decrease dependency on external environment, while at the same time, increase others dependency on them as dependency affects power (Hillman et al., 2009; Yan & Gray, 2001).	As actors who depend on others for resources have less power, power and dependency are a function of control of one actor over another (Emerson, 1962).	
Reciprocity	Reciprocity adds stability to inter-firm relationships by suggesting a level of commitment, either explicit or implicit, that binds actors together. (Pfeffer & Salancik, 2003).	Quid pro quo characteristics whether positive or negative (Perugini & Gallucci, 2001; Perugini, Marcello Gallucci, Presaghi, & Ercolani, 2003). Reciprocal exchanges encourage better relationship and helps build trust and commitment.	Reciprocity exists when valuable exchanges happen between two actors, with the exchange being seen by both actors as beneficial. In SNA, reciprocity is a component often used to measure tie strength (Granovetter, 1973).
Commitment		Involves frequent exchange with the same actors over time. Higher commitment increases chance of completed exchange, increases egalitarian, decreases power use and increases chance of resources being more equally distributed (Markovsky, Skvoret, Lovaglia, & Erger, 1993).	Level of commitment can be measured by frequency of exchange and/or time spent in a relationship (Granovetter, 1973; Marsden, 1990).
Trust		Trust is an outcome of favourable exchange (Blau, 1986) and favourable exchanges build trust and increase commitment (Molm, Takahashi, & Peterson, 2000).	Cohesive networks, measured as density, encourage trust as actors share tacit, fine-grained information and problem solving arrangements. (Granovetter, 2005; Uzzi, 1996).

Gaps in understanding networks as resource opportunities

Despite increasing studies on the instrumental role of networks for resource-constrained international entrepreneurs, there are still issues and processes that require deeper understanding. Most studies on networks for internationalizing entrepreneurs tend to focus on the importance of networks (Boso, Story, & Cadogan, 2013; Loane & Bell, 2006), the resources that networks provide (Hite & Hesterly, 2001; Tolstoy, 2010) and thus, the need to cultivate network ties to reap benefits from network relationships. Many of these studies fall short of describing how entrepreneurs go about cultivating such networks ties, identifying the specific resources that different types of networks bring and detecting the network characteristics that might assist or hinder access to network resources. Networks as resource providers for international entrepreneurs is still a young field of study and scholars are calling for researchers to adopt a more integrated approach in studying this phenomena (Ahuja et al., 2012; Hillman et al., 2009).

In response to this call for a more integrated approach, this thesis aims to explore networks as resource providers for international entrepreneurs. Specifically, the research aims are as follows.

(1) To explore the processes by which international entrepreneurs develop networks. This partly answers the "how" of network development.

(2) To identify the different types of networks and the different resources that are available from each type of network. This partly answers the "why" of cultivating network relationships.

(3) To detect structural network characteristics that influence access to resource opportunities. While networks provide many benefits to resource-constrained entrepreneurs, cultivating network ties comes at a cost (Martinez

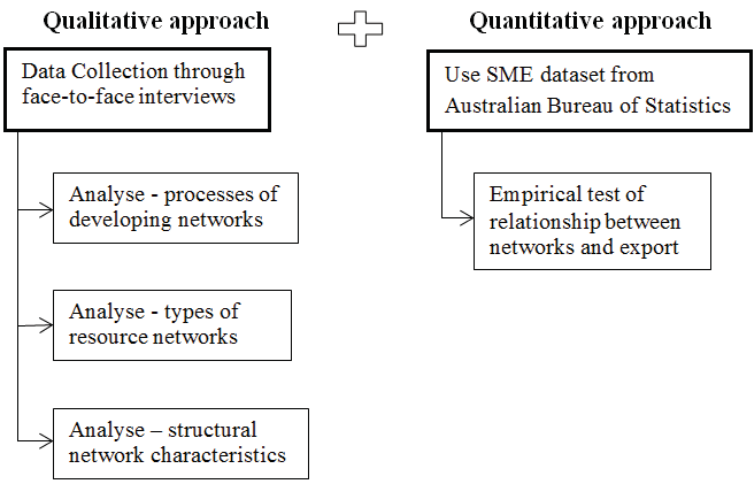
& Aldrich, 2011; Nieto & Santamaria, 2007). This partly answers how and why entrepreneurs need to be strategic in developing network ties.

This thesis consists of four studies as outlined in the following, Thesis Structure, section. The industry context of the first three studies is the Australian health and medical industry. It is an industry that is science-intensive, knowledge-based and research and development (R&D) driven (Depret & Hamdouch, 2000; Etzkowitz, 1998; Powell, Koput, & Smith-Doerr, 1996; Powell et al., 2005). Studies suggest that the knowledge and science intensity of the health and medical industry transcend national borders in the pursuit of innovation, creativity, risk taking and value creation (Hitt et al., 2011; Huarng & Yu, 2011). As most entrepreneurial firms tend to start small (Wernerfelt, 1995), many are categorized as small and medium-sized enterprises (SMEs). The fourth and final study broadens the concept to include a dataset of SMEs, sourced from the Australian Bureau of Statistics.

To address the research aims this thesis adopts a mixed method approach, combining both qualitative and quantitative research (Creswell & Plano Clark, 2007). A mixed method approach offers a more realistic way to understand issues as it is “problem centred, pluralistic, real-world practice oriented and has consequences of actions” (Creswell & Plano Clark, 2007: 22). A combination of qualitative with quantitative research method is a more promising way to explore the role that networks play in connecting entrepreneurs to resource opportunities (Coviello, 2006; Coviello & Jones, 2004; Jack, 2010). Qualitative research facilitates in-depth understanding of issues, giving opportunities to explore and explain the context of relational ties in developing networks (Bryman & Bell, 2007; Chrzanowska, 2002). A qualitative approach also provides opportunities to stimulate new theoretical ideas

(Eisenhardt & Graebner, 2007; Hoang & Antoncic, 2003; Welch, Piekkari, Plakoyiannaki, & Paavilainen-Mantymaki, 2011). The quantitative aspect of the research provides the statistical evidence to test the role of networks as resource opportunities for international entrepreneurs. This mixed method research design is outlined in Figure 1.3.

Figure 1.3: Outline of research design



Thesis structure

Four papers written in journal article format form the basis of this thesis. The first study explores the processes by which international entrepreneurs develop networks as a means to access resources, and examines some key structural network characteristics that influence the ways international entrepreneurs connect to network resources. The second study, with more interview cases, expands on results of the first study by identifying how international entrepreneurs develop collaboration networks and the specific benefits gained from different types of collaboration networks. The focus of the second study is on cooperative behaviour that requires internationalizing entrepreneurs to interact with external organizations as a means to acquire and exchange resources. Collaborative ties within the entrepreneurs'

networks are also examined to detect network characteristics that influence access to resource opportunities. The third study focuses on bureaucratic networks of government agencies and industry associations. This third study specifically examines entrepreneurs' perceptions and expectations of bureaucratic networks as resource providers for entrepreneurs' pursuit of international markets. The fourth study uses data sourced from the Australian Bureau of Statistics, Business Longitudinal Database (BLD). The BLD comprises 2263 Australian SMEs. which includes entrepreneurial firms. This fourth study takes a quantitative approach and provides an empirical test of the relationships between different types of networks and SME export likelihood.

Eight appendices support the four studies just described. Appendix A provides the Questionnaire Guide. Appendix B contains theoretical tables that support Study II and Study III but are not included in the papers that are sent to journals. Appendix C details the steps taken and additional statistical results obtained from Stata that are not included in the fourth study. Appendix D contains the conference paper titled "Developing International Business Networks", presented at the Global Conference on SMEs, Entrepreneurship and Service Innovation (GCSMES) in 2012 from which Study I evolved. Appendix E includes the conference paper titled "Collaboration Networks as Resources for International New Ventures" s presented at the Academy of International Business (AIB) Conference in 2013 and provides the foundation for Study II. Two conference papers form the basis for Study III. These are: "Entrepreneurs' search for resources in the internationalization process: the role of personal and organizational networks", presented at the Australian and New Zealand International Business Academy (ANZIBA), 2013 (Appendix F) and "Entrepreneurs' search for resources in the

internationalization process: the role of networks and non-network based sources" presented at the European International Business Academy (EIBA) in 2013 (Appendix G). Appendix H contains a paper that forms the basis for Study IV, titled "Influence of Government, Industry and Professional Networks on SME Export Likelihood" that has been accepted as a competitive paper at the forthcoming conference of the Australian and New Zealand Academy of Management (ANZAM), 2014.

A framework of this thesis is outlined in Table 1.5.

Table 1.5: Framework of Thesis

Chapter 1	**Introduction** Background to the Study Thesis Structure Significance of the Study
Chapter 2	**Study I: Examining network processes and structure for Internationalization: The role of pre-existing networks and multiplex ties** Explores the processes by which international entrepreneurs develop networks. Examines network structural characteristics that influence access to resource opportunities.
Chapter 3	**Study II: Collaboration Networks: Resources opportunities for International Entrepreneurs** Explores specific benefits from different types of collaboration networks Examines collaborative ties and network characteristics that influence collaborative behaviour.
Chapter 4	**Study III: The Roles of Government and Industry Networks for Internationalizing Entrepreneurs** Explores entrepreneurs' perceptions and expectations of government and industry networks as resource providers for entrepreneurs' pursuit of international markets.
Chapter 5	**Study IV: Influence of Government, Industry and Professional Networks on SME Export Likelihood** Empirical test of the relationship between different types of business networks and SMEs export likelihood.
Chapter 6	**Conclusion** Interpretations of the results. Implications for industry practitioners, policy-makers and academic researchers. Limitations of the research and recommendations for future research.

Significance of the research

Clearly, many studies to date show that networks are instrumental in providing resource opportunities for international entrepreneurs (Child & Hsieh, 2014; Tolstoy, 2010). While it may seem intuitive that international entreprenuers should connect

with networks as a means to access resource, a deeper understanding of the processes and outcomes of network development is important (Ahuja et al., 2012; Hoang & Antoncic, 2003). This thesis contributes to knowledge in the study of resource-seeking behaviour of entrepreneurs in their pursuit of international markets.

For practitioners, such as entrepreneurs intending to pursue growth through international markets, knowing how to develop, as well as how to nurture network ties, help to focus the entrepreneurs' time and energy in the process of acquiring resources. While networks provide links to resource opportunities, access to these links can be hindered by various structural network characteristics (Cook & Whitmeyer, 1992). As developing networks come at a cost (Martinez & Aldrich, 2011; Nieto & Santamaria, 2007), an appreciation of network characteristics assists entrepreneurs to be more strategic in seeking effective access to resource opportunities.

For policy makers, such as government export agencies, understanding the resource constraints of internationalizing entreprenueurs allows better planning of export programs and incentives that can be more targeted to different needs (Martincus, Carballo, & Garcia, 2012; Wilkinson & Brouthers, 2006). Equally essential is the effective communications of these export programs, for example, making it easy and relevant for internationalizing entrepreneurs to participate in programs that are designed to provide assistance to internationalize their ventures.

For academics with a research interest in international business, this thesis adds to theory on the role of networks for internationalizing entrepreneurs. A holistic approach in studying the role of network as resource providers indicates that the resource-constrained and resource-seeking behaviours of international entrepreneurs can be better understood by integrating theoretical insights from RBV, RDT, SET

and SNA. This integrated perspective provides a platform for future streams of research interests.

Conclusion

Chapter 1 provides the introduction to this thesis. The international entrepreneur, being the unit of interest, is defined. The background on resources and the role of networks as resource opportunities are outlined. Taking up the call to adopt a more holistic approach in studying the role of networks, this introductory chapter includes theoretrical underpinnings from resource-based views, theories of resource dependency, social exchange and social network analysis to support an integrated approach in the study of networks as links to resource opportunities for international entrepreneurs. Gaps in understanding networks as resource providers are outlined and an overall aim, together with specific research questions for this thesis are addressed. Research method and thesis stucture precede a discussion of the significance of this study. The next chapter, Chapter two, presents the first of four studies for this thesis. This first study explores the processes by which entrepreneurs develop networks as a means to connect with resource opportunities.

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Introduction to Study I:

The first study of this thesis explores the ways in which entrepreneurs tap into networks as a means to access resource opportunities to enter international markets. The aim is to identify the processes by which entrepreneurs develop networks that are instrumental in providing the resources required to internationalize. Exploring the processes by which entrepreneurs acquire and develop networks provides more useful insights about possible approaches entrepreneurs adopt, for instance, whether network development is an intentional activity or left to serendipitous encounters. Additionally, this first study also examines some key structural network characteristics that might facilitate or constrain access to resource networks. Understanding network structural characteristics provides better information on the dynamics of members' network relationships furthering strategic connections to others.

This first study, **Examining network processes and structure for internationalization: The role of pre-existing networks and multiplex ties,** was originally accepted and presented at the "Global Conference on Small and Medium Enterprises and Services, 2011" on the Gold Coast, Australia (Appendix C). Useful comments from the conference reviewers provided insights for improvements. Subsequently, a revised paper was submitted to the journal, **International Business Review** and was given a "Revise and Resubmit" status. Based on extremely useful comments from two reviewers, the study has been revised and resubmitted to

International Business Review on July 28, 2014. As such, the study is presented in the style required by the journal's publication format.

Study I incorporated in this thesis includes slight modifications based on thesis examiners comments.

The conference paper is authored by Frances Chang and Cynthia M. Webster with contribution of 70% and 30% respectively. The journal paper to **International Business Review** is also authored by Frances Chang and Cynthia M. Webster, with a different contribution ratio of 60% and 40% respectively.

CHAPTER 2: STUDY I

Examining network processes and structure for internationalization: The role of pre-existing networks and multiplex ties

Authors: Frances Y. M. Chang and Cynthia M Webster

Abstract

This paper examines both the processes by which entrepreneurs develop business networks as well as the network structural characteristics that influence access to international resources and market entry. Results from in-depth, face-to-face interviews show the prevalence of using pre-existing relationships is much more instrumental for internationalization than most studies suggest. First, pre-existing ties provide useful referral opportunities to new networks. Second, pre-existing ties provide the first building blocks to multiplex relationships through layering of either social or economic ties on existing ties. Multiplex ties deepen relationships, encourage repeat exchanges and stretch the mutual benefits for parties involved. Results also indicate that entrepreneurs cannot solely rely on the comfort and familiarity of pre-existing relationships. Purposeful development of networks requires an active search of external public sources, such as government agencies and industry networks.

Keywords: Entrepreneurs, International entrepreneur, Network development, Network structural characteristics, Multiplex ties.

Examining network processes and structure for internationalization: The role of pre-existing networks and multiplex ties

1. Introduction

Networks have emerged as an important area of inquiry since the 1980s. These collections of individuals and organizational actors connected directly and indirectly by personal, social and business relationships represent formal and informal social systems (Jack, Moult, Anderson, & Dodd, 2010; Koka, Ravindranath, & Prescott, 2006). Networks provide vital resources for any business, but perhaps more so for entrepreneurial ventures. Research shows the instrumental role of networks in forming and launching new ventures (Larson & Starr, 1993; Newbert, Tornikoski, & Quigley, 2013) and in growing and improving business performance (Boso, Story, & Cadogan, 2013; Lechner & Dowling, 2003). Studies in international entrepreneurship also highlight the value of networks in providing opportunities to enter new international markets (Coviello, 2006; Freeman, Edwards, & Schroder, 2006; Hessels & Parker, 2013).

Studies that examine entrepreneurial and internationalization networks tend to focus on why networks are important and the benefits of network relationships (Boso et al., 2013; Loane & Bell, 2006; Ojala, 2009). Studies that describe network development identify types of individuals involved, and the resources they bring (Hite & Hesterly, 2001; Tolstoy, 2010), but most fall short of describing how connections are acquired and the structural characteristics of networks that affect access to resource opportunities. Taking up the call for further studies on entrepreneurial networks that explain, both the processes by which networks are formed and their outcomes (Hoang & Antoncic, 2003), this study addresses two

specific research aims: (1) to understand how entrepreneurs acquire and develop networks that are instrumental in starting and growing international markets, and (2) to identify some of the structural network characteristics that influence access to international resource networks. In this study, the entrepreneur is the focal actor of interest as it is the entrepreneur who engages in purposeful actions that drive the organization. Following Hoang and Antoncic (2003), network processes and structure are considered as independent variables with international market entry as the resultant outcome. The fields of entrepreneurship and international entrepreneurship shape the theoretical base for this study (Bangara, Freeman, & Schroder, 2012; Freeman et al., 2006; Oviatt & McDougall, 2005b). The next section provides a critical review of literature concerning entrepreneurial networks and internationalization. Study design, method and results follow. The study concludes with a set of propositions and suggestions for future research.

2. Literature Review

Entrepreneurship is about discovering and exploiting profitable opportunities (Shane & Venkataraman, 2000). As early as 1934, Schumpeter stressed the significance of innovation and the entrepreneur's role in economic development (Drucker, 1985). Research shows entrepreneurial small businesses are responsible for much economic growth and job creation (Coviello & McAuley, 1999; Lumpkin & Dess, 1996). Firm size is not an impediment to entrepreneurship and innovation, with many successful entrepreneurs starting small and simple (Delerue & Lejeune, 2012). Starting small suggests limited resources. To continue growing their new ventures, entrepreneurs look to external organizations to acquire resources (Pfeffer & Salancik, 2003) and networks are one such resource in accessing external opportunities (Jarillo, 1988). Cope et al., (2007 p.213) suggest that "*by making connections with others, with*

whom they share values, individuals are able to achieve more than if they acted alone".

2.1 Entrepreneurial networks

Insights on entrepreneurial networks are drawn from the early works of Larson and Starr (1993), Hite and Hesterley (2001) and Lechner and Dowling's (2003). Larson and Starr's (1993) seminal paper presents a three stage network model for forming an organization. In the first stage, the entrepreneur turns to existing networks of social ties which include family, friends and prior business contacts. This pre-organization stage involves informal networks that provide access to essential resources and have the potential for instrumental and economic purposes. The second stage sees these one dimensional dyadic ties of social exchange convert to two dimensional relationships that include both social and economic exchanges. At the third stage the thrust is more strategic where links are dropped or strengthened and new connections form through additional layers of exchanges, for example, a supplier may also provide new product development services and the local bank may offer more varied financial services. Hite and Hesterley (2001) also suggest that prior existing network ties of family and friends dominate the early stage of entrepreneurial ventures. The authors label these as "identity based" networks where personal and social ties of actors influence economic exchanges in the early stages of the new venture. The range of resources is limited in identity-based networks as these networks tend to be smaller and less diversified. The authors suggest that as a venture expands, networks evolve from "identity based" to "calculative" networks. Lechner and Dowling's (2003) four-stage model of entrepreneurial network development focuses on areas of building, maintaining, restructuring and managing networks based on benefits sought at different stages of venture development. For

example, at later stages, co-opetition networks are formed when entrepreneurs co-operate with competitors, as in subcontracting work from each other or sharing information functional areas.

Theoretical scholarships from both Larson and Starr (1993), Hite and Hesterly (2001) and the empirical study from Lechner and Dowling (2003) show the changing role of networks as entrepreneurial ventures evolve from emergent to the growth stage. More recent work suggests that an increase in the heterogeneity of networks is likely to bring about success as entrepreneurial ventures evolve to growth stage (Newbert et al., 2013). None of these studies, however, considers internationalization as part of the entrepreneurial growth strategy. As such, a move to the internationalization literature provides insights on the role of networks for internationalizing entrepreneurs.

2.2 International entrepreneurs and networks

As concisely expressed by Oviatt and McDougall (2005a p.539), *"International entrepreneurship is a combination of innovative, proactive, and risk seeking behaviour that crosses national borders and is intended to create value in organizations"*. Crossing borders to international markets presents new opportunities and increases the potential to access higher profits through economies of scales (Chetty & Stangl, 2010; OECD, 2013). Internationalization is not just about selling abroad. It also includes purchasing, direct investment and various forms of collaborations. Such international exchanges increase entrepreneurs' "*...awareness of the influence of international activities on their future,*" (Beamish, Morrison, Inkpen, & Rosenzweig, 2003 p.2) whereas entrepreneurs who transact within local markets only are vulnerable to domestic economic trends.

Some scholars suggest that traditional internationalization tends to take a staged approach whereby incremental commitment to internationalization is contingent on gaining increased experiential knowledge of international markets (Boter & Holmquist, 1996; Johanson & Vahlne, 1977). This staged approach is related to other traditional process-driven models of internationalization such as innovation related models (Cavusgil, 1984; Czinkota, 1982; Reid, 1981) and systematic planning models (Miller, 1993; Yip, Biscarri, & Monti, 2000) where network partner selection is based on firm and task-related fit (Varis, Kuivalainen, & Saarenketa, 2005). More recent studies suggest a network approach to internationalization emphasizing relationships and linkages in the internationalization process (Al-Laham & Souitaris, 2008; Zhou, Wu, & Luo, 2007). Studies indicate that a network approach is a more appropriate approach for resource limited internationalizing entrepreneurs as networks are shown to provide access to resources without capital investments and with limited risks (Varis et al., 2005).

A network approach of using both existing networks and cultivating new networks is a proactive way to develop rapid internationalization (Freeman, Hutchings, Lazaris, & Zyngier, 2010). Loane and Bell (2006, p.478) find that to internationalize, entrepreneurs often resort to acquiring new and additional management team members just to be able to expand the firm's network resources, such as knowledge and connections in the international markets. Studies applying a network approach tend to focus on high-technology based companies (Coviello & Munro, 1997; Elfring & Hulsink, 2003) and born global companies (Andersson, Evers, & Griota, 2013; Nordman & Melén, 2008; Zhou et al., 2007). Examples include Burgel and Murray's (2000) survey of 246 UK technology based firms, Loane and Bell's (2006) cross national study of 218 internationalizing SMEs in

Australia, Canada, Ireland and New Zealand and Chetty and Stangl's (2010) study of ten software companies in New Zealand. In other knowledge intensive industries such as pharmaceutical organizations, scholars find research and development (R&D) activities are commonly done through collaborative arrangements with various domestic as well as international networks so as to capture global skills and knowledge. In seeking international partners for R&D activities, a network approach assists in identifying multiple potential global partners such as suppliers, customers and R&D institutions to enhance collaboration opportunities (Hessels & Parker, 2013; Li, 2013). A network approach to internationalization is not confined to technology based and knowledge-intensive companies as shown in Sandberg's (2013) study of small and medium sized manufacturing firms, Agndal and Chetty's (2007) study of multiple industries including wineries and Bangara et al.'s, (2012) research examining the retailing of leather goods.

While the typical resource types of physical (land and buildings), human (skilled and unskilled labour), financial (assets and money), technological (specialized knowledge), organizational (efficient planning and control) and reputation (image and credibility) (Barney, Wright, & Ketchen, 2001; Grant, 1991; Penrose, 2009) are essential for any organizational growth, more recent studies suggest that entrepreneurial, information, knowledge and relational resources are particularly relevant from an internationalization perspective (Chetty & Stangl, 2010; Child & Hsieh, 2014; Fernhaber, McDougall-Covin, & Shepard, 2009; Lamb, Sandber, & Liesch, 2011). Seeking different types of resources is not necessarily a linear process. For example, Coviello and Cox (2006) suggest that at conception stage, resource needs are more organization and capital focused, then shift to human

and capital resource needs during commercialization stage but shift back to organization and capital needs during growth stage.

Hara and Kanai's (1994) study is one of few to tackle the issue of how firms build networks across borders. They propose three modes for developing international networks: 1) the random search mode, 2) the diplomatic mode and 3) the network-of-networks mode. The random search mode is risky and inefficient as there are too many firms to contact and the odds of finding one that can assist are low. Instead, entrepreneurs tend to use the more formal diplomatic mode by approaching government agencies or the network-of-networks mode which relies on a handful of gatekeepers, organizational actors who collect and screen information from international markets and disseminate the information to their members (Hara & Kanai, 1994 p.497). Both the diplomatic mode and network-of-networks mode work on the concept of connecting entrepreneurs with the right business partners. In the case of the diplomatic mode, it is more through formal channels such as government agencies while the network-of-networks mode relies more on informal referrals.

Clearly, studies suggest that networks play instrumental roles in entrepreneurial ventures but scholars continue to urge for deeper understanding of various elements that influence networks and entrepreneurial outcomes (Hoang & Antoncic, 2003; Jack, 2010; Slotte-Kock & Coviello, 2010). For example, some authors suggest that an appreciation of network structural characteristics is important as some characteristics enhance, while others constrain access to network resources. The next section moves to literature on social network analysis to gain a better understanding of network characteristics.

2.3 Network Structure

Hoang and Antoncic (2003) describe network structure as a "*pattern of direct and indirect ties between actors*" (p.170). Networks involve different types of actors connected by different types of relationships. Actors can include specific individuals (such as, entrepreneurs, business colleagues, friends and family members) or collective units (such as, distributors, suppliers, manufacturers and financial institutions). Relational ties can be formal, as in a contractual supplier relationship or informal, as in advice seeking and trust. Ties also can vary in strength, often described simply as strong or weak. Often network actors have multiple types of relationships with other actors, for example, a financial consultant can also be a customer as well as a close friend. Such multiplex ties are important as they form the core platform of social embeddedness (Ferriani, Fonti, & Corrado, 2012; Lomi & Pattison, 2006; Uzzi, 1996). It is the patterning of these multiplex relationships that determine network structure.

Researchers take either a socio-centric or an ego-centric approach when analyzing network structure. A socio-centric approach is taken to examine the structure of an identifiable group of interconnected actors. An ego-centered approach is used when the focus of study is on an individual, focal actor referred to as ego. Other actors in ego's network are referred to as alters (Hanneman & Riddle, 2005). Four basic structural features of ego networks include: size, cohesion, structural holes and centralization (Borgatti, Everett, & Johnson, 2013). Network size is the total number of actors in a network while network ties indicate the number of connections among all actors (Hanneman & Riddle, 2005). Cohesion is typically measured as network density, which is the proportion of ties that are present relative to all possible ties (Marsden, 1990). The densest network contains all actors directly connected to one another. Dense networks usually are thought to include strong ties

(Coleman, 1988). Strong ties tend to be affective and stable relationships associated with the exchange of fine-grained information, tacit knowledge and trust based governance (Rowley, Behrens, & Krackhardt, 2000; Uzzi, 1997). In contrast, sparse networks are less cohesive and tend to contain more weak ties that are typically non-affective and contact is infrequent and irregular (Elfring & Hulsink, 2003). Granovetter's (1973) strength of weak ties theory proposes that novel information comes through weak ties because in dense networks people are connected to the same others and share the same information, and therefore, are redundant (Burt, 1992).

Additionally, sparse networks tend to contain more structural holes which Burt (1992 p.18) describes as "separation between non redundant contacts". These structural holes provide bridging opportunities between network members who would otherwise not be connected. Two measures of structural holes are effective size and constraint (Borgatti & Foster, 2003; Hanneman & Riddle, 2005). Some studies suggest, the bigger the size of the network the better it is as more contacts are available, but this advantage only holds true if the size of the network offers diversity of information and opportunities based on diverse compositions of actors in the network (Burt, 1992 p.16-17). A large effective network contains more non-redundant ties, while networks with greater opportunities for control and power tend to be less constrained (Borgatti et al., 2013; Burt, 1992). Coviello's (2006) case study of the network dynamics of three international new ventures indicates that network density evolves from dense to sparse as the firms develop from early stage to growth, suggesting beneficial outcomes for firms as they pursue international markets. The same study also finds that economic ties are apparent at all stages of network development which contrasts with other entrepreneurial network studies that

suggest that economic ties are only apparent at later stages of network development (Hite & Hesterly, 2001; Larson & Starr, 1993).

Another measure of network structure is network centralization which is "*…the extent a network is dominated by a single actor*" (Borgatti et al., 2013 p.159) and indicates the unequal positional advantages among network actors. The most centralized network structure resembles a star. The dominant actor is in a powerful position in terms of communication and access to information (Freeman, 1979; Mizruchi, 1994; Wasserman & Faust, 1999). Highly centralized networks suggest efficiency and speed of problem solving as all other network members funnel information and resources to the dominant actor for consolidation and redistribution. Decentralized networks, such as a circle structure, typically show more equality among actors' positions, thus suggesting a more open environment for exchange of information and knowledge.

In one of few studies to compare different types of network structure, Aldrich and Kim (2007) focus on three: random, small world and truncated scale free networks. Examining these network structures identifies unique features of each and in turn, provides a better understanding as to how network structure affects opportunities and access to resources. In random networks relationships are arbitrary, giving members unstructured access to other members. While random networks in theory present unrestricted access to opportunities, in reality members find it impractical to indiscriminately access and assess others.

Small world networks, in contrast to random networks, are characterized by relationships that are densely clustered in local areas and these dense local clusters are linked to one another through bridging ties ultimately forming a loosely connected inclusive network (Watts, 1999). As such, small world networks have the

advantages inherent in dense networks where there is ease of communication, affect and trust, as well as advantages in sparse networks where bridging opportunities facilitate the diffusion of innovation. Relational ties within the dense clusters tend to be based on homophily, in which actors share some similar attributes such as work experience, industry type or cultural background (McPherson & Smith-Lovin, 1987; McPherson, Smith-Lovin, & Cook, 2001). For example, Zafarullaha, Alia and Young's (1997) study finds that ethnic Pakistani communities abroad are typically targeted by exporting firms in Pakistan. Entrepreneurs embedded in dense clusters within small world networks can increase their potential access to other opportunities by identifying bridging ties to diversity their networks and link with global resources (Davis, Renzulli, & Aldrich, 2006). Aldrich and Kim (2007) also look at truncated scale free networks that structurally contain a hierarchy of some well-connected sizeable actors linking a large number of smaller actors (Barabasi, 2003). In scale free networks contacts are not added randomly but rather strategically, whereby new contacts link to the larger successful ones. The advantages of scale free networks are based on the principle of preferential attachment, i.e. the rich get richer whereby actors tend to link with larger and more reputable networks (Aldrich & Kim, 2007; Barabasi, 2003). For example, in a business context newly exporting companies looking for distributors would search, source and link with the established distributors who have networks of successful clients.

2.4 Summary

Extant literature presents diverse patterns of network development and structure with regards to international entrepreneurs. Within entrepreneurship literature, some studies find entrepreneurial networks evolve in an iterative process with economic

ties apparent in early stages (Coviello & Cox, 2006; Larson & Starr, 1993). Other studies show a more linear process whereby development of networks start from path dependent, identity-based social relationships and move to intentionally managed, calculative, economic relationships (Hite & Hesterly, 2001).

Internationalization studies on network development confirm the importance of both new and existing networks of relationships to build international markets (Freeman et al., 2010). Existing networks can assist through their value-added services (Varis et al., 2005), but new network connections may have to be developed to bring in needed resources for internationalization (Loane & Bell, 2006). The networks literature adds to our understanding. Small world networks that contain structural advantages of both strong and weak ties are important for entrepreneurs as these networks facilitate trust and provide ease of sharing information and tacit knowledge. But, dense, small world networks can lack diversity of resources and entrepreneurs need to strategically look for bridging opportunities to larger, scale free networks. Large scale free networks are better able to provide a broader range of opportunities such as new resources and new connections to international markets, but also can be bureaucratic with difficulties arising in matters of trust and access. In summary, the reviewed research establishes the importance of dense, pre-existing networks of strong ties with access to critical resources through weak ties bridging to valuable prospects. Uncertainties remain as to how entrepreneurs develop networks for internationalization and the particulars of why pre-existing networks are critical.

3. Method

An exploratory approach was adopted to facilitate in-depth understanding of issues relating to the “hows” and “whys” of network development and to assist in

identifying network structures that influence entrepreneurs' access to network resources for internationalization (Birley, 1985; Huggins, 2000). Exploratory work provides a mechanism for richer and more dynamic theory building (Hoang & Antoncic, 2003) and allows investigative research within contextual conditions (Yin, 2003). Multiple sources of data were assembled with in-depth face-to-face interviews as the main method of data collection, together with intermittent telephone conversations, data sourced from the websites of the entrepreneurial organizations, printed data from news releases and product brochures.

3.1 Research Context and Sampling

The current study focuses on entrepreneurs in the Australian healthcare industry. Healthcare is a diverse, knowledge-based industry that exhibits many entrepreneurial characteristics such as creativity, innovation, risk taking and wealth/value creation (Hitt, Ireland, Sirmon, & Trahms, 2011; Huarng & Yu, 2011). Manufacturers of healthcare products are the main focus as they have greater potential to internationalize their products compared to other healthcare segments such as retailers and practitioners.

An online search of Australian healthcare companies identified three websites featuring lists of healthcare companies: (1) The Australian Health and Medical Directory, (2) The Australian Natural Health and Wellness Directory and (3) Complementary Healthcare Council, Australia (Austrade, 2011a, Austrade, 2011b, CHC, 2011). With over 500 companies listed in the three datasets, the focus is on manufacturers of health products as they have greater potential to internationalize their products compared to other healthcare segments such as retailers and practitioners. A purposive, convenience sample of entrepreneurs was chosen based on a number of selection criteria: firms were Australian owned and operated and

managed by the founding entrepreneur. The founding entrepreneur was solely responsible for decisions on internationalization which is important as studies suggest that founding entrepreneurs typically design strategies for venture growth as well as strategies for network development (Boso et al., 2013; Gundry & Welsch, 2001). The firms needed to be currently internationalizing, whether exporting, purchasing or other forms of collaborative arrangements in order to capture the entrepreneurs' network experience in their internationalization activities rather than study decisions on entry modes. Lastly, firms had to be located in one state within Australia for logistic convenience in collecting data. The selection criteria identified 126 entrepreneurs as potential research participants. Twelve were approached and four agreed to be interviewed.

3.2 Data Collection

The entrepreneurs were first contacted by telephone to arrange interview place and time. Actual interview times ranged from fifty minutes to two hours and on average took about an hour and a half. The interviews took place from November 2011 to January 2012. To ensure accuracy in transcription and analyses, interviews were audio recorded with participant permission. In all four cases, follow up phone calls and emails were conducted to expand and build on initial participants' responses.

A semi-structured interview guide assisted data collection. Qualitative questions facilitated in-depth probing and understanding of issues that helped to explore the reasoning and intentions behind internationalization and network development (Birley, 1985; Huggins, 2000). Participants were asked about their internationalization strategy and how they acquire their international network contacts. For example, *"What best describes your internationalization strategy?"* and *"Can you tell me the first country that you had international dealing with? How*

did you get this contact?" While gathering recall data poses reliability and accuracy issues, all four entrepreneurs remembered quite vividly their first country of entry for international business. Questions were also asked about network relationships (Borgatti et al., 2013). These questions related to relationship types, such as *"Who would you approach when you need information and advice on market development?"* Following Burt (1992), tie strength was measured by asking *"On a scale of one to five, five being the closest, how would you describe your relationship with this person?"* A summarized report containing data from the interviews, phone conversations, as well as data obtained from participants' websites and marketing brochures were emailed to the respective participants for verification (Flick, 2008).

3.3 Data Preparation and Analyses

After each interview, the recording was transcribed and data imported into NVivo 10 software application (NVivo, 2002) to assist in qualitative data analyses (Veal, 2005 p.300). Analyses began with open coding, categorizing chunks of data, followed by a refinement process based on deeper interpretation of meaning (Strauss & Corbin, 1998). Broad categories such as growth strategy, barriers, internationalization, and business partners were identified before distinguishing patterns to establish themes and sub-themes that addressed the research questions. Table 1 gives examples of coding categories and themes. A recursive exercise of integration, comparison and review took place before analytic closure to ensure the themes identified were supported by the audio transcripts, interview notes and other data sourced from the companies' websites and brochures (Miles & Huberman, 1994).

Table 1: Coding of categories and themes

Excerpts from interviews	Categories	Themes
"The local market is too small, too saturated…don't really see the returns to our investment…our aim is for 80 per cent export" – Natives	Growth strategy	Internationalization
"*Our first international market was America and the contact actually came from a salesman in our local distributor's office"* – Caps *"I feel I'm very lucky. My suppliers give me good referrals to contract manufacturers when…we could not afford our own manufacturing"* – Aromas	International markets	Pre-existing network ties New network ties Referrals
"Our big problem is we don't know many people, we are too small. We need contacts… most important, but it's difficult" – Detox	Business contacts	New network ties
"We have our consultant in internet optimization, an American guy based in America. I have worked with him for 8 years…we had our new products and he said he could help… and now he is doing our exports in America" - Natives	Relationships	Tie strength Multiplex ties

For the network analyses, as the entrepreneur is the focal actor of interest (ego), an ego-centered approach is taken. Each participant's ego network was constructed. Actor-by-actor relational matrices were created to indicate type of actors, tie strength and relational roles. These data were imported into NetDraw to generate network graphs (Borgatti, 2002) and into UCINET 6 software to calculate key structural measurements of network size, density, structural holes and centralization (Borgatti, Everett, & Freeman, 2002). Network size gives the total number of actors in a network while number of ties indicate connections among all actors (Hanneman & Riddle, 2005). Multiplex ties are counts of ego's ties that have more than one role and expressed as a proportion of network size. Perceived

closeness of relationship is one way to measure tie strength. The scale used is from 1 to 5, with 5 indicating the strongest relationship (Burt, 1992). Density is measured between 0 to 1, with 1 showing the highest density with all possible ties present (Hanneman & Riddle, 2005; Marsden, 1990). Two measures of structural holes are effective size and constraint. Effective size measures the number of ego's alters minus the average number of ties that each alter has to other alters. Constraint measures the extent to which ego's alters have ties among each other (Hanneman & Riddle, 2005). Centralization is measured from 0 to 1, with 1 recording the highest possible centralization indicating a star structure where one network member dominants and is connected to all other actors with no ties present among others, suggesting unequal positional advantages between actors (Freeman, 1979; Mizruchi, 1994; Wasserman & Faust, 1999).

4. Results

Table 1 presents background information for the four entrepreneurs and their organizations, further referred to as **Aromas, Natives, Detox and Caps.** All four organizations are classified as small to medium sized (SMEs) according to Australia's SMEs classification (Australia Government, 2011). Two of the four, Aromas and Natives, are directly comparable as both work in the same product category and their businesses are close in age, size, start and export year with Aromas reporting higher sales than Natives. Detox and Caps provide points of differentiation. Detox, like Aromas and Natives, works in the natural health product category but the business is substantially smaller and younger while Caps has a comparatively larger, mature business involved in a related but different health product category. A brief description of Aromas, Natives, Detox and Caps follows.

Table 1: Background of participating entrepreneurs and their organizations

	Aromas	**Natives**	**Detox**	**Caps**
Entrepreneur's background	Started her first business while still in university. Taiwanese background.	Professional (with an MBA) turned entrepreneur. Lebanese background, born in Australia.	Business owner for over 30 years. Greek background.	Medical surgeon turned entrepreneur. Australian.
Product Category	Natural/ Aromatherapy	Natural/Aromatherapy	Natural health and wellbeing	Medical devices
Firm Age	14 years	11 years	3 years	17 years
Firm Size (number of full and part time staff)	18	22	8	40
Year started/ First year of exports	1997/1997	2000/2000	2009/2009	1994/1998
Sales	>3 million	<3 million	<3 million	>7million

Aromas has strong international experience. She managed her own business in Taiwan before immigrating to Australia. Her international background facilitated the founding of Aromas with both international and domestic business in the first year of operation. Her business orientation is very much influenced by both her entrepreneurial father and brother. Studies show that growing up with family members as entrepreneurs influences a person's orientation towards being an entrepreneur. Aromas products are manufactured in Australia with operations run by her husband. The "Made in Australia" label presents a strong selling point for her export business.

Natives started her award winning export business after years of working in the corporate sector. Her motivation to do something for herself in a business that she feels passionate about resulted in the launch of her business. The negative impact of the global financial crisis on domestic sales drove Natives to internationalize. According to Natives, getting into international markets is expensive and she is ever

conscious of the continual financial investment required: "*different clients request different things, changes in colors, aromas, style packaging all that sort of stuff …you have to invest pretty much six to 12 months in advance … you're plunging money, lots of money into something you don't know*".

The founder of **Detox** started her healthcare business while still CEO of an existing and successful clothing business which she founded and continues to run. Although an entrepreneur for thirty years, her international exposure is limited. With her new healthcare business she collaborates closely with international suppliers, especially an ingredients supplier who provides the formulation for all her products. For Detox "*contacts are the most viable thing you can have … you can have a bad product but if you have the contact … you can have a very good business … you don't have the contacts, you're gone*". Lacking contacts at domestic and international levels impedes business growth.

Caps is a medical surgeon turned entrepreneur. He founded and eventually listed his organization on the Australian Stock Exchange. Caps is a recipient of a number of innovation medical awards and his organization holds a number of medical device patents for Australia, UK, US, Europe and Japan. Consistent with entrepreneurship literature on innovativeness and creativity of entrepreneurs, Caps believes that his creativity and scientific training drives his passion and his organization: "*One of the first things I invented and patented was for removing cement from inside the femur of patients having hip replacements… I got more and more involved in designing devices and realized that I was probably going to be better at that than being a surgeon …*"

Table 2 shows the various international activities of the four participants. In addition to exporting in multiple markets, participants are also involved in overseas

manufacturing, including outsourcing of manufacturing as well as manufacturing in Australia for private labels overseas.

Table 2: Participants' degree of internationalization

	Aromas	**Natives**	**Detox**	**Caps**
Current international markets	Asia, USA	Europe, Asia, Middle East	Europe, USA	Europe, USA
First and second export contacts through :	1) Ex-boss 2) Referral	1) Trade Expo 2) By chance	1) Friend 2) Current supplier	1) Current distributor 2) Fortuitous encounter
Entry mode	Distributors	Distributors and sales offices in Hong Kong and London	Distributors	Distributors and a sales offices in UK (to service Europe)
Other international activities	Collaborations on research for product formulations	Contract manufacture for international private labels	Outsource manufacturing. Collaborates on research for product formulations	Outsource manufacturing
Export sales to local sales	90%	70%	30%	5%

4.1 Processes in developing international networks

In developing networks for international markets, the data suggest three key processes. These entrepreneurs first tap into pre-existing formal and informal networks to seek resource opportunities as well as to determine whether trusted relationships can be extended to multiple roles. They also continue to make the most of their current network relationships seeking referrals to new network opportunities. Finally, these entrepreneurs use public sources to develop new networks. Results suggest that developing networks is not a linear process but more an iterative process.

Existing relationships are fundamental. For three participants, contacts for their first export come from pre-existing network relations. For Aromas, her ex-boss provides her first export market, *"I work for the company for about 5 or 6 years as*

vice president… My boss introduced me to his Taiwanese distributor… and that's how I started." For Detox, the company's first export market of Croatia comes from a friend, an informal source, "*I know her for 20 years. She's a friend of mine … she's the one who helped me and got me to start this … health drink business…".* In the case of Caps, the first export market of America is from his domestic distributor, a formal source. Pre-existing ties are important as they provide sources of information, support and introductions to other opportunities. Existing ties provide potential for multiplex relationship roles, such as a friend becoming a business partner as in the case of Detox.

Referrals have positive effects. Current networks are also important as they provide referrals. Referrals come from both informal and formal sources and form a strategic step in developing networks for all four cases. Referrals are particularly apparent in the case of Aromas and Caps. For Aromas, informal referrals increase opportunities to expand her network of overseas distributors and suppliers, *"…I work with many contract manufacturers who worked with me in my previous place. I know many of them and they know me, it's a small industry… these relationships help me to get the right manufacturer."* For Caps, professional referrals increase credibility, a key factor in the medical industry, "*…the surgeon I was working with, who I'd worked with as an intern, introduced me. So it's… introduction over introductions…and he also gave me access and authority. He's probably the most well-known knee surgeon in Australia and working with him gave me implied credibility which I never had before*". In these cases, pre-existing relationships not only provide referral opportunities to new connections but also help to build credibility leading to trust and access to new resource opportunities.

Other public sources add to network expansion. Other public sources provide rich opportunities to connect and develop new business networks. Public sources include business and government websites, market visits, conferences and government-funded export programs such trade exhibitions. All participants actively search the internet for network resources such as suppliers and distributors and market visits of industry clusters allow for more practical sourcing and personal contacts with potential networks (Porter, 1998, 2000). For example, Detox depends almost exclusively on internet search for suppliers and distributors, and Natives relies on market visits to source distribution networks: *"We go overseas, we travel a lot, knocking on doors, investigating, questioning, doing expos. We're actively involved in the marketplace… first we start with researching the potential customers, then understanding the customers and the third one is right, let's make meetings."*

Three of the four participants actively use government export programs to seek and develop international networks. For example, Aromas, being an active participant in trade shows, uses these events to develop contacts with government export agencies as well as potential overseas business partners: "*These ones are always good, the trade shows, the missions. Even the ones organised in Sydney … have some clients from Russia, China, UK, then they help to arrange one-to-one meetings."* Caps also gained entry into Finland from an opportune encounter during a medical conference and one of Natives biggest export markets is a result of a weak tie developed from an encounter at a trade show (Granovetter, 1973).

Table 3 shows the preferred network participants first approach when seeking advice and information for export, knowledge and ideas, business development, technology, regulatory and funding. Although all participants mention first approaching government agencies when needing export advice and contacts, in

reality, three participants achieved their first international market from existing business and social networks. This discrepancy reveals entrepreneurs' expectations of government assistance in pursuing international markets but in practice, it shows a prevalence of relying on pre-existing networks (Vasilchenko & Morrish, 2011; Zhou et al., 2007).

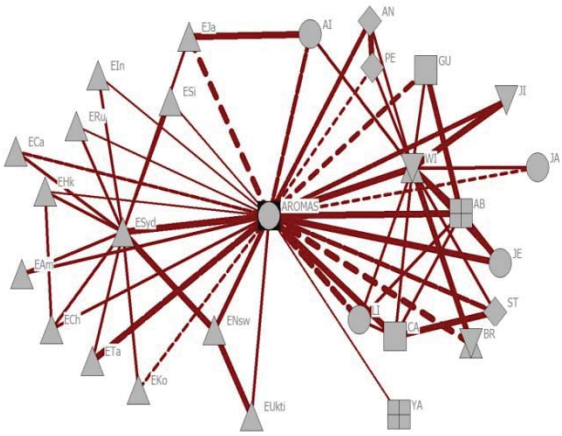
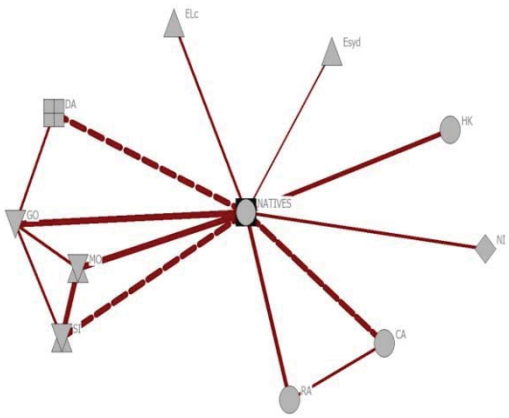
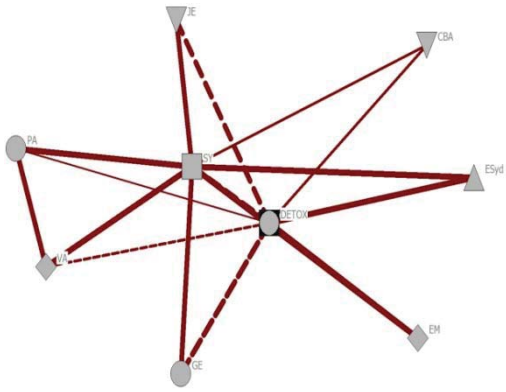
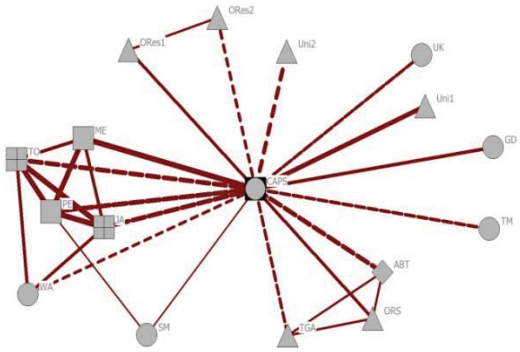
Table 3: Networks of First Approach

	Aromas	**Natives**	**Detox**	**Caps**
Export Contacts and Advice	Government agencies	Government agencies	Government agencies	Government agencies
Knowledge and Ideas	Distributors	Market Observations	Internet	Customers
Business Development	Distributors	Distributors	Suppliers	Mentor and Colleague
Technology	Suppliers	Consultants	Distributors	Alma Mater
Regulatory	Government agencies	Consultants	Consultants	Internal Quality Management
Funding	Family	Self	Self	Board of Directors

4.2 Network Structure

To examine network structural characteristics, key insights can be gained from a visual inspection of the network graphs in Figure 1. Tie strength is shown by line thickness with thicker lines indicating strong ties and thinner lines weak ties. Multiplexity of ties is shown by dashed lines. Seven different types of actors are identified by node shape: ego with circle-in-box shapes and alters being customers as circles, suppliers as down triangles, government agencies as triangles, consultants as diamonds, colleagues as quartered square, non-family business partners as squares and family business partners as double triangles.

Figure 1: Visual Representation of Networks

Aromas	Natives
	
Detox	**Caps**
	

The graphs show that all four ego networks include a mix of relationship types with both strong and weak. Not surprising, all the networks contain customers, colleagues, consultants and business partners with both Aromas and Natives including family members as partners. A clear structural difference among the four networks is in the use of export based government agencies. Aromas' network shows many more direct and indirect ties to export based government agencies than the other entrepreneurs indicating a more focused, diplomatic approach to international markets. In stark contrast, Natives and Detox have few connections to government

agencies while the government ties in Caps' network are to hospitals, universities and regulatory bodies rather than export agencies.

Multiplex ties (in dashed lines) are prominent in all four networks with social ties leading to economic exchanges and existing economic ties performing more than one role. For instance, family members are also operating business partners in Aromas' and Natives' networks. Suppliers are also research collaborators for Aromas, Natives and Detox. All four entrepreneurs develop social ties with customers. Aromas also has informal, social connections with export based government agencies and Caps with non-export based agencies.

Subgroups are also evident. In addition to Aromas' strategic involvement in clusterings of government agencies, the right side of Aromas' graph shows clusterings of domestic ties in manufacturing, supplies and production with both the participant entrepreneur and a family business partner jointly involved. Subgroups of customers, partners, colleagues and key suppliers are seen in Natives' graph while Detox, like Aromas, shows both partners deeply embedded within the network. In the case of Caps, a few subgroups of government regulatory bodies are apparent as well as a tight subgroup of colleagues and business partners on the left.

Table 4 provides quantitative measures to validate key network structural characteristics. Looking at network size, Aromas has by far the largest network, mainly due to the many ties to government agencies. As such, Table 4 also shows network measure for Aromas minus the government ties. Aromas and Caps have the largest number of network ties and highest proportion of multiplex ties. Looking at the measures for structural holes, Aromas' overall network has the highest effective size and lowest constraint value of the four networks. Without Aromas' government ties, Caps' network has the highest effective size and lowest constraint. These

measures suggest less redundancy of network ties and minimal connections among alters in the network, thus allowing Aromas and Caps more freedom of action (Borgatti et al., 2013). As one would expect the small, young network of Detox is the most constrained.

In analyzing density for ego networks, Borgatti et al. (2013 p.274) suggest comparing network density with and without ego so as to identify the extent to which the proportion of ego's alters are connected to each other. All four networks without the ego nodes show sparse rather than dense structures with Detox having the highest density at 29 percent and Aromas the lowest at nine percent. Aromas' network with high effective size coupled with low density indicates less redundancy and increased opportunities to access novel information (Burt, 1992), though the density of Aromas' network minus the government ties is similar to Detox at 21 percent, suggesting multiple interconnections within that section of the network.

Network centralization is relatively high with the ego nodes present for all networks, indicating many direct ties to the entrepreneur and wide dispersion of network members (Borgatti & Foster, 2003). Network centralization without the ego nodes decreases for all networks except Detox and Aromas without the government ties whose centralization measure increases. These increases draw attention to the fact that Detox's and Aromas' working partners also have many direct ties with alters in the network.

Table 4: Network Structural Characteristics

	Aromas	**Aromas (no gov't)**	**Natives**	**Detox**	**Caps**
Network Size	27	14	10	8	16
Number of Ties	120	66	30	32	58
Multiplex ties	0.75	0.86	0.70	0.75	0.88
Network Effective Size	24.6	11.3	9	6	14.4
Network Constraint	0.14	0.27	0.20	0.44	0.14
Density (with ego)	0.16	0.31	0.27	0.44	0.21
Density (without ego)	0.09	0.21	0.11	0.29	0.11
Degree Centralization (with ego)	0.91	0.79	0.76	0.71	0.89
Degree Centralization (without ego)	0.40	0.83	0.28	0.95	0.18

5. Discussion

Consistent with entrepreneurs' research, the four participating entrepreneurs show a strong sense of drive, determination and creativity (Shane, Locke, & Collins, 2003; Shane & Nicolaou, 2014 ; Stuart & Ding, 2006). The participations' strong reliance on pre-existing networks is also reflected in past studies (Hilmersson & Jansson, 2012; Renzulli & Aldrich, 2005). This includes network ties from prior work experience (Boso et al., 2013; Ellis, 2011; Klyver, 2007) and family members (Aldrich & Cliff, 2003). Pre-existing networks are crucial in at least two ways. First, they directly provide information about potential new networks (Child & Hsieh, 2014) as well as indirectly through instrumental referrals that connect entrepreneurs to new networks opportunities (Batjargal, 2007; Vasilchenko & Morrish, 2011). Second, the presence of strong, pre-existing relationships can encourage the development of multiple relationships (Rowley et al., 2000; Uzzi, 1997). All four networks show a high proportion of multiplex ties suggesting that the layering of

multiple functions on existing relationships, such as collaborating with a supplier on research development, leads to more mutually beneficial exchanges between actors (Chetty & Stangl, 2010; Fernhaber & Li, 2013). All four participants actively use existing network ties with oversea partners to collaborate on new product development (Christopher, Mena, Khan, & Yurt, 2011; Williamson, 2008) and collaborations with suppliers are particularly efficient, suggesting learning and exchange of tacit knowledge with practical outcomes (Annique Un, Cuervo-Cazurra, & Asakawa, 2010). This development approach of utilizing pre-existing ties reduces the entrepreneurs' search costs, time and risks actors (Kollock, 1994; Kuwabara, 2011). Satisfaction, trust and convenience explain resource-poor entrepreneurs' reliance on pre-existing networks, as individuals prefer to work with others whom they know and have prior positive experiences (Ahuja, Soda, & Zaheer, 2012). These findings suggest the following propositions:

> *P1: Pre-existing networks are crucial first sources for internationalizing entrepreneurs' network development as they provide direct information about potential new networks, referral opportunities and the base for multiplex ties.*
>
> *P2: Multiplex ties provide opportunities to expand current relationships to new and further beneficial exchanges.*

Entrepreneurs also expand their networks through other public sources such as websites, government channels and through market intelligence. These public sources are regarded as effective ways to develop new networks by the four study entrepreneurs, regardless of whether they are experienced in international markets, as in the case of Caps or inexperienced, as in the case Detox. In particular, government-

sponsored international trade shows and conferences allow for fortuitous meetings and unsolicited inquiries (Kontinen & Ojala, 2011; Ramirez-Pasillas, 2010). While this approach of seeking public sources appears quite instinctive and intuitive, developing networks in this manner is less addressed in literature. Further research is warranted as to the importance and determining factors with regards to the use of public information sources.

Results from the network analyses show a mix of strong and weak ties as well as different relationship types, supporting previous studies suggesting that a combination of ties is essential to fulfill different functions for business growth (Elfring & Hulsink, 2003; Granovetter, 1973; Lechner & Dowling, 2003). Network analyses also indicate small world networks in play (Aldrich & Kim, 2007), mainly with clusterings of close colleagues and business partners where everyone knows one another. Less evident are scale free networks (Aldrich & Kim, 2007). Aromas in the only network where a government head office resembles a hub that connects to other smaller government offices in international markets which then provides business connections to international networks. In general, the four networks are sparse yet highly centralized (Coviello, 2006), suggesting that most network members work independently with some clusterings for government agencies and domestic operations (Burt, 1992; Sharma & Blomstermo, 2003). These findings lead to the next two propositions:

> *P3: Small world networks of strong relationships with network partners are important as they provide conducive environments to share information and resources.*

P4: Developing network relationships with large and better resourced networks, such as government agencies is an effective strategy to acquire new and novel resources in pursuing international markets.

6. Conclusions

Networks enable entrepreneurs to circumvent resource constraints while pursuing international markets (Koka et al., 2006; Manolova, Manev, & Gyoshev, 2010; Newbert et al., 2013). A network approach to internationalization is not new. Prior studies suggest many benefits provided by networks but scholars continue to ask for further clarification as to how networks are formed and the outcomes gained through networks (Hoang & Antoncic, 2003; Slotte-Kock & Coviello, 2010). This study specifically set out to understand the process by which entrepreneurs develop networks and to examine key network characteristics that influence access to network resources. Although much of the results are consistent with past and current studies, such as reliance on pre-existing networks (Vasilchenko & Morrish, 2011; Zhou et al., 2007), presence of strong and weak ties (Elfring & Hulsink, 2003; Martinez & Aldrich, 2011) and the tendency for international networks to be more sparse than dense (Coviello, 2006), some results merit attention.

First, the study extends knowledge on the instrumentality of entrepreneurs' pre-existing networks. Pre-existing ties provide the first building blocks of multiplex relationships. Multiplex relationships are key as they lead to other potentials advantages, such as referrals and opportunities to add layers of instrumental value to an existing tie, either in social or economic ways. In addition to the rational that social interaction and economic exchange form a basis for multiplex relationships (Ferriani et al., 2012), another logic of dependence applies as well. Second, relying on pre-existing networks obviously limits the breath of resources. Developing

purposeful networks requires entrepreneurs to actively seek external public sources, such as through government agencies, industry associations and other industry clusters of distributors and export-related agents.

7. Limitations

As with all research, the current study has a number of limitations. First, the small sample size of four entrepreneurs means a trade off with sample size in favor of in-depth insights provided from the face-to-face interviews. In addition, the research is limited in geographic coverage and is industry specific, therefore limiting the generalizability of the results.

With reported data, there might be retrospective recall bias as the entrepreneurs are reporting on past events, but Bian's work (1997) shows informants are generally accurate in recall of past events. Our data was collected from one informant, following data collection protocol for ego network, but data from other informants in the network can provide triangulation as well as add to richness of network analyses (Sinkovics, Penz, & Ghauri, 2008). The data reflect a single point in time, thus limiting the opportunity to explore a longitudinal dimension.

Another limitation is the narrow outcome variable, namely internationalization through any entry mode. This is a limitation as entry modes influence both the selection of networks as well as internationalization performance. Further research examining specific entry modes and utilizing longitudinal, quantitative data gathered from multiple perspectives within different industries is needed to advance knowledge in the area. Lastly, as networks facilitate access to resource opportunities, further studies are needed to understand the evolution of different types of resource needs as internationalizing entrepreneurs move through different stages of the internationalization process (Coviello & Cox, 2006).

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Conclusion to Study I

Study I reveals the importance of pre-existing network ties in providing resource opportunities for entrepreneurs in their pursuit of international markets. Results indicate that pre-existing ties provide information and open the way to access new networks through referrals. The social and economic interactions of pre-existing networks present rich opportunities to develop multiplex relationships, which help to expand further social and economic ties. The insights from Study I provide the platform from which to examine further the multiplexity of ties for internationalizing entrepreneurs. In this context, Study II explores the collaboration opportunities that arise from multiplex relational roles.

Results from Study I also indicate that internationalizing entrepreneurs look beyond pre-existing ties to expand their reservoir of novel resource opportunities. Expansion of networks in this way includes developing ties with larger and better-resourced networks such as government agencies and industry associations. Study III explores the role of government agencies and industry associations as resource providers for internationalizing entrepreneurs.

Introduction to Study II:

One of the key insights gained from Study I is the importance of multiplex ties. These multiplex ties comprise multiple relations which provide links to new exchanges, both social and economic. In other words, multiple relations present opportunities for entrepreneurs to tap into resource networks. Study II, **Collaboration networks: Resource opportunities for internationalizing entrepreneurs,** draws from the insights of Study I and explores multiplex ties in the context of collaborations. The theoretical underpinnings for Study II come from resource dependency theory, social exchange theory and social network analysis.

In its early stage, Study II was submitted, accepted and presented as a competitive paper at the Academy of International Business (AIB) Conference in Turkey, 2013 (Appendix D). The conference paper is authored by Frances Chang and Cynthia M. Webster with a contribution ratio of 70% and 30% respectively. Insightful comments from four reviewers of the conference paper, as well as comments from participants at the Conference provided the groundwork to improve Study II.

A re-write of Study II was completed and submitted to, **Journal of Business and Industrial Marketing.** As such, Study II is presented in this thesis in the format as required by the journal. Tables and figures are embedded in the text for ease of reading. Study II incorporated in this thesis includes slight modifications based on thesis examiners comments.

Authors for Study II are Frances Chang, Robert Jack and Cynthia M. Webster with a contribution ratio as 60%, 20% and 20% respectively.

CHAPTER 3: STUDY II

Collaboration Networks:
Resource Opportunities for International Entrepreneurs

Authors: Frances Y.M. Chang, Rob Jack, Cynthia M. Webster

Abstract

Purpose - This paper aims to examine the role of collaboration networks as resource providers for international entrepreneurs. Specifically, we explore resources sought by internationalizing entrepreneurs, examine types of collaboration networks and the resources available and detect structural network characteristics that influence access to resource opportunities.

Design/Methodology/Approach - Qualitative enquiry involving face-to-face interviews. Our study takes a social network analytic approach to internationalization which recognizes the inter-dependency of multiple business networks. The research provides an integrated perspective linking theories of resource dependency, social exchange and social network analysis, thus providing a more holistic approach to the study of collaboration networks as resource providers.

Findings - For resource-constrained international entrepreneurs, collaborating with external networks is a viable way to fill resource gaps. But collaboration is more than just about acquiring resources. It is also about mutually beneficial exchange of resources that leads to effective outcomes between parties.

Practical implications – Cultivating multiple relational roles with existing network ties leads to collaboration opportunities which in turn provide the crucial links to access new resource networks.

Originality/Value - A recognition and understanding of collaboration networks enables internationalizing entrepreneurs to fully capture resource opportunities and expand their knowledge of international markets.

Paper type - Research paper.

Keywords: Collaborations, Resources, Resource Dependency, Social Exchange, Networks, International Entrepreneurs.

Collaboration Networks:
Resource Opportunities for International Entrepreneurs

INTRODUCTION

Collaboration networks, where sets of independent organizations voluntarily share and exchange resources, are critical for resource-poor entrepreneurs looking to grow their business (Ahuja, 2000, Nieto and Santamaria, 2007). This is perhaps more so when entrepreneurs enter new and unknown international markets, as such entries entail many challenges. Research suggests that entrepreneurs embarking on international new ventures need to cultivate collaborative networks to access external opportunities as a way to fill resource gaps in their organizations (Emerson, 1976, Jarillo, 1989, Pfeffer and Salancik, 2003). Collaborations are particularly pertinent for entrepreneurs in knowledge-intensive industries such as health and medicine (Phene and Tallman, 2012, Powell, 1998), communication and high technology (Elfring and Hulsink, 2003, Vasilchenko and Morrish, 2011). In these industries the need to collaborate is greater in view of high research and development (R&D) costs and uncertainties surrounding the introduction of new products (Cowan et al., 2007, Nieto and Santamaria, 2007).

Collaborations provide opportunities to access resources and better resourced internationalizing entrepreneurs are better able to sustain their internationalization activities (Sui and Baum, 2014). This paper focuses on internationalizing entrepreneurs (IEs) and the dynamics of collaboration networks in providing external resources. We use McDougall and Oviatt's (2000:903) definition of international entrepreneurship as "a combination of innovative, proactive, and risk-seeking behaviour that crosses

national borders and is intended to create value in organizations." Our research focus is the individual entrepreneur and/or decision maker of the firm and the context is the Australian health and medical industry, an industry that is knowledge-intensive and where scientific collaborations are often needed to increase chances of introducing new products and services (Almeida et al., 2011).

The need to collaborate and the benefits that come with collaborations are not new and are covered in recent studies (Hessels and Parker, 2013, Li, 2013). Most studies, however, fall short of connecting specific resources provided by different collaboration networks, and few examine the dynamics and structural characteristics of collaboration networks that influence access to resource opportunities. As such, our research aims to (1) identify the benefits entrepreneurs gain from collaborations, (2) examine the various types of collaboration networks and (3) detect the structural characteristics of collaboration networks that influence access to resource opportunities. We take up the call by Gulati (1995) and Hillman, Withers and Collins (2009) to provide a more holistic perspective in studying firms' interdependent collaborations by drawing insights from resource dependency theory (RDT), social exchange theory (SET) and social network analysis (SNA). Our study proceeds with a review of extant literature on collaboration as a means to access resources and influence network structure. The literature review guides us to a deeper understanding of the research aims, followed by a description of the research method. We present results and a discussion before the conclusion, limitations and suggestions for future research.

LITERATURE REVIEW

Collaboration Networks as Resources

Entrepreneurs are driven to create new ventures for a number of reasons, of which rapid growth is usually fundamental (Gundry and Welsch, 2001, Majumdar, 2008). Organizational growth can come from introducing additional products or developing new markets or a combination of both (Kylaheiko et al., 2011). For some organizations, growth through international expansion is a more viable option because of adverse domestic conditions, such as high costs of servicing domestic retailers and customers (Bonaccorsi, 1992, Leonidou et al., 2007) and/or declining product life cycles (McDougall et al., 1994). For others, internationalization presents opportunities to innovate, which in turn improves product quality and productivity resulting in improved organizational performance (Golovko and Valentini, 2011, Cassiman and Golovko, 2011). Rapid growth requires the allocation of substantial resources and as entrepreneurial ventures usually start small, internal resources tend to be limited (Drucker, 1985, Wernerfelt, 1984). Growth of organizations, either through product and/or market expansion, is thus dependent on acquiring external resources, such as funding and finance, knowledge and markets and labor and production (Chetty and Wilson, 2003).

The ability to collaborate with other organizations where such resources are available is thus critical to organizational growth (Vázquez-Casielles et al., 2013). Collaboration networks are particularly relevant for IEs and a network approach to internationalization has been gaining momentum since the early nineties (Hilmersson and Jansson, 2012, Oviatt and McDougall, 2005b). Studies suggest that a network approach to internationalization is more appropriate for resource-limited entrepreneurs as networks are shown to provide resources with much less capital and fewer risks

(Slotte-Kock and Coviello, 2010, Varis et al., 2005). Networks "help entrepreneurs identify international opportunities, establish credibility and often lead to strategic alliances and other cooperative strategies" (Oviatt and McDougall, 2005a:544).

In the context of business networks, a strong research tradition in the Industrial Marketing and Purchasing Group (IMP) is the study of buyer-seller relationships. The Group's philosophy suggests that "business exchange cannot be understood as series of disembedded and independent transactions of given resources – but rather as complex relationships between buying and selling organizations, where what is exchanged is created in interaction" (IMP, 2013 :1). IMP proposes the Interaction Model to appreciate a deeper understanding of the complexity of buyer-seller relationships. This Model has at times, been criticized for being too limited and static in its focus and that the external environments of the buyer-seller are not adequately covered (Axelsson, 2010). To address this deficiency, the Actor-Resource-Activity (ARA) Model was developed. The framework of the ARA Model deals with a number of connected exchange relationship and the dynamic dimensions of networks, such as actor bonds, resource ties and activity links (Ford et al., 2010). In this sense, the ARA Model provides another systematic approach in studying network collaboration strategies.

Collaborations can be upstream or downstream (Almeida et al., 2011). Upstream collaborations tend to include knowledge-based alliances, such as scientific R&D, allowing actors to access a wider pool of emerging technologies to generate new knowledge through the combination of existing knowledge (Cowan et al., 2007, Fleming, 2001). It is also quite common for "entrepreneurial scientists", many of whom are previous academic scientists turned entrepreneurs, to maintain collaborative ties with

educational institutions. Etzkowitz (1998: 824) describes this as the “extension of knowledge” into the “capitalization of knowledge” in the pursuit of scientific facts and profits. Downstream collaborations tend to be market-oriented with a focus on gaining better market information to enable entrepreneurs to reach new markets and additional customers (Evers and Knight, 2008).

Collaborative activities are thus ways for entrepreneurs to interact with the external environment to acquire resources (Van Witteloostuijn and Boone, 2006). Three key theories, resource dependency, social exchange and social network analysis, provide a deeper understanding of resource collaborations.

Resource Dependency Theory (RDT)

A key premise of resource dependency theory is that no organization is completely self-sufficient. Pfeffer and Salancik’s (2003) seminal work on resource dependency asserts that while some organizations are better resourced than others, no organization has full control of their environment. Furthermore, organizations are not autonomous as they are constrained by interdependencies with other organizations. While collaborations with external organizations can provide access to resources, heavy reliance on external sources minimizes a firm’s independence. Firms, therefore, engage in different collaborative arrangements such as strategic alliances, joint ventures, mergers and other inter-organizational relationships as a means to increase and/or decrease their inter-dependency on external organizations (Hillman et al., 2009, Yan and Gray, 2001). Drees and Heugens’ (2013) study, for example, indicates that organizations take action to form inter-organizational arrangements in response to resource dependency and Bretherton and Caston’s (2005) exploratory research suggests that cooperative arrangements with

different organizations in the supply chain provide ways to fill resource gaps. RDT theorists argue that with dependency comes vulnerability and that power lies with organizations that have control over resources, thus indicating the importance of power in collaborative arrangements (Bae and Gargiulo, 2004, Lomi and Pattison, 2006). While RDT emphasizes the impact of external environments on organizations, social exchange theory (SET) focuses on the relationships and interactions between exchange partners (Emerson, 1976).

Social Exchange Theory (SET)

Social exchanges are formed by an evaluation of costs, benefits and alternatives whereby exchanges take place when actors bring valued items to be exchanged. In other words, "*firms must have resources to get resources*" (Eisenhardt and Schoonhoven, 1996: 137). These valued resources do not merely include material goods, services and processes, but also information, knowledge, reputation and friendship. The concepts of trust, commitment and reciprocity are central to social exchange theory (Cook et al., 2013).

Reciprocity and commitment are components that influence exchange and sharing of network resources. SET theorists describe reciprocity as "the extent to which an actor engages in repeated exchanges with the same partner over time" (Cook et al., 2013:70) while commitment is seen as "an enduring desire to maintain a valued relationship" (Moorman et al., 1992:316). Reciprocity leads to frequent exchanges of valued resources and frequent favorable exchanges build commitment and trust in the exchange relationship (Blau, 1986, Molm, 2010, Molm et al., 2007). Situations of high uncertainty, such as in internationalization, lead to higher commitment in a relationship

so as to achieve relative safety and increase positive exchange outcome. Studies suggest that in situations of uncertainty, actors turn to trust-based relationships to generate more exchanges (Lefaix-Durand et al., 2009).

While RDT theorists suggest that power lies with actors who have control of resources, SET theorists emphasize actors' positions in a network. Actors with more power are those whose relationships are structured such that they are in a position to control the flow of resources throughout the network (Blau, 1986, Cook and Emerson, 1978).

In order to fully capture exchange opportunities, firms need to appreciate the dynamics and structure of exchange networks. Social network analysis (SNA) provides a systematic approach to analyzing network structure and characteristics that influence access to resource opportunities (Borgatti et al., 2013, Wasserman and Faust, 1999).

Social Network Analysis (SNA)

SNA research asserts that actors' positions within networks are more important than the actors themselves (Hoang and Antoncic, 2003). With the focus of our study on individual IEs, an ego-centered network is the most appropriate approach when analyzing the network of a focal actor (Borgatti et al., 2013). The focal actor is referred to as ego and all other actors in the network are referred to as alters (Hanneman and Riddle, 2005). Typically, in analyzing ego networks researchers focus on characteristics such as network size, cohesion, centralization and subgroups. A big network with many actors is only advantageous if there is diversity in the composition of actors as a diverse set of actors presents different skills and resources (Burt, 1992). Network cohesion is typically measured as density. A small, dense network of strong ties tends to encourage

affection, trust, open communication and sharing of tacit knowledge and information (Coleman, 1988). Yet a sparse network, where contact is infrequent and irregular and actors are connected by loose and non-affective ties, tends to provide more diverse information (Granovetter, 1973) and contains more “structural holes” with bridging opportunities to connect actors who otherwise are not accessible (Burt, 1992). Tie strength is important as different tie strengths fulfill different functions. Strong ties, for example, tend to be related to problem solving (Cockburn and Henderson, 1998) and weak ties are associated with accessing novel information (Granovetter, 1973).

Other key structural features include subgroups and network centralization (Borgatti et al., 2013, Wasserman and Faust, 1999). Subgroups with cohesive, dense interactions can apply significant influence in decision-making matters (Frank, 1995, Freeman, 1992, Moody and White, 2003).. Network centralization indicates the dispersion of a set of actors in a network. A highly centralized network structure looks like a star, showing the dominance of one actor. Not only is the dominant actor in an extremely popular position, being directly connected to all other network members, that actor also lies in the path between all others and thus has the power to play a gatekeeper role with all others having to go through the dominant actor to access one another (Freeman, 1979).

Both RDT and SET suggest that collaboration is not just about gaining resources but more about the exchange of resources. While RDT focuses on the influence of the external environment, SET brings in issues of trust and commitment. To some extent, all three look at structure, power, reciprocity and dependency. Since collaborations come at a cost, we expect IEs are strategic in their search for resources and benefits with specific

collaboration opportunities resulting in different types of network characteristics and structures. With these insights in mind, we seek empirical evidence from IEs to discover the advantages, types and structural characteristics of collaboration networks.

RESEARCH METHOD

Our research is set within the Australian health and medical industry. The health and medical industry is science-intensive, knowledge-based and R&D-driven (Powell et al., 2005, Stuart and Ding, 2006). Organizations in this industry typically find it difficult to innovate and even more difficult to survive without collaboration networks that provide access to a pool of resources such as knowledge, experience and skills (Almeida et al., 2011). Furthermore, in a business climate of high regulatory compliance costs, typically associated with the health and medical industry, collaborating with a pool of external organizations helps in risk and cost sharing (Phene and Tallman, 2012, Scannell et al., 2012).

Our research sample is sourced from three datasets containing a population of 544 Australian healthcare companies (Austrade, 2011a, Austrade, 2011b, CHC, 2011). Using a purposive and convenient sampling method (Eisenhardt, 1989, Miles and Huberman, 1994), we selected our research sample of entrepreneurs based on the following criteria. Entrepreneurs are producers of health and medical products and not healthcare practitioners as products have higher potential for entry to international markets. Their firms are Australian-owned and operated with Australian brands. Entrepreneurs have internationalized their firms as small-to-medium sized businesses into multiple markets. For convenience of data collection, entrepreneurs are based in the same Australian state as the researchers.

As the focal interviewee needed to be decision-makers, typically the founding owner (the entrepreneur) or the CEO/COO, we identified sixty-three potential participants and contacted thirty-six out of the sixty-three potential participants. Nineteen agreed to be interviewed and nine were selected based on pre-determined criteria for this study. Out of nine participants, eight are Chief Executive Officers (CEO) and one a Chief Operating Officer (COO). These individuals are responsible for the growth strategy of their firms, including internationalization (Hsu et al., 2013). From their unique positions these entrepreneurs are able to provide a detailed account of the tactics used to build collaboration networks for internationalization.

Table 1 provides an overview of the participants and their roles in the business. The participants are referred to as Action, Cove, Dale, Forest, Mury, Mere, Ryde, Mel and Silver. Seven of the nine participants are in the scientific- and knowledge-intensive segments such as medical devices, imaging and diagnostics while two are in the health supplement segment where products and manufacturing process are not necessarily science-intensive (Child and Hsieh, 2014). The average age of the participating firms is fourteen years, annual sales range from AUD 2 million to AUD 22 million and the number of staff ranges from four to thirty-five.

Table 1: Key Highlights of Participants and their Firms' business

Participant	Participant's background	Firm's business
Action	Co-founder and CEO. Previous experience in healthcare systems and academia.	Flow control medical devices. Patent holder.
Cove	Founder and CEO. Trained engineer and academic.	Medical devices. Patent holder.
Dale	Founder and CEO. Design Engineer.	Scientific, military and medical devices.
Forest	Founder and CEO. Scientist, academic and specialist in proteomics.	Immunoassay kits and proteomics. Patent pending.
Mere	Head of Technical R&D. Trained in design and manufacturing of contrast injection systems.	Contrast injection system and consumables in radiology.
Mury	CEO. CPA, finance and accounting experience.	Medical devices.
Ryde	CEO. Scientist and academic. Specialist in radioisotopes and lung imaging.	Radiopharmaceutical and nuclear medicine. Patent holder.
Silver	Co-founder and CEO. Trained in information technology.	Health supplements.
Mel	Founder and CEO. Previously worked in corporate health food. Years of retail marketing experience.	Health supplements.

Table 2 provides highlights of the internationalization activities of the participants' firms. All firms are in more than one country, most have more than one entry mode and all have some level of collaboration with their overseas networks.

Table 2: Key Highlights of Participants' Internationalization Activities

CEO	Presence in number of countries	Export Sales Percentage	Entry Mode
Action	7 countries	100	Indirect export, overseas manufacturing.
Cove	3 countries	70	Direct and indirect export, overseas sales office.
Dale	5 countries	50	Direct export, overseas manufacturing.
Forest	2 countries	100	Direct export.
Mere	11 countries	24	Indirect export.
Mury	7 countries	30	Direct and indirect export, overseas manufacturing.
Ryde	7 countries	50	Direct export, overseas sales offices.
Silver	4 countries	40	Direct and indirect export, overseas sales office and manufacturing.
Mel	5 countries	10	Indirect export, overseas manufacturing.

Data Collection

Participants were first contacted by phone. During the phone conversation, a brief introduction and objectives of our research were provided before requesting their participation in the research. This was followed by email to confirm the discussion, agreement to participate, including date, time and venue for data collection. The main method of data collection was multiple in-depth, face-to-face interviews using a semi-structured interview protocol to guide the discussion. Qualitative interviews allowed for a thorough probing of issues relating to internationalization, relationship-building and network development. Information derived from the interviews addressed research question (1) regarding resources and benefits gained from collaborations and research

question (2) with regard to types of collaboration networks. The majority of interview questions were open-ended and this approach gave participants the opportunity to freely express their views and problems in relationships and network building. Each participant was also asked a set of questions regarding his or her relationships to other organizations (referred to as alters) and the relationships between those alters (Hanneman and Riddle, 2005, Wasserman and Faust, 1999). These network questions provided the information needed to analyze the network structural characteristics as outlined in research question (3) regarding network structural characteristics that influence access to collaboration networks.

All interviews were audio-recorded with participant agreement. Interviews averaged an hour each with the longest interview being one hour and forty-five minutes and the shortest interview being forty-five minutes. Follow-up interviews, phone conversations and email communications with all nine participants were conducted to clarify and expand on the data collected. A summarized report of each interview was emailed to the respective participant to ensure accuracy (Flick, 2008).

Data Analyses

After each interview, the recording was transcribed. All transcriptions, audio recordings, as well as extensive notes taken during interviews and phone conversations were imported into NVivo 9 software (NVivo, 2002) to assist in qualitative data analysis (Veal, 2005). A recursive exercise of data coding, categorizing and abstracting was done to identify key themes and patterns (Miles and Huberman, 1994, Spiggle, 1994). The use of other data sources from participants' websites and marketing brochures supplemented as well as verified data for coding and analysis. We started with coding

chunks of data into categories relevant to our research objectives such as organization growth, resource constraints, networks and business relationships. We then refined each category to gain more specific interpretations. Each category was reviewed repeatedly for evidence to support or refute interpretations. Following this, we identified patterns to derive themes that addressed our research aims (Richards, 2009). An illustration of this coding procedure is provided in Table 3.

Table 3: Categories and Themes

Categories	**Excerpts from interviews**	**Themes**
Organization growth	*"Internationalization was our first and foremost goal… Australia is a small market…"* – Action *"Our goal is to grow to a large company, aim for stock exchange listing…"* – Forest	Internationalization Product and market expansion
Constraints	*"To be effective in America we need to have more roots on the ground, people, contacts, this is the tough bit…"* – Cove	Contacts Information gathering
Networks	*"We attend 2 or 3 major conferences a year, display our equipment, talk to our customers, both existing and new ones..."* – Ryde *"I'm connected to the university…with my adjunct role, I pick on the bright students, work with professors…"* – Cove	Existing and new business ties Information exchange Knowledge gathering
Business Ties	*"We're part of an informal group of companies. We share information and resources…for example, we manufacture a specialized part for our main supplier but they supply other materials for us…"* – Mury	Collaborations

The relational data from the interviews were imported into UCINET 6 software and transformed into network matrices for quantitative analysis. Each matrix contained ego (the entrepreneur participant), all alters (organizational network actors identified by the participant) and the valued ties between all network actors. An ego-centered network analysis is used to analyze the participants' networks. NetDraw software was used to

generate network graphs (Borgatti, 2002) and UCINET 6 software (Borgatti et al., 2002) was used to calculate key structural measurements of network size, number of ties, density, centralization and cliques. Network size shows the total number of actors in a network and number of ties are the connections between all actors (Hanneman and Riddle, 2005). Tie strength is based on closeness of relationship and measured on a scale from 1 to 5, with 5 being the strongest (Wasserman and Faust, 1999). Density is measured between 0 to 1, with 1 showing the highest density with all possible ties present (Hanneman and Riddle, 2005, Marsden, 1990). Centralization is measured from 0 to 1, with 1 recording the highest possible centralization indicating a star structure where one network member dominates and is connected to all other actors with no ties present among the alters, suggesting unequal positional advantages between actors (Freeman, 1979, Mizruchi, 1994, Wasserman and Faust, 1999). Cliques are dense sub-groups consisting of a subset of at least three actors, all of which are adjacent to each other (Borgatti et al., 2013). Graphs to visualize network structure were created in Netdraw (Borgatti, 2002).

RESULTS

We commence our results section with an analysis of the resources and benefits that collaboration networks provide for IEs. Types of collaboration networks follow. Analyses conclude with the network structural characteristics.

Collaboration networks provide vital links to knowledge and information

While all participants collaborate extensively as the means to acquire resources, the recurrent themes in the resources they seek are knowledge and information. Our results

suggest that specialized knowledge, mainly in new scientific technology, is much sought after by IEs in the medical segment. These entrepreneurs regard their businesses as science-intensive and frequently seek knowledge partners. In this context, collaboration partners are typically chosen for the knowledge and information resources that these partners add to their business. Many of these participants have achieved recognition for product design, already hold patents and/or have patents pending.

> Dale: *"… we don't have all the right people, so we collaborate in the medical design space with key complementary services. We collaborate with an alliance of specialists … that puts us in better positions to create new products…"*

In the less science-intensive segment of health supplements, knowledge is also sought as inputs and exchange opportunities for the development of new products. Typically, suppliers with novel ingredients and formulae collaborate with entrepreneurs to jointly develop new products. Mel's range of health supplements are entirely conceptualized and developed with ingredient suppliers who are based in Germany, Japan and America.

The other recurrent resource theme is information. IEs seek information on potential collaboration partners and information to gain a better understanding of international markets. Lack of information impedes organizational growth and in some cases, involves higher risks and costs:

> Silver: *"We set up our Shanghai office together with our Shanghai distributor. They know the market and, you know,… China is a very difficult market. In the beginning we lost a lot of money but now we use the distributor's connections and channels."*

Types of collaboration networks

Our results suggest that in seeking collaboration opportunities, IEs use both social and business networks. These include friends, alumni and both previous and current business contacts such as direct customers, distributors, suppliers and, to a lesser degree, competitors. The choice of collaboration networks depends on resources required. For example, research institutions such as universities and hospitals are typical collaboration networks for knowledge or specialized equipment and facilities:

> Action: "… *we have been able to define and refine our product line by working very closely with scientists at the university who use the high technology, very expensive equipment they have on site to refine … our medical devices, help us to create new products, and which they have allowed us … to use as examples when we go overseas and show our products…*"

Networks of customers, distributors, contract manufacturers and suppliers are commonly sought as collaboration partners in product development. Direct customers and distributors provide rich ideas for new product development, and very often provide the market base for new product testing (Coviello and Joseph, 2012, Mort et al., 2012). Upstream collaborations with suppliers and manufacturers provide opportunities for co-development of new products. For example, a supplier not only supplies goods, but also provides product development services and in some cases, also becomes the distributor:

Mury: "*At the moment the supplier is running trials for us … in France. When we were in England, we were buying quite a lot from them…and, since then, they've approached us to sell our product, so now they are selling our products too...*"

Lack of geographic proximity is not a constraint in collaborations arrangements. We find, for example, that all nine entrepreneurs have overseas collaboration networks, from scientific collaborations, particularly in the cases of Cove, Forest and Ryde, to less scientific-based product development collaborations, as in the cases of Silver and Mel. Collaborating with competitors is less common and tends to happen when very specific resources are sought:

> Forest: "… *we do work together … the interesting thing is that those competitors are possibly also partners or buyers for our technology, because if you have a better technology then one of those is likely to want it.*

Surprisingly, our results indicate that quite a number of collaborations are done informally, i.e. without formal contracts, as shown in the case of Cove's collaborative arrangements with suppliers:

> Cove: "*We have paperwork between us because we're sharing secrets about our clients' technology all the time. So we've got standing non-disclosure agreements, we have done this for a long time. That's the only thing on paper but beyond that, well, no, it's all a gentleman's agreement*."

We summarise the aforesaid results in Table 4.

Table 4: Types of collaboration networks and benefits gained

Benefits from Collaboration	Types of Collaboration Networks	Participants' Involvement
Science-intensive knowledge, mainly for medical products	Universities, hospitals Competitors Customers Contract manufacturers Suppliers	Action, Cove, Forest, Mere, Mury, Ryde Forest, Mury Cove, Dale, Mere, Mury Action, Dale, Mury Cove, Mury
New product and market development, mainly for general healthcare products.	Universities Suppliers Contract manufacturers Customers and Distributors	Silver Mel, Silver Mel Mel, Silver
Information, mainly focuses on business and distribution links	Customers Distributors	Mel, Dale, Mere, Mury, Mel, Silver

Network Structure and Collaborative Ties

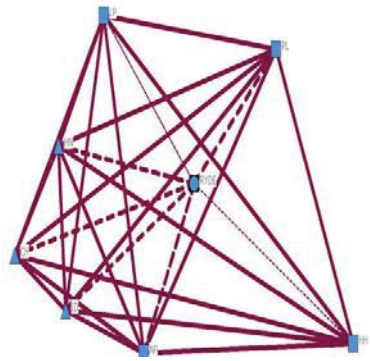
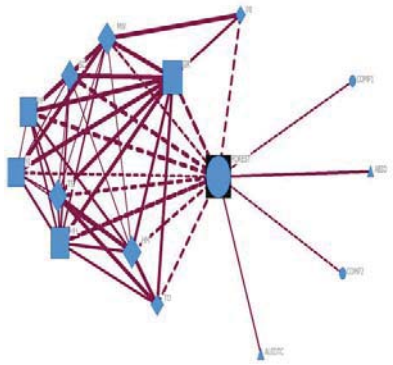
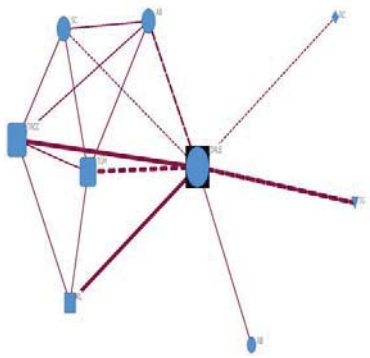
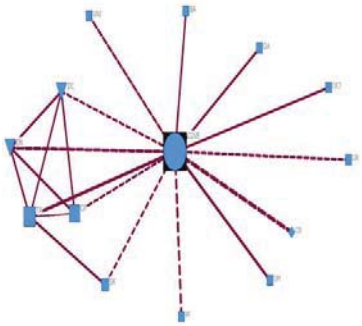
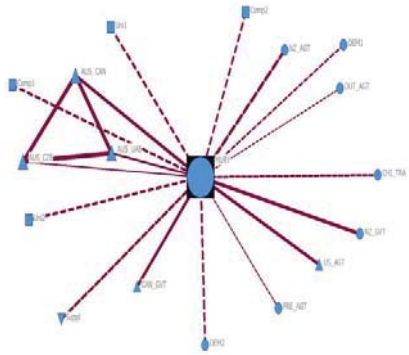
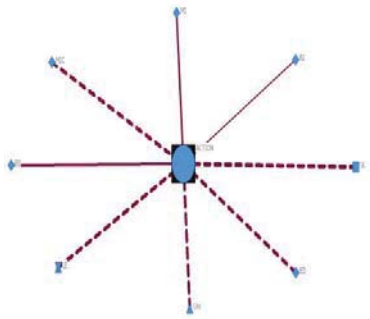
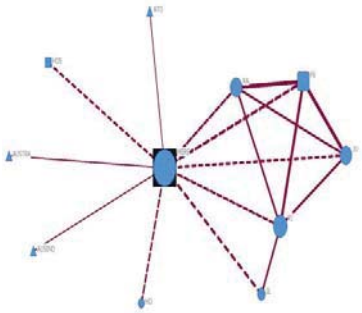
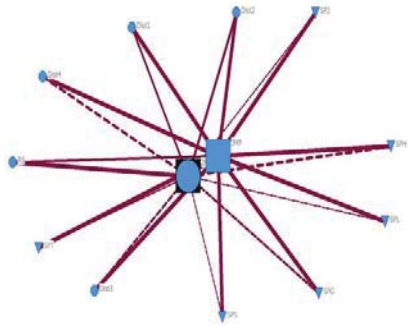
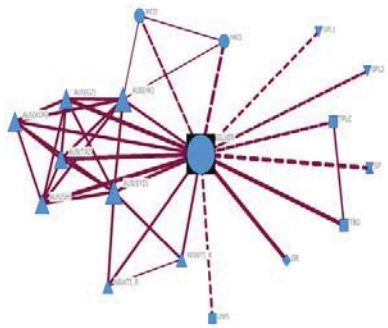
We now turn to the results for network structure. Figure 1 presents the nine network graphs. Nodes in the graphs indicate the different types of actors in the networks. A circle in a square represents ego, circles represent customers, down triangles indicate suppliers, up triangles are government agencies and universities, diamonds represent consultants, rounded squares are colleagues, squares are business partners and merged triangles family business partners. Node size is based on actor centrality with larger nodes indicating those actors with a greater number of network ties. In the graphs, solid lines between nodes show business ties while dashed lines represent dual roles representing collaborative arrangements. Tie strength is indicated by the thickness of lines, with thick lines showing strong relationships and thin lines indicating weak relationships.

All graphs show a mix of strong and weak ties with a number of strong collaborative ties. In the extreme case of Ryde's graph, all his direct ties involve

scientific collaborations with research institutions such as universities and hospitals, some of which are geographically dispersed. A similar pattern of strong tie clustering of universities and hospitals is also evident in Forest's graph but, in addition, Forest's graph shows more diverse collaborative links with customers and competitors. Graphs of Action, Cove, Dale, Mere and Mury also display diverse collaborative networks. The graphs of Mel and Silver show more collaborative links with suppliers and customers, where customers also include distributors, implying a market-focused development, unlike the knowledge-focused product development of the medical segment (Nieto and Santamaria, 2007). Refer to Table 4 for details on collaborative activities.

Further comparisons reveal some unique structural features. Ryde's graph looks to have the densest structure where all network members have strong and direct connections to one another. In contrast is the star structure of Action, in which all network members link to the participating entrepreneur, Action, but have no ties to one another. With the exception of Mel, all network graphs show the participant entrepreneur as the largest node with the most connections. Mel's graph instead shows the business partner to be equally well-connected suggesting an equal sharing of power between them as both have equal access to all members in the network.

Figure 1: Network graphs

Ryde (nuclear medicine)	**Forest (Proteomics)**	**Dale (Scientific, medical devices)**
		
Cove (Medical devices)	**Mury (Medical devices)**	**Action (Medical devices)**
		
Mere (Medical device)	**Mel (Health Supplements)**	**Silver (Health Supplements)**
		

Coding symbols: *Ego=* ■ *,Customers =* ● *Suppliers =* ▼ *govt/universities =* ▲ *Consultants =* ◆ *Colleagues =* ■ *Business Partners =* ■ *Family business partners =* ⧗
Tie strength *= thick lines for strong ties, Collaboration ties = dashed lines*

While graphs are useful in providing valuable structural insights from visual inspection, quantification is needed for accurate validation of network characteristics. Table 5 gives a summary of the structural characteristics of the nine networks in terms of size, number of ties, density, centralization and cliques. Normalized measures of density and centralization are presented so that networks of different sizes can be compared. Mury and Silver have the largest network size while Ryde has the smallest. Forest has, by far, the highest number of ties while Action has the lowest. Density in ego networks is typically computed without ego to show the proportion of connections among alters (Borgatti et al., 2013). In this case, Ryde's network records the highest possible density at 1, but the lowest degree centralization at 0, indicating all actors are directly connected with all other actors. In contrast, Mury's network density of 0.02 is the lowest. Mury's graph features a sparse network of actors who are geographically dispersed with the exception of one clique of three Australian export agencies. Contrasting Ryde's low centralization score of 0 is Action's high degree centralization score of 1, indicating no connections at all between actors in the network and no cliques, again supporting the star structure of Action's graph. Mel is the only case where degree centralization without ego increases to 1. This is because Mel has a working partner who is connected to all alters in the network. Mel's network, with eleven cliques, also shows the highest number of cliques among all networks in the study.

Table 5: Network Structural Characteristics

	Network Size	Number of Ties	Density		Degree Centralization		Number of cliques
			With ego	Without ego	With ego	Without ego	
Ryde	7	56	1	1	0	0	1
Forest	14	96	0.46	0.37	0.63	0.37	3
Dale	8	32	0.44	0.29	0.71	0.38	2
Mere	10	34	0.31	0.16	0.71	0.38	2
Cove	13	40	0.22	0.09	0.91	0.29	2
Action	8	15	0.21	0	1	0	0
Mury	17	40	0.13	0.02	0.98	0.12	1
Mel	12	46	0.30	0.17	0.83	1	11
Silver	17	78	0.26	0.16	0.84	0.31	4

DISCUSSION

This section provides an interpretation of our results. We start with collaborations as the means to acquire resources and types of collaboration networks. Our participants do not merely seek to acquire resources but also to share and exchange resources such as scientific knowledge in the cases of Ryde, Forest and Mury (Eisenhardt and Schoonhoven, 1996, Emerson, 1976, Pfeffer and Salancik, 2003). Our participants engage in frequent and reciprocal exchanges with a number of collaboration networks (Cook and Whitmeyer, 1992), thus indicating commitment to maintaining valued relationships (Molm, 2010, Perugini et al., 2003). Trust is also implied in these frequent exchanges, with many of them starting as informal arrangements (Molm et al., 2000).

Some studies suggest that there are limitations for geographically dispersed firms to take advantage of collaboration networks (Weerawardena et al., 2014) but our findings indicate that geographic distance is not a hindrance for collaborative activities.

The average age of our participants' firms is fourteen years, suggesting that even when firms are already at growth stage, knowledge and information continue to be the key resources they seek as these resources enable entrepreneurs to harness opportunities either in innovative product development or by establishing presence in international markets or both (Simpson et al., 2011, Tolstoy, 2010). Having a network that comprises multiple and diverse network partners such as universities, hospitals, suppliers, customers, distributors and competitors, adds richness of collaboration opportunities as different networks bring different resources and skills (Burt, 2004). Multiple relationships are evident in our study cases. Upstream collaborations, typically with research institutions such as universities and hospitals, provide knowledge, particularly for science-intensive organizations (Casillas et al., 2009, Malo and Norus, 2009). Downstream collaborations provide information that enabled seven of the participants to set up foreign offices. Collaborating with other business networks such as suppliers, customers and distributors also provides rich resource opportunities, both in knowledge and information (Tan and Ndubisi, 2014). Our findings indicate that participants in the science-intensive segment view competitors as sources of knowledge sharing and exchange that enable innovative product development. This finding contrasts with prior studies that suggest collaborating with competitors has a negative impact on new product development (Annique Un et al., 2010, Nieto and Santamaria, 2007). IEs in the health supplements segment do not collaborate with their competitors because products

in this segment are easily copied and the business focus of firms in this segment tends to be sales and market driven.

We now move to the results of network structural characteristics. Visual inspection of the network graphs confirms the strong collaborative behavior as described in the first part of our discussion. Both strong and weak ties are present in networks of all participants. Presence of both strong and weak ties are important as each perform different functions (Jack, 2005). Strong ties are particularly observed for the cases of Ryde and Forest**,** both of whom are in knowledge-intensive segments where strong ties increase cohesion, encourage trust and sharing of tacit knowledge (Coleman, 1988). Trust is a key component of collaborations, without which further exchanges are difficult (Blau, 1986, Molm et al., 2000). Our participants do not have large networks but size is less important than the diversity of actors in the network as diversity adds richness of resources and skills (Burt, 1992). Our cases indicate a diverse set of both domestic and international collaboration networks which include research institutions as well as business organizations (Andersson et al., 2013). Both dense and sparse networks are observed in our study and each presents different collaborative opportunities (Martinez and Aldrich, 2011). Dense networks that are cohesive and have a decentralized structure encourage collaborative activities, sharing and exchange of scientific knowledge as evident in the networks of Ryde and Forest (Fleming, 2001). Dense networks indicate positional equality and less reliance on the use of power, suggesting higher commitment to sharing knowledge resources (Nyaga et al., 2010, Thye, 2000). Other cases in the medical segment (Action, Cove, Dale, Mere and Mury) do not exhibit such dense networks which may be due to the product range being less

science-intensive or other explanations, such as competitiveness in the product category. Sparse network structures with a diversity of resources, as clearly evident in seven of our cases, tend to be more efficient as they are less redundant and reach distinctive collaboration partners (Burt, 1992). While both SET (Bienenstock and Bonacich, 1992) and SNA (Bodin and Crona, 2009) suggest that coalitions and cliques are formed to exact influence and power within a network, we find that cliques in our cases are formed because they share common business interests, such as cliques of government agencies or cliques of distributors (Young and Wilkinson, 1989). Ryde's network, for example, is one big clique of research scientists. But on the whole, there are few cliques in our cases with the exception of Mel's network. Dyadic relationships are frequently the most commonly found in egocentric network studies such as in our cases (Provan et al., 2007). Mel's network shows eleven cliques but these are small cliques of three actors comprising Mel, a business partner and either a supplier or distributor.

CONCLUSION, LIMITATIONS AND RECOMMENDATIONS

The key aim of our study is to gain a deeper understanding of collaboration networks as resource providers for internationalizing entrepreneurs. While studies suggest that collaborations are difficult and fraught with problems (Almeida et al., 2011, Eisenhardt and Schoonhoven, 1996), our findings indicate that for resource poor IEs, collaborating with external networks is a crucial way, at times the only way, to acquire resources. This finding contributes to knowledge in the study of resource-seeking strategies of internationalizing entrepreneurs in that it highlights the resource opportunities from collaborating with external networks (Penrose, 2009). The inter-dependency of external networks applies a logical premise to a network approach to internationalization. While

RDT suggests that external networks are needed to fill resource gaps, SET posits that accessing external resources requires a process of sharing and exchanging of valued items, and SNA provides a systematic approach in examining network characteristics that enhance or impede access to network resources. Our study indicates that the key theoretical components of RDT, SET and SNA are closely linked and understanding these components provides better insights to understanding characteristics of collaboration networks. This study highlights that collaborations cannot be seen as mere independent transactions as managing network relations is crucial to increasing the potential for reciprocal and long term beneficial business ties. This point contributes to knowledge in the ARA Model of network collaboration strategies.

Our study has the following implications. Resource seeking is a continuous activity for growth-oriented entrepreneurs. Cultivating multiple relations with existing network ties provides rich platforms for collaborations without the risks and capital involved in seeking new network partners. Effective collaborations is more than just about acquiring resources, it is also about achieving mutually beneficial exchanges between parties.

Although this study presents insightful findings on collaboration networks for IEs, it has its limitations. The absence of dyadic data is a serious limitation given that at least two actors are needed in any collaborative arrangement. The selection of a single specific industry, with participants confined to a geographic location, is not representative of the general population of IEs. An extension of study of IEs to a broader range of industries is warranted. This would assist in generalizing, as well as building on, the current findings and represent a logical avenue for future research. Nevertheless,

while studies that deliver generalizable results are important to advance the field, we assert that there remains significant value in studying single countries and industries that aid in understanding the nuances and complexities of IEs' collaboration networks in these markets. This detailed knowledge can also broaden the field by emphasizing similarities and differences between and across industries. In this way, future research should also consider differences between specific geographic locations in the way entrepreneurs collaborate with external networks as they seek resources. Lastly, our study focuses on the benefits of collaboration networks. In reality, there are also risks and failures involved in collaboration. An extension of the study to include positive and negative, and effective and ineffective outcomes of collaborations would expand the knowledge of collaboration networks as resource providers.

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Conclusion to Study II:

Study II extends the findings of Study I, particularly in the functionality of multiple relations. Results from Study II indicate that resource-constrained internationalizing entrepreneurs collaborate as a means to access resource opportunities. Collaboration networks are chosen based on resource needs, essentially to fill resource gaps and to exchange other valuable resources. The theoretical underpinnings of resource dependency, social exchange and social network analysis provide a more holistic approach to understanding why and how resource-constrained entrepreneurs collaborate with their external organizations. Study II's results further suggest that for entrepreneurs to take full advantage of collaboration networks, an appreciation of network structural characteristics is important.

Findings from Study I and II indicate the importance of government and industry networks as resource providers, particularly in the areas of information and knowledge. These findings set the basis for Study III to explore further the roles of government and industry networks as resource providers for internationalizing entrepreneurs.

Introduction to Study III:

The third study in this thesis, **The role of government and industry networks for internationalizing entrepreneurs**, takes a qualitative approach to explore how internationalizing entrepreneurs perceive, and what they expect from, government and industry networks as resource providers in the entrepreneurs' pursuit of international markets.

At a general level, findings from both Study I and II indicate that government and industry networks are instrumental in assisting resource-constrained entrepreneurs to pursue international markets. Through the theoretical lens of resource-based views, Study III examines the potential resources from networks of government agencies and industry associations that assist entrepreneurs to internationalize. Additionally, Study III explores types of resources that are more pertinent in the context of internationalization.

At its conceptual stage, Study III was accepted and presented as a competitive paper at the Australian and New Zealand International Business Academy (ANZIBA) Conference in Australia, 2013 (Appendix E). Useful comments from reviewers and conference participants guided the improvement of Study III that resulted in a refined version which was accepted and presented at the European International Business Academy (EIBA) Conference in Germany, 2013 (Appendix F). Both the conference papers are authored by Frances Chang and Cynthia M. Webster with a ratio contribution of 70% and 30% respectively.

With insightful comments and suggestions from reviewers and conference participants of both conferences, a re-write of Study III was completed and

submitted to the journal, **International Marketing Review**. As such, Study III in this thesis is presented in the format required by the journal. Tables and figures are embedded in the text for ease of reading. Study III incorporated in this thesis includes slight modifications based on comments from thesis examiners.

Authors for Study III are Frances Chang, Rob Jack and Cynthia Webster with a contribution ratio of 70%, 10% and 20% respectively.

CHAPTER 4: STUDY III

The Roles of Government and Industry Networks for Internationalizing Entrepreneurs

Authors: France Y.M. Chang, Rob Jack, Cynthia M. Webster

Abstract

Purpose – The purpose of this paper is to identify the specific resource needs of internationalizing entrepreneurs and to examine their perceptions and expectations of the roles of government and industry networks as resource providers in assisting to expand international markets.

Design/methodology/approach – This qualitative enquiry involves in-depth face-to-face interviews with ten Australian entrepreneurs in the health industry.

Findings – Internationalizing entrepreneurs emphasize information and knowledge resources as drivers for organizational growth. Government and industry networks are clear resource providers, but both fall short of expectations in terms of affording knowledge and relational resources instrumental in accessing international markets.

Practical Implications – Increasing the level of internationalization is high on most government agendas. Our study indicates that both government and industry networks should focus on providing resources in the areas of experiential knowledge and relational connections as these assist internationalizing entrepreneurs to connect with international markets.

Originality/Value – Although exploratory in nature, this study is one of few to provide insights into internationalizing entrepreneurs' perceptions and expectations of government and industry networks as effective resource providers.

Keywords – International Entrepreneur, Internationalization, Resources, Government and Industry Networks

Paper type – Research paper

1. Introduction

Entrepreneurs are driven to internationalize for many reasons: to improve economies of scale, spread business risks and create a better revenue and profit base. For some entrepreneurs there is an urgency to internationalize at inception due to a small home market and/or the niche nature of their products and services (Burgel and Murray, 2000, Chetty and Stangl, 2010). For others, internationalization is an opportunity to leverage capabilities and connect with worldwide organizations to improve competitiveness. Globalization trends add a further push for entrepreneurs to internationalize. For many entrepreneurs, sourcing from foreign suppliers is just as important as selling to foreign markets to remain competitive and potentially gain access to product ideas and new technology (Knight, 2000, Beleska-Spasova et al., 2012, Hessels and Parker, 2013).

While many entrepreneurs use internationalization as an organizational growth strategy, distinct challenges and constraints come with internationalization (Hutchinson and Xavier, 2006, Malo and Norus, 2009). Many of these challenges and constraints are exacerbated by resource limitations, particularly for entrepreneurial organizations which tend to be more poorly resourced than larger and better established organizations (Sui and Baum, 2014, Ahuja and Lampert, 2001). Organizations that are better resourced are better able to address constraints and market challenges. Studies suggest that resources that are not available internally to organizations need to be acquired from external sources (Penrose, 2009,

Pfeffer and Salancik, 2003). The ability to acquire external resources is, thus, crucial to organization survival and growth (Chetty and Wilson, 2003).

Most studies on internationalization focus on processes and models of internationalization (Johanson and Vahlne, 1977, Johanson and Vahlne, 2009, Li et al., 2004), modes of entry (Freeman et al., 2012, Sandberg, 2013) and export performance (Ganotakis and Love, 2012, Hsu et al., 2013). Increasingly, empirical studies taking a network perspective of internationalization suggest networks provide access to much needed resources for entrepreneurs to internationalize (Hilmersson and Jansson, 2012, Newbert et al., 2013, Vasilchenko and Morrish, 2011). Research shows that bureaucratic networks, such as government export agencies and industry associations, are key resource providers. Government agencies, for example, are particularly helpful for entrepreneurs at early stages of internationalization (Leonidou et al., 2011, Martincus et al., 2012). While studies on industry associations provide evidence of resource opportunities, not many studies focus on the role of industry networks in assisting entrepreneurs to internationalize (Ozgen and Baron, 2007, Von Nordenflycht, 2010). While there are many economic justifications for networks of government and professional agencies to help promote internationalization, IEs' expectations of bureaucratic networks as resource providers are rarely addressed (Seringhaus, 1986).

As such, we approach this study with two key research aims: firstly, to understand the resource needs of IEs and, secondly, to examine IEs' perceptions and expectations of the role of government and industry networks as resource providers in their pursuit of international markets. Our focus is on bureaucratic networks

because studies suggest that these networks are key resource providers for entrepreneurial firms to enter international markets (Leonidou et al., 2011, Von Nordenflycht, 2010). We conduct in-depth face-to-face interviews with ten entrepreneurs/CEOs in the Australian healthcare industry. This qualitative approach allows for more exploratory probing of the unique resources sought by IEs and allows for a more in-depth understanding of entrepreneurs' perceptions of the role of bureaucratic networks in helping them to internationalize. Findings support prior studies that information, knowledge and contacts are key resources sought by IEs. While government export agencies are regarded as key information providers, industry and professional associations are seen as key knowledge providers. However, both government and industry/professional networks fall short of expectations in terms of providing experiential knowledge. This implies the need for both government and industry networks to understand the resource constraints faced by IEs in order to implement more effective programs for internationalization. We begin the next section with a literature review of the theoretical underpinnings of this paper. We then present an overview of the qualitative research method used before discussing our results. A concluding section follows that discusses the limitations of our study and suggests areas for further research.

2. Literature Review

2.1 Resources and International Entrepreneurs

Entrepreneurship is an area of interest to businesses, academics and governments (GEM, 2013, Hitt et al., 2011) as, without doubt, entrepreneurs bring innovation, creativity, energy and value to their organizations, to the market and to the economy

(Gartner, 1988, Huarng and Yu, 2011, Sarason et al., 2006, Shane and Venkataraman, 2000). Some scholars suggest that entrepreneurs are major contributors to economic growth (Drucker, 1985, Schumpeter, 1934). But entrepreneurs' activities are not confined to domestic economies as, increasingly, entrepreneurs are internationalizing their ventures as they seek to improve organizational value across borders: "International entrepreneurship is a combination of innovative, proactive, and risk-seeking behaviour that crosses national borders and is intended to create value in organization" (McDougall and Oviatt, 2000 p.903). This definition underlines the innovative mindsets of entrepreneurs in their pursuit of value creation. Some studies suggest that the act of internationalization itself is innovative behaviour as risks and uncertainties, typically associated with innovation, are inherent in exploring unknown international markets (Christopher et al., 2011, Figueira-de-Lemos et al., 2011, Liesch et al., 2011).

A number of internal and external factors determine the success of internationalization, but a key determinant is the availability of resources as this affects strategic decisions (Cadogan et al., 2009) such as entry modes to international markets and level of investments in overseas markets. Resources drive an organization's capacity to evolve and the efficient application of these resources results in the organization's growth (Penrose, 2009). A key tenet to resource-based views (RBV) of organizations is the efficient application of resources so as to transform these resources into competitive advantages. A common thread among RBV theorists is that resources by themselves do not create value. Service inputs in the form of planning, organizing, coordination and control are required to produce

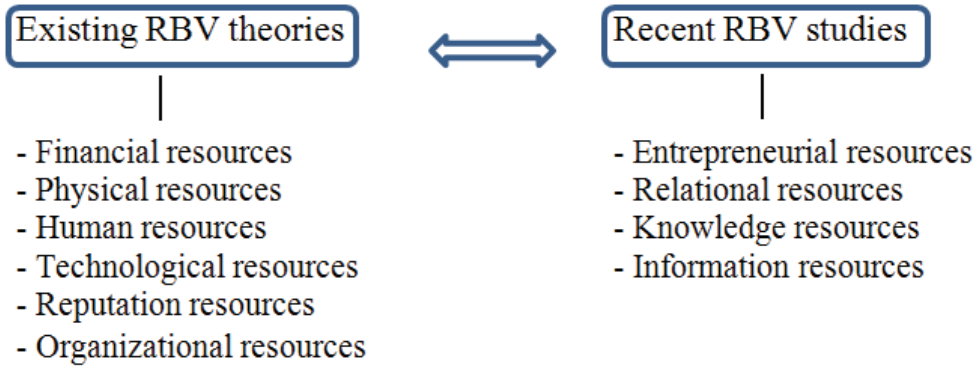
valuable outputs (Grant, 1991, Penrose, 2009, Wernerfelt, 1984, Wernerfelt, 1995). In this sense, theorists of dynamic capabilities suggest that entrepreneurs need to possess the abilities to integrate, build and reconfigure internal and external resources into new value-creating opportunities (Eisenhardt and Martin, 2000, Teece et al., 1997). According to Barney (1991), resources are only valuable if they provide competitive advantages (Barney, 1991, Barney et al., 2001). Penrose's (2009) view is that resources that are unavailable to or inadequate within the firm need to be acquired from external sources. This view mirrors Pfeffer and Salancik's (2003) resource dependency theory which posits that organizations depend on external sources to fill resource gaps as no organization is self-sufficient.

Grant (1991 p.119) suggests that resources can be classified as financial, physical, human, technical, reputational and organizational. Potential outcomes from financial resources are profits and growth and from physical resources are outcomes of finished goods and services (Barney and Arikin, 2001, Penrose, 2009, Wernerfelt, 1995). Human resources in various forms provide the essential inputs to enable outcomes of new products, new services and new markets (Hitt et al., 2006, Lockett et al., 2009, Coviello and Joseph, 2012). Technical resources tend to be specialized and complex and typical potential outcomes are patents, trademarks, licences, new products and increased likelihood to internationalize (Chetty and Wilson, 2003, Wheeler et al., 2008). Reputation resources potentially increase the rate of internationalization as reputation increases credibility and provides positional advantages in both domestic and international markets (Fernhaber et al., 2009, Tomz, 2007). Finally, organizational resources are needed to achieve efficiency of

planning and operations, such that goods get to markets efficiently (Barney et al., 2001, Beleska-Spasova et al., 2012).

To Grant's (1991) typology of resources, we add four more resources based on recent empirical studies and which are particularly relevant to IEs: entrepreneurial, relational, knowledge and information as shown in Diagram 1. We now expand on these four additional resources.

Diagram 1: Typology of Resources



Entrepreneurs bring the resources of creativity, tenacity and value-creation to their new ventures. Entrepreneurs do more than merely respond to market changes, many of them create changes (Kor et al., 2007, Jacobides and Winter, 2007). While characteristically short of resources, such as cash, entrepreneurs typically possess ideas and the ability to convince others. Wealth and value are desired outputs of entrepreneurial resources (Alvarez and Busenitz, 2001, Kor et al., 2007). An IE's network of relationships provides a relational resource that opens many opportunities, such as entering international markets (Bangara et al., 2012, Kontinen and Ojala, 2011, Mort and Weerawardena, 2006) and cooperative arrangements in operating various marketing functions such as distribution and logistics (Nyaga et al., 2010, Zacharia et al., 2011). Murray and Peyrefitte (2007) regard knowledge as

the most important resource of an organization. While knowledge and information are often used interchangeably, some scholars differentiate knowledge from information. Knowledge is often described as experiential or tacit as it entails accumulated expertise and skills which are typically non-codifiable. As such, knowledge is often regarded as a source for competitive advantage (Phelps et al., 2012, Tolstoy, 2010, Zhang et al., 2010). Compared to knowledge, information refers primarily to facts which are codifiable and easily communicated (Child and Hsieh, 2014, Vasilchenko and Morrish, 2011). Firms that are better informed are in a better position than firms that are poorly informed as better information facilitates better decision-making (Child and Hsieh, 2014, Chung, 2012). This discussion of the four expanded resources of entrepreneurial, relational, knowledge and information is shown in Table 1.

Table 1: Expanded Resources

Resources	Descriptions	Outcomes	Reference
Entrepreneurial resources	Entrepreneurial input includes process of cognition, discovering, recognizing and undertaking market opportunities.	Wealth and value creation.	(Alvarez and Busenitz, 2001, Penrose, 2009, Kor et al., 2007)
Relational resources	Composed of trust, information transfer and joint problem solving. Understanding other parties through shared meanings, norms of reciprocity and commitment.	Benefits embedded in relationships. Access to knowledge and information, and external resource opportunities.	(Granovetter, 2005, Hitt et al., 2006, Uzzi, 1997, Liu et al., 2010)
Knowledge resources	Complex or experiential knowledge which is acquired through experience. Non codifiable and hard to articulate. Both internal and external knowledge sources are key intangible resources for internationalization.	Creation of new knowledge, new products and new markets. Providing a source of competitive advantage.	(Hitt et al., 2006, Penrose, 2009, Tolstoy, 2010) (Anand et al., 2007, Phelps et al., 2012, Zhang et al., 2010) (Fernhaber et al., 2009)
Information resources	Referred to as simple knowledge or objective knowledge. Intelligence gathering and disseminating. Codifiable facts and structured data that are easily transmittable.	Better information allows for better decision making. Particularly relevant in situations of high uncertainties and risks, such as in internationalization.	(Chung, 2012, Penrose, 2009, Vasilchenko and Morrish, 2011) (Barney, 1991, Child and Hsieh, 2014)

2.2 Government and Industry Networks

Government export agencies and industry associations are said to be important providers of information for entrepreneurs in their early stages of pursuing international markets (Greenwood et al., 2002, Leonidou et al., 2011). The scope of

government assistance covers a range of direct and indirect services and programs to help firms pursue international markets (Diamantopoulos et al., 1993). According to Gencturk and Kotabe (2001 p.51), governments are the "largest producers of external information" and their most important role is "in providing local firms with information necessary to enhance their global competitiveness." For the purpose of our study, we define government export agencies as federal, state and local publicly funded bodies designed to promote international trade activities with a particular focus on assisting small and medium sized enterprises (SMEs) to internationalize (Leonidou et al., 2011, Martincus et al., 2012, Wilkinson and Brouthers, 2006). Industry networks are typically non-government agencies, such as trade associations and professional associations, and are often described as intermediating agencies as they directly and indirectly encourage diffusion of information and innovation (Belso-Martínez, 2006, Dickson and Arcodia, 2010). Many different types of trade and professional associations exist but all are basically "collections of firms bound together in formal and informal ways" (Granovetter, 1995: 95). Our focus is on associations that offer social, economic and business opportunities rather than on associations that sustain professional occupations (Bennett and Ramsden, 2007, Brock, 2006). For the remaining part of this paper, we refer to government export agencies as government networks and professional and industry associations as industry networks.

Many governments, both at federal and state levels, promote internationalization activities as a way to address trade deficits and to improve domestic firms' competitiveness at an international level (Belloc and Di Maio, 2011, Leonidou et al.,

2011). Government networks provide financial as well as information and knowledge resources. These include export incentive programs such as export subsidies, training and seminars, subsidized international trade exhibitions (Leonidou et al., 2011, Martincus et al., 2012), specially tailored programs (Seringhaus and Botschen, 1991) and, in the case of Australia, export grants to encourage country of origin marketing (Austrade, 2013). Government sponsored trade exhibitions provide many opportunities to assist entrepreneurs to internationalize (Kontinen and Ojala, 2011, Ramirez-Pasillas, 2010, Wilkinson and Brouthers, 2006). For example, Kontinen and Ojala (2011) in their study of eight Finnish family businesses find that trade exhibitions form the main source of information for internationalizing such businesses. Similarly, in a study of thirty-one firms in the Lammhult Cluster in Sweden, Ramirez-Pasillas (2010) find that international trade fairs enable local and transnational relations to make connections, thus facilitating exchange of information.

Some studies suggest that smaller firms seem to benefit more from government export programs (Seringhaus, 1986). For example, in a study of 430 UK manufacturing firms, Leonidou et al. (2011) observe larger positive effects of export agency programs among smaller firms. Similarly, in a study of Argentine's export population, Martincus et al. (2012) conclude that medium and smaller firms benefit much more from government export programs than larger firms. In contrast, some studies suggest that government export agencies tend to be bureaucratic (Dean et al., 1997, Hara and Kanai, 1994, Loane and Bell, 2006) and that this bureaucracy discourages participation by smaller entrepreneurial firms. Other studies are

sceptical as to the effectiveness of government export programs (Neergaard and Ulhoi, 2006, Gençtürk and Kotabe, 2001). For example, in a study of 160 exporters, Gencturk and Kotabe (2001) find that the cost of exporting is not recouped by the perceived savings in using government export programs.

The roles of industry networks are variously described as: providing information, acting as regulatory agents and providing members with opportunities to interact and collectively represent themselves (Greenwood et al., 2002). Industry networks play important roles in monitoring compliance with various normative and coercive expectations (Gruen et al., 2000, Oliver, 1997). Industry networks also facilitate mentoring programs for their members. For example, in Ozgen and Baron's (2007) survey of 200 new IT companies, the authors find that nascent entrepreneurs benefit from participation in professional forums. The study from Ozgen and Baron (2007), however, do not include internationalizing entrepreneurs and their networks. Industry networks are also able to create business opportunities among members (Dickson and Arcodia, 2010) and facilitate innovation diffusion as these networks "indirectly encourage innovation diffusion through the establishment of weak ties" (Swan and Newell, 1995 p.850). Furthermore, the authors suggest that industry networks encourage collaborative links among industry members by creating many weak ties that present greater opportunities to gain novel information (Granovetter, 1973).

Innovation diffusion can only work when knowledge is imparted and shared with members and, according to Swan and Newell (1995), industry networks play a particularly positive role in this respect. Such networks can also retard diffusion of

knowledge and innovations (Cavazosa and Szyliowicz, 2011). For example, in two qualitative studies of the UK health segment, Ferlie, Fitzgerald, Wood and Hawkins (2005) find that strong social and cognitive boundaries among members, such as professional and cultural differences, can inhibit diffusion. In an internationalization context, industry networks can provide a powerful voice in representing the industry as well as lobbying for trade advantages as demonstrated by Bennett and Ramsden's (2007) study of UK firms trying to enter the EU market.

In summary of the foregoing discussion, our review of the literature starts with resource- based views from an international entrepreneurial perspective. To Grant's (1991) classification of resources we include four additional ones that are of particular relevance to IEs, namely: entrepreneurial, relational, knowledge and information resources. We highlight the relevance of these four resources for international entrepreneurs based on recent studies (Child and Hsieh, 2014, Chung, 2012, Vasilchenko and Morrish, 2011). Past and recent work suggests that government and industry networks provide different types of resources for entrepreneurs (Batjargal, 2010, Martinez and Aldrich, 2011, Newbert et al., 2013, Luna and Tirado, 2008). From an internationalization perspective, we need to understand better the types of resources required to pursue international markets. In this context, this study aims to (1) explore the specific resources sought by IEs in their pursuit of international markets and (2) specifically, examine IEs' expectations of government and industry networks as resource providers in helping to expand international markets.

3. Method

To address our research questions, a qualitative approach of in-depth, face-to-face interviews is chosen. Qualitative research facilitates comprehensive probing and understanding of issues, giving opportunities to explore how actors react to situations. A qualitative approach enables a more holistic approach in understanding human and social issues in real-life situations (Creswell, 2009) such as those faced by resource-constrained entrepreneurs as they pursue international markets. Face-to-face interviews provide a more suitable approach in studying and understanding the ways IEs go about addressing the shortcomings of their organizations (Bryman and Bell, 2007, Chrzanowska, 2002). Furthermore, qualitative research provides opportunities to stimulate new theoretical ideas (Eisenhardt, 1989, Hoang and Antoncic, 2003).

The Australian healthcare industry provides the context for this study. Our focus is on manufacturers of healthcare products as their operations provide opportunities for both outward and inward connections to international markets (Welch and Luostarinen, 1993). The Australian healthcare industry, like the global healthcare industry, is science-intensive and driven by knowledge and research and development (R&D). In Australia, the healthcare industry is one of the most regulated industries in that all health and therapeutic goods require registration under the Therapeutic Goods Act, 1989 (TGA) administered by the Australian Therapeutic Goods Administration (ATGA). A highly regulated industry suggests high entry barriers and high cost of operations due in part to complying with legislated regulations, both of which can restrict business growth (Scherer, 1993, Anderson et al., 2000).

3.1 Data Collection

With the Australian health and medical industry being the research context, data collection started with an analysis of member organizations listed in the online directories of Health and Medical products (Austrade, 2011a), Health and Wellbeing products (Austrade, 2011b) and the Complementary Healthcare Council website (CHC, 2011). We merged the three online sources to ensure no duplication of organizations as some organizations are registered on all three online directories. From the merged dataset, we identified manufacturers of healthcare products as this segment has more potential to internationalize compared to services, retail and practitioner segments. Based on a purposive and convenient sample selection (Miles and Huberman, 1994), ten entrepreneurs/CEOs were chosen for this study.

The selection was based on several criteria. The first is that participants' organizations are Australian owned and operated. This helps to eliminate the potential bias of better resourced multinational organizations and/or their Australian subsidiaries. The second is that Australian products are registered with the ATGA as this qualifies their health product classification (ATGA, 2011). Next, the organizations are internationalizing or in the process of getting into international markets. In the latter situation, the organizations have started the process but have not succeeded in internationalizing at time of interview. Finally, the interviewee participant is the founder, owner and/or senior decision-maker of the organization. This is an important criterion as internationalization strategies, in view of inherent uncertainties and potentially risky investments, requires top-level decision making (Jansen et al., 2013, Schweizer, 2012). Initial contact with participants was by

phone, followed by emails to confirm participation and arrangement of interview time. Each interview took around one hour and forty-five minutes. Table 2 presents the relevant sections of the semi-structured discussion guide used during interviews.

Table 2: Framework for semi-structured questionnaire

Research issues	Semi-structured questions
Growth and resources	1. What are your key strategies for growth in international markets? 2. What are some constraints that are slowing your plans? 3. What specific resources are you seeking?
Seeking Resources	1. When you need help on international market development, who do you approach first? 2. Can you name some government agencies and industry associations that are helping you to internationalize? 3. Can you name some of their programs that are most helpful and least helpful? 4. How can government agencies/industry associations help to promote internationalization?

Interviews were recorded to assist accurate transcription. Extensive notes were also taken and company write-ups and brochures were gathered during interviews. Follow-up phone calls and emails took place to verify and expand on data collected. A few additional short meetings, averaging half an hour each, took place with six out of the ten participants. In total, close to seventeen hours of face-to-face interviews are recorded together with eighteen phone conversations and twenty-three emails pertaining to data collection. A summary of the interviews, supplemented with data from emails, phone calls, participants' company newsletters and websites, was prepared and emailed to each participant for data verification (Flick, 2008).

3.2 Data Analyses

All transcribed interviews together with other data sources, such as extensive notes of phone calls and meetings, information gathered from the websites of each participant's organization and marketing brochures, were imported into NVivo 10 software (NVivo, 2002) to assist in qualitative data analysis. A recursive exercise of data coding, categorizing and abstracting (Miles and Huberman, 1994, Spiggle, 1994) was carried out to identify patterns of activities. Guided by well-accepted coding principles (Strauss and Corbin, 1998, Corbin and Strauss, 1990), we started with open coding to establish broad categories, such as growth through internationalization, constraints, types of resources, and external organizations that help to fill resource gaps, before moving to axial and selective coding for subsets of themes within each category. An example of coding categories and themes is highlighted in Table 3. An iterative process of comparing notes from interviews, emails, phone conversations and other company printed materials was done until analytic closure was achieved (Leitch et al., 2010).

Table 3: Categories and themes

Illustrative quotes	Categories	Themes
"We didn't have any grand vision, just wanted to make a living and survive. The local market is small and competitive and we do not know people very well… we emigrated from Taiwan so we always have an eye for overseas market." – W5	Organization growth	Internationalization
"*We are TGA approved in Australia but overseas is entirely different matter. We just don't have the right information or know the right people I guess. We approach [government export agency] but they say our product is in matured industry, so they told us to look for export consultants"* – W4	Barriers	Information Contacts
"*I stay very close to [government agency agency]. I feel I can trust their information. Every year I participate in their overseas events… I use these events a lot for market and business information"* – W1	Resource opportunities. Government agencies	Information Contacts
"*[Industry association] is a peak body that represents the interests of the biotechnology industry in Australia. They try to organise events that are useful, including commercially useful, but for a company like ours to be successful, we cannot spend our money on attending events, we must spend our money on achieving direct sales discussions in overseas markets"* – M3 *"They are a good industry body with medical device and diagnostic groups. They organize events, e.g. the investment forum is very good for us… meet people, share our problems, exchange product ideas…really useful"* – M2	Resource opportunities. Industry associations	Information Contacts Knowledge

Code names were applied to the ten entrepreneurial founders/CEOs interviewed, M1 to M5 indicating that their businesses are in medical products, such as medical devices and equipment, diagnostics and nuclear medicine and W1 to W5 to indicate

their businesses are in complementary health products, such as health supplements and organic skin treatment products. Company size in terms of annual sales ranges from below AUD 5 million to above AUD 20 million and number of staff ranges from three to 50 full-time employees. Their international business as a percentage of total sales ranges from 0 to 100 percent. Table 4 shows key information on participants' organizations.

Table 4: Key Information on Participants' Organizations

Firms	Product lines	Firm Age (years)	Number of staff	Annual Sales (AUD)	Export ratio percent of sales	Key International markets
M1	Medical devices	10	30	< 5 mil.	70	Europe, Middle East, USA
M2	Medical diagnostics	11	8	< 5 mil.	100	Asia, US
M3	Medical devices	4	4	< 5 mil.	100	Asia
M4	Medical devices	16	10	< 5 mil.	50	Asia, Middle East, North America
M5	Medical devices	8	38	10-15 mil.	10	Asia, Middle East, New Zealand, North America
W1	Organic Skin Treatment	16	18	< 5 mil.	90	Asia
W2	Health Supplements	18	3	< 5 mil.	5	Asia, Europe
W3	Herbal Extracts	26	25	< 5 mil.	1	Asia, Europe, Middle East, USA
W4	Heat Packs	5	5	< 5 mil.	none	none
W5	Health supplements	16	50	> 20 mil.	40	Asia

Nine of the ten participants are active in international markets. W4 is the only participant who at time of interview had not internationalized even though he is pursuing an active internationalization plan. Table 5 shows that in addition to exports, high levels of international activities appear through cooperative alliances with networks of suppliers, distributors and other institutions. This is consistent with internationalization literature suggesting that competitive advantages are gained not just through sales of output but also through other international activities (Christopher et al., 2011, Golovko and Valentini, 2011, Williamson, 2008). Many of the participants engage in multiple entry modes as a way of diversifying risks associated with uncertainties of foreign markets (Leonidou, 2004). For example, M5 exports directly but also has overseas contract manufacturers and four of the participants have overseas sales offices in addition to working with export distributors.

Table 5: Summary of Participants' International Activities

International Activities	Firms n=10
Direct exports through distributors and agents	6
Set up own office overseas	4
Contract manufacturing arrangements	3
Collaborate with suppliers on R&D	5
Collaborate with consultants on R&D	6
Collaborate with research institutions such as universities and hospitals	4

4. Results

This section analyses the results of our interview data. We start with our first research aim which is to identify specific resources sought by IEs and follow by addressing our second research aim which is to examine IEs' perceptions and expectations of government and industry networks as relevant resource providers in accessing international markets.

4.1 Information and Knowledge are Critical Resources – In addressing our first research aim, our results show that information and knowledge are key resources sought by IEs. IEs regard information as crucial in venturing into international markets as international markets are less known and higher risks are perceived to be associated with internationalization. IEs seek information on ways of doing business in foreign countries but also information that leads to contacts with overseas customers and distributors which is crucial to establishing new international markets, see Table 6a.

Table 6a: Information as a Resource Need

Resource needs	Participants
Information	W3 – *"It is a lot of work, sometimes in the dark. That's why we need information about many things, like contacts for a good distributor, it could work really well once everything is found out, it would be okay, but it is a lot of work to set it up and get it going… just got to find that right contact I think, and I think most of the time, that's the problem"*
	M1 – *"I'm a businessman, the bottom line is I look for information and connections. I'm pragmatic, what do I want? Information and connections..."*

Another resource much sought by our participants is knowledge or know-how as described by Kogut and Zander (1992), such as know-how in product and service development, ideas for improvements and innovations and new technology that can improve and/or create new products. Not surprisingly, participants in the medical segment in particular place a lot more emphasis on the need to access knowledge in the form of science and technology through linking with knowledge networks such as universities and hospitals: see Table 6b.

Table 6b: Resource needs of Knowledge

Resource needs	Participants
Knowledge	M2 – *"We work with universities. She (university professor) invented the technology that we use for the antibody… we're lucky as I feel we have more research connections and more, research grants, that we have with partners and universities"*
	M5 – *"…we are now moving to supplying pathology labs, hospitals, doctors, vet surgery and dentist surgeries. We work very closely with our customers to understand what works for them… we get information and ideas from them so we can develop new products"*

The next section analyses participants' perceptions and expectations of both government and industry networks as resource providers.

4.2 Role of government networks – Instrumental role, but seen as bureaucratic. In pursuing international markets, all participants regard government networks as their "first port of call" when seeking information. Most participants regard government networks positively in terms of providing information to export markets through

training, seminars and information packs provided by government agencies. Specialized services, such as providing referrals between Australian and international organizations and government sponsored trade exhibitions, are seen as particularly useful. Many of the participants regard trade exhibitions as ways to gather information as well as opportunities to meet potential international contacts. While government networks are instrumental in supporting entrepreneurs' pursuit of international markets, some participants suggest that their experiences with government networks are not so positive. Some examples given by our participants are: bureaucracy, "one size fits all" programs and lack of specialized knowledge: refer Table 7a.

Table 7a: Perceptions and Expectations of Government networks

Government networks	Participants
Information	**W4** – *"Yes, their website [government agency]is quite informative. They also provide some training and seminars which I attended"*
Connections	**W1** – *"I attended one of the state government events and met the UK Business Development Managers who like my product concept and … they gave me a contact and proposal to start my business in UK …"*
Trade Exhibitions	**W5** – *"… international trade fairs, I think the export agency has helped us a lot. We participate every year now to try and get more contacts."*
Bureaucracy	**M4** – *"…you know, government agencies are riddled with people who mean well and want to do well, but they're really hard to contact, they're really expensive when they get fired up to do something, they're really disconnected with the cut and thrust of small business. If I was a big corporate I'd go there for sure. But we're not, we're just an SME, ten people."*

4.3 Role of Industry networks – "Mixing with the right people". Our empirical results indicate that industry networks are regarded positively by IEs in the medical segment but IEs in the complementary health segment are less aware of the benefits of industry networks. All participants in the medical segment are members of various professional and industry associations. IEs approach these associations to keep up to date on industry information and regulatory matters and also to seek opportunities to mix with people in their professional community. Professional associations are, in fact, seen as more proactive in linking small entrepreneurial firms to international investors, both venture capital and private investors. In contrast, this positive perception of industry networks is not reflected among IEs in the complementary health segment. Not all IEs in the complementary health segment are members of industry associations even though all participants feel they need some form of representation of their industry. Even participants who are members of various complementary health product associations are unclear as to how these associations are beneficial to their ventures: refer Table 7b.

Table 7b: Perceptions and Expectations of Industry networks

Industry networks	Participants
Knowledge	**M3 –** *"It [professional body] is a peak body that represents the interests of the biotechnology industry in Australia. They organize events where local and international firms meet… these events are useful, and commercially useful too."*
Connections	**M2 –** *"There're only about 300 biotech companies in Australia of various sizes and shapes and forms. So as an industry body… there are a lot of meetings… we're well networked within that. They're a good industry body and they span a medical device and diagnostics group which is growing in size and strength.*
Vague awareness	**W2 –** *"The only contact we have with them is that sometimes we have to pass our advertisements by them... otherwise, I haven't really made contact with them or asked what they can do, and then by the same token nor have they told me what they can do. So, you know, it's not, in a network sense, it hasn't been a happy relationship to date because there hasn't been one."*

5. Discussion

For internationalizing entrepreneurs, entry mode decisions are generally made based on resources available. For example, direct export requires fewer resources than to establish a greenfield operation (Beleska-Spasova et al., 2012, Belloc and Di Maio, 2011). As such, we set as our first research aim, the identification of specific resources that IEs seek as they venture into international markets. While financing is an implicit resource requirement for any entrepreneurial growth strategy, such as in internationalization (Alvarez, 2004, Grant, 1991), our empirical results suggest that, for IEs, information, knowledge, and connections are crucial resources. Information

leads to new market opportunities, knowledge leads to creating new products and competitive advantages, and connections lead to external resource opportunities.

In pursuing new international markets, information is crucial to decision making as it provides “a useful input to knowledge” (Child and Hsieh, 2014: 2). In a pilot study of the internationalization strategy of a serial entrepreneur, findings suggest that IEs are in “permanent information gathering mode” (Chang and Webster, 2012), while Chung’s (2012) study of 100 New Zealand exporters finds that information gathering and disseminating relate positively to market responses. Information facilitate better decision making but more importantly, information leads to business opportunities, such as, new markets and potentially, crucial connections to other business networks. In this sense, government-sponsored trade exhibitions are seen as positive avenues to gather information on international markets and the opportunity to create links with international networks (Kontinen and Ojala, 2011).

Not surprisingly, the knowledge resource is more sought after by IEs in the science-intensive medical segment than IEs in the complementary health segment. This is consistent with empirical studies from the management field where knowledge-seeking activities influence innovation outputs (Almeida et al., 2011) and Phelps et al., (2012) regard these “knowledge networks” as influential in the diffusion of knowledge creations. Our results also show that IEs seek relational resources or “connections” as our participants put it. Relational resources, based on close relationships between parties, influence knowledge acquisition (Liu et al., 2010) and access to market opportunities (Loane and Bell, 2006, Mort and Weerawardena, 2006).

Our second research aim set out to examine IEs' perceptions and expectations of bureaucratic networks as resource providers. Our study indicates mixed results, both for government and industry networks. In government networks, only the main federal government export agency is mentioned multiple times by our participants even though other government agencies also help to promote exports. All participants are registered with the federal government export agency, thus indicating their intentions to internationalize. The federal government export agency sees one of its roles as assisting Australian businesses to develop international markets and actively promotes a variety of incentives and export programs to help achieve this role. IEs regard government networks as useful, but only up to a point. IEs view positively the information resources that government networks provide (Leonidou et al., 2011, Martincus et al., 2012) and government sponsored trade exhibitions are consistently well received (Kontinen and Ojala, 2011, Ramirez-Pasillas, 2010). At a general level, our results show many positive experiences with government networks but for some participants these positives are negated by the perceived bureaucracy of working with government networks and, thus, support past studies from Loane and Bell (2006) and Neergaard and Ulhoi (2006).

As for industry networks, IEs in the knowledge-intensive medical segment regard industry networks positively as providing invaluable resources through dissemination of information and knowledge, and mentoring and networking programs (Dickson and Arcodia, 2010, Ozgen and Baron, 2007). This positive perception of industry networks is not detected among IEs in the complementary health segment. While all participants in the medical segment are members of the key

representative body for organizations in the life sciences, in contrast, only two of the five participants in the complementary health segment are members of the representative body for organizations in the complementary healthcare industry. One reason could be that industry networks tend to be less visible in the media and, thus, lack awareness of the services and benefits they offer to IEs.

6. Conclusion, Contributions and Limitations

We expand on Grant's (1991) classification of resources by including recent empirical studies on four important resources – entrepreneurial, relational, knowledge and information. While these four resources are implicit in RBV theories, they are not well defined in relation to internationalization studies. Our empirical study supports the relevance of entrepreneurial resources. This is shown in the ways the ten entrepreneur participants create value for their organizations by developing products and seeking market opportunities. The entrepreneur participants continue to seek and establish relational resources through their engagement with different external organizations such as government and industry networks. We suggest that entrepreneurial and relational resources are crucial as they influence the acquisition of information, connections and knowledge resources.

This study is one of few exploratory studies to examine IEs' perceptions and expectations of bureaucracy networks as resource providers in the pursuit of international markets. Our findings contribute to knowledge of the resource-seeking behavior of resource-constraint IEs. In particularly, it provides some insights as to why IEs use or do not use resource opportunities from government agencies and

industry networks. Our empirical results indicate that government networks are indeed the first port of call for IEs seeking to internationalize. But neither government nor industry networks meet IEs' expectations of providing knowledge and relational resources. There remain many opportunities for government and industry networks to interact closely with IEs, to understand the constraints of internationalization and, hence, to be able to implement more effective programs to assist entrepreneurs to internationalize. Most governments are already implementing export promotion programs to assist IEs (Leonidou et al., 2011, Ramirez-Pasillas, 2010). But government networks, which tend to be better resourced, can play more instrumental roles in facilitating the growth of a knowledge-based segment through funding of high level international scientific conferences. We suggest that, particularly in the areas of knowledge and relational resources, both government and industry networks have much to offer for IEs.

Our study has some limitations. The small sample size and the focus on a specific industry restrict the generalizability of our results. In our study, industry networks are very much focused on professional and trade associations. In practice, industry networks also include most organizations in the same industry, for example, networks of suppliers and service providers such as consulting firms. Although we recognize these limitations, we suggest our results present interesting insights and opportunities for future research. For example, while extant studies highlight the benefits of government and industry networks for IEs (Martincus et al., 2012, Swan and Newell, 1995), bureaucracy and poor communications weaken the effectiveness of these benefits (Lockett et al., 2012, Neergaard and Ulhoi, 2006). Poor

communication, such as lack of awareness among IEs, of government export assistance is a key factor inhibiting the effective use of government export programs (Diamantopoulos et al., 1993). We suggest that this is another interesting strand of future research, focusing on the effectiveness of communications between internationalizing entrepreneurs and government and industry networks.

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Conclusion to Study III:

Study III expands our knowledge of resources that internationalizing entrepreneurs seek in their pursuit of international markets. While each of Studies I, II and III indicates the importance of government and industry networks as resource providers for internationalizing entrepreneurs, differences exist in the perceptions and expectations of the roles of these two types of networks. Findings from Study III indicate that entrepreneurs regard government networks as their first port of call for information required to expand to international markets, but industry networks are perceived as more effective avenues for exchange, sharing and acquisition of knowledge resources. Recurrent themes from Study III indicate that resources most sought by internationalizing entrepreneurs are experiential knowledge and relational connections. In the study cases, international entrepreneurs indicate that both government and industry networks fall short of providing these crucial resources.

Study III's findings suggest that there are many opportunities for government and industry networks to be more focused in providing resources that meet the needs of internationalizing entrepreneurs. While the first three studies are exploratory and take a qualitative approach, Study IV is a quantitative enquiry and provides the empirical test of the relationship between networks and export income likelihood.

Introduction to Study IV:

The fourth paper in this thesis, **Influence of government, industry and professional networks on SME export likelihood**, is a quantitative study to test the relationships between different types of networks and export likelihood for SMEs. The sample for Study IV is sourced from the Australian Bureau of Statistics (ABS), using the Business Longitudinal Dataset (BLD) which consists of 2263 Australian SMEs.

The first three studies in the thesis take an exploratory, qualitative approach to understand the role of networks as resource providers for internationalizing entrepreneurs. Study IV provides the empirical testing of the relationships between networks and export likelihood. Furthermore, the significance of different types of networks and their influence on export likelihood is examined.

In its early stage, Study IV was submitted and accepted as a competitive paper at the 2014 Australian and New Zealand Academy of Management (ANZAM) Conference in Australia (Appendix G). The conference paper is authored by Frances Chang and Cynthia M. Webster with a contribution ratio of 70% and 30% respectively.

Taking insightful comments from three reviewers of the conference paper, an improved Study IV was completed and submitted to the **Journal of Small Business Management**. As such, Study IV in this thesis is presented in the format required by the journal. Tables and figures are embedded in the text for ease of reading. This

paper incorporated in this thesis includes slights modifications based on comments from the thesis examiners.

Authors for Study IV are Frances Chang and Cynthia M. Webster with contribution ratio as 70% and 30% respectively.

CHAPTER 5: STUDY IV

Influence of Government, Industry and Professional Networks on SME Export Likelihood

by Frances Y.M. Chang and Cynthia M. Webster

Abstract

The purpose of this study is to examine how different industry segments utilize government, industry and professional networks and to test relationship differences between these three types of networks and export likelihood for small to medium-sized enterprises (SMEs). Much of previous studies on networks for internationalization tend to be qualitative and based on small samples. This study adds to previous works by using a large database consisting 2263 Australian SMEs. Results indicate significant and positive relationships between all three network types and the likelihood to receive export income. On average, the likelihood of SMEs receiving export income increases by 65 per cent if all three network types are accessed between one to three times a year, controlling for other factors, with government networks having the most influence on SMEs export likelihood.

Introduction

Firms internationalize to reap potential benefits such as generating more revenue, exploiting idle or excess capacity (Leonidou, 2004), achieving better economies of scale, greater return on investments and improved competitiveness (Cadogan, Kuivalainen, and Sundqvist, 2009; Cassiman and Golovko, 2011). Alongside the potential benefits of internationalization come potential risks and challenges.

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For example, merely entering new international markets entails higher risks because of limited information (Figueira-de-Lemos, Johanson, and Vahlne, 2011; Liesch, Welch, and Buckley, 2011) and increased cost of operations.

Studies indicate that some firms mitigate such risks by adopting a cautious and incremental approach to internationalizing (Johanson and Vahlne, 1977; Li, Li, and Dalgic, 2004) while others take a strategic management approach (Christopher, Mena, Khan, and Yurt, 2011; Shrader, Oviatt, and McDougall, 2000). To reduce uncertainty, firms can avoid high-risk countries, imitate the actions of other firms, remain flexible, gain control and engage in cooperative behaviour (Dunning, 1995; Miller, 1992).

Developing business networks is a way to initiate cooperative behaviour (Hess, 2004; Johanson and Vahlne, 2009). Studies suggest that networks help to reduce risks by reducing liability of newness, establishing legitimacy (Deeds, Mang, and Frandsen, 2004; Elfring and Hulsink, 2003) and reducing supply and distribution costs (Li and Zhou, 2010; Sheng, Zhou, and Li, 2011). More recent studies highlight other benefits that networks bring to organizations in their pursuit of international markets, for example, rapid internationalization (Bangara, Freeman, and Schroder, 2012; Freeman, Hutchings, Lazaris, and Zyngier, 2010), knowledge collaborations (Almeida, Hohberger, and Parada, 2011; Delerue and Lejeune, 2012) and gaining competitive advantages (Li and Zhou, 2010).

While understanding the role of networks has become a major research interest in the study of internationalization and a number of empirical studies demonstrate that networks add value to firms' internationalization (Ellis, 2011;

Fernhaber and Li, 2013; Tolstoy, 2010), few studies examine the use of different types of networks and few studies test the significance of relationships between different network types and the likelihood of internationalization. We aim to address this issue by drawing on a large dataset of Australian firms to empirically test the relationship between different types of business networks and export likelihood of small and medium-sized enterprises (SMEs). We use the Australian definition of SMEs as micro-businesses with less than five employees, small businesses with more than five but less than twenty employees and medium businesses as those with more than twenty but less than two hundred employees (ABS, 2009). Throughout our study, we use the terms, SMEs and firms interchangeably to mean business organizations with characteristics defined as an SME. We focus on export as this entry mode is typically the first step to enter international markets for many firms (Fletcher and Crawford, 2011; Johanson and Vahlne, 1977).

Our study draws on extant research on the role of networks for firms intending to expand through internationalization (Coviello and Cox, 2006; Hessels and Parker, 2013; Hilmersson and Jansson, 2012), focusing on business networks as these networks provide more practical knowledge and experience in accessing international markets (Agndal and Chetty, 2007; Hilmersson and Jansson, 2012). Following the literature review and the development of our hypotheses, we describe the cross-sectional sample of 2263 SMEs and outline our data analytics. Results show that the use of multiple business networks is positively and significantly related to export likelihood. While this suggests that SMEs need to be strategic and tap into business networks as a means to access resource opportunities, networks alone are not sufficient as other factors such as firm size, age, government

regulations and assistance as well as being foreign owned also influence likelihood to export.

Exports and the role of networks

Export as an entry mode is the most viable way to enter new international markets for many SMEs. Compared to other entry modes, exporting requires minimum resources, involves fewer risks and offers greater flexibility (Czinkota, Ronkaiken, and Moffett, 2005; Fletcher and Crawford, 2011). Burgel and Murray's (2000) survey of 246 technology-based firms in the UK finds that exports account for ninety-two per cent of first entry mode and eighty-nine per cent of subsequent entry modes. SMEs are driven to export by various push and pull factors. Some firms are pushed to export by difficult domestic environments such as economic slowdown and/or highly regulated environments in their home countries (Lee, Peng, and Barney, 2007; Peng, 2003). On the other hand, some firms are pulled into exporting by attractive business environments in international markets such as better protection of intellectual property, less corruption (Peng, 2003) and opportunities to enter larger and more lucrative markets (Yamakawa, Peng, and Deeds, 2008). Additionally, some SMEs are more proactive in using exports as a strategy for improving organizational performance through better use of production capacity, higher sales revenue and realizing the potential to gain competitiveness from exposure to foreign expertise (Sapienza, Autio, Gerard, and Zahra, 2006; Zahra, Ireland, and Hitt, 2000).

While there are high potential gains from exports, for many SMEs export barriers can be quite daunting. Inadequate resources are often the key barrier to SMEs exploring international markets. In a 2007 survey of internationalization among SMEs, the Organization for Economic Co-operation and Development finds

that the top barrier to internationalization is “Shortage of working capital to finance exports” (OECD, 2009 p.8). Other major barriers identified in the same report are: lack of information about international markets, inability to connect with potential customers and limited managerial skills. These barriers, consistent with previous OECD reports (OECD-APEC, 2007), are experienced by both traditional as well as high-technology sectors, suggesting that assistance from external sources are required.

Studies on internationalization suggest that business networks help SMEs overcome some of the barriers and risks associated with exports (Hilmersson and Jansson, 2012; Johanson and Vahlne, 2009). Business networks are conduits of information and knowledge for internationalizing SMEs (Vasilchenko and Morrish, 2011; Zhang, Soh, and Wong, 2010). Gaining specialist knowledge, filling strategic gaps and overcoming specific problems are just some of the motives given by SMEs in their search for external information (Hill and Neeley, 1988). For example, in a survey of 665 international exchange ventures, Ellis (2011) finds that information provided by network ties lead to overseas venture opportunities and Harris and Wheeler’s (2005) case study of eleven internationalizing SMEs shows that networks provided information that resulted in new export markets being created and knowledge provided by networks helped inform early internationalizing SMEs on the business practices of international markets (Sharma and Blomstermo, 2003). For exporting SMEs, networks provide information and knowledge which in turn lead to overseas connections, resulting in a positive outcome in export likelihood. This argument sets the basis for the first and overriding hypothesis:

Hypothesis 1. Exporting SMEs use significantly more business networks than non-exporting SMEs.

Types of Business Networks

Business networks provide linkages between parties in both formal and informal ways (Mort, Weerawardena, and Liesch, 2012; Yiu, Lau, and Bruton, 2007) and can include many different types of relationships, such as supplier, customer, competitor, service and consulting (Chetty and Wilson, 2003; Zhou, Wu, and Luo, 2007) as well as government and industry ties (Bennett and Ramsden, 2007; Yamakawa et al., 2008). Multiple and different types of networks are needed as each offers different resources. Some studies suggest that government agencies are huge resource providers for internationalizing SMEs (Leonidou, Katsikeas, Palihawadana, and Spyropoulou, 2007; Martincus, Carballo, and Garcia, 2012). Gencturk and Kotabe (2001) suggest that government agencies are the largest source of external information for SMEs while other studies suggest that government-sponsored trade exhibitions are the most practical venues for gathering information and contacts (Kontinen and Ojala, 2011; Ramirez-Pasillas, 2010). In addition, other government export promotion programs, such as export training, counselling, subsidies and reduced tax rates on export earnings, are instrumental in encouraging SMEs to export (Kotabe and Czinkota, 1992; Leonidou, Palihawadana, and Theodosiou, 2011). Rose (2007), in a study of the government foreign services of twenty-two countries, finds that government foreign trade missions have a significant impact on home country exports by promoting awareness and creating a home country presence in the host countries. Studies also show that building strong ties with government agencies facilitates organizational performance (Bruton, Ahlstrom, and Obloj, 2008; Li and Zhou, 2010). Consistent with this suggestion, Boso, Story and Cadogan (2013), in their survey of 312 entrepreneurial firms in Ghana, find that better organizational performance is attributed to strong ties with

government networks. Promoting exports is high on most government agendas (Belloc and Di Maio, 2011). These agencies provide a number of services ranging from providing information and advice to education and training, events and trade missions, as well as providing export grants. This leads us to the second hypothesis:

Hypothesis 2. Seeking information and advice from networks of government agencies are positively and significantly related to export likelihood of SMEs.

While government agencies play instrumental roles in the export behaviour of SMEs, for many SMEs, trade industries and associations are regarded as less bureaucratic and perceived to provide easier access than bureaucratic government agencies (Greenwood, Hinings, and Suddaby, 2002; Lockett, Jack, and Larty, 2012; Ozgen and Baron, 2007). Trade and industry associations are found in most commercial and industrial sectors. These associations are collective bodies, and represent and defend the common interests of their sectors and their members (Bennett, 1998; Damsgaard and Lyytinen, 2001). The scope of industry and trade associations is wide-ranging and their roles overlap. In an Australian context, industry and trade associations typically include various chambers of commerce and a host of small and medium-sized associations representing different industries and trades (Export61, 2014). Managers of trade and industry associations see their roles as disseminating information, encouraging communications and creating collaboration opportunities among members and even encouraging innovation diffusion (Swan and Newell, 1995; Von Nordenflycht, 2010). Through industry networks, SMEs exchange information and knowledge, seek resource opportunities and link with industry mentors. In an internet survey of 202 information technology companies in America, Ozgen and Baron (2007) find that the role of industry associations as information-mentors exposed their members to more business

opportunities. In a survey of 194 SMEs in nine selected regions in Britain, Bennett and Ramsden (2007 p.72) find that the top four benefits that SMEs seek from their trade associations are information, advice, lobbying/representations and networking opportunities. Lobbying activities suggest that trade associations present a collective voice on issues that concern their industry and in doing so yield better benefits for their members when communicating with governments and other institutions (Izushi, 2002; Luna and Tirado, 2008). British SMEs that pursue international business with EU countries look to their trade associations for advice and for information and lobbying activities with the governments of UK and Brussels (Bennett and Ramsden, 2007 p.68). Other motives to join trade associations include: looking for market opportunities, engaging in social activities and acquiring accreditation.

Other external organizations such as business networks of suppliers, distributors and competitors operating in the same industry are often included in industry networks. Supplier networks are well studied with results suggesting that collaborative engagement between parties leads to knowledge transfer and the creation of new products and services (Nyaga, Whippleb, and Lynch, 2010; Zacharia, Nix, and Lusch, 2011). Studies on competitor networks, however, have mixed findings. For example, in a case study of New Zealand winemakers, Chetty and Wilson (2003) find positive outcomes of SMEs collaborating with competitors while other studies suggest detrimental results in cooperating with competitors in product innovations (Annique Un, Cuervo-Cazurra, and Asakawa, 2010; Nieto and Santamaria, 2007). Other scholars suggest that alliances with competitors are strategic moves to gain knowledge and competitive advantages (Ahuja, 2000; Phelps, Heidl, and Wadhwa, 2012; Pina-Stranger and Lazega, 2011). On the basis of this discussion we offer the third hypothesis:

Hypothesis 3. Seeking information and advice from industry networks, comprising organizations operating in the same industry, significantly and positively influence SMEs' export likelihood.

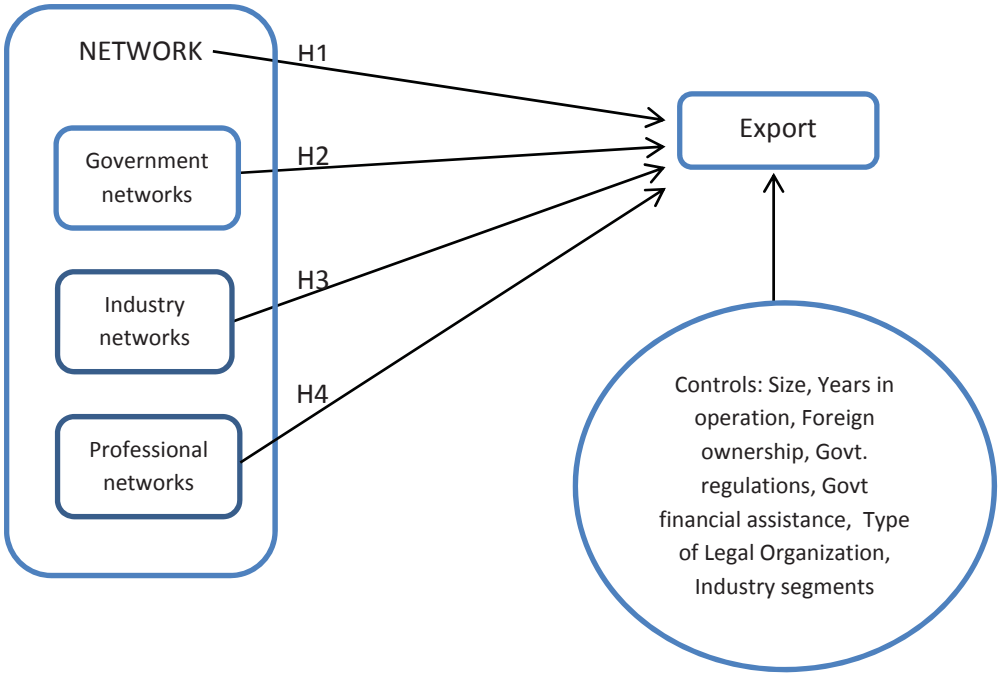
Professional networks make up another subset of business networks. International business studies suggest that there is a role for professional networks of consultants in providing resources to assist exporting SMEs, but few studies are specific as to the type of consulting services required by exporting SMEs (Chetty and Holm, 2000; Johanson and Vahlne, 1990; Kontinen and Ojala, 2011). Scholars in management and sociology suggest that professionals bring specialized knowledge and prestige to their occupations (Larson, 1977; Von Nordenflycht, 2010). According to Abbott (1988 p.8), "professions are exclusive occupational groups applying somewhat abstract knowledge to particular cases." Sharma (1997) offers a loose list of professionals which includes accountants, architects, engineers, lawyers, doctors and others in occupations that apply their expertise through training and experience, such as bankers, advertisers and management consultants. These professions offer their expertise as services to those who lack such expertise. For example, SMEs lacking the expertise to internationalize might seek the services of networks of professionals with the relevant expertise. Indeed, the services of professional consultants have been growing and continue to grow. For example, in the US, the export of services has increased by 4.5 per cent and the import of services increased by 3.5 per cent over the period December 2012 to December 2013 (BEA, 2014). Services in the BEA (2014) report include business, professional, technical, insurance and financial services. In an Australian context, the total export of services grew by 3.7 per cent and the total import of services grew by 4.5 per cent over the period 2011-12 to 2012-13. In particular, export and import of business

services, including consulting services, increased by 9.2 per cent and 25.2 per cent respectively (DFAT, 2013). Based on the foregoing arguments, we hypothesize:

Hypothesis 4. Seeking information and advice from professional networks of external accountants, financial consultants and solicitors significantly and positively influence SMEs export likelihood.

We summarize our theoretical discussion in Diagram 1:

Diagram 1
Conceptual Model of Hypotheses



Method

Context

To test our hypotheses, we use the Business Longitudinal Database (BLD) from the Australian Bureau of Statistics (ABS), which is a panel study of Australian SMEs released through an Expanded Confidentialized Unit Record File (CURF).

The BLD CURF data excludes big businesses employing more than 200 people and businesses with complex structures. Panel 1 data collected for the period 2004-05, through a self-administered questionnaire released by ABS in 2009 (ABS, 2009) forms the basis of the study as this dataset includes information on the frequency of use for different types networks. The total sample used in this study consists of 2263 SMEs from a population frame of 1,563,857 registered Australian businesses in 2004-05 selected by ABS using a stratified random sampling framework. This sample of 2263 SMEs is represented in twelve industry segments of: (1) Agriculture, Forestry and Fishing, (2) Mining, (3) Manufacturing, (4) Construction, (5) Wholesale Trade, (6) Retail Trade, (7) Accommodation, Cafes and Restaurants, (8) Transport and Storage, (9) Communication Services, (10) Property and Business Services, (11) Cultural and Recreational Services and (12) Personal and Other Services.

Measures

The dependent variable, *Export*, is income received from export which is coded 0 if No and 1 if Yes. Based on the literature, export income is an established measure of export performance (Coeurderoy and Murray, 2008; Gao, Murray, Kotabe, and Lu, 2010). The independent overall variable, *Network*, is derived from eight questions regarding the number of times firms engage in seeking information and/or advice from their business networks within a year, with coding as 0= Never, 1= 1-3 times, 2= More than 3 times. Frequency of interaction is typically used to measure relationship strength (Borgatti and Li, 2009) as frequent interactions indicate intensity of network activities which, in turn, increase flow of exchanges (Almeida et al., 2011). The eight networks recorded in the CURF data include External Accountants, Financial Advisors/Banks, Solicitors, Business Management

Consultants, Others in the same industry, Industry Associations and Chambers of Commerce, Australian Tax Office and Other government organizations. We generate the overall network variable as the average of all eight network variables, ranges from 0 to 2. Cronbach's alpha reliability coefficient obtained is 0.70, which is just within the generally agreed limit of 0.70, although in exploratory settings, a lower limit of 0.60 is acceptable (Hair, Black, Bagin, Anderson, and Tatham, 2006 p.137). In other research settings a level of above 0.50 is considered sufficient (Gronum, Verreynne, and Kastelle, 2012; Nunnally, 1967).

As a next step we apply exploratory principal components factor analysis using oblique promax rotation on all eight network variables to condense the list into smaller sets so as to establish convenient and logical descriptions of the network items (Hair et al., 2006). Oblique promax rotation is typically used when factors in the analysis is correlated (Gorsuch, 1983). Three factors emerged from the analysis with the first factor eigenvalue equal to 2.247, explaining 77.9 per cent of the variance. The second factor explains 14.9 per cent while the third factor explains 7 per cent of the variance. We describe these three factors respectively as, *Government networks* (comprising Australian Tax Office and Other Government Organizations), *Industry networks* (comprising Business Consultants, Others in same Industry and Industry associations including Chambers of Commerce) and, lastly, *Professional networks* (comprising External Accountants, Financial Advisors and Solicitors). In practice, these three smaller subsets are logical categories of networks based on business functions. Factor loadings are shown in Table 1.

Table 1
Factor Analysis of Network Items

Variable	Factor1	Factor2	Factor3	Uniqueness	Network Group	Cronbach's alpha
ExtAcc	0.693	–	–	0.566	Prof	
FinAdv	0.619	–	–	0.531	network	0.85
Soli	0.540	–	–	0.551		
SameInd	–	–	0.613	0.631	Ind	
IndAss	–	–	0.377	0.656	network	0.86
BusCons	–	–	0.303	0.797		
GovtOrgn	–	0.757	–	0.426	Govt	0.86
ATO	–	0.423	–	0.675	network	

Notes: Eigenvalue for Factor 1 at 2.247, Factor 2 at 0.474 and Factor 3 at 0.225
Chi square signifance of p<0.001

To control for other known determinants that affect likelihood of exports, we use firm size, firm age, foreign ownership, government regulations, government financial assistance, types of legal organization and industry segments. *Firm size*, which is often used as proxy for firms' resources (Hessels and Parker, 2013; Watson, 2007), is operationalized based on employment size and coded 0= non-employer, 1= 0 to less than 5, 2= 5 to less than 20 and 3= 20 to less than 200. *Firm age* is used as a proxy for accumulated experience (Basile, Giunta, and Nugent, 2003; Hessels and Parker, 2013) and operationalized as years in operation, coded 0= Don't know, 1= less than 5 years, 2= 5 years to less than 10 years, 3= 10 years to less than 20 years and 4= 20 years or more. *Foreign ownership* suggests international links which may provide more opportunities to enter international markets (Ellis, 2011; Sui and Baum, 2014), this is coded 0 = No and 1 = Yes. Many governments provide incentives to encourage SMEs to export but, equally, governments can sometimes inadvertently present barriers to export through regulations and compliances barriers (Luo, Hsu, and Liu, 2008; Wilkinson and Brouthers, 2006). We include the variable *Government financial assistance* to indicate if the SMEs have received government assistance, coded 0= No and 1= Yes. To test if government regulations and

compliances are barriers to exports, we include the variable *Government regulations and compliance*, coded 0= No and 1= Yes. Firms' strategies and internationalization efforts can be influenced by the firms' legal form (Hessels and Parker, 2013; Zahra, Neubaum, and Naldi, 2007). We control for this to include *Types of legal organizations* as Registered Company, Sole Proprietor, Partnership and Trusts and other unincorporated identity. Appendix 1 provides further details of measurements.

Analyses

We use correspondence analysis to examine the relationships between industry segments and the use of different network types. Correspondence analysis is a powerful technique used to study large, complex datasets containing multiple sets of categorical variables and allows the mapping of patterns of associations between variables (Greenacre, 2007). We test the hypotheses regarding network types and export likelihood using logistics regression analysis and control for other known determinants of export likelihood. Five separate models are performed. Model 1 contains the control measures only. Model 2 contains the overall network measure plus the control variables. The remaining three models 3, 4 and 5 each contain one of the specific network types (Government, Industry or Professional) plus the control variables. Our general model is:

$$
\begin{aligned}
\text{Logit (Export)} = \alpha &+ \beta \text{ Networks} \\
&+ \beta \text{ Size} + \beta \text{ Years in Operation} \\
&+ \beta \text{ Foreign Ownership} + \beta \text{ Govt Regulations} \\
&+ \beta \text{ Govt Financial Asst} \\
&+ \sum \beta \text{ Type of legal organization} \\
&+ \sum \beta \text{ Industry} + \varepsilon
\end{aligned}
$$

All statistical analyses are performed using STATA, embedded in the ABS data (STATA, 2007).

Results

About 56 per cent (n=1,277) of the SMEs in the sample have been in operation for 10 years or more and 78 per cent (n=2,107) have fewer than 20 employees. Agriculture, Forestry and Fishing is the largest industry segment with approximately 23.9 per cent of firms (n=540) followed by Manufacturing with 15.9 per cent (n=359) and Wholesale Trade with 9.9 per cent (n=225). Almost half of the firms, 48 per cent (n=1,315), are registered companies and only 4.3 per cent (n=97) are foreign owned. A small proportion report being hampered by government regulations and compliance, 19.8 per cent (n=448), and few also report receiving government financial assistance, 13.7 per cent (n=310).

Although few of the 2263 SMEs in the sample are exporting, only 12.8 per cent (n=290), significant differences exist between exporting firms and those that receive no export income. Table 2 shows exporting firms are significantly larger (t=9.306, p<0.001) and older (t=6.875, p<0.001) with greater levels of foreign ownership (t=5.963, p<0.001). Exporting SMEs also receive a greater amount of government funding (t=4.496, p<0.001) and report their operations being significantly hampered by government regulations or compliance (t=3.875, p<0.001). Table 2 also shows the largest industry segments are the ones with the highest proportion of firms exporting. Manufacturing has the highest number of SMEs exporting, followed by Agriculture, Forestry and Fishing and then Wholesale Trade.

Table 2
Descriptive Statistics for Exporting and Non-exporting SMEs by Industry Segments

Panel A: Descriptive statistics with/without export

	Export			
	No		Yes	
Variables	**Mean**	**SD**	**Mean**	**SD**
Size	1.471	1.038	2.059	0.998
Years in operation	2.543	1.180	3.003	1.047
Foreign Ownership	0.026	0.160	0.155	0.363
Government Regulations	0.184	0.388	0.293	0.456
Government Financial Assistance	0.120	0.325	0.252	0.435

Panel B: Sample distribution by industry divisions

	Export			
	No		Yes	
Industry Divisions	**Freq.**	**Per cent**	**Freq.**	**Per cent**
Agriculture, Forestry and Fishing	460	23.31	80	27.59
Mining	82	4.16	11	3.79
Manufacturing	277	14.04	82	28.28
Construction	117	5.93	2	0.69
Wholesale Trade	176	8.92	49	16.9
Retail Trade	137	6.94	10	3.45
Accommodation, Cafes, Restaurants	145	7.35	5	1.72
Transport and Storage	122	6.18	9	3.1
Communication Services	93	4.71	13	4.48
Property and Business Services	120	6.08	14	4.83
Cultural and Recreational Services	107	5.42	10	3.45
Personal and Other Services	137	6.94	5	1.72
Total	1,973	100	290	100

SMEs with export income show a higher use of networks (Table 3). External accountants are used most and business consultants the least. The high use of external accountants is consistent with previous studies (Johnson, Webber, and Thomas, 2007; Robson and Bennett, 2000). On average, 39 per cent of SMEs in the panel use each form of network. Preliminary evidence suggests exporting consistently use networks more often, at 51 per cent, compared with firms which do no export at 37 per cent. The largest difference in terms of use of networks comes from Solicitors. SMEs that export use 59 per cent more Solicitors than those without export income. At the other end of the spectrum, the lowest difference comes from

seeking information and advice from others in the same industry, suggesting that most SMEs under study reported similar levels of connecting with others in the same industry. Two-tailed t-tests find that exporting firms on average seek information and advice significantly more frequently from government networks (t=6.407, p<0.001), industry networks (t=5.630, p<0.001) and professional networks (t=7.211, p<0.001).

Table 3
Differences in Use of Networks between Exporting and Non-Exporting SMEs

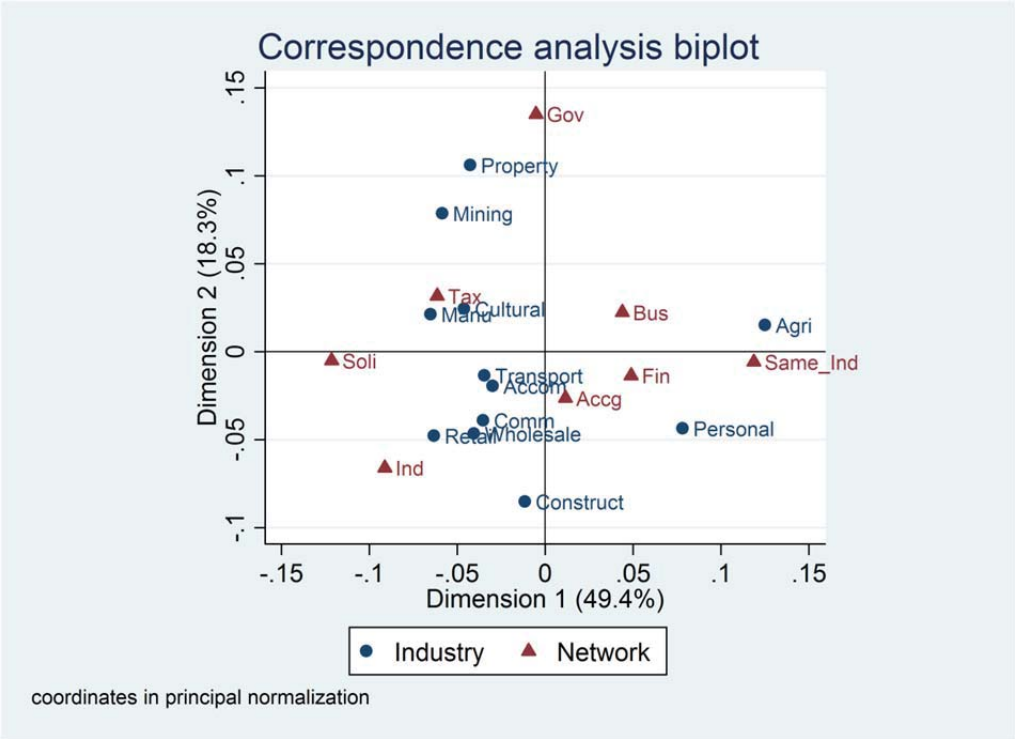
		Total	Export	No Export	Difference (Export –No)
Government networks	Australian Tax Office*	36	49	34	15
	Other Government Orgn. *	24	40	21	18
Industry networks	Business Mgmt Consultants*	14	23	13	11
	Others in same Industry*	46	53	45	7
	Industry Associations*	22	39	20	19
Professional networks	External Accountants*	79	88	78	10
	Financial Advisors*	47	61	45	16
	Solicitors*	41	59	38	21
	Average*	39	51	37	15
	Number of observations	2,263	290	1,973	

*Note: *in per cent*

We employ correspondence analysis to examine whether the use of network types varies by industry segment. Diagram 2 shows the correspondence analysis biplot between industry segment and types of networks. The first dimension accounts for 49.4 per cent of the inertia and together with the second dimension accounting for a total of 67.7 per cent of the inertia, suggesting that a two-dimensional representation is appropriate. The first dimension plotted on the x-axis shows Agriculture and then Personal services to differ the most from other industries in terms of networks with Agriculture closely associated with networks of Others in the Same Industry. The second dimension plotted on the y-axis separates the other industries with Property and Mining associated more with government networks and differing from the Construction industry. Most other industries cluster towards the

middle of the plot around networks of External Accountants (Accg), Financial Advisors/Banks (Fin), Australian Tax Office (Tax) and Industry Associations and Chambers of Commerce (Ind). Solicitors do not appear to be closely related to a specific industry segment.

Diagram 2
Correspondence Analysis Biplot



Notes: Descriptions for Industry and Networks are abbreviated

Table 4 shows positive and significant associations between the overall network variable and export income likelihood. Positive and significant associations are also evident between other independent variables with export and network. These associations suggest that network together with all control variables incrementally explain export income likelihood. The high associations among the government,

Table 4
Measures of Associations

	1	2	3	4	5	6	7	8	9	10
1. Export	1									
2. Network	0.198 ***	1								
3. GovtNet	0.164 ***	0.754 ***	1							
4. IndNet	0.145 ***	0.832 ***	0.497 ***	1						
5. ProfNet	0.154 ***	0.747 ***	0.482 ***	0.411 ***	1					
6. Size	0.198 ***	0.387 ***	0.307 ***	0.252 ***	0.430 ***	1				
7. Years in operations	0.135 ***	0.085 ***	-0.010 ***	0.105 ***	0.105 ***	0.303 ***	1			
8. Foreign ownership	0.213 ***	0.188 ***	0.152 ***	0.063	0.417 ***	0.155 ***	0.071	1		
9. Govt Regulations	0.092 ***	0.198 ***	0.125 ***	0.143 ***	0.145 ***	0.118 ***	0.100 ***	-0.012	1	
10. Govt Fin. Assist.	0.128 ***	0.246 ***	0.175 ***	0.233 ***	0.169 ***	0.182 ***	0.087 ***	-0.015	0.054	1

*Notes: n observations = 2263; *p<0.1,**p<0.05,***p<0.01; Cramer's V is used for categorical variables and Gamma for ordinal variables.*

industry and professional network variables justify the testing of separate regression models for each of these network types.

We follow these results by running regression analyses (refer Table 5) to estimate the relationships and effects of our independent variables on export, the dependent variable. With a binary dependent variable, we use logistic regression to test our hypotheses (Hair et al., 2006). For logistic regression, pseudo r^2 is used to indicate goodness of fit measure of which a maximum value of 1 indicates perfect model fit (Hair et al., 2006; Long, 1997). Following Watson (2007, 2011), we include industry and type of legal organizations to control for such potential problems in our regression model design.

In total five logistic regression models are conducted. Model 1 contains only the control variables. In Model 2 the overall network variable plus all the control variables are entered into the logistic regression analyses. Models 3, 4 and 5 follow, each contain the control variables plus one network type, respectively government, industry and professional. As a further robustness check, we perform variance inflation factor (VIF) analysis using OLS tables to check for multicollinearity between independent variables. An acceptable threshold for VIF is 10 (Hair et al., 2006; O'Brien, 2007). Our VIF values range from 1.27 to 1.28 for all six models in our regression models, suggesting that multicollinearity is not at all severe in our regression models.

All five models are statistically significant. Model 1 with no networks shows a pseudo r^2 of 17.33 per cent, indicating significant and positive relationships of other key variables to export. The regression results in Model 2 confirm H1,

suggesting that the overall network variable is positively and significantly related to export. The coefficient of 0.649 with *p-value of <0.001* in Model 2 explains that, compared to non-exporting SMEs, exporting SMEs are 65 per cent more likely to increase their export incomes if they access all eight networks between one to three times a year, or four of the eight networks for more than three times a year, holding all other variables constant. Results for Model 3 support H2 for government networks, with a coefficient of 0.473, at *<0.001* significance and pseudo r^2 of 18.11 per cent , suggesting that the single government network variable is as significant as the overall network in Model 2. These results clearly indicate that government agencies play significant and instrument roles in the export activities of SMEs. Regression results for Model 4 support H3. Industry networks have a positive and significant relationship with export income likelihood, with a coefficient of 0.384, and *p-value <0.007.* Pseudo r^2 for Model 4 at 17.62 per cent is lower than Models 2 and 3, but still indicates that industry networks together with the other control variables explains 17.62 per cent of Export likelihood. Model 5 shows support for H4, with a coefficient of 0.326 at < *0.012* significance and pseudo r^2 of 17.69 per cent. These results suggest that accessing professional networks also are significantly related to SME export likelihood, though apparently somewhat weaker compared to government networks and industry networks. Of the five regression models, Model 2, network, appears to be the best fit with the highest pseudo r^2 of 18.13 per cent, suggesting that the overall network variable together with other variables, explains 18.13 per cent of export income likelihood.

Table 5
Logistic Regression Analysis Dependent Variable: Export (0,1)

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Intercept	-3.463***	-3.652***	-3.569***	-3.512***	-3.628***
	(0.311)	(0.316)	(0.314)	(0.312)	(0.319)
Size	0.377***	0.287***	0.315***	0.339***	0.318***
	(0.082)	(0.086)	(0.084)	(0.083)	(0.085)
Years in operation	0.226***	0.233***	0.248***	0.221***	0.229***
	(0.067)	(0.068)	(0.068)	(0.068)	(0.068)
Foreign Ownership	1.747***	1.707***	1.690***	1.762***	1.706***
	(0.257)	(0.259)	(0.260)	(0.258)	(0.258)
Govt Regulations	0.513***	0.441***	0.457***	0.466***	0.481***
	(0.156)	(0.158)	(0.158)	(0.158)	(0.157)
Govt Fin. Assist.	0.812***	0.671***	0.711***	0.714***	0.752***
	(0.171)	(0.176)	(0.174)	(0.176)	(0.173)
Type: Sole Proprietor	-0.930**	-0.899**	-0.936**	-0.944**	-0.875**
	(0.376)	(0.378)	(0.378)	(0.377)	(0.378)
Type: Partnership	0.238	0.286	0.272	0.237	0.289
	(0.206)	(0.208)	(0.208)	(0.207)	(0.208)
Type: Trust/Unincorp	-0.044	-0.032	-0.025	-0.037	-0.042
	(0.192)	(0.193)	(0.193)	(0.192)	(0.192)
Ind: Mining	-0.259	-0.346	-0.351	-0.298	-0.299
	(0.400)	(0.402)	(0.401)	(0.402)	(0.400)
Ind: Manufacturing	0.614***	0.574***	0.566***	0.604***	0.589***
	(0.204)	(0.205)	(0.206)	(0.205)	(0.205)
Ind: Construction	-2.377***	-2.394***	-2.345***	-2.386***	-2.410***
	(0.738)	(0.736)	(0.736)	(0.737)	(0.737)
Ind: Wholesale Trade	0.559**	0.523**	0.542**	0.548**	0.527**
	(0.238)	(0.239)	(0.239)	(0.238)	(0.238)
Ind: Retail Trade	-0.769**	-0.822**	-0.797**	-0.805**	-0.796**
	(0.364)	(0.367)	(0.366)	(0.366)	(0.365)
Ind: Accom./Cafes/Rest.	-1.567***	-1.642***	-1.605***	-1.639***	-1.591***
	(0.484)	(0.487)	(0.485)	(0.488)	(0.485)
Ind: Transport/Storage	-0.813**	-0.893**	-0.887**	-0.824**	-0.877**
	(0.389)	(0.393)	(0.393)	(0.390)	(0.392)
Ind: Communication Serv.	-0.107	-0.167	-0.133	-0.125	-0.158
	(0.364)	(0.367)	(0.367)	(0.364)	(0.366)
Ind: Property/Bus. Serv.	-0.293	-0.325	-0.380	-0.281	-0.306
	(0.331)	(0.332)	(0.333)	(0.332)	(0.331)
Ind: Cultural/Recreational	-0.698*	-0.757**	-0.776**	-0.742**	-0.704*
	(0.374)	(0.375)	(0.377)	(0.375)	(0.374)
Ind: Personal/Other Serv.	-1.409***	-1.399***	-1.388***	-1.411***	-1.408***
	(0.486)	(0.487)	(0.488)	(0.486)	(0.486)
Network		0.649***			
		(0.173)			
Government networks			0.473***		
			(0.127)		
Industry networks				0.384***	
				(0.142)	
Professional networks					0.326**
					(0.129)
Pseudo r^2	17.33%	18.13%	18.11%	17.62%	17.69%
Mean VIF (OLS)	1.27	1.28	1.27	1.27	1.28
n observations	2,263	2,263	2,263	2,263	2,263

*Notes: Standardized errors in parentheses; *p<0.1, **p<0.05, ***p<0.01; Refer Appendix A for measurement details*

Discussion

Many studies highlight the positive role that networks play in SMEs internationalization (Bangara et al., 2012; Fernhaber and Li, 2013) but, to date, few empirically test the relationships between different types of networks with export likelihood (Coeurderoy and Murray, 2008; Gao et al., 2010). This study provides empirical evidence of the significance of network relationships to export success. While our results indeed show positive and significant relationships between networks and export income, we find that SMEs cannot rely on networks alone as other variables such as firm size, firm age, government regulations and assistance and having foreign owners significantly affect export likelihood. Model 1, with no networks, supports the positive significance of these other variables to export likelihood. Our study indicates that exporting SMEs have a higher incidence of foreign ownership, supporting previous studies that suggest that foreign ownership provides an international link to more opportunities in international markets (Ellis, 2011; Sui and Baum, 2014).

Although the pseudo r^2 of our models seem a bit low compared to survey-based studies, the low pseudo r^2 of our study is consistent with prior studies using the same dataset (Gronum et al., 2012; Watson, 2007). This could possibly be due to the limitation of using an established dataset where it is not possible to customize variables that are more suited to the study.

Not all networks are the same. Our study identifies different degrees of importance of various types of networks that influence SMEs export likelihood. This is important because, although SMEs need many business networks to provide resources, past studies suggest that maintaining network ties requires time and effort,

so priority needs to be established in accessing effective networks (Gulati, 1998; McFadyen and Cannella Jr., 2004). Accessing government networks shows significant relationships to SME export likelihood, thus supporting extant studies that government agencies are instrumental in helping SMEs to internationalize through many export programs and incentives (Martincus et al., 2012; OECD, 2013). Industry networks and professional networks also show statistically significant relationships to SME export likelihood. While the study confirms the positive and significant relationship of networks to export likelihood, it is surprising to note that SMEs' rate of accessing networks appears to be quite low. For example, only 39 per cent of SMEs use each form of network and, while this percentage increases to 51 per cent of exporting SMEs, we believe there is potential for SMEs to increase their use of networks to achieve a higher likelihood of export which has the potential to lead to business growth (Watson, 2007). This is not to suggest that SMEs use networks for the sake of using networks as developing networks comes at a cost. But rather, SMEs connect strategically with different types of networks so as to achieve a balance of resource diversity (Martinez and Aldrich, 2011; Nieto and Santamaria, 2007).

While rate of export is not the focus of our study, it is worthwhile to note the low rate of exports among Australian SMEs. Our cross-sectional study for the period 2004-2005 shows only 12.8 per cent of SMEs recorded some export income. A more recent report shows that the percentage of exporting SMEs has, in fact, decreased to 8.4 per cent in the year 2009-2010(ABS, 2012). As a comparison, 15 per cent of New Zealand SMEs reported export income in the same period (Ministry of Economic Development, 2011). A recent report on the internationalization of European SMEs indicates that, on average, 25 per cent of SMEs in Europe are

exporting with the highest being Estonia at 55 per cent and the lowest being Cyprus with less than 10 per cent of exporting SMEs (European Commission, 2010). Statistics for the two variables of government regulations and government assistance show significant and positive correlations to export likelihood. Both these variables also show positive and significant relationships to export likelihood in regression tables. These results suggest that government is active in assisting SMEs to export through various forms of financial incentives while at the same time, government regulations are not seen as a hindrance to performance. These positive effects, however, do not seem to be distributed well across SMEs in the study, such that while seventy-one per cent of exporting SMEs report that government regulations do not hamper their firms' performance, a high seventy-five per cent of exporting SMEs report that they do not received any government financial assistance. These contradictory observations suggest that further research is needed to understand why the uptake of government financial assistance among exporting SMEs is so low.

Conclusions

Summary of Findings and Suggestions for Further Research

This study supports past internationalization studies that suggest a relationship exists between network use and export likelihood (Johanson and Vahlne, 2009; Vasilchenko and Morrish, 2011; Zhang et al., 2010). We contribute to the study of this relationship with statistical evidence. The empirical findings of our study are significant and positive, i.e. seeking information and advice from networks increases SMEs export likelihood. In addition, we expand on the different types of networks by explicitly showing how different sets of networks (such as government,

industry and professional) affect export likelihood. With a large dataset of 2263 SMEs sourced from the Australian Bureau of Statistics, our empirical results are significant and allow for generalizability of the results to the SMEs population in Australia. The practical implication for SMEs is the need to tap into resources that networks provide but, importantly, to be strategic in establishing network relationships. Although close network relationships create trust and easy communication (Coleman, 1988), loose and diverse connections bring more novel resource opportunities (Burt, 1992; Granovetter, 1973), suggesting that SMEs should link with different types of networks as diversity in the combination of networks provides more diverse opportunities.

As noted in our results discussion, the low rate of accessing networks by SMEs is surprising despite the positive relationships networks have with export likelihood. On this note, we suggest that an interesting stream of future research is to examine the reasons why SMEs use and/or do not use networks. Lastly, we suggest that the low rate of export among SMEs merits further investigation to enable better understanding of the underlying difficulties that hinder export growth.

Limitations

Working with established datasets has some limitations. This is acknowledged by previous studies using datasets from the ABS (Gronum et al., 2012; Watson, 2007, 2011). For our study, the measurement item for networks is quite restrictive. For example, much richer information can be obtained if certain important specialized business functions, such as export consulting, are included in the category of Business Management Consultants. Equally, we do not know if networks, such as suppliers and distributors, are included in the item named Others

in the Same Industry. This is a category that has potentially rich business networks of suppliers, distributors, customers and competitors but, unfortunately, further details of this variable are not available in the dataset. Networks of friends and family also merit consideration as research shows that contacts with friends and family are often sought for advice and information (Birley, 1985). Lastly, international experience is not measured in the dataset which we see as a major limitation as top management international experience is highlighted by various studies as critical to SMEs internationalization process. International experience increases awareness to opportunities, serves as a surrogate for cultural knowledge and helps establish networks (Sambharya, 1996; Tihanyi, Ellstrand, Daily, and Dalton, 2000). Some studies suggest that international experience contributes to a global orientation and builds greater confidence (Tung and Miller, 1990) while other authors suggest that international experience is a predictor of entry mode decisions (Finkelstein, Hambrick, and Cannella, 2008). Despite these limitations, a wealth of information is provided by the dataset.

Managerial Implications

Our study has some managerial relevance for SMEs. First, the importance of business networks cannot be underestimated for SMEs that are already internationalizing as well as those that are planning to internationalize (Bangara et al., 2012; Child and Hsieh, 2014). While business networks bring many benefits, networks are not the panacea to all the challenges faced by exporting SMEs (Mort and Weerawardena, 2006; Zhang, 2010). SMEs need to be strategic in creating network ties because much time and effort are required to develop and maintain network relationships. While government networks are significant in providing resources such as information about international markets, we suggest that industry

and professional networks are underused by SMEs that seek advice and information. Both industry and professional networks provide conducive environments to exchange information and build networking opportunities (Bennett and Ramsden, 2007; Von Nordenflycht, 2010). With exporting SMEs having a higher incidence of foreign ownership, we suggest that this is an avenue for SMEs to pursue to increase links to international markets (Ellis, 2011; Sui and Baum, 2014).

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Appendix 1
Summary of Measurements

Variables	Measurement Item	Values
Export	Did this business receive any income from the export of goods and/or services during the year ended 30 June	0 = No 1 = Yes
NETWORK	How frequently did this business seek information or advice from the sources below during the year ended 30 June External Accountants Financial Advisors or banks Solicitors Business Management Consultants Others in the same industry Industry Association/Chamber of Commerce Australian Tax Office Other Government offices	0 = Never 1 = 1-3 times 2 = More than 3 times
Size	Based on Derived Size Benchmark employment (DSB)	0 = Non employer 1 = DSB 0 to 5 2 = DSB 5 to less than 20 3 = DSB 20 to less than 200
Firm Age	As at 30 June, how many years had this business been in operation regardless of changes in ownership	0 = Don't know 1 = Less than 5 years 2 = 5 years to less than 10 years 3 = 10 years to less than 20 years 4 = 20 years or more
Foreign ownership	Did this business have any degree of foreign ownership as at 30 June	0 = No 1 = Yes
Type of legal organization	Type of legal organization	1 = Registered company 2 = Sole Proprietor 3 = Partnership 4 = Trusts, other unincorporated identity
Government regulations	Did federal government regulations or compliance significantly hamper the activity or performance of this business during year ended 30 June	0 = No 1 = Yes
Government financial assistance	Did this business receive any financial assistance from Australian Government organizations during the year ended 30 June	0 = No 1 = Yes
Industry	Agriculture, Forestry and Fishing Mining Manufacturing Construction Wholesale Trade Retail Trade Accommodation, Cafes and Restaurants Transport and Storage Communication Services Property and Business Services Cultural and Recreational Services Personal and Other Services	1 2 3 4 5 6 7 8 9 10 11 12

Conclusion to Study IV:

Study IV's results extend the findings from the earlier three studies which indicate that networks are instrumental as resource providers for internationalizing entrepreneurs. More specifically, Study IV provides the empirical testing of the relationships between different network types and SMEs export likelihood. Results indicate positive and significant relationships between networks and export likelihood. Furthermore, results indicate that different types of networks have different influences on SME export likelihoods. Not surprising, government networks have the most influence on SMEs export likelihood, followed by industry networks and professional networks.

With a large dataset of 2263 SMEs, Study IV's empirical results are significant and, thus, contribute to the study of networks as resource opportunities for international entrepreneurs.

CHAPTER 6: THESIS CONCLUSION

Conclusion to Thesis

For many entrepreneurs, engaging with international markets is seen as critical for organization growth and for their entrepreneurial ventures to remain competitive. Growth and survival of entrepreneurial ventures are shaped largely by resource availability, as well as the ability of the entrepreneurs to combine resources in meaningful ways so as to create value for their ventures (Penrose, 1960, 2009). As firms are rarely resource self-sufficient, the firms' growth is further dependent on their ability to acquire external resources (Hillman, Withers, & Collins, 2009; Pfeffer & Salancik, 2003). Extant studies indicate that external networks are viable resource opportunities for many entrepreneurial ventures (Ahuja, Soda, & Zaheer, 2012; Jarillo, 1989; Pfeffer & Salancik, 2003). Despite increasing studies on the instrumental role of networks, scholars continue to call for research that takes a more holistic approach in understanding the "hows" and "whys" of network development (Jack, 2010; Slotte-Kock & Coviello, 2010).

This thesis takes up this call with the goal to extend knowledge in the area of networks as resource opportunities for international entrepreneurs, specifically setting out to explore the processes by which entrepreneurs develop networks as a means to acquire resources, identify the different types of networks and the different resources and lastly, detect structural network characteristics that influence access to resource opportunities.

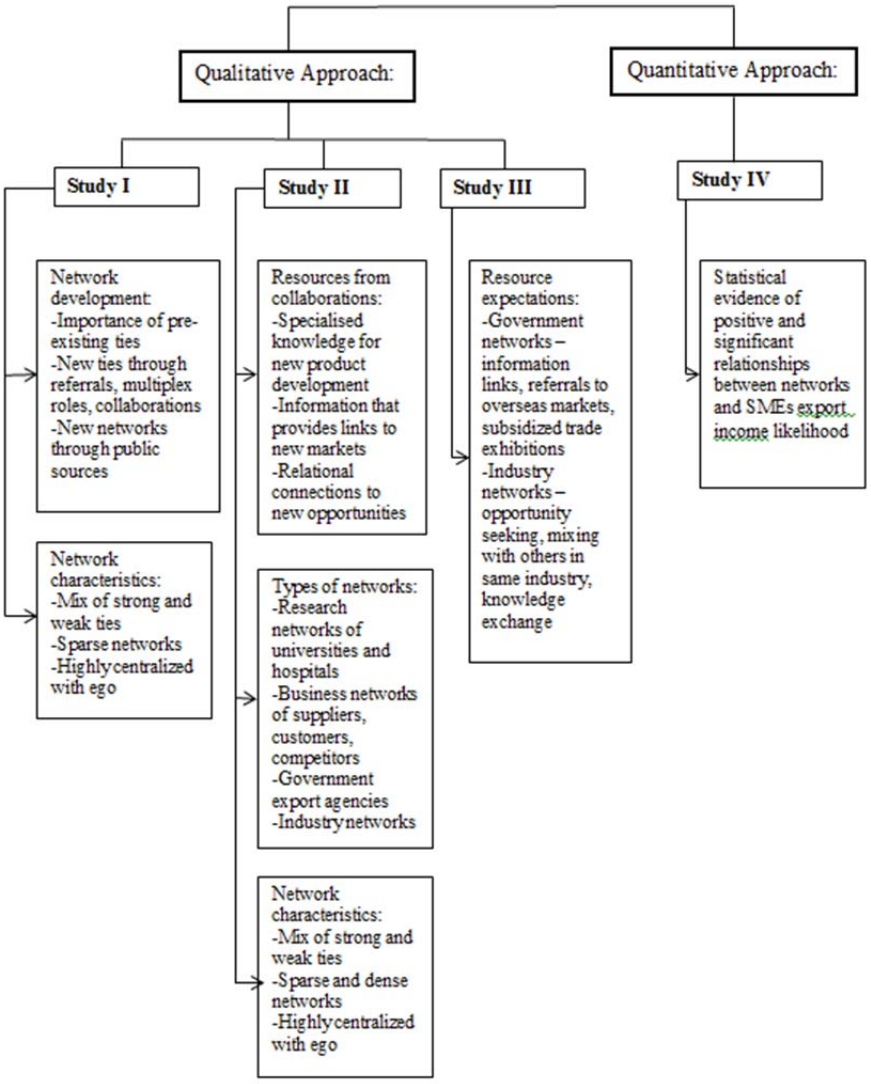
In taking up the call for a more holistic approach in understanding why and how do networks circumvent resource constraints, this study integrates theoretical underpinnings and empirical studies from resource-based views, resource dependency theory, social exchange theory and social network analysis in approaching the research aims of each of the four studies.

Starting with a qualitative approach allows for in-depth exploration of how and why international entrepreneurs use networks as resource opportunities (Eriksson & Kovalainen, 2008; Gartner & Birley, 2002). All entrepreneur participants in the qualitative study are decision-makers of their organizations, thus putting them in unique positions to provide first-hand account of the strategies they use to grow their organizations (Boso, Story, & Cadogan, 2013). Data collection, primarily through face-to-face interviews, provides a favourable environment for participants to share openly, their business goals, their intentions of pursuing international markets, the constraints they face and the ways they work around their constraints and adjust their business strategies to meet their goals. The qualitative approach through face-to-face interviews also facilitates comprehensive understanding of the human and social issues inherent in developing network ties, and how entrepreneurs respond to different situations in cultivating exchange relationships.

Qualitative data gathered from the face-to-face interviews provide the inputs for Study I, II and III. For Study IV, quantitative data are sourced from the Australian Bureau of Statistics, Business Longitudinal Database, BLD (ABS, 2012). With a large sample of 2263 SMEs in the BLD, Study IV provides the statistical evidence of the relationships between networks and SMEs export income likelihood.

Diagram 6.1 outlines the qualitative and quantitative approach taken for each of the four studies and the key findings of each study.

Diagram 6.1: A qualitative and quantitative study in understanding networks as resource opportunities:



No doubt, serendipity sometimes occurs in meeting the “right” network partner but typically, international entrepreneurs are strategic and intentional in developing their business networks. Referring to Diagram 6.1, findings from Study 1 indicate that tapping into pre-existing network ties is the first approach taken by

entrepreneurs. Although this approach is quite consistent with current literature (Hilmersson & Jansson, 2012), this thesis reveals that reliance on pre-existing ties is more prevalent than indicated in current literature. Pre-existing network ties bring resources in a number of ways, such as providing information and knowledge (Child & Hsieh, 2014) and, most notably in helping to establish referral links to other networks. Referral links directly and indirectly helps entrepreneurs to expand their networks (Batjargal, 2007; Vasilchenko & Morrish, 2011). Very often, pre-existing network ties are opportunities to extend dyadic relationships to multidimensional roles, thus stretching the instrumental value of existing ties (Ferriani, Fonti, & Corrado, 2012). Multiplex roles are important elements in network development as these multiple relational roles help to deepen network relationships and have potential to create repeated exchanges. These repeated exchanges enhance trust and commitment which, in turn, have the potential to encourage new multiple exchanges (Molm, Takahashi, & Peterson, 2000; Nyaga, Whippleb, & Lynch, 2010).

Multiplexity of ties is evident in Study I as well as in Study II. In Study I, multiplex roles are typically pursued as participants tend to work with organizations with which they have existing relations as a means to make better use of limited resources (Penrose, 2009). In Study II, multiple relational roles are seen in the form of loose and informal collaborative arrangements. Unlike the contractual arrangements of formal strategic alliances, informal collaborations are formed within a framework of exchanges based on reciprocity, trust and familiarity, mutual needs and benefits (Cook & Whitmeyer, 1992; Molm, 2010).

Developing networks is not a linear process. While entrepreneurs start with pre-existing network ties, other avenues are considered concurrently, such as referral links and opportunities for collaborative arrangements, as well as approaching public

networks such as government agencies and industry associations. Study III reveals that while government and industry networks are often seen as bureaucratic institutions, these bureaucratic networks are, nonetheless, resource providers in many aspects such as providing market information, knowledge sharing within industries and opportunities to connect with other business networks through trade exhibitions and conferences (Kontinen & Ojala, 2011; Ramirez-Pasillas, 2010).

In the social network analyses of both Studies I and II, multiplex ties are also detected in the networks of all participants, supporting the findings in the qualitative studies of the importance of multiplex ties. Sparse network structures in which actors are loosely connected through weak ties are observed in situations where the entrepreneurs' focus is on seeking information and connections to new international markets (Granovetter, 1973). This is evident in both Studies I and II. Strong ties in dense cohesive networks are observed where sharing and exchange of tacit knowledge takes place, such as in the science-driven medical segment in Study II (Jack, 2005; Kautonen, Zolin, Kuckertz, & Viljamaa, 2010). Not surprising, high degree centralization is evident and this is consistent with egocentric networks. High degree centralization suggests strong positional power of the entrepreneur. However, this positional power is shared in networks where the entrepreneur has an active business partner who has equal access to other actors within the network. The social network analyses of Studies I and II suggest that effective entrepreneurial networks need to comprise a mix of strong and weak ties and a mix of sparse and dense networks as each performs different functions and add to diversity of skills and resources.

Networks are sought based on resource needs. Understandably, entrepreneurs in knowledge-intensive industry segments such as health and medical, tend to seek

research-based networks such as universities, hospitals and research agencies (Almeida, Hohberger, & Parada, 2011). Additionally, these entrepreneurs also seek networks of competitors and industry/professional associations to share and exchange knowledge through various collaboration arrangements. Not surprising, all entrepreneurs seek other business networks such as distributors, suppliers and customers to gain information and contacts to new markets. Government networks, such as export agencies, also play important roles in providing information and links to international markets (Leonidou, Katsikeas, Palihawadana, & Spyropoulou, 2007; Martincus, Carballo, & Garcia, 2012).

Statistical evidence of positive and significant relationships between networks and SMEs export income likelihood are shown in Study IV. Findings show that government networks are the most instrumental in providing resources to help entrepreneurs' entry to international markets, followed by industry networks and professional networks. Despite these positive relationships of networks to export likelihood, Study IV reveals the low level of use of networks among Australian SMEs, as well as the low level of exports among Australian SMEs.

This thesis contributes to knowledge in the study of resource-seeking behaviour of internationalizing entrepreneurs. First, by integrating the theoretical underpinnings from resource-based views (RBV), resource dependency theory (RDT), social exchange theory and social network analysis this thesis provides a deeper understanding as to why and how networks play instrumental roles as resource opportunities for resource-constraint internationalizing entrepreneurs. Study I shows that pre-existing network ties are indeed critical as first steps to resource opportunities (Hilmersson & Jansson, 2012; Renzulli & Aldrich, 2005), but more importantly, Study I contributes to knowledge by showing that it is the ability

of internationalizing entrepreneurs to stretch the utility of pre-existing ties into multiplex ties that lead to more beneficial outcomes of external resources. Study II focuses on the collaboration opportunities from cultivating multiple relations. The contribution from Study II shows that while studies suggest that collaborating with external networks comes with many difficulties and problems (Almeida et al., 2011; Eisenhardt & Schoonhoven, 1996), for resource-constraint internationalizing entrepreneurs, collaborating with external networks is a crucial way, at times, the only way, to fill resource gaps.

Study III is one of few exploratory studies to examine internationalizing entrepreneurs' perceptions and expectations of bureaucratic networks, such as government and industry networks, as resource providers in assisting entrepreneurs to pursue international markets. Study III's results contribute to insights of why entrepreneurs use or do not use bureaucratic networks and offer practical implications for policy makers in bureaucratic networks to tailor services and programs that best fit the resource needs of internationalizing entrepreneurs. Finally, the statistical evidence of Study IV contributes to knowledge in the study of the relationships between different types of networks and export likelihood. The empirical results are significant, i.e. there are positive and significant relationships between different types of networks and export likelihood. The use of a large reputable dataset of 2263 SMEs from a government agency adds to generalizability of the results to the SMEs population in Australia.

This thesis has some implications for practitioners, such as international entrepreneurs, policy makers in government agencies and industry associations. For international entrepreneurs, the instrumental role of networks as resource providers is quite clear. Developing and nurturing network relations is crucial to access

external resources. In fact, the traditional perception of the entrepreneur as a "*lone, heroic figure*" is increasingly being replaced by a more contemporary perception of the entrepreneur as a "*networker*" (Eisenhardt & Companys, 2002). But this is not to suggest that networks are the panacea to all resource constraints in pursuing international markets. While it is logical to cultivate network ties as links to resources, a strategic approach is necessary. Not all networks are useful and considerable time and efforts are needed to develop a diverse set of networks that brings different skills and resources. Pre-existing ties, in the development of networks, are important in their ability to provide potential links to new resource opportunities, facilitate referral connections and as a platform to create multiple relational roles. Effective multiple relational roles are gained through mutually beneficial exchanges based on trust, commitment and reciprocity of relationships. Reciprocity help to deepen network relationships and strong network relationships have higher potential to lead to further exchanges (Cropanzano & Mitchell, 2005; Molm et al., 2000). This suggests that network relations are not just channels where resources are acquired but more importantly, effective network relations must be about exchanges of value resources that are mutually beneficial to all parties involved.

Pre-existing ties have their limitations in terms of breath and diversity of resources. To develop a diverse set of networks entrepreneurs need to look beyond pre-existing ties. Here is where public networks of government agencies, industry and professional associations add value to resource-seeking entrepreneurs. This thesis finds mixed results in entrepreneurs' use of government and industry networks. For examples, many of the participants who establish close contacts with government networks do so with intentions of getting access to information and

overseas contacts. While this approach is effective for some, for others, government agencies are perceived as bureaucratic and difficult to work with. This observation offers an opportunity for policy makers in government agencies. It implies, not only just the need for policy makers to understand better the resource constraints of international entrepreneurs, but also the need to create more open and accessible communication channels with resource-constrained international entrepreneurs. In this current environment where information on international markets is fairly accessible through the internet, government agencies and industry associations may need to focus more on providing experiential knowledge such as informal and formal referrals and connections to international business networks (Johanson & Vahlne, 2009; Loane & Bell, 2006).

This thesis focuses on the beneficial role of networks as resource opportunities for international entrepreneurs. Future research can extend to include the constraints, limitations and negative effects of networks. In doing so, this research stream might tease out reasons for the low rate of use of networks by entrepreneurs as observed in Study IV. This thesis also focuses on ego networks. A socio-centric network study may provide a more complete picture in the study of networks (Ahuja et al., 2012; Borgatti & Li, 2009) even though some scholars caution the logistic difficulties in data collection for socio-centric networks. Other streams of future research include comparing multiple sections of industries and across multiple countries may identify similarities and differences in the ways international entrepreneurs develop networks. Lastly, the processes of network development imply changes over time as the ventures of entrepreneurs evolve. In this context, a longitudinal study is merited to identify changes in the ways networks evolve in tandem with venture growth (Jack, Moult, Anderson, & Dodd, 2010).

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Appendix A: Protocol Questionnaire Guide

Appendix A(i): Information and Consent Form for Face to Face Interviews

Name of Project: Creating Purposeful Networks in the Internationalisation Process

Dear

You are invited to participate in a study of networks that are instrumental in the success of international business. The purpose of the study is to identify the relevant and useful networks that contribute to the success of a firm's international business.

This research project is being conducted by Frances Chang to meet the requirements of the Doctor of Philosophy under the supervision of Associate Professor Cynthia Webster, and Dr Robert Jack of the Department of Marketing and Management in the Faculty of Business and Economics.

If you decide to participate, an interview meeting will be arranged with you. The meeting is likely to take about an hour to an hour and a half. During this meeting, you will be asked to describe various aspects of your export business, e.g. how and when you started to export, your vision, mission and your goals as you expand your international markets. You will also be asked to identify any contacts and business network relationships that have helped you in starting and growing your international business.

The interview will be audio-recorded to ensure data accuracy in analyses. Please let the interviewer know if you prefer not to have the meeting audio-recorded. If quotes from the interview are used when discussing and presenting the findings, your name and your company's name will be de-identified and a pseudonym will be used. Please let the interviewer know if you prefer that your quotes not be used.

Any information or personal details gathered in the course of the study are confidential. No individual will be identified in any publication of the results. The only people who will have access to the data will be the research student, Frances Chang and her supervisors, Associate Professor Cynthia Webster and Dr Robert Jack. A summary of the results of the data will be made available to you on request.

Participation in this study is entirely voluntary. You are not obliged to participate and if you decide to participate, you are free to withdraw at any time without having to give a reason and without consequence.

Thank you for your consideration.

Ms Frances Chang (frances.chang@mq.edu.au 02 9850 4857)
Associate Professor Cynthia Webster (Cynthia.webster@mq.edu.au 02 9850 4857)
Dr Robert Jack (rob.jack@mq.edu.au 02 9850 8463)

The ethical aspects of this study have been approved by the Macquarie University Human Research Ethics Committee. If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Committee through the

Director, Research Ethics (telephone (02) 9850 7854; email ethics@mq.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

CONSENT FORM: Participant's Copy

I, _____have read and understand the information above and any questions I have asked have been answered to my satisfaction. I represent my organisation _____ and have full consent of my organisation to participate in this research.

I agree to participate in this research, knowing that I can withdraw from further participation in the research at any time without consequence. Yes / No

I consent to the interview being audio recorded. Yes / No

I consent to being quoted but with my name and my company's name de-identified and a pseudonym used. Yes / No

I have been given a copy of this form to keep.

Participant's Name:
(block letters) _____

Participant's Signature: _____Date:

Investigator's Name:
(block letters)

Investigator's Signature: _____ Date:

Appendix A(ii): Semi-structured Interview Questionnaire Protocol

Introduction and "warm up" questions

a. Thank participant for agreeing to participate.
b. Ask if there are any questions regarding the Interview meeting before we start.
c. Give outline of the meeting: remind participant that interview will be audio-recorded to facilitate more accurate transcribing. Confirm use of audio recording is acceptable.
d. Ask if there are any questions regarding the Information and Consent Form sent earlier. Make sure Consent Form is understood and signed.

Information on the company and business

1. Starting statement: Thinking back to the time you started this business:

- When was that? _____
- What were your goals then? _____
- Did you plan/was one of your goals to internationalize? _____
- Were you guided by a mission or vision? If yes, what was it? _____

2. Turning to your business today

- Are you currently exporting? _____
- If you are not currently exporting, what might be constraining you? _____
- If yes, when did you first exported and to which country? _____
- How did you get this first export contact? _____
- Your second and other export markets? _____
- How did you get these export contacts? _____
- What best describe your current internationalization strategy and/or mode of entry to international markets?
  _____
- If you are currently not exporting (or trying to expand your exports), what might be some of the barriers and/or constraining factors?
  _____

3. Very often we rely on help and advice from family, friends, ex-colleagues and even organizations based on our existing relationships. These relationships can be informal (not contractually binding) or formal (contractually binding). Using the table below:

- Can you name some of these key individuals and organisations?
- What is your relationships with each,
- how did you first get to meet them**,**
- how long have you known them,
- how often do you meet/chat with them and finally,
- on a scale of 1 to 5 please state how close your relationships is with the individual/firm (5 being the closest):

Name of Individual/ organisation:	First met (year)	How you met this person eg. in a seminar, through another contact (name the contact)	Relationship role: Informal (I) or Formal (F) eg. (F) – supplier (I) - cousin	Number of years known to each other	Frequency of contact	Closeness of relationship (scale of 1 to 5, 5 being the closest)

(continue on separate sheet as actors/contacts increase)

4. Looking at the individuals and companies you have listed, there might be some Whose opinions and advice you value greatly depending on situations and circumstances. Would you please identify those contacts (listed in Question 3) whom you are most likely to talk to when making important decisions and/or needing advice on:

a. Business/Product development: _____

b. Financial/Funding matters: _____

c. Export matters: _____

d. Innovation and ideas _____

e. Technology: _____

f. Regulatory: _____

g. Distribution and market channels: _____

h. Others (please clarify): _____

5. Looking at the contacts you have listed in Question 4, can you indicate why you are likely to talk to those contacts:

   Example:
   - Proximity: _____
   - Their experience and knowledge: _____
   - Cultural reasons:_____
   - Others: _____

6. Thinking about the business relationships between the individuals you have identified in Question 3, can you indicate how well each individual knows all the other individuals you listed:

Names of two individuals who know each other	Specify relationship role	Very well	Not very well	Not at all

(continue on separate sheet as actors/contacts increase)

7. On exporting and international business, can you think of any government agencies, consulting firms and other industry bodies who have been very helpful and instrumental in driving your export/international business? _____
   _____

8. Can you describe some of the programs (both effective and not so effective) offered by the agencies identified in Question 7? _____
   _____

9. Finally, how many staff do you have working in your company? _____
   Your annual sales turnover? _____
   Can you indicate your export sales percentage to domestic sales? _____

Closing

Thank you very much for your time and the interesting information you have provided. After I have transcribed this, may I email a copy to you for your verification? If need be, for example if either of us need to clarify any points, I would be most happy to arrange another meeting with you.

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Human Research Ethics Sub Committee
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26 October 2011

Associate Professor Cynthia Webster
Faculty of Business and Economics
Macquarie University, NSW 2109

Reference: 52501100772(D)

Dear Associate Professor Cynthia Webster

FINAL APPROVAL

Title of project: Creating purposeful networks in the internationalisation process.

Thank you for your recent correspondence. Your response has addressed the issues raised by the Faculty of Business & Economics Human Research Ethics Sub Committee, and you may now commence your research. The following personnel are authorised to conduct this research:

Cynthia Webster - Chief Investigator/Supervisor
Frances Chang - Co-Investigator
Meena Chavan – Associate Investigator

Please note the following standard requirements of approval:

1. The approval of this project is **conditional** upon your continuing compliance with the *National Statement on Ethical Conduct in Human Research (2007)*.

2. Approval will be for a period of five (5 years) subject to the provision of annual reports. **Your first progress report is due on 26 October 2012.**

   If you complete the work earlier than you had planned you must submit a Final Report as soon as the work is completed. If the project has been discontinued or not commenced for any reason, you are also required to submit a Final Report on the project.

   Progress Reports and Final Reports are available at the following website:
   http://www.research.mq.edu.au/researchers/ethics/human_ethics/forms

3. If the project has run for more than five (5) years you cannot renew approval for the project. You will need to complete and submit a Final Report and submit a new application for the project. (The five year limit on renewal of approvals allows the Committee to fully re-review research in an environment where legislation, guidelines and requirements are continually changing, for example, new child protection and privacy laws).

4. Please notify the Committee of any amendment to the project.

5. Please notify the Committee immediately in the event of any adverse effects on participants or of any unforeseen events that might affect continued ethical acceptability of the project.

6. At all times you are responsible for the ethical conduct of your research in accordance with the guidelines established by the University. This information is available at: http://www.research.mq.edu.au/policy

If you will be applying for or have applied for internal or external funding for the above project it is your responsibility to provide Macquarie University's Research Grants Officer with a copy of this letter as soon as possible. The Research Grants Officer will not inform external funding agencies that you have final approval for your project and funds will not be released until the Research Grants Officer has received a copy of this final approval letter.

Yours sincerely

Alan Kilgore
Chair, Faculty of Business and Economics Ethics Sub-Committee

Appendix C: Paper (Extended Abstract) presented at Global Conference on SMEs, Entrepreneurship and Service Innovation (GCSMES), July 2012

Developing International Business Networks

Frances Y.M. Chang Cynthia M. Webster

Aims of Study

Business networks are increasingly seen as driving forces in the success of firms' internationalization process. Networks provide vital resources for any business but perhaps more so for entrepreneurs intending to internationalize their ventures. Indeed, for some entrepreneurs, networks are seen as long term, strategic and purposeful arrangements that provide sustainable competitive advantages (Jarillo, 1988). A number of studies highlight the value of networks for internationalising entrepreneurial ventures but few examine the processes by which entrepreneurs source, build and maintain business networks to generate access to new resources and increase capacity to enter international markets. As such the key aim of this study is to explore how entrepreneurs develop networks for internationalization. Three research issues are addressed: 1) the importance of pre-existing networks, 2) the development of new network connections when pre-existing network relationships lack depth of resources and 3) the role of referrals in developing business networks.

Insights for the study draw from scholarly research in the fields of entrepreneurship, internationalization and networks. Accordingly, this paper proceeds with a literature review of the three fields identified. This leads to research aims and the research method. Findings and a discussion of the results follow before concluding with limitations and proposed further research.

Literature Review

Without doubt, entrepreneurs bring innovation, creativity, energy and value to their ventures and to the market. Entrepreneurs are individuals who recognise opportunities and are aggressive catalysts for change in the marketplace (Frederick, Kuratco, & Hodgetts, 2006). Entrepreneurship is about "creation of organisations" (Gartner, 1988 p.11) but more than this, it is a mindset that combines active opportunity seeking, value and wealth creation, profit making and the skills and tenacity to make things happen (Kuratco & Hodgetts, 2007; Shane & Venkataraman, 2000). Most successful entrepreneurs start small and simple (Drucker, 1985) and as such are dependent on external resources to be successful. Networks are one such resource, particularly for those entrepreneurs who plan to internationalize as they must seek new opportunities in new markets. Entrepreneurs build networks to

mitigate size-related constraints (Johannisson & Monsted, 1997) and to access much needed resources, such as knowledge, funding and even to establish their reputation (Lechner & Dowling, 2003). Studies highlight the different roles that networks play in the formation of new ventures (Birley, 1985; Johannisson, 1995; Larson & Starr, 1993), in early growth of organisations (Hite & Hesterly, 2001), in internationalization (Coviello, 2006; Keeble, Lawson, Lawton Smith, Moore, & Wilkinson, 1998; Loane & Bell, 2006; Mort & Weerawardena, 2006). Some studies focus on the network perspective of internationalization (Bell, 1995; Chetty & Stangl, 2010; McDougall, Shane, & Oviatt 1994; Welch & Luostarinen, 1993) but gaps remain as most of these studies fall short in describing the processes by which internationalising entrepreneurs develop much needed business networks.

Research Context and Method

The Australian healthcare industry forms the context of the research. Previous research shows a personal interview approach facilitates in-depth probing of issues and is more suitable for exploring network development and examining the interplay of relationships and contacts (Birley, 1985; Hoang & Antoncic, 2003; Huggins, 2000). Accordingly, a semi-structure, face-to-face interview approach has been adopted for data collection. Four entrepreneurs who own and operate Australian healthcare companies agreed to participate and be interviewed (see Appendix A for Participants' Profiles). Selection of participants was based on purposive and convenient sampling of knowledgeable entrepreneurs in the industry (Eisenhardt, 1989). Interviews were recorded and qualitative data imported into Nvivo 9 software application (NVivo, 2002) for transcribing. A process of coding, categorising and abstracting to identify themes and concepts to address the research aim form the core of data analysis (Miles & Huberman, 1994; Spiggle, 1994).

Results and Discussion

Participating entrepreneurs are referred to as **Detox**, **Caps**, **Aromas** and **Natives**. All four are currently exporting but with varying degree of intensity and success. It is clear that all four participants actively and intentionally seek networks when they internationalize… "*So, I think all these network relationships, they have been very.. like, it's a gift I received (to run my business. I feel fortunate*". Results indicate a strong reliance on pre-existing networks consisting of both formal relationships, such as current suppliers or distributors, and informal relationships of friends and family (Mort & Weerawardena, 2006; Zafarullaha, Alia, & Young, 1997). The role of pre-existing networks is clearly evident for three out of the four participants. For example, Detox's first export market of Croatia comes from a friend, Caps' contact for his first export market of America is from his current domestic distributor and the contact for Aromas' first export market of Taiwan comes from her ex-employer.

When pre-existing networks lack instrumental resources, participants resort to a "referral strategy" to develop new networks. For example, many of Aromas' export contacts come from government export agencies that provide formal referrals to potential international distributors (Hara & Kanai, 1994). Additionally, informal personal referral contacts are often used. For instance, Detox's American market was referred to her by her current supplier (Coviello, 2006; Keeble et al., 1998). Other opportunities to establish international networks come from fortuitous and unsolicited inquiries (Liang, 1995; Welch & Luostarinen, 1993) as seen in the case of Caps who met his Finnish distributor by chance at a medical conference. In summary, results show not only a strong reliance on pre-existing networks when entrepreneurs internationalize but also a proactive search for new networks when pre-existing networks lack breath of resources. For Natives, her first export market of Hong Kong results from her personal sourcing via market visits… "*we travel a lot overseas, knocking on doors, investigating, questioning, doing expos. We're actively involved in the marketplace to find out*". Government export agencies also play an instrumental role – not just providing knowledge on exports but also providing bridging opportunities to international markets.

Conclusion

Extant literature on internationalization networks focus on roles and benefits of networks but fall short of describing how networks are developed. This study contributes to theory building by providing insights on the processes of network development. Results from the face-to-face interviews clearly indicate that the use of pre-existing networks and an effective referral system form the key thrust in developing instrumental internationalization networks. There is clear evidence of participants' proactive search for networks, suggesting entrepreneurs have a strategic and planned approach in seeking external resources to grow their international markets.

Limitations

Limitations of the study include small sample population, the selection of a single specific industry and limited to one location. Future research should cover a bigger sample across different industries to examine differences and similarities in the processes of network development.

Appendix A: Participating Entrepreneurs and their Ventures

	Detox	Caps	Aromas	Natives
Participant's background	Started her first company (in fashion) in 1976. Continues to run it together with new healthcare business	Medical doctor turned inventor/entrepreneur. Company listed on ASX. Designed and patented a number of medical devices	Comes from a strong entrepreneurial background. Started to make her own soaps, aroma oil and blends while at university	Accounting and Economics background with MBA in International Business. Worked in large corporations before starting her own business
Product Category and key products	Natural health and wellbeing segment – Slimming teas and coffee, and detox products	Medical devices specializing in knee replacement	Natural/Aromatherapy segment – skincare range	Natural/Aromatherapy segment – skincare range and wellbeing
Year started/ First year of export	2009/2009	1994/1998	1997/1997	2000/2000
Current international markets	Croatia, America	Finland, Greece, UK, USA	Taiwan, China, South Korea, Japan, Hong Kong, America, Singapore	Hong Kong, UK, Philippines, Malaysia, Singapore, Taiwan, Japan, Dubai
No. of staff	8	40	18	22
Export sales to local sales	30%	5%	90%	70%
Entre mode	Distributors	Distributors and a sales office in UK (to service Europe)	Distributors	Distributors and sales office in Hong Kong to service contract clients and UK to service Europe

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Appendix D: Paper presented at AIB Conference, Istanbul 2013

Collaboration Networks as Resources for International New Ventures

Frances Y M Chang Cynthia M Webster

ABSTRACT

This paper explores the characteristics of collaboration networks and examines the resources that these networks provide for international new ventures (INVs). The context of this study is the Australian healthcare industry and data were collected through in-depth face interviews. Our results suggest that developing collaborative networks is a strategic process by INVs who view collaboration as key to generating resources. Consistent with previous studies, INVs with diverse collaborative networks are more likely to succeed. Collaboration networks of knowledge and R&D tend to be larger and contain many interconnected strong ties while networks that provide access and connection to international markets tend to be large with many members but sparse as members tend not to be connected with each.

Keywords: International SMEs, International New Ventures, Networks, Collaborations, Resources

INTRODUCTION

A network approach is increasingly applied in the study of various organizational functions such as organization formation (Larson & Starr, 1993), growth of organizations (Birley, 1985; Hite & Hesterly, 2001) and internationalization, particularly in born global firms (Chetty & Stangl, 2010; Coviello & Munro, 1997; Coviello, 2006; Loane & Bell, 2006). Furthermore, the network approach extends to the study of economic sociology (Davern, 1997; Granovetter, 1985), resource dependency (Jarillo, 1989; Pfeffer & Salancik, 2003) and entrepreneurship (O'Donnell, Gilmore, Cummins, & Carson, 2001; Slotte-Kock & Coviello, 2010). In management studies too, a social network perspective is used to study strategic network alliances (Gulati, 1995, 1998; Jarillo, 1988) and collaboration networks (Ahuja, 2000). Jarillo (1988: 32) defines strategic networks as "…*long term, purposeful arrangements among distinct but related for-profit organizations that allow those firms in them to gain or sustain competitive advantage vis-à-vis their competitors outside the network*". Whereas, Ahuja (2000: 426) views collaboration networks as "*voluntary arrangements between independent organizations to share resources*". In both, clearly the underpinning essence suggests that entrepreneurs need to collaborate strategically to gain resources for organization growth. This is particularly evident in internationalization as studies show that networks and relationships play instrumental roles for resource-poor

entrepreneurs as they expand their businesses internationally (Keeble, Lawson, Lawton Smith, Moore, & Wilkinson, 1998; Mort & Weerawardena, 2006). Research further suggests that collaboration networks are particularly critical for entrepreneurs in knowledge intensive industries such as the health and medical field in view of high research and development (R&D) costs and uncertainties of new products (Ahuja, 2000; Cowan, Jonard, & Zimmermann, 2007; Cravens, Shipp, & Cravens, 1993). Many studies focus on the need to collaborate and the benefits that come with collaborations (Gronum, Verreynne, & Kastelle, 2012; Powell, 1998; Powell, White, Koput, & Owen-Smith, 2005). But gaps remain. Few empirical studies on collaboration networks examine the processes by which entrepreneurs tap into collaboration networks, for example where do entrepreneurs start?

As such, this study examines the role of collaboration networks as resources for entrepreneurs seeking to expand their international new ventures (INCs). For the purpose of this study, a collaboration network is defined as a set of independent organizations involved in the voluntary sharing and exchange of resources so as to gain competitive advantages to expand (Ahuja, 2000; Cravens et al., 1993). Specifically, this study aims to 1) examine the processes by which entrepreneurs collaborate to expand their INVs, 2) explore the various types of collaboration networks so as to identify the benefits entrepreneurs gain in collaborating and 3) examine some key network characteristics that impact entrepreneurs' access to opportunities and resources. Conceptual and empirical studies on collaboration networks, international new ventures and network theories provide the theoretical underpinnings of this study. This study contributes empirically to the emerging perspective of collaboration networks for INVs. While there is a growing body of studies on collaboration networks, little is known on the dynamics of collaboration networks.

LITERATURE REVIEW

Collaboration Networks as Resources

Entrepreneurs are driven to create new ventures for a number of reasons, of which rapid growth is usually fundamental (Gundry & Welsch, 2001; Majumdar, 2008). Rapid growth requires more resources and as entrepreneurial ventures usually start small, internal resources are typically limited (Drucker, 1985; Wernerfelt, 1984). Growth of new ventures is thus dependent on acquiring external resources such as funding and finance, knowledge and markets, labor and production. Resource dependency theory suggests that no organization is completely resource self-sufficient and some organizations are better resourced than others (Pfeffer & Salancik, 2003). Collaborating with other organizations where such resources are available is thus key to venture growth (Jarillo, 1989). A number of theoretical perspectives

underpin the importance of collaboration networks for entrepreneurs in growing their organizations. Firstly, transaction cost economics offers a rational view based on economic merits of whether to produce internally or use external sourcing (Poppo & Zenger, 2002; Williamson, 1979). In this case, entrepreneurs' decisions are likely to be based on maximizing value and minimizing costs, for example, it is cheaper to collaborate with an ingredient supplier to formulate new products rather than to operate a (R&D) team in-house (Annique Un, Cuervo-Cazurra, & Asakawa, 2010). The second theoretical perspective is based on social exchange theory which posits that human relationships are formed by an evaluation of costs, benefits and alternatives whereby exchange of valued items takes place within the social relations (Emerson, 1976). Collaboration networks typically start in informal settings where actors interact socially to exchange valued items. These valued items do not merely include goods and materials but also information, knowledge and even friendship. Exchange can only take place if each actor brings a valued item to be exchanged. In other words, "*firms must have resources to get resources*" (Eisenhardt & Schoonhoven, 1996: 137). Exchange relations form the basic building block of more multiplex exchange networks where loose and informal collaborations might evolve into formal legal entities such as when collaborations are formalized into some equity-based alliances (Cook & Whitmeyer, 1992).

Collaborations can be upstream/technology oriented as well as downstream/market-oriented (Almeida, Hohberger, & Parada, 2011). It is quite common for entrepreneurial scientists, many of whom are previous academic scientists turn entrepreneurs, to maintain collaborative ties with learning institutions. Etzkowitz (1998: 824) describes this as the "extension of knowledge" into "capitalization of knowledge" in the pursuit of scientific facts and profits. Innovation networks typically involve collaborations between commercial organizations and learning institutions such as universities, hospitals and/or government research labs (Annique Un et al., 2010; Etzkowitz, 1998; Stuart & Ding, 2006). Increasingly, organizations are internationalizing their R&D through collaboration networks to access a wider pool of new and emerging technologies (Chiesa, 1996; Staropoli, 1998; Taggart, 1991). Collaborations with customers, however, have little effect on product innovations while collaborations with competitors have negative impact on product innovations, suggesting that unless competitors possess the required technology and knowledge then there is no combination of existing knowledge to produce new knowledge (Phelps, Heidl, & Wadhwa, 2012). In downstream/market-oriented collaborations the focus is on gaining better market information to enable entrepreneurs to reach new markets and new clients (Lechner & Dowling, 2003). Research suggests that active collaborative links with a diverse number of external organizations such as contract manufacturers, distributors, customers and

suppliers results in rapid internationalization of entrepreneurial ventures (Chetty & Campbell-Hunt, 2004; deMartino, Reid, & Zygliodopoulos, 2006; Keeble et al., 1998).

To summarize, many advantages are to be gained by nurturing collaborative relationships but entrepreneurs need to be cautious as cooperating with external organizations can be problematic. For example, collaborations can have high transaction costs, organizations' competitive advantages can be siphoned, profits have to be shared and organizations' competitiveness can wane if there is too much reliance on external resources especially in new knowledge and technology (Almeida et al., 2011; Eisenhardt & Schoonhoven, 1996).

Internationalization and collaboration networks

For many organizations internationalization is not just another growth strategy but a survival strategy in order to remain competitive in an increasingly globalized economy. For some organizations international expansion is a more viable growth option because of declining product life cycles in the domestic market (McDougall, Shane, & Oviatt 1994) and/or high cost of servicing domestic retailers and customers (Bonaccorsi, 1992). Yet, for other firms such as technology-intensive firms, there is the need to internationalize at inception or early stage either typically because of a small domestic market (Burgel & Murray, 2000; Chetty & Stangl, 2010; Keeble et al., 1998). For these early internationalists, their pathways to internationalization are not explained by the sequential or staged approach to internationalization (Johanson & Vahlne, 1977; Reid, 1981; Yip, Biscarri, & Monti, 2000) but rather, a network approach to internationalization (Bell, 1995; Coviello & Munro, 1997; Loane & Bell, 2006) which emphasizes relationships and linkages to access new markets. Johanson and Vahlne (1992) suggest that network relationships play a more important role than strategic decisions in the success of internationalization.

Indeed, the network approach to internationalization has been gaining momentum since the early nineties (Mort & Weerawardena, 2006; Oviatt & McDougall, 1994). Entrepreneurs collaborate with business networks of customers, suppliers, government institutions and even competitors to access information and resources such as new markets, new competencies and new products (Chetty & Wilson, 2003). In the internationalization process, resources gained through collaborations are quite evident (Keeble et al., 1998; Loane & Bell, 2006; Mort & Weerawardena, 2006). In a study of 218 internationalizing SMEs, Loane and Bell (2006) find that networks provide much needed information on international markets and even enhance the competitiveness of the SMEs. In a case study of

six born global firms, Mort and Weerawardena (2006) find that networks help to minimize the high risks of doing business in international markets. Chetty and Wilson (2003), in a postal questionnaire survey of 300 high technology manufacturing firms in New Zealand find that collaboration networks are not confined to suppliers, customers, government institutions but also to competitors.

While there are increasing studies on why collaboration networks are needed and the resources to be gained from them, the processes of linking with collaboration networks remain unclear. How do entrepreneurs start to source collaboration networks? Studies so far suggest contrasting results, for example, some studies suggest that entrepreneurs' network development is a strategic and intentional process (Chetty & Wilson, 2003; Welch & Welch, 1996) while others point towards it being reactive and path-dependent (Crick & Spence, 2005; Hite & Hesterly, 2001). Some studies suggest that pre-existing networks of social and personal ties are important especially at early stage of business (Greve & Salaff, 2003; Hite & Hesterly, 2001; Larson & Starr, 1993) but may lack depth of resources for internationalization (Birley, 1985; Kontinen & Ojala, 2011). Yet other scholars suggest that both pre-existing and new networks are instrumental in linking to resources for internationalization (Ellis, 2011; Freeman, Edwards, & Schroder, 2006; Freeman, Hutchings, Lazaris, & Zyngier, 2010).

Network Structure

A number of studies suggest the positive role that networks play in the internationalization process but few examine network structure and the structural characteristics that affect access to opportunities and resources. For entrepreneurs to fully capture the opportunities provided by networks, an appreciation of network structure and its structural characteristics are important. Some network characteristics that impact access to opportunities are network size, density, centrality and centralization. Network size measures the total number of actors in a network and on the surface it seems that more actors in a network present more opportunities, but Burt (1992) suggests that a network with many actors is only advantageous if there is diversity in the composition of actors as diversity presents different skills and resources. Network cohesion is another structural feature that appears straightforward, but is not necessarily so. The number, strength and density of network ties are critical (Hanneman & Riddle, 2005). Tie strength is measured with a combination of intimacy, reciprocal services and/or frequency of contact (Burt, 1992; Granovetter, 1973). Density measures the proportion of ties that are connected relative to all potential ties in the network (Hanneman & Riddle, 2005). A small, dense network of strong ties, where everybody knows everybody, tends to encourage affection, trust, more open

communication and sharing of information and tacit knowledge (Coleman, 1988; Rowley, Behrens, & Krackhardt, 2000; Uzzi, 1997). A sparse network, where actors are connected by loose and non-affective ties and contact is infrequent and irregular (Elfring & Hulsink, 2003), provides more diverse information (Granovetter, 1973) and contains more "structural holes" with bridging opportunities to connect actors who will otherwise not be connected (Burt, 1992). Centrality measures focus on prominence and the extent to which one actor dominates the network structure thus facilitating or hindering access to information and resources (Bonacich, 1987; Wasserman & Faust, 1999). A star is the most centralized network structure. Not only is the dominant actor in an extremely popular position being directly connected to all other network members, that actor also lies in the path between all others and thus has the power to play a gatekeeper role with all others having to go through the dominant actor to access one another (Freeman, 1979; Hanneman & Riddle, 2005).

In a recent study of network structure, Aldrich and Kim (2007) offer three models of network formation – random, small world and truncated scale free network. The universe of a random network is dominated by averages (Barabasi, 2003) where all network members are equal and all have equal access to all others, directly or indirectly, thus creating the most open, unrestricted networks structure (Aldrich & Kim, 2007). In theory a random network offers unlimited access to opportunities as all network members are equal but in reality organizations are not equal and therefore a random search for collaboration partners is not only impractical but also risky for entrepreneurs as they are unlikely to access suitable partners in such an unstructured manner. A small world network offers a unique structure that facilitates rapid diffusion. Small world networks contain many highly clustered, dense local areas that are sparsely connected to one another (Aldrich & Kim, 2007; Watts, 1999). Actors within dense clusters tend to have access to much of the same resources and gain a range of new information and materials via the few connections to other dense clusters. Formation of these dense clusters is typically based on homophily where individual and organizational actors share similar attributes such as culture, industry specialization, education and social status (McPherson & Smith-Lovin, 1987; McPherson, Smith-Lovin, & Cook, 2001). Members embedded in small world networks need to actively seek external links that provide bridging opportunities to diversified resources. In truncated scale free networks a hierarchy of some well-connected large nodes, referred to as "hubs", link to large number of smaller nodes, known as "connectors" (Barabasi, 2003). Formation of scale free networks is strategic and follows a power law and a principle of preference. For example, nascent entrepreneurs (connectors) are likely to link with large successful venture capitalists (hubs) when seeking funding for their new ventures.

METHOD

This study uses a mixed method approach. Both qualitative and quantitative data were collected during in-depth face interviews. Qualitative data are more suitable in exploring collaboration network development as it facilitates in-depth probing and understanding of relationships and contacts (Birley, 1985; Huggins, 2000) and allows for opportunities to explore the context of strategic intentions in developing networks, thus contributing to theory building on the processes of network development (Hoang & Antoncic, 2003). Quantitative data are required to measure the structural characteristics of collaboration networks providing detailed analysis of the structural opportunities and constraints faced by entrepreneurs as they seek resources (Wasserman & Faust, 1999).

Research Context

The Australian health and medical industry forms the setting for this study. The health and medical industry is a research-driven industry which is knowledge based and science intensive. Various science and knowledge based organizations in biotechnology, pharmaceutical, and research institutions converge in this health and medical industry to connect and collaborate to meet common objectives (Depret & Hamdouch, 2000) such as commercializing and/or internationalizing an innovation. Organizations in this industry typically find it difficult to innovate and even more difficult to survive without networks (DeBresson & Amesse, 1991) and collaborative networks provide access to a pool of resources such as knowledge, experience and skills. Innovations and business growth can be curbed and even decline in a business climate of high regulatory compliance costs (Grabowski, Vernon, & Thomas, 1978) which further necessitate collaborations with external organizations to minimize costs.

Data Collection

Three datasets were identified in an online search of Australian healthcare companies: 1) the Australian Health and Medical Directory (Austrade, 2011a), 2) the Australian Natural Health and Wellness Directory (Austrade, 2011b) and 3) the Complementary Healthcare Council of Australia (CHC, 2011). These three datasets consist of 544 organizations which form the research sample population. Each organization was categorized in terms of location, product categories, ownership, first year of domestic operation, first year of internationalization and their international markets. Nine organizations were selected based on purposive and convenient sampling methods (Eisenhardt, 1989; Miles & Huberman, 1994). For convenient data collection, all nine participants are located in New South Wales and participants are either owners or senior

management executives who are in charge of managing the organizations including decision-making on internationalization.

A semi-structure questionnaire guide with both qualitative and quantitative questions was used during the interviews with the nine participants. Qualitative questions allow for in-depth probing of issues relating to internationalization and to relationship-building in developing networks for example *"Can you name some key individuals who are instrumental in helping you develop your international business? How did you first get this international market contact?"* Quantitative questions provide data that assist in measuring network structural characteristics. An egocentric network approach was used and each participant (ego) was asked questions on his or her relationships to others (alters) and the relationships among the alters (Hanneman & Riddle, 2005; Wasserman & Faust, 1999) for example *"How close are you with the person you have just identified, on a scale of 1 to 5 with 5 being the closest? How often do you meet with this person?"*

All interviews were audio recorded with participants' agreement. Follow up phone calls were made to all nine participants to clarify as well as expand on data collected and five out of the nine cases had follow-up interviews. A summarized report of each interview was emailed to the respective participant to ensure accuracy.

Data Preparation and Analysis

After each interview, recording was transcribed. All transcriptions, audio recordings, as well as extensive notes taken during interviews and phone calls were imported into Nvivo 9 software (NVivo, 2002) to assist in qualitative data analysis (Veal, 2005). A recursive exercise of data coding, categorizing and abstracting was done to identify key themes and pattern (Miles & Huberman, 1994; Spiggle, 1994).The use of other data sources, for example, from participants' websites and marketing brochures supplemented as well as verified data for coding and analysis.

Graphs to visualize network structure were created in Netdraw (Borgatti, 2002). The quantitative relational data from the interviews were transformed into network matrices and imported into UCINET 6 software (Borgatti, Everett, & Freeman, 2002) to calculate key structural measurements of network size, number of ties, density and centralization. Each matrix consisted of all network members identified by the informant and the undirected, value ties between all network members. Network size is the total number of actors in a network (Hanneman & Riddle, 2005). Number of ties shows the total number of connections

among all actors in the network. Density measures the extent to which all potential ties in a network are present with values between 0 to 1, with 1 showing the highest density (Hanneman & Riddle, 2005; Marsden, 1990). Centralization measurements are from 0 to 1 with 0 recording the lowest possible centralization and 1 recording the highest possible centralization. A high centralization score, typically associated with a star network structure, indicate a network with a dominant actor with other actors quite peripheral, suggesting unequal positional advantages between actors (Freeman, 1979; Mizruchi, 1994; Wasserman & Faust, 1999).

RESULTS AND DISCUSSION

Table 1 presents the key organizational characteristics of the nine participating entrepreneurs/CEOs, referred to as Action, Cove, Dale, Forest, Mury, Mere, Ryde, Ona and Silver. The first seven out of nine entrepreneurs shown in Table 1 are in the medical product category, such as medical devices, imaging, diagnostics while the last two are in the wellbeing product category such as health supplements and natural skincare. In terms of organization size based on annual sales, the range is from AUD3 million to AUD22million. Each participant is introduced briefly to highlight the disposition of each participant.

Cove started his organization with a focus on designing and manufacturing medical devices. With an engineering degree and a creative mindset, he received numerous awards and patents for his range of products. He continues to be closely associated with his alma mater university of which he is adjunct professor as this association with academics provides him access to innovations and ideas, "… *I am connected to the university so I think I sort of, you know, meander my way through to the right person from my knowledge, for the innovation standpoint, I go … to the professors and research students*".

Forest is the founder and CEO of a biomarker research organization specializing in medical diagnostic products. While these products are at pre-commercializing stage, Forest has over 30 years' experience in biotechnology, won a number of prizes for product designs and has successful careers in commercializing immunoassay kits and proteomics before founding his own organization. His vision is to "… *use this new area of biotechnology called Proteomex and see that application of that to human health*".

Action is the co-founder and CEO of a technology organization specializing in flow control medical devices. She has worked in more than 25 countries in healthcare systems, academia, government and commercial positions where she has successfully commercialized some Australian biomedical devices, "*My goal is to identify leading edge Australian medical device technology, commercialize it, and bring it to the rest of the world. Obviously, part of*

being a successful entrepreneur is creating value in the company, monetizing that, or creating commercial value for the shareholders or investors. In other words, making money".

Ryde is the Chief Operating Officer and Director of Science at his nuclear medicine organization which specializes in lung imaging. Ryde has worked in various US and Australian institutions and was a full professor at Vanderbilt University. Although Ryde did not found the organization, he was brought in for his expertise in radioisotopes and radio chemistry, "*… to expand radio pharmaceutical science, radio pharmaceutical production in Australia… it fitted very well with my background, and it fitted very well with what I was doing, and I thought I can contribute. And, from an entrepreneurial point of view, what drives me is to see an implementation of what appears to be a good idea, and seeing it used in humans and used for the benefit of society*".

Dale is the founder and CEO of his organization which specializes in design and manufacturing of scientific, military and medical device products. With his background in design and manufacturing Dale founded his organization as he feels that he can do a lot more in offering a holistic service in providing solutions to his customers, "*I noticed … there was a big disconnect between design and manufacture. So, I decided that that's what we'd do, that was our strategy, to offer holistic services across the whole spectrum, from design to production*"

Mury is a Certified Practicing Accountant and the General Manager of his organization which designs and manufactures containers for safe disposal of syringes and medical products. Although Mury did not found the company he is the senior manager in charge of business which includes internationalization, "*… we're still doing the needle and syringe program, but we need to grow, so we are now moving to supplying pathology labs, hospitals, doctors surgery, vet surgery, dentist surgeries, and we also pick up and destroy sharps containers as well, too. So, I have had to go and do a whole range of products to be able to satisfy these new markets*".

Mere is the R&D Manager in charge of product development targeted at different markets. The organization specializes in design and manufacturing of contrast injection systems and consumables for the radiology market. Mere did not found the organization but he is in charge of R&D and specifically adapts their products to meet different needs of their international markets, "*So for example, a specific segment in Japan, specific segments in China, it has to do with specific hospitals and regions … I adapt products to suit them. Sure*

… people make profitable business but, the trick is to … toss up between what it's going to cost to produce and implement and how much safety or … what features are you actually going to get for that"

Ona is the founder and CEO of her organization which specializes in natural skin care products. Ona comes from a strong family entrepreneurial background. In addition, Ona started her own business when she was still in university and since then, have found and sold two companies and now managing her third organization which she founded, thus fitting the profile of a serial entrepreneur (Alsos & Kolvereid, 1998; MacMillan, 1986; Wright, Robbie , & Ennew, 1997). Creativity in product development drives her business, "… *we're upgrading our products and then when I have the new passion and new formula, I want to have a new line. The old line always have existing clients .. if somebody like it I'm happy to sell and develop new ones. Maybe I'm young enough, but I have a lot of energy to develop new formula and new products …*"

Silver is the CEO and co-founder of an organization specializing in health supplements. His sister is also his business partner and although the organization started small as a family business it has grown impressively both in domestic and international markets as well as winning a number of business awards in Australia and overseas, "… *according to Austrade Macau, our organization with our range of products occupies 55 per cent of all Australian health supplements export to Macau…*"

Table 1: Key highlights of participants' organizations

Participants	Year started	First year/ International market	Current international markets	First and second international contacts	Export Sales %	Entry Mode and other International activities
Action	2004	2011/ Malaysia	Malaysia Thailand HongKong Vietnam India Sri Lanka Mongolia	1) Trade Fair 2) Referral from friend	100%	Distributors. Contract manufacturer in Malaysia
Cove	1994	2007/ Saudi Arabia	Saudi Arabia Germany USA	1) unsolicited enquiry 2) existing client	70%	Office in San Diego, USA. Collaborates with US designers. Speaks frequently at international conferences and seminars
Dale	1997	2000/ Hong Kong	Hong Kong, North America, China, Middle East, Canada	1) Austrade 2) Previous client	50%	Collaborates on design and manufacturing overseas.
Forest	2002	Pre commercializing stage	N/A	N/A	N/A	N/A
Mere	2000	2000/ Malaysia	Malaysia, Thailand, Middle East, North Africa, New Zealand and some parts of Europe.	1) Previous business contact. 2) Previous business contact	24%	Distributors
Mury	1988	2006/ England	USA, Canada, France and New Zealand. Indirect markets to Singapore, China, Middle East and USA	1) Direct tender to NHS 2) US Consultant	10%	Sales agents. Also sells directly to governments in Canada and New Zealand. Manufactures for OEMs overseas.
Ryde	2006	2006/ France	Europe UK Canada Asia Latin America.	1) Previous employee 2) same previous employee	50%	Own sales team worldwide. A number of collaborative research with international universities and hospitals
Ona	1997	1997/ Taiwan	Taiwan, China, South Korea, Japan, Hong Kong, America, Singapore	1) Ex boss 2) Austrade Taiwan	90%	Distributors. London and San Francisco offices in the plan. Collaborates with suppliers and herbalists for R&D and product formulations.
Silver	1992	2000/ Taiwan	Taiwan, Macau, Hong Kong, China	1) Referral from friend 2) Trade exhibition	40%	Distributors. Sales office in Shanghai. Collaborates with Taiwanese companies and Chambers of Commerce.

Several themes emerged from analyzing the interview data. These themes center around internationalization, strategy and resources, such as: 1) internationalization as an

organizational growth strategy, 2) identifying and acquiring key resources required to achieve internationalization growth and 3) a strategic and intentional approach to collaborating with external organizations to gain resources required for organization growth. A discussion of these themes follows.

Internationalization as a growth strategy. Eight out of the nine participants are already internationalizing their business with the exception of Forest who has yet to commercialize his business. For all nine participants, the small Australian domestic market provides the trigger to internationalize. This is consistent with research in internationalization studies that suggest small domestic markets and specialized niche products are typical triggers for internationalization (Bonaccorsi, 1992; Burgel & Murray, 2000; Chetty & Stangl, 2010; Keeble et al., 1998).

Forest: "*Once we're in the market it will be both domestic and international because, as you I'm sure well know, Australia is a small market*"

Action: "*the Australian market for medical devices, at that time, was less than two percent of the global market, now it's probably closer to one percent, and because of my prior experience and knowledge, and the nature of the technology, we excluded Australia as a market at the beginning. Internationalization was always our first and foremost goal. And, in fact, to this day we have pursued almost exclusively an international business plan*"

Collaboration networks provide resources. All nine participants collaborate extensively with external organizations as means to accessing resources. Participants list access to knowledge, information especially to international markets, opportunities and people as critical key resources required to internationalize their business. Although financial resources are required for growth, acquiring knowledge and information are priorities for the participants. One of the reasons is that seven out of the nine participants are in health and medical segment, thus a highly science, R&D and technology-driven segment which requires access to knowledge (Phelps et al., 2012; Powell, 1998). Collaborations with institutions such as universities and hospitals are highly effective in acquiring knowledge:

Action: "*So, we have been able to define and refine our product line by working very closely with the scientists at the university who use the high technology, very expensive equipment they have on site to perform these jobs for us which refine our product, our devices, help us to create new products, and have allowed us, then, to have an initial*

product range which we have both had validated by independent researchers, and also have been able to use as examples when we go overseas and show our products"

Forest: "*She (research scientist) invented the technology that we use for the antibody for our prostate cancer test. We look for the research connections, so we have a number of research grants that we have with partners and the University … we are collaborating, that's very clear …that they're collaborators more than anything. That's the best way you would describe them*"

Ryde: "*We have a list of collaborators. So, we have, actually, a lot of latent relationships and networks, people whom we are very close … physicians in the European medical community and in North America …to develop the standard for the European Union on imaging lungs"*

Other resources required are information to international markets and management skills to access opportunities (Chetty & Campbell-Hunt, 2004; deMartino et al., 2006).

Silver: "*I'll say, okay, I'll say people firstly and then secondly is probably the local knowledge. So people as in we are growing fairly quickly … who can we work with? Do we train our people? In China, we need to look for local partners*"

Cove: "*To be more effective in America, we need to have more roots on the ground. We need people. We need specifically design engineers who are located in Southern California … who can work with us, are loyal to us and freely available for our clients to interact with. That's why we are there.*"

For Ona and Silver who are both in the health and wellbeing segment, government agencies play instrumental roles in the success of their internationalization, particularly in organizing international trade exhibitions and playing a referral role, for example, connecting the organizations to international distributors. This is consistent with studies from Hara and Kanai (1994) and Kontinen and Ojala (2011). However, participants in the health and medical segment find government agencies less useful. This may be because of the specialized nature of their products and services and because of their niche segments, industry organizations such as AusBiotech are more instrumental as collaborative networks.

Forest: "*I know the biotech industry is a small industry. There's about 300 biotech companies in Australia of various sizes and shapes and forms. So – and there's an industry body, so there are a lot of meetings. So, you know, we're well networked within that*"

Other collaboration networks include customers, suppliers and competitors. Collaborations with customers and suppliers have high positive effect on all the participants' innovations in product development (Annique Un et al., 2010; deMartino et al., 2006). Multiplex roles are also evident such as, a supplier supplying goods also provide product development services and in some cases, also becomes the distributor:

Mury: "*At the moment the supplier is running trials for us in … in France, so we've bought products from them. When we were in England, we were buying quite a lot from them, we weren't selling to them. And, since then, they've approached us to sell our product, so now they are selling our products too...*"

In the case of collaborations with competitors, there are mixed results. Consistent with literature on entrepreneurs in science and technology-driven industry, entrepreneurs collaborate with a variety of external organizations, including competitors, to exchange knowledge and information and to share R&D costs (Annique Un et al., 2010; Chiesa, 1996). For example, Forest collaborates quite extensively with his competitors, "… *the interesting thing is that those competitors are also partners or buyers for our technology, because if you have a better technology then one of those is likely to want it*". In the wellbeing segment however, collaborations with competitors are quite uncommon. The wellbeing segment of this industry is less science and technology-driven and their focus is on competing for international market share. Empirical studies on collaborations with competitors are few.

Processes of developing collaboration networks Entrepreneurs adopt a strategic and intentional approach in developing collaboration networks. Results suggest that entrepreneurs do not leave network development to chance even though it might appear that they chanced upon an effective network, for example, Mury chanced upon his Chinese supplier at an industry seminar but Mury attends seminars with intentions to source opportunities as well as to connect with other industry players. Ellis (2011) finds that there is no role for chance and blind luck in developing collaboration networks. Results also suggest that pre-existing relationships of friends, university alma mater and business associates (past and present) are first points of contact for entrepreneurs as they seek resources for organizational growth. Family relations are less important in providing resources for internationalization. When pre-existing relationships lack required resources, entrepreneurs resort to a strategy of seeking referrals, for example, Ona relies on referral networks in expanding her international markets. Much of Ona's referrals are from government agencies,

indicating an instrumental and collaborative role for government agencies in helping entrepreneurs to internationalize (Hara & Kanai, 1994; Kontinen & Ojala, 2011).

In summary, all nine entrepreneurs see internationalization as a critical growth strategy for their organization. Being cognizant of their resource limitations, entrepreneurs strategically seek external resources by collaborating with external organizations to acquire skills and competitiveness to drive their internationalization plans. A contribution of this study shows a high level of collaborations which contrast with studies that suggest low levels of collaborations due to difficulties working with external organizations (Almeida et al., 2011; Eisenhardt & Schoonhoven, 1996). Resources most sought after are information and knowledge and key collaboration networks are universities, customers, suppliers, government agencies, industry associations and in some cases, competitors. Another contribution from the empirical results shows that entrepreneurs in the wellbeing segment do not collaborate with competitors. Consistent with previous studies, the process of seeking collaboration networks starts with tapping into pre-existing networks of friends, colleagues and business associates but in addition, entrepreneurs see each actor in their networks as a source of information and referral opportunities to other resources. Results present contrasting views in terms of the effective role of government agencies. While entrepreneurs in the health and wellbeing segment see benefits from export programs organized by government agencies, the medical segment find the programs less helpful and not very effective. This could be that the specialized and niche nature of the medical segment present different needs and challenges but it shows there is a role for government agencies to address these needs and thus, help improve internationalization in this segment.

Network Structure

The third research aim is to examine some key structural network characteristics that impact entrepreneurs' access to resources. Examining network graphs provides basic structural information. As shown in Figure 1 four types of structures are evident. At one extreme is the highly centralized sparsely connected star structure of Action and at the other is the decentralized, dense structure of Ryde. Action's network members are dispersed geographically as well as in diverse industry functions of manufacturing, distributing and consulting. Ryde's dense structure comprises network members in science and research oriented organizations such as universities and hospital. Its members are also geographically dispersed but lack of physical proximity does not deter their needs for high levels of research collaborations (Blanc & Sierra, 1999; Chiesa, 1996). Five of the cases (Mury, Mere, Cove, Dale and Forest) show some clustering of network members plus a number of separate direct

ties. Government export agencies, overseas customers and distributors provide connections to international markets (Mury, Dale, Silver and Ona), clusters of research institutes such as universities and hospitals provide connections to R&D and (Zukin & DiMaggio, 1990) knowledge collaborations (Ryde, Forest) and clusters of domestic suppliers provide multidimensional collaborations (Cove). Two cases, Silver and Ona, appear to contain multiple clusterings. The clustering on the right in Ona's graph shows the interconnections among actors involved in manufacturing the product while the left side clustering shows the international distribution connections. Silver's graph shows a cluster of government export agencies on the right while a cluster of key international distributors is shown on the left. Strength of tie is indicated by the thickness of lines, with thick lines indicating strong relationship and thin lines relationships. All nine graphs show a mix of strong and weak ties which is important as different tie strength fulfill different functions (Lechner & Dowling, 2003), for example strong ties play significant roles in referral opportunities (Brown & Reingen, 1987) and tend to be related to problem solving (Cockburn & Henderson, 1998). This is evident in the case of Ryde where strong ties dominate, thus creating a strong collaborative working environment. Weak ties are associated with generating ideas and information (Granovetter, 1973) which is particularly relevant as successful internationalization is dependent on entrepreneurs' ability to access and maintain ties to new international markets.

Figure 1: Network graphs

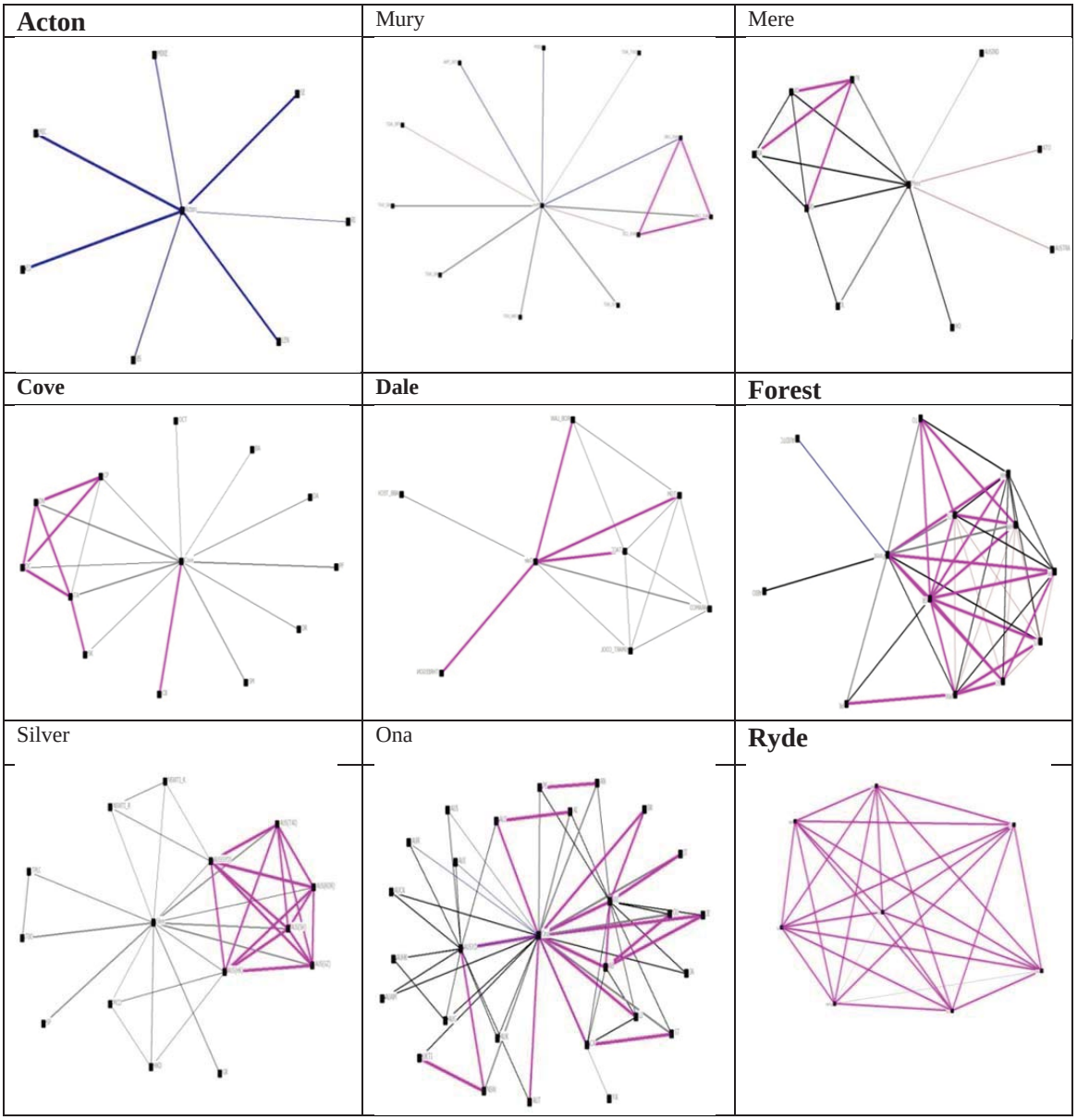

Table 2 gives a summary of the participants' networks in terms of size, number of ties, density and centralization. Ona has the biggest network with the highest number of ties yet has the lowest density and Ona is one of the most centralized networks. Ona collaborates with a diverse mix of overseas distributors, suppliers and herbalists. This diversity, together with a good number of ties provide advantages to Ona as she balances size and diversity to achieve successful international expansion (Burt, 1992). Studies suggest sparse networks, typically associated with weak ties, provide more diverse information and opportunities that are required for international expansion (Burt, 1992; Granovetter, 1973; Sharma & Blomstermo, 2003). Ryde's network records the highest possible density and the lowest

centralization score of 0, indicating all actors are directly connected with all other actors. Forest's network is the next most dense and also low centralization. The dense networks of Ryde and Forest suggest familiarity and trust among actors which encourage close collaborations and the decentralized characteristic suggest there is no dominant actor. A highly dense and decentralized network is conducive to close collaborations when entrepreneurs are in a niche product segment where the sharing of knowledge, technology and R&D is critical to the development of new knowledge.

Table 2: Network Structural Characteristics

	Network Size	Number of Ties	Density	Degree Centralization (with ego/ without ego)	Betweenness Centralization (with ego/ without ego)
Action	7	13	0.23	100%/na	86%/0%
Cove	12	38	0.25	89%/31%	84%/5%
Dale	7	30	0.53	62%/40%	55%/6%
Forest	12	92	0.59	48%/36%	36%/8%
Mere	9	32	0.36	81%/39%	76%/11%
Mury	11	28	0.22	95%/18%	97%/0%
Ona	27	120	0.16	91%/40%	73%/57%
Ryde	7	56	1	0%/0%	0%/0%
Silver	14	72	0.34	76%/35%	64%/17%

In summary, some results on network structure and its characteristics are consistent with past studies, for example, both strong and weak ties are present as entrepreneurs internationalize (Lechner & Dowling, 2003; Sharma & Blomstermo, 2003) and sparse networks with many weak ties are more effective in expanding internationally (Granovetter, 1973; Sharma & Blomstermo, 2003). The findings of this study also show that strong ties within a decentralized cohesive network structure results in effective collaborations in industries that are science and R&D intensive where sharing and exchange of tacit knowledge is critical.

Conclusion

This paper explores the processes by which INVs collaborate with external organizations to acquire much needed resources to internationalize their new ventures. Success of entrepreneurs' INVs is dependent on their ability to collaborate successfully so as to source, acquire and maintain critical resources to internationalize. A key contribution from the empirical results shows the high extent that entrepreneurs regard collaboration networks as critical resources. While funding is a critical resource, results from this study suggest that entrepreneurs focus more on collaborating to acquire knowledge and technology to gain competitive advantages and information on international markets as part of the organizations' growth strategy. As a result, key collaboration networks are with universities, customers, suppliers, government agencies and to a lesser extent, industry associations and competitors. Another contribution from this study shows the differences in collaborating with competitors i.e., high level of collaborating with competitors in the medical segment, but no collaboration with competitors in the health and wellbeing segment.

Entrepreneurs are strategic and intentional in seeking collaboration networks, suggesting no role for chance and luck. Consistent with other studies, social ties are important and pre-existing networks of friends, colleagues and business associates provide the first contacts for collaborations, but more than this, entrepreneurs see each actor in the pre-existing networks as a source of information and referral opportunities. Unlike studies in the entrepreneurship areas (Hite & Hesterly, 2001; Larson & Starr, 1993), there is minimal role of family in the internationalization process.

This paper is one of few to examine network characteristics of collaboration networks in the internationalization process. Results show that internationalization networks tend to be sparse, with many weak ties, this is consistent with past studies but this study also shows that collaborations networks in science and technology intensive industries are dense, cohesive, with many strong ties and decentralized with no dominant ego.

To summarize, our propositions are:

P1. International new ventures with diverse collaborative networks are more likely to succeed.

P2. International new ventures with strategic and intentional development of collaborative networks are more likely to succeed.

P3. Organizations in science, technology and R&D intensive industries which collaborate with networks of knowledge and innovation that are dense and cohesive are more likely to

succeed with developing new, innovative products which help increase competitiveness in international markets.

P4. Organizations focusing on rapid internationalization and which collaborate with diverse, sparse networks with many weak ties to distributors and export agencies are more likely to succeed in expanding international markets.

Although this study presents valuable insights on collaboration networks as resources for entrepreneurs' international new ventures, there are limitations. First, results are not generalizable in view of the small sample size. It is also limiting in the selection of a single specific industry and thirdly, participants are from a confined geographic location which may not be representative of entrepreneurs in the whole industry. Future research should cover different industries to examine differences and similarities in the dynamics of collaboration networks as resources for internationalization.

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Appendix E: Paper presented at ANZIBA Conference, Sydney 2013

Entrepreneurs' Search for Resources in the Internationalization Process
The Role of Personal and Organizational Networks

Frances Y. M. Chang Cynthia M. Webster

Abstract

In an increasingly globalized economy, entrepreneurs need to internationalize to remain competitive. Expanding into new international markets requires resources and as entrepreneurial organizations are typically resource-poor, the aim of this study is to examine the processes by which entrepreneurs seek external sources to provide critical resources required to internationalize. A qualitative approach of in-depth face interviews with twelve entrepreneurs in the healthcare industry form the context of this research. Eight of these entrepreneurs are from the health and medical sector and four are from the health and wellbeing sector. Results indicate that while pre-existing personal networks provide much needed resources, equally important are organizational networks of government export agencies, industry and professional associations. Furthermore, results suggest that while there are similarities in the resource-seeking behavior of entrepreneurs in both sectors, key differences are noted in the way entrepreneurs collaborate with networks of competitors, government export agencies and industry/professional associations. This paper contributes empirically to knowledge building in the study of resource-seeking strategies of internationalizing entrepreneurs.

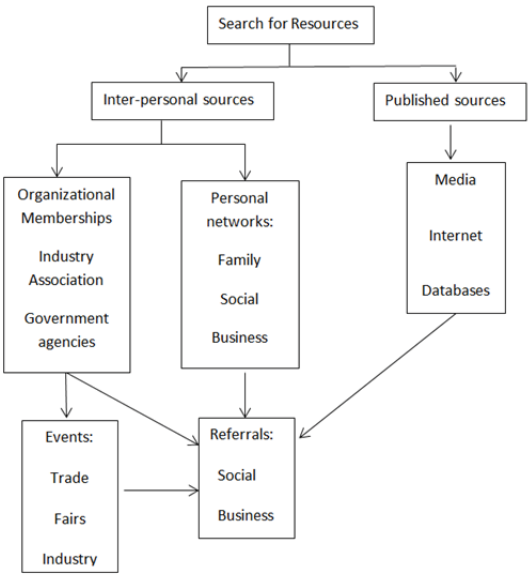
Keywords: Entrepreneurship, Internationalization, Resource-seeking Processes, Network, Resources

INTRODUCTION

Entrepreneurs are driven to internationalize in order to remain competitive in an increasingly globalized economy. Globalization trends add a further push for entrepreneurs to internationalize (Knight, 2000) and organizations that sell only to local markets are vulnerable to domestic economic trends. Indeed, for some entrepreneurs, internationalizing is an easier path to expand their new ventures as expansion in domestic markets can prove to be resource prohibitive, for example high levels of customer service required by retails chains and/or heavy investments in advertising and promotions (Bonaccorsi, 1992). For some organizations there is an urgency to internationalize at inception typically because of a small home market and/or the niche nature of their products and services (Burgel & Murray, 2000; Chetty & Stangl, 2010; Keeble, Lawson, Lawton Smith, Moore, & Wilkinson, 1998).

A review of the internationalization literature reveals that most studies are focused on processes and models of internationalization (Cavusgil, 1984; Johanson & Vahlne, 1977; Johanson & Vahlne, 1990; Yip, Biscarri, & Monti, 2000) but increasing empirical studies from a network perspective of internationalization are emerging (Coviello & Munro, 1997; Coviello, 2006; Ellis, 2011; Freeman, Hutchings, Lazaris, & Zyngier, 2010). Studies on the network perspective of internationalization suggest networks provide much needed resources for entrepreneurs to internationalize (Chetty & Stangl, 2010; Loane & Bell, 2006; Moen & Servaise, 2002; Rasmussan, Madsen, & Evangelista, 2001). Indeed, success of entrepreneurial internationalization is dependent on the ability of entrepreneurs to source critical resources to enter new markets. Most studies focus on the value and benefits that networks provide to international new ventures but fall short of describing the processes by which entrepreneurs tap into much needed networks. Fewer studies still examine the types of resource channels that entrepreneurs regard as critical to internationalization such as, professional forums, government agencies and industry associations. As such, the aim of this study is to examine the resource channels entrepreneurs use to gain access to international markets. Specifically, the study focusses on the role of both personal networks and organizational networks in the internationalization process. To explore these two issues, in-depth face interviews were conducted with twelve entrepreneurs/CEOs in the Australian healthcare industry. Results suggest that in developing international networks, entrepreneurs engage in search actions that combine approaching both personal and organizational network relations resulting in a rich and diverse set of potential resource networks. Figure 1 provides a resource-seeking conceptual framework in guiding the study.

Figure 1: Conceptual Framework of Entrepreneurs' Search for Resources



Theoretical and empirical studies from the fields of entrepreneurship, international new ventures, resource seeking and networks form the foundation of this paper. As such, a literature review of these fields follows. Next the paper provides a discussion of the qualitative research method and results and closes with a section on conclusions and limitations of the study.

LITERATURE REVIEW

In essence, entrepreneurship is a mind-set that combines all the characteristics of opportunity seeking, value adding, profit making and the skills and tenacity to make things happen (Kuratco & Hodgetts, 2007; Shane & Venkataraman, 2000). Without doubt, entrepreneurs bring innovation, creativity, energy and value to their organizations, to the market and to the economy (Drucker, 1985; Gartner, 1988; Shaper & Volery, 2007). Increasingly, entrepreneurs are internationalizing their new ventures, many at inception, seeking *"to derive significant competitive advantage from the use of resources and the sale of outputs in multiple countries"* (Oviatt & McDougall, 1994: 93). As such, the success of new international ventures is dependent on entrepreneurs' skills to search and acquire external resources.

Jarillo (1989) suggests that networks are one such external resource. Furthermore, resource dependency theory (Pfeffer & Salancik, 2003) posits that no organization is self-sufficient and therefore, organizations rely on other organizations to fill in resource gaps. For instance, many technology and knowledge intensive organizations rely on collaboration networks to access resources such as technology, knowledge and opportunities (Powell, 1998). Similarly, social exchange theory underpins the conceptual premise that resources can be gained from networks. Social and business relationships are formed by an evaluation of costs, benefits and alternatives and exchange of value items takes place within these relations (Emerson, 1976). Valued items are both tangible, such as goods and market information, and intangible, such as trust, reputation and even friendship.

A network is formed when two or more actors, whether individuals or organizations, are connected by social or business relationships (Birley, 1985; Bollingtoft & Ulhoi, 2005; Johannisson & Monsted, 1997; O'Donnell, Gilmore, Cummins, & Carson, 2001). Typically, personal networks consist of all individuals and organizations with whom an entrepreneur has direct relations (Dubini & Aldrich, 1991), but these direct relations can provide indirect access to additional individuals and organizations not initially known to the entrepreneurs. For instance, participating in trade fairs and industry forums are useful means of creating networks of exchange opportunities.

Networks provide vital resources for entrepreneurial new ventures, such as access to information and knowledge, funding and skills, markets and distribution. Studies suggest the instrumental role that networks play in the formation and growth of organizations (Hite & Hesterly, 2001; Larson & Starr, 1993). In Larson and Starr's (1993) model, the authors explain how simple dyadic, one-dimensional social ties transform to multidimensional and multilayered relationships of social and economic exchanges in the formation of an organization. Likewise, other authors find that while socially-embedded network ties dominate at the emergent stage of an organization, networks become more calculative as the organization evolves from emergent to growth (Greve & Salaff, 2003; Hite & Hesterly, 2001). Calculative networks are more market-led, less dense, have a more diverse combination of actors and provide a broader range of resources such as funding, knowledge, management skills and market information. Contrasting views are presented in the study of entrepreneurial networks, for example, while some authors suggest a shift of affective ties to calculative ties as organizations evolve from emergent to growth stage (Greve & Salaff, 2003; Hite & Hesterly, 2001; Larson & Starr, 1993), other authors suggest the contrary, i.e. networks ties evolve from calculative to affective (Jack, Moult, Anderson, & Dodd, 2010) while Coviello (2006) argues that in fact, economic (calculative) network ties dominate in all stages of organization formation.

There are few studies on the role of organizational networks in the internationalization process. Government agencies, universities, industry and professional associations offer resources in the form of information to international markets, advisory and referral systems for overseas join ventures, participation in trade exhibitions which in turn presents new market opportunities and the opening to connect with others in the same industry (Hara & Kanai, 1994; Neergaard & Ulhoi, 2006; Ozgen & Baron, 2007). While some government agencies and industry associations are well-meaning in assisting entrepreneurs to internationalize, some are too bureaucratic (Hara & Kanai, 1994) and not all are effective (Huggins, 2000; Neergaard & Ulhoi, 2006). The effectiveness of organizational networks in providing needed resources for internationalizing entrepreneurs remains unclear.

METHOD

A qualitative approach of in-depth face interviews is chosen for several reasons. Hoang and Antoncic (2003) appeal for more qualitative work so as to stimulate new theoretical ideas. The usefulness of qualitative research is that it facilitates in-depth probing and understanding of issues, giving opportunities to explore and explain the context of business and social ties and how actors react with each other rather than just measured

responses. Face interviews allow an exploratory approach which may be more suitable in studying the process of network development, explaining types of relationships and contacts (Birley, 1985; Huggins, 2000).

The Australian healthcare industry provides the context for this study. It is a science intensive and knowledge driven industry. Studies suggest that organizations in knowledge and science-based industry require higher level of collaborations so as to seek, exchange and share resources such as latest technology, high cost of R&D and the risks of penetrating new markets (Bower, 1993; Staropoli, 1998). It is an industry that exhibits many entrepreneurial characteristics such as innovations, risk-taking and creativity. Datasets of organizations in the Australian healthcare industry (Austrade, 2011a, b; CHC, 2011) show many are owner-managed, suggesting, a high level of entrepreneurship.

Data collection started with an analysis of member organizations listed in the Health and Medical website (Austrade, 2011a), Health and Wellbeing website (Austrade, 2011b) and Complementary Healthcare Council website (CHC, 2011). Based on a purposive and convenient sample selection (Miles & Huberman, 1994), twelve entrepreneurs/CEOs were selected for this study. All participants are Australian owned and based in New South Wales. Initial contact with participants was through phone, followed by emails to confirm participation and arrangement of interview time. Interview time took an average of one hour. During the interview a semi-structured questionnaire guide was used. Questions allowed for probing of the processes that participants go through in seeking resources, for instance *"when you need help on product/business development, who would you first go to?" and "name some government agencies, industry associations which are helpful in your internationalization process"* Interviews were recorded to assist accurate transcription and extensive notes were also taken. Follow up phone calls, emails and short meetings took place to verify and expand on data collected. A summary of the interview was prepared and emailed to each participant for data verification.

All transcribed interviews together with other data sources such as extensive notes of phone calls and meetings, information gathered from the websites of participants' organization and marketing brochures, were imported into Nvivo 9 software (NVivo, 2002) to assist in qualitative data analysis. A recursive exercise of data coding, categorizing and abstracting (Miles & Huberman, 1994; Spiggle, 1994) was done to identify patterns of activities and themes such as resources, sub groups of networks, internationalization strategy.

RESULTS AND DISCUSSION

The twelve entrepreneurs/CEOs interviewed are grouped as follows: a) eight are in health and medical segment with products ranging from medical devise, diagnostics, nuclear medicine and medical hazards disposal and b) four are in natural wellbeing segment with products such as health supplements and natural skincare. As such code names are assigned to participants in the medical group as M1 to M8 and those in wellbeing group as W1 to W4. Company size in terms of annual sales ranges from AUD2 million to AUD22 million and number of staff ranges from four to seventy-five employees. Their international business as a percentage of total sales ranges from five to 100 percent and the time between start of business operation to start of internationalizing ranges from seven years to zero, with six of the entrepreneurs internationalizing in the year of business inception. All twelve entrepreneurs are internationalizing at different levels of operation, i.e. from direct exports to setting up their own international office and establishing R&D collaborations with international organizations. Refer Table 1 for summary of the participants' international activities

Table 1: Summary of Participants' International Operations

Export through distributors and agents	7 out of 11 participants
Set up own office overseas	6 out of 11 participants
Use contract manufacturers	6 out of 11 participants
Collaborate with suppliers on product development	5 out of 11 participants
Collaborate with oversea consultants on product designs	6 out of 11 participants
Collaborate with oversea knowledge networks of scientists, universities and hospitals	3 out of 11 participants
Not internationalizing as organization is at pre-commercialization stage	1 out of 12 participants

Analyses of the in-depth interviews reveal a number of themes built around internationalization as being critical to organizational growth, resources needed to achieve organizational growth and how/where required resources can be acquired, for example from published sources and the internet: M6 – "*I've used Austrade website to look for people in India and all sorts of places … and sometimes just Google the top ten companies in Germany and called them up*".

In seeking resources, findings suggest that, consistent with prior studies, entrepreneurs first approach pre-existing networks of friends and business associates (Hite & Hesterly, 2001; Larson & Starr, 1993). Networks of pre-existing suppliers and customers appear to dominate in terms of key resource channels for participants in both medical and wellbeing segments, W4 – *"Yeah, they do, and I'll also say, yeah, some suppliers will tell us, you know, there's new ingredients, you know, that, this and that, and are you interested? And yes, they also give us ideas, yes, they do"*, M1 – *"… product design ideas …they come from people with problems … my patients."* In situations where pre-existing networks are unable to provide the required resources, referral opportunities are sought, i.e. existing network ties help to provide access to other networks that are not known to the entrepreneur (Dubini & Aldrich, 1991): M6 – *"…Yeah, so the North American business came out of an Australian design customer who sold his business to the North Americans…"*

Results of this study also show that all participants actively use government agencies, industry and professional associations, W2 – "*I went to an event – the Industry and Investment, New South Wales event and … got to meet the UK Business Development Managers who like my product concept and … they gave me a proposal to start my business in UK …"* Government export agencies seem particularly useful to internationalizing entrepreneurs (Kontinen & Ojala, 2011) and in the Australian context, Austrade appears to be the most used government agency in terms of resources acquired for internationalization. Austrade runs a range of programs from providing information and training programs, to preparing individual country market reports, assists in providing referrals between Australian and international organizations and as well as organizing trade exhibitions: M7 – *"It's very good that way … trade exhibitions. Austrade, is very, very good for that. What they do, they take a lot of up and coming companies and they'll – and it's – you know, the cost is like a tenth if you go through Austrade that the cost that you would have if you went by yourself*" and from M4 – "*… international markets, I think so, okay, they are, for example they are governments, I think Austrade has helped us a lot."* Most participants express confidence with Austrade but not all participants' experience with government agencies are positive (Neergaard & Ulhoi, 2006). For example, M6 – "*but it's – you know, it's riddled with people who mean well and want to do well, but they're really hard to contact, they're really expensive when they get fired up to do something, they're really disconnected with the cut and thrust difficulty of small business. You know, if I was a big corporate I'd go there for sure. But we're not, we're just an SME, ten people."*

For participants in the health and medical segment there are, understandably, high levels of collaborations with universities and hospitals for access to current scientific

knowledge and latest technology: M6 -*"Yeah, we collaborate … we are part of an alliance, for want of a better word, with – in the medical design space with key complementary services like user market research, clinical trials, intellectual property creation, and intellectual property landscaping and all that sort of stuff."* M3 – *"She (university professor) invented the technology that we use for the – the antibody that we use for the prostate cancer test. We've also got, I guess, more research connections, so we have a number of research grants that we have with partners and the University of New South Wales."* Furthermore, in the search for knowledge and technology resources, participants in the medical segment collaborate with a diverse set of networks including competitors: M3 – "*The interesting thing is that those competitors are possibly also partners or buyers for our technology, because if you have a better technology then one of those is likely to want it."* In contrast, participants in the wellbeing segment do not work with competitors. This could be because the segment is less knowledge-intensive in terms of product development and also of the competitive nature of the segment, where achieving high market penetration and high market share appear to be key driving forces.

Table 2 highlights key resources sought by entrepreneurs and the key channels as resource providers.

Table 2: Highlights of Key Resources Sought and Resource Channels

Key Resources Sought	Channels of Resources	
	Personal Networks	Organizational Networks
Knowledge to assist product development and latest technology to remain competitive (medical segment)	Business associates such as suppliers, customers, competitors.	Universities, Hospitals, Industry and Professional Associations.
Knowledge to assist product development and latest technology to remain competitive (wellbeing segment)	Friends, business associates such as suppliers, customers.	Industry and Professional Associations
Information on international markets (both segments)	Friends, business associates such as suppliers, customers.	Internet, Databases, Government export agencies.
Export contacts and referrals (both segments)	Friends, business associates such as suppliers, customers.	Internet, Government export agencies, export consultants.
Regulatory compliance	Not applicable	Government agencies, export consultants, Industry and Professional Associations.

In summary, some results of this study are consistent with previous entrepreneurship studies, for example, in the process of developing networks entrepreneurs tap into pre-existing relations of friends and business associates (Hite & Hesterly, 2001; Larson & Starr, 1993). In addition, pre-existing networks ties present referral opportunities to other networks not known to the entrepreneur (Dubini & Aldrich, 1991). This study is more explicit in terms of identifying particular business relationships that provide resources sought by entrepreneurs, for instance, of suppliers and customers are commonly looked to for internationalization resources. Furthermore, the instrumental roles of organizational networks as internationalizing resource channels are clearly evident with government export agencies key for both segments of medical and wellbeing segments, while specific to the medical segment are universities, hospitals and professional associations which provide much of the collaboration resources required to gain science intensive knowledge critical to remain competitive in the segment.

CONCLUSION

Internationalization is regarded as an organizational growth strategy for many entrepreneurs. The act of internationalizing itself requires resources and studies suggest that networks are one such resource (Jarillo, 1988). Furthermore, research shows that networks provide resources and benefits to entrepreneurs as they internationalize, for example access to information on international markets and distribution channels and opportunities to collaborate with external organizations. Building on these studies, this paper examines the processes by which entrepreneurs develop networks for internationalization, specifically exploring the role of personal and organizational network.

Some of the results of this paper are consistent with previous studies, for example, there is prominence of the instrumental role of pre-existing networks of friends and business associates. Also all participants use published resources like the internet and freely available databases. In addition, this study suggests some interesting findings which contribute to knowledge building. When seeking resources, internationalizing entrepreneurs approach both pre-existing personal networks of friends and business associates as well as organizational networks of government agencies, industry and professional associations with universities and hospitals as critical channels of knowledge resources for entrepreneurs in the science intensive medical segment. There are further differences as well as some similarities in the way entrepreneurs in the medical and wellbeing segments seek resources. In the medical segment where there is a higher focus of knowledge and technology resources, entrepreneurs approach and collaborate with a more diverse set of organizational

networks which include universities, hospitals, professional associations and even competitors. In the wellbeing segment, priorities in resource-seeking focus more on gaining access to international markets to achieve market presence and market share. For the wellbeing segment the importance of gaining access to international markets means that government export agencies appear to be most instrumental in providing information as well as bridging connections between local and international entrepreneurs. The competitive nature of establishing market presence and market share also means that collaboration with competitors is not practiced. While both the medical and wellbeing segments use government export agencies for information gathering and participation in trade exhibitions, entrepreneurs in the wellbeing segment continue to use government export agencies for a much longer period than those in the medical segment. Entrepreneurs in the medical segment express that government export agencies lack the depth of knowledge and connections that they require and many entrepreneurs in fact, stress that government agencies could play a bigger role in assisting medical entrepreneurs to internationalize.

There are limitations to this study. Although the twelve in-depth interviews present a number of insightful results, this convenient sample is not generalizable to the population of internationalizing entrepreneurs. As such, a key research suggestion is to increase the sample size, either in increasing the number of in-depth interviews with more entrepreneurs or expanding the themes and insights from this study to a quantitative survey of entrepreneurs in the Australian healthcare industry.

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Appendix F: Paper presented at EIBA Conference, Germany 2013

Entrepreneurs' Search for Resources in the Internationalization Process The Role of Networks and Non-network Based Sources

Frances Y.M. Chang Cynthia M Webster

ABSTRACT

For many entrepreneurs, internationalization offers many advantages such as organizational growth, opportunities to diversify risks and increasingly, internationalizing as a way to gain competitive advantages. Any organizational growth requires resources but perhaps more so for internationalization in view of higher uncertainties and inherent risks in foreign markets. For typically resource-poor entrepreneurial organizations, the ability to acquire external resources is critical to their organizations' growth and acquiring external resources is even more critical for organization intending to grow through internationalization. Our study aims to examine the resource-seeking strategy of internationalizing entrepreneurs. We aim to understand the processes by which entrepreneurs seek to acquire these much needed resources to build and expand international markets, we explore the resources required and we examine both network-based and non-network based sources as resource providers. We use a qualitative approach of in-depth face interviews with twelve entrepreneurs in the Australian healthcare industry, the context of our research being the Australian healthcare industry. Our results indicate that entrepreneurs use a strategy of concurrently approaching both network-based sources as well as non-network based sources. Network-based sources comprise personal and social networks of friends, family and business associates. We also find that network-based sources include bureaucratic networks such as government agencies and industry associations. Equally important are non-network based sources comprising the internet, public databases and for many entrepreneurs, simply visiting and observing market and retail trading environments present information that lead to opportunities and resources. Extant literature suggest benefits of networks as resource providers but few studies examine the types of networks that provide different resources and even less studies examine the role of non-network based sources. This paper contributes empirically to knowledge building in the study of resource-seeking strategies of internationalizing entrepreneurs.

Keywords: International Entrepreneur, Internationalization, Resource-seeking Processes, Resources, Networks

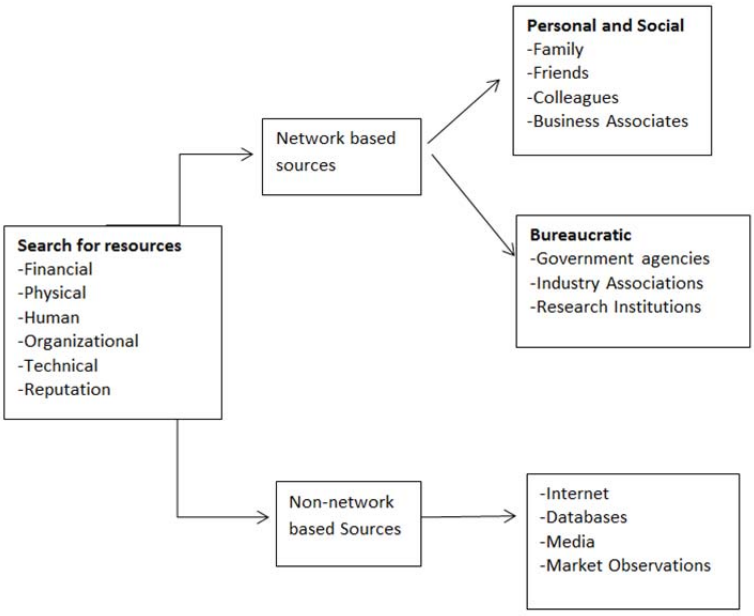
INTRODUCTION

Many entrepreneurial organizations are driven to internationalize in order to remain competitive. Organizations that operate only in local markets are vulnerable to domestic economic trends such as shrinking domestic markets and /or inefficient supply chains. Indeed, for some entrepreneurs, internationalizing is an easier path to expand their new ventures as expansion in domestic markets can prove to be resource prohibitive, for example high levels of customer service required by retails chains and/or heavy investments in advertising and promotions (Bonaccorsi, 1992). For some organizations there is an urgency to internationalize at inception typically because of a small home market and/or the niche nature of their products and services (Burgel & Murray, 2000; Chetty & Stangl, 2010; Keeble, Lawson, Lawton Smith, Moore, & Wilkinson, 1998). Globalization trends add a further push for entrepreneurs to internationalize such that for many entrepreneurs, sourcing from foreign suppliers is just as important as selling to foreign markets to remain competitive and potentially gain access to product ideas and technology (Beleska-Spasova, Glaister, & Stride, 2012; Hessels & Parker, 2013; Knight, 2000). While many entrepreneurial organizations see internationalization as an organizational growth strategy, they are, at the same time, faced with various barriers and resource-related constraints (Hutchinson & Xavier, 2006; Malo & Norus, 2009).

A review of internationalization literature suggests that there are few studies that address the specific resource constraints faced by internationalizing entrepreneurs and how entrepreneurs overcome these resource constraints. Most studies on internationalization focus on processes and models of internationalization (Cavusgil, 1984; Johanson & Vahlne, 1977; Johanson & Vahlne, 1990; Yip, Biscarri, & Monti, 2000), modes of entry (Burgel & Murray, 2000; Malhotra, Ulgado, & Agarwal, 2003) and export performance (Ganotakis & Love, 2012; Hsu, Chen, & Cheng, 2013) but increasing empirical studies from a network perspective of internationalization are emerging (Coviello & Munro, 1997; Coviello, 2006; Ellis, 2011; Freeman, Hutchings, Lazaris, & Zyngier, 2010). These studies suggest that networks provide access to much needed resources for entrepreneurs to internationalize (Chetty & Stangl, 2010; Loane & Bell, 2006; Moen & Servaise, 2002; Rasmussan, Madsen, & Evangelista, 2001) but are not specific as to what these resources might be. Furthermore, we need to understand the processes by which internationalizing entrepreneurs start to seek resources, for example while studies suggest the instrumental role of networks as external resources, the role of non-network based sources remains unclear. We propose a conceptual framework in Figure 1 to suggest that typically, resource-seeking internationalizing

entrepreneurs approach both network-based and non-network based sources to seek external resources.

Figure 1: Conceptual Framework of Entrepreneurs' Search for Resources



In this paper, we aim to investigate the resource-seeking behaviour of internationalizing entrepreneurs. Specifically, we explore the types of resources required and the types of networks that are instrumental in providing access to these resources. For example, in seeking resources to internationalize, what is the role of personal and social networks such as family, friends and business associates and bureaucratic networks of government agencies and other industry associations? Furthermore, what is the role of non-network based sources such as the internet, databases and market visits? Studies on resource-seeking behaviours of internationalizing entrepreneurs are few and as such, present some gaps for our research. We address some of these gaps with our four research questions as follows: 1) What specific resources do entrepreneurs require as they seek international markets? 2) How do entrepreneurs search for these critical resources? 3) How does existing networks assist as resource providers in the internationalization process and 4) what is the role of non-network based sources as resource providers for internationalizing entrepreneurs?

We conducted in-depth face interviews with twelve entrepreneurs/CEOs in the Australian healthcare industry. This qualitative approach allows for more exploratory probing of the unique resource constraints that internationalizing entrepreneurs face and the steps entrepreneurs take to access networks and non-network based sources to gain access to resources. Our results suggest that in mitigating their limited resources to internationalize, entrepreneurs actively engage in multilateral search actions that combine approaching both their inter-personal networks as well as exploring non-network based sources, resulting in a rich and diverse set of network relationships that lead to extended resource opportunities. This implies that for internationalizing entrepreneurs, a strategic and active engagement with both network-based and non-network based sources is critical to the success of their internationalization process. The theoretical underpinning of this paper starts from scholarly studies on organizational resources, for example, of the firm from resource based views (RBV), resource dependency theory (RDT) and transaction cost economics (TCE). We use social exchange theory and social network analysis to guide our research into how entrepreneurs seek external resources to make up for resources that are lacking or inadequate within their organizations. As such, we begin the next section with a literature review of the theoretical underpinnings of this paper. We then present an overview of the qualitative research method used before providing results and discussion. We close with a section on conclusion and limitations of our study.

LITERATURE REVIEW

In essence, entrepreneurship is a mind-set that combines all the characteristics of opportunity seeking, value adding, profit making and the skills and tenacity to make things happen (Kuratco & Hodgetts, 2007; Shane & Venkataraman, 2000). Without doubt, entrepreneurs bring innovation, creativity, energy and value to their organizations, to the market and to the economy (Drucker, 1985; Gartner, 1988; Shaper & Volery, 2007). Increasingly, entrepreneurs are internationalizing their new ventures, many at inception, seeking "… *to derive significant competitive advantage from the use of resources and the sale of outputs in multiple countries*" (Oviatt & McDougall, 2005 p.31). This definition implies that internationalization is more than just "sale of outputs" or export performance but also "use of resources" such as collaboration with international suppliers and other alliance partners to gain competitive advantages (Fernhaber & Li, 2013; Welch & Luostarinen, 1993). Some scholars suggest that the act of internationalization itself is innovative behaviour as risks and uncertainties, typically associated with innovation, are inherent in exploring unknown international markets (Bilkey & Tesar, 1977; Reid, 1981). While of number of internal and external factors determine the success of

internationalization, a key determinant is the availability of resources to advance access to international markets. For the entrepreneurial firm, the skill and ability of the entrepreneur to search and acquire external resources is, therefore, critical to its success.

Resources drive an organization's capacity to evolve and the efficient application of these resources results in growth of the organization (Penrose, 2009). The organization itself is a "*collection of resources*" (Penrose, 2009 p.68) and the author further suggests that it is the interaction of personnel and material resources that determines the organization's productive services. A key tenet to resource based views of organizations is the efficient application of resources at its disposal so as to transform these resources into competitive advantages.

Resources is viewed as a bundle of value creation tangible goods such as land and materials and intangible goods such as capabilities, experience and knowledge while Grant (1991 p.119) succinctly categorize resources as Financial, Physical, Human, Organizational, Technical and Reputation. In internationalization literature, studies suggest that four specific resources of managerial, knowledge, planning and technology appear to have positive effect on export performance (Beleska-Spasova et al., 2012). In parallel to RBV, transaction cost economics (TCE) posits that decisions on sourcing and production are determined by the relative costs of producing internally or externally (Williamson, 1979). A key premise to TCE is its rational view based on economic merits, i.e. to minimise economic cost and maximise economic value. For example, for resource-poor entrepreneurial organizations it might be a more economic decision to outsource warehouse and logistics functions than to operate its own warehouse internally.

Clearly, organizations cannot exist without resources. Equally, no organizations possess complete resources and in fact, resource dependency theory (Pfeffer & Salancik, 2003) posits that no organization is self-sufficient and therefore, organizations rely on other organizations to fill in resource gaps. (Jarillo, 1988) suggests that networks are one such external resource. For instance, many technology and knowledge intensive organizations rely on collaboration networks to access resources such as technology, knowledge and opportunities (Powell, 1998). International entrepreneurs rely on external network resources to operate various marketing functions such as distribution and logistics. Similarly, social exchange theory underpins the conceptual premise that resources can be gained from networks. Social and business relationships are formed by an evaluation of costs, benefits and alternatives and exchange of value items takes place within these relations (Emerson, 1976). Valued items are both tangible, such as goods and market information, and

intangible, such as trust, reputation and even friendship. Social exchange theory is about a series of interactions that generate obligations (Emerson, 1976). Some exchange theorists suggest that social exchange is a slow process whereby actors start with minor exchanges where little trust is required but over time, when actors prove their trustworthiness, they expand their exchanges to engage in more major exchanges (Blau, 1967). From an internationalization perspective, international entrepreneurs may start with sourcing from overseas suppliers whereby the exchange is relatively simple and typically governed by supplier contracts. Over time when trust and familiarity are evident, the exchange might expand, from merely supplying materials, to engaging in other collaborative activities such as R&D development.

Social network theorists suggest that economic exchange is more likely to take place between actors who have prior social relationships (Granovetter, 1985). Furthermore, the author posits that social relationships are embedded in economic exchanges and to explore these economic exchanges, we need to understand the social relationships between these actors. Relationships are key tenets in networks. A network is formed when two or more actors, whether individuals or organizations, are connected by social or business relationships (Birley, 1985; Bollingtoft & Ulhoi, 2005; Johannisson & Monsted, 1997; O'Donnell, Gilmore, Cummins, & Carson, 2001). Typically, personal networks consist of all individuals and organizations with whom an entrepreneur has direct relations (Dubini & Aldrich, 1991), but these direct relations can provide indirect access to additional individuals and organizations not initially known to the entrepreneurs. For instance, participating in trade fairs and industry forums are useful means of creating networks of exchange opportunities.

Without doubt, networks provide access to vital resources for entrepreneurial new ventures, such as access to information and knowledge, funding and skills, markets and distribution. Studies suggest the instrumental role that networks play in the formation and growth of organizations (Hite & Hesterly, 2001; Larson & Starr, 1993). In Larson and Starr’s (1993) model, the authors explain how simple dyadic, one-dimensional social ties transform to multidimensional and multilayered relationships of social and economic exchanges in the formation of an organization. Likewise, other authors find that while socially-embedded network ties dominate at the emergent stage of an organization, networks become more calculative as the organization evolves from emergent to growth (Greve & Salaff, 2003; Hite & Hesterly, 2001). Calculative networks are more market-led, less dense, have a more diverse combination of actors and provide a broader range of resources such as funding, knowledge, management skills and market information. Contrasting views are

presented in the study of entrepreneurial networks, for example, while some authors suggest a shift of affective ties to calculative ties as organizations evolve from emergent to growth stage (Greve & Salaff, 2003; Hite & Hesterly, 2001; Larson & Starr, 1993), other authors suggest the contrary, i.e. networks ties evolve from calculative to affective (Jack, Moult, Anderson, & Dodd, 2010) while Coviello (2006) argues that in fact, economic (calculative) network ties dominate in all stages of organization formation.

Past and present research highlight the importance of interpersonal and organization network relationships in the internationalization process. For example, The Industrial and Marketing Group (IMP) of researchers propose "The Interaction Model" in studying the complex and reciprocal interaction between organizations and in particular, between buyers and sellers (IMP, 2013). This interaction approach to studying networks emphasizes relationships rather than transactions (IMP, 2013; Turnbull, Ford, & Cunningham, 1996), suggesting that organizations need to build relationships in order to access external resources. The importance of network relationships is further emphasized in other internationalization research, for example in Johanson and Vahlne's (1977) seminal paper on their Uppsala Model as well as their updated version (2009) which emphasizes the criticality of being inside the networks rather than being outside the networks. Other studies suggest that networks are instrumental for entrepreneurial organizations, despite their smallness, to achieve rapid internationalization (Freeman et al., 2010; Mort & Weerawardena, 2006).

Other forms of resource networks are government agencies and trade associations which some scholars term as "*bureaucratic networks*" (Grandori & Soda, 1995 p.201-202). Government agencies (Hara & Kanai, 1994; Neergaard & Ulhoi, 2006), industry associations and professional associations (Greenwood, Hinings, & Suddaby, 2002; Ozgen & Baron, 2007) offer resources in the form of information to international markets, advisory and referral systems for overseas joint ventures, participation in trade exhibitions which in turn presents new market opportunities and the openings to connect with others in the same industry. In a study by Kontinen and Ojala (2011) the authors found that fifty percent of their respondents achieve international markets by participating in trade exhibitions. In Ozgen and Baron's (2007) survey of 200 newly IT companies, the authors found that entrepreneurs benefit from participation in professional forums. While some government agencies and industry associations are well-meaning in assisting entrepreneurs to internationalize, some are too bureaucratic (Hara & Kanai, 1994) and not all are effective (Huggins, 2000; Neergaard & Ulhoi, 2006). Studies on the role of bureaucratic networks in internationalization literature are few and the effectiveness of bureaucratic networks in providing needed resources for internationalizing entrepreneurs remains unclear.

Furthermore, studies on the role of non-network based sources such as internet and databases as providing access to resources appear to be lacking in the internationalization literature.

METHODS

A qualitative approach of in-depth face interviews is chosen for several reasons. Hoang and Antoncic (2003) appeal for more qualitative work so as to stimulate new theoretical ideas. The usefulness of qualitative research is that it facilitates in-depth probing and understanding of issues, giving opportunities to explore and explain the context of business and social ties and how actors react with each other rather than just measured responses. A qualitative approach enables a more holistic approach in understanding human and social issues in real-life situations (Creswell, 2009) such as those face by entrepreneurs as they explore new and unfamiliar markets. Face interviews allow an exploratory approach which may be more suitable in studying the process of network development, explaining types of relationships and contacts (Birley, 1985; Huggins, 2000).

The Australian healthcare industry provides the context for this study. The Australian healthcare industry, not unlike the global healthcare industry, is science intensive and driven by knowledge and research and development (R&D). Studies suggest that organizations in knowledge and science-based industry require higher level of collaborations so as to seek, exchange and share resources such as latest technology, high cost of R&D and the risks of penetrating new markets (Bower, 1993; Staropoli, 1998). It is an industry that exhibits many entrepreneurial characteristics such as innovations, risk-taking and creativity. Datasets of organizations in the Australian healthcare industry (Austrade, 2011a; CHC, 2011a) show many are owner-managed, suggesting, a high level of entrepreneurship.

Data collection started with an analysis of member organizations listed in the Health and Medical website (Austrade, 2011a), Health and Wellbeing website (Austrade, 2011b) and Complementary Healthcare Council website (CHC, 2011b). Based on a purposive and convenient sample selection (Miles & Huberman, 1994), twelve entrepreneurs/CEOs were selected for this study. The selection was based on the following criteria of i) participants' organizations are Australian owned and operated. This helps to eliminate the potential bias of better resourced multinational organizations and/or their Australian subsidiaries. ii) Australian products that are registered with the Australian Therapeutic Goods Administration (ATGA) which is the key Australian government department on regulatory compliance for healthcare products (ATGA, 2011). Initial contact with participants was

through phone, followed by emails to confirm participation and arrangement of interview time. Interview time took an average of one hour. During interviews a semi-structured questionnaire guide was used. Questions allowed for probing of the processes that participants go through in seeking resources, for instance “when you need help on product/business development, who would you first go to?” and “name some government agencies, industry associations which are helpful in your internationalization process” Interviews were recorded to assist accurate transcription and extensive notes were also taken. Follow up phone calls and emails took place to verify and expand on data collected. Follow up short meetings, averaging half an hour each, took place with seven out of the twelve participants. A summary of the interviews, supplemented with data from emails, phone calls and participants’ websites was prepared and emailed to each participant for data verification (Flick, 2008).

All transcribed interviews together with other data sources such as extensive notes of phone calls and meetings, information gathered from the websites of participants’ organization and marketing brochures, were imported into Nvivo 9 software (NVivo, 2002) to assist in qualitative data analysis. A recursive exercise of data coding, categorizing and abstracting (Miles & Huberman, 1994; Spiggle, 1994) was done to identify patterns of activities and themes such as resources, sub groups of networks, internationalization strategy.

RESULTS AND DISCUSSION

The twelve entrepreneurial founders/CEOs interviewed are grouped as follows: a) eight are in health and medical segment with products ranging from medical devise, diagnostics, nuclear medicine and medical hazards disposal and b) four are in natural wellbeing segment with products such as health supplements and natural skincare. As such, code names are assigned to participants in the medical group as M1 to M8 and those in wellbeing group as W1 to W4. Company size in terms of annual sales ranges from AUD2 million to AUD22 million and number of staff ranges from four to 50 full-time employees. Their international business as a percentage of total sales ranges from five to 100 percent with one organization reporting no exports yet at time of interview. Refer Table 1 for key highlights of participating organizations.

Table 1: Key Highlights of Participating Organizations

Parti-cipant	Product lines	Firm Age (years)	Number of staff	Annual Sales (AUD)	Export ratio % of sales	Key International markets
M1	Medical devices	19	40	5 -10 mil.	5	Europe, UK, USA
M2	Medical devices	10	30	< 5 mil.	70	Europe, Middle East, US
M3	Medical diagnostics	11	8	< 5 mil.	n/a	n/a
M4	Medical devices	4	4	< 5 mil.	100	Asia
M5	Nuclear medicine	6	25	> 20 mil.	50	Asia, Europe, Latin America, UK
M6	Medical devices	16	10	< 5 mil.	50	Asia, Middle East, North America,
M7	Medical devices	8	38	10 -15 mil.	10	Asia, New Zealand, Middle East, USA
M8	Nuclear medicine	13	20	> 20 mil.	25	Asia, Europe, New Zealand, North Africa,
W1	Organic Beverage	4	8	< 5 mil.	30	Europe, USA
W2	Organic skincare	16	18	< 5 mil.	90	Asia
W3	Natural skincare	13	22	< 5 mil.	70	Asia, UK
W4	Health supplements	16	50	15 -20 mil.	40	Asia

All twelve entrepreneurs are active in international markets with varying degree, i.e. from direct exports to setting up their own international office and establishing R&D collaborations with international organizations. For example, participant M3 has no export revenue at time of interview but has extensive collaboration activities with international medical scientists. As shown in Table 2, in addition to exports, there is a high level of international activities through networks of suppliers and other collaboration partners. This is consistent with internationalization literature suggesting that competitive advantages are gained not just through sales of output but also through other varying degree of international activities (Fernhaber & Li,

2013; Welch & Luostarinen, 1993). Refer Table 2 for summary of the participants' international activities.

Table 2: Summary of Participants' International Activities

International Activities	Ratio as a % of *N* = 12
Direct exports through distributors and agents	65
Set up own office overseas	50
Use contract manufacturers	50
Collaborate with suppliers on R&D	40
Collaborate with consultants on R&D	60
Collaborate with knowledge networks of scientists, universities and hospitals	40

Analyses of the in-depth interviews reveal a number of themes built around resource seeking behaviour of our participants, such as types of resources needed, type of networks which provide resources required and the processes of acquiring resources needed to build international markets. We start with types of resources in answer to research question one. Our results suggest that most resources sought by internationalizing entrepreneurs are grouped into 'Information', 'Knowledge' and "Contacts'. Penrose (2009 p.68) sees information as service resources that contributes to productive operations of the firm. Our results show that entrepreneurs regard information as crucial to their operations but especially in their pursuit of new international markets where the perception of risks is higher. For example, information on international markets, the distribution and retailing system as well as simply, information on ways of doing business in foreign countries. In a pilot study of the international networks of a serial entrepreneur, findings suggest that international entrepreneurs are in "permanent information gathering mode" (Chang & Webster, 2012). W1 – "*Our business is still very small…exports are new to us. We rely on a lot of people to tell us things … like my Chinese supplier, he tells me our products can sell in his country… he tells us about retailers in China and want us to try…*".

Another resource much sought by our participants is knowledge, such as knowledge in product and service development, ideas and innovations and new technology that can improve and/or create new products (Beleska-Spasova et al., 2012; Penrose, 2009). Not surprisingly, participants in the health and medical segment place a lot more

emphasis on the need to access scientific knowledge and latest technology through collaborating with knowledge networks such as universities and hospitals: M6 -*"Yeah, … we are part of an alliance, for want of a better word, with – in the medical design space with key complementary services like user market research, clinical trials, intellectual property creation, and intellectual property landscaping and all that sort of stuff."* M3 – *"She (university professor) invented the technology that we use for the – the antibody that we use for the prostate cancer test. We've also got, I guess, more research connections, so we have a number of research grants that we have with partners and universities"*.

The next key and critical resource sought by entrepreneurs, as our results suggest are business contacts, M1 – *"I'm a businessman, the bottom line is I look for connections. I'm pragmatic, what do I want? Connections, connections..."* Some scholars regard connections and contacts as soft and experiential resources compared to objective resources of information and knowledge (Loane & Bell, 2006). The authors suggest that government agencies need to focus on providing experiential resources as access to international contacts is key to successful internationalization.

Our second research question looks at types of resource networks. In contrast to entrepreneurial literature (Birley, 1985; Hite & Hesterly, 2001; Larson & Starr, 1993) which suggest the prevalence of family networks, our results suggest that networks of family do not appear instrumental in the pursuit of international markets. Instead, internationalizing entrepreneurs rely more on personal and social networks of friends, business associates such as previous and current colleagues, suppliers, customers and even competitors for entrepreneurs in the health and medical segment, M3 – *"The interesting thing is that those competitors are possibly also partners or buyers for our technology, because if you have a better technology then one of those is likely to want it."* In contrast, participants in the wellbeing segment do not work with competitors. This could be because the segment is less knowledge-intensive in terms of product development and also of the competitive nature of the segment, where achieving high market penetration and high market share appear to be key driving forces. Networks of pre-existing suppliers and customers appear to dominate in terms of key resource channels for participants in both medical and wellbeing segments, W4 – *"Yeah, they do, and I'll also say, yeah, some suppliers will tell us, you know, there's new ingredients, you know, that, this and that, and are you interested? And yes, they also give us ideas, yes, they do"*, M1 – *"… product design ideas …they come from people with problems … my patients."* In situations where pre-existing networks are unable to provide the required resources, referral opportunities

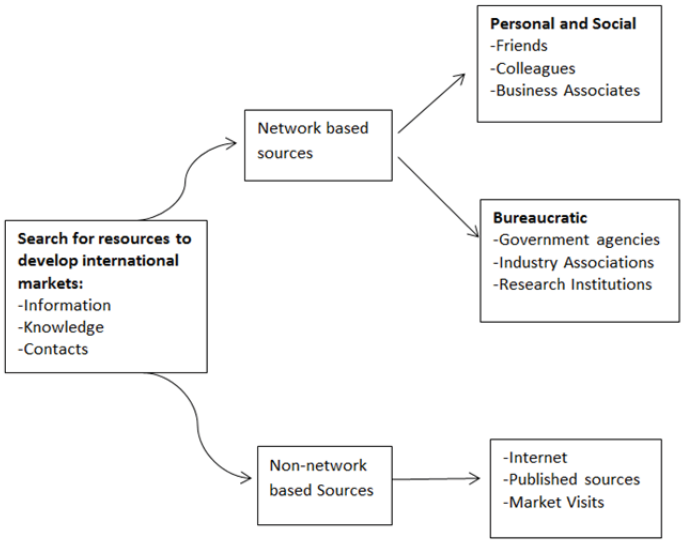
are sought, i.e. existing network ties help to provide access to other networks that are not known to the entrepreneur (Dubini & Aldrich, 1991): M6 – *"…Yeah, so the North American business came out of an Australian design customer who sold his business to the North Americans…"*

Results of our study also show that all participants actively use bureaucratic networks of government agencies, industry and professional associations (Grandori, 1997; Hara & Kanai, 1994; Ozgen & Baron, 2007), W2 – "*I went to an event – the Industry and Investment, State Government event and … got to meet the UK Business Development Managers who like my product concept and … they gave me a proposal to start my business in UK …"* Government export agencies seem particularly useful to internationalizing entrepreneurs (Kontinen & Ojala, 2011) and in the Australian context, Austrade appears to be the most used government export agency in terms of resources acquired for internationalization. Austrade runs a range of programs from providing information and training programs, to preparing individual country market reports, assists in providing referrals between Australian and international organizations and as well as organizing trade exhibitions: M7 – *"It's very good that way … trade exhibitions. Austrade, is very, very good for that. What they do, they take a lot of up and coming companies and they'll – and it's – you know, the cost is like a tenth if you go through Austrade that the cost that you would have if you went by yourself*" and from M4 – *"… international markets, I think so, okay, they are, for example they are governments, I think Austrade has helped us a lot."* Most participants express confidence with government export agencies but not all participants' experience with government agencies are positive (Neergaard & Ulhoi, 2006). For example, M6 – *"but it's – you know, it's riddled with people who mean well and want to do well, but they're really hard to contact, they're really expensive when they get fired up to do something, they're really disconnected with the cut and thrust difficulty of small business. You know, if I was a big corporate I'd go there for sure. But we're not, we're just an SME, ten people."*

The foregoing discussion focus on research questions one and two where our aims were to examine the types of external resources sought by internationalizing entrepreneurs and the types of resource networks that provide much needed resources to build international markets. In our third research question we examine the processes of how internationalizing entrepreneurs acquire external resources. In acquiring external resources, all our participants conduct concurrent searches, not just of personal and bureaucratic networks but of non-network based sources such as internet and published sources, suggesting that search for external resource is not a sequential approach but

rather a concurrent approach. M6 – *"I use Austrade website to look for people in India and all sorts of places … and sometimes I just Google the top ten companies in Germany and called them up*". W1 – *"… I found my Chinese supplier through the internet, my American distributor through the internet. I use the internet to look for everything. No internet, no business life*". Our results support Ellis's (2011 p.104) concern that research on non-network based resources are limited. Our results also suggest other forms of non-network based resources such as market visits, trade fairs and industry/professional forums. M3 – *"I've been a – well, the company's been a member of AusBiotech since it was in existence, and they've been very supportive. So, they're a good industry body and they span a medical device and diagnostics group which is growing in size and strength, so we actually span sort of both areas"* Furthermore, another form of non-network based external resource comes from simply, visiting the market and potential customers, M7 – "*We travel a lot, do presentations, give samples, get feedback… it's just a lot of travelling*". This implies that market visits provide entrepreneurs the opportunity to acquire information and potential to develop further network relations. In conclusion to the discussion of our results, we re-visit our conceptual framework presented earlier (Refer Figure 1) and replace this earlier conceptual framework with Figure 2 which emphasizes the key external resources of Information, Knowledge and Business Contacts which internationalizing entrepreneurs identify as instrument in their pursuit of international markets.

Figure 2: Entrepreneurs' Search for Resources for Internationalization – A More Focused Process



In summary, some results of our study are consistent with previous entrepreneurship studies, for example, in the process of developing networks entrepreneurs tap into pre-existing relations of friends and business associates (Hite & Hesterly, 2001; Larson & Starr, 1993). In addition, pre-existing network relationships provide conduits to other networks not known to the entrepreneur, in other word, providing referral opportunities (Dubini & Aldrich, 1991). Our empirical results show that the key resources internationalizing entrepreneurs seek are information, knowledge and contacts. Furthermore, our results suggest that entrepreneurs seek resources not just from personal/social network of friends and business associates such as suppliers, customers, distributors and, to some extent, competitors but equally instrumental in providing access to resources are bureaucratic networks of government agencies and industry associations. Additionally, entrepreneurs in the health and medical segment seek to access resources networks such as universities and hospitals so as to gain competitive advantage by acquiring new knowledge and technology. Lastly, our results clearly suggest that the search for external resources is not a sequential process but a concurrent process of seeking network-based and non-network based sources. Unlike network-based external resources where various perspectives are studied, research on non-network based resources are limited.

CONCLUSION

Internationalization is regarded as an organizational growth strategy for many entrepreneurs. The act of internationalizing itself requires resources and studies suggest that networks are one such resource (Jarillo, 1988). Furthermore, research shows that networks provide resources and benefits to entrepreneurs as they internationalize, for example access to information on international markets and distribution channels and opportunities to collaborate with external organizations. Building on these studies, our study examines the types of resources internationalizing entrepreneurs seek, the types of networks that provide these resources and the processes by which entrepreneurs start their search for external resources.

While various perspectives of resources are extensively studied (Grant, 1991; Penrose, 2009; Pfeffer & Salancik, 2003), our results suggest that for internationalizing entrepreneurs, the need for external resources is focused on acquiring Information, Knowledge and Business Contacts. This could be that our participants, being

founders/CEOs of their organizations, seek more experiential rather than operational resources as these resources are seen as more instrumental in driving organizational growth. Internationalization is a dynamic process and our results imply that successful internationalization depends on continuous input of these three resources of information, knowledge and business contacts. When seeking external resources, a multilateral approach is used by internationalizing entrepreneurs whereby both personal/social networks and bureaucratic networks are sought. Concurrently, non-network based sources such as internet and fact-finding market visits are also sought. This multilateral approach may seem reasonable but to the best of our knowledge, this is not covered in extant literature.

There are differences as well as similarities in the way entrepreneurs in the medical and wellbeing segments seek resources. In the medical segment where there is a higher focus of knowledge and technology resources, entrepreneurs approach and collaborate with a more diverse set of organizational networks which include universities, hospitals, professional associations and even competitors. In the wellbeing segment, priorities in resource-seeking strategy focus more on gaining access to international markets to achieve market presence and market share. For the wellbeing segment the importance of gaining access to international markets means that government export agencies appear to be most instrumental in providing information as well as bridging connections between local and international entrepreneurs. The competitive nature of establishing market presence and market share also means that collaboration with competitors is not practiced. While both the medical and wellbeing segments use government export agencies for information gathering and participation in trade exhibitions, entrepreneurs in the wellbeing segment continue to use government export agencies for a much longer period than those in the medical segment. Entrepreneurs in the medical segment express that government export agencies lack the depth of knowledge and connections that they require and many entrepreneurs in fact, stress that government agencies could play a bigger role in assisting medical entrepreneurs to internationalize.

The key limitation to our study is the lack of generalizability. Although the twelve in-depth interviews present a number of insightful results, this small and convenient sample is not generalizable to the population of internationalizing entrepreneurs. In addition, our focus on a specific industry further limits generalizability. We conclude by proposing three propositions, based on our results, to suggest further research:

P1: Internationalizing entrepreneurs who engage in multilateral search of external resources through networks and non-network based sources are more likely to achieve positive outcomes in their internationalization.

P2: Developing diverse personal and social networks of friends, colleagues and business associates, bureaucratic networks of government agencies, industry associations and research institutions are instrumental in achieving external resources to internationalize.

P3: Non-network based sources such as the internet, databases and frequent trade/market visits provide opportunities to acquire information and potential to develop new network relations to pursue international markets.

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Appendix G: Paper submitted to the ANZAM Conference, Sydney 2014

Relationships between Networks and Exports – an Australian Insight

Frances Y M Chang Cynthia M Webster

Abstract

Considerable numbers of studies examine the positive role of networks for internationalizing small and medium enterprises (SMEs), but to date, there is little empirical support identifying the importance of different types of network relationships. The purpose of this study is to empirically test the relationships between three types of networks and SME export likelihood. The sample, sourced from Australian Bureau of Statistics (ABS), consists of 2263 Australian SMEs. Our results find significant and positive relationships between business networks and exporting SMEs. On average, there is a likelihood of increasing SME exports by 65 per cent if all networks in the sample are accessed between one to three times a year, controlling for other factors. Our results also show that Government networks have the most influence on SMEs likelihood to export, follow by Industry and Professional networks.

Keywords: International markets, Exports, Networks, Small and medium sized enterprises

Firms internationalize to reap potential benefits such as, generating more revenue, exploiting idle or excess capacity (Leonidou, 2004), achieving better economies of scale, greater return on investments and improved competitiveness (Cadogan, Kuivalainen, & Sundqvist, 2009; Cassiman & Golovko, 2011). Alongside the potential benefits of internationalization, come potential risks and challenges. For example, merely entering new international markets entails higher risks because of limited information (Figueira-de-Lemos, Johanson, & Vahlne, 2011) and increased cost of operations (Santangelo & Meyer, 2011). How do firms mitigate some of these risks? Miller (1992) proposes a strategic framework that includes: avoidance of high-risk countries, imitating the actions of other firms in the industry, being flexible, gaining control so as to reduce uncertainties and engaging in cooperative behaviour such as forming strategic alliances (Dunning, 1995) and/or developing networks (Hess, 2004; Johanson & Vahlne, 2009). Studies suggest that

networks help to reduce risks by reducing liability of newness, establishing legitimacy (Deeds, Mang, & Frandsen, 2004; Elfring & Hulsink, 2003) and reducing supply and distribution cost (Li & Zhou, 2010; Sheng, Zhou, & Li, 2011).

While understanding the role of networks has become a major research interest in the study of internationalization and a number of empirical studies demonstrate that networks add value to firms' internationalization strategies (Ellis, 2011; Fernhaber & Li, 2013; Tolstoy, 2010), there are few empirical studies that test whether networks significantly influence the likelihood of internationalization. We aim to address this, first by empirically testing the relationship between different types of business networks and export likelihood of small and medium-sized enterprises (SMEs). We use the Australian definition of SMEs as micro businesses with less than five employees, small businesses with more than five but less than twenty employees and medium businesses as those with more than twenty but less than two hundred employees (ABS, 2009). Throughout our study, we use the terms, SMEs and firms interchangeably to mean business organizations with characteristics defined as an SME. We focus on export as this entry mode is typically the first step to enter international markets for many firms (Fletcher & Crawford, 2011; Johanson & Vahlne, 1977).

Our study draws on literature on the role of networks for internationalizing firms (Coviello, 2006; Hessels & Parker, 2013; Hilmersson & Jansson, 2012) focusing on business networks as these networks provide more practical knowledge and experience in accessing international markets (Agndal & Chetty, 2007; Hilmersson & Jansson, 2012). Following the literature review and hypothesis development, we describe the cross sectional sample of 2263 SMEs and outline our data analytics. Our results show that the use of multiple business networks is positively and significantly related to export likelihood, suggesting that SMEs need to strategically tap into business networks as means to access resource opportunities to pursue international markets.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Business networks play important roles for many resource-constraint SMEs (Fernhaber & Li, 2013; Hessels & Parker, 2013). For many SMEs, export as an entry mode is the most viable way to enter new international markets. Compared to other entry modes, exporting requires minimum resources, involves fewer risks and offers more flexibility (Czinkota, Ronkaiken, & Moffett, 2005; Fletcher & Crawford, 2011). For example, Burgel and Murray's (2000) survey of 246 technology-based firms in UK find that exports account for ninety-two per cent of first entry mode and eighty-nine per cent of subsequent entry modes. SMEs are driven to export by various push and pull factors. Some firms are pushed into exports by difficult domestic environments such as economic slowdown and/or highly regulated environments in their home countries (Lee, Peng, & Barney, 2007; Peng, 2003). On the other hand, some firms are pulled into exports by attractive business environments in international markets such as better protection of intellectual property, less corruption (Peng, 2003) and opportunities to bigger and more lucrative markets (Yamakawa, Peng, & Deeds, 2008). Additionally, some SMEs are more proactive in using exports as a strategy for improving organization performance through better use of production capacity, higher sales revenue and realizing the potential to gain competitiveness from exposure to foreign expertise (Sapienza, Autio, George, & Zahra, 2006; Zahra, Ireland, & Hitt, 2000). While there are high potential gains from exports, for many SMEs, export barriers can be quite daunting. Often, inadequate resources are the key barrier for SMEs to explore international markets. In a 2007 survey of internationalization among SMEs, the Organization for Economic Co-operation and Development find that the top barrier to internationalization is "Shortage of working capital to finance exports"(OECD, 2009 p.8). Other top barriers identified in the same report are: lack of information to international markets, inability to connect with potential customers and limited managerial skills.

Studies on internationalization suggest that business networks help SMEs overcome some of the barriers and risks associated with exports (Hilmersson & Jansson, 2012;

Johanson & Vahlne, 2009). Business networks are conduits of information and knowledge for internationalizing SMEs (Vasilchenko & Morrish, 2011; Zhang, Soh, & Wong, 2010). Gaining specialist knowledge, filling strategic gaps and overcoming specific problems are just some motives given by SMEs in their search for external information (Hill & Neeley, 1988). For example, in a survey of 665 international exchange ventures, Ellis (2011) found that information provided by network ties lead to overseas venture opportunities, Harris and Wheeler's (2005) case study of eleven internationalizing SMEs, show that networks provided information that resulted in creating new export markets and knowledge provided by networks help inform early internationalizing SMEs on business practices of international markets (Sharma & Blomstermo, 2003). For exporting SMEs, networks provide information and knowledge which in turn leads to overseas connections, resulting in positive outcome in export likelihood. This argument sets the basis for our first and overriding hypothesis:

Hypothesis 1: Exporting SMEs make use of business networks to a greater extent than non-exporting SMEs.

Types of Business Networks

Business networks provide linkages between parties in both formal and informal ways (Yiu, Lau, & Bruton, 2007) and can include many different types of relationships, such as: supplier, customer, competitor, service and consulting (Chetty & Wilson, 2003; Zhou, Wu, & Luo, 2007) as well as government and industry ties (Bennett & Ramsden, 2007; Yamakawa et al., 2008). Multiple and different types of networks are needed as each offer different resources. Some studies suggest that government agencies are huge resource providers for internationalizing SMEs (Leonidou, Katsikeas, Palihawadana, & Spyropoulou, 2007; Martincus, Carballo, & Garcia, 2012). Gencturk and Kotabe (2001) suggest that government agencies produce the most information for information-seeking SMEs while other studies suggest that government-sponsored trade exhibitions are most practical venues for gathering information and contacts (Kontinen & Ojala, 2011; Ramirez-Pasillas, 2010). In

addition, other government export promotion programs, such as export training, export counselling, export subsidies and reduced tax rates on export earnings, are instrumental in encouraging SMEs to export (Kotabe & Czinkota, 1992; Leonidou, Palihawadana, & Theodosiou, 2011). Rose (2007), in a study of government foreign services of twenty two countries, find that government foreign missions have significant impact on home country exports by promoting awareness and creating home country presence in the host countries. Studies also show that building strong ties with government agencies facilitate organization performance (Bruton, Ahlstrom, & Obloj, 2008; Li & Zhou, 2010). Consistent with this suggestion, Boso, Story and Cadogan (2013), in their survey of 312 entrepreneurial firms in Ghana, find that better organization performance is attributed to strong ties with government networks. Promoting exports is high on most government agendas (Belloc & Di Maio, 2011). These agencies provide a number of services ranging from providing information and advice to education and training, events and trade missions, as well as providing export grants. This leads us to our second hypothesis:

Hypothesis 2: Networks of government agencies are positively related to export likelihood of SMEs.

While government agencies play instrumental roles in the export behaviour of SMEs, for many SMEs, trade industries and associations are regarded as less bureaucratic and perceived to provide easier access than bureaucratic government agencies (Greenwood, Hinings, & Suddaby, 2002; Lockett, Jack, & Larty, 2012; Ozgen & Baron, 2007). Trade and industry associations are found in most commercial and industrial sectors. These associations are collective bodies, they represent and defend common interests of their sectors and their members (Bennett, 1998; Damsgaard & Lyytinen, 2001). The scope of industry and trade associations is wide ranging and their roles overlap. In an Australian context, industry and trade associations typically include various chambers of commerce and a host of small and medium associations representing different industries and trade (Export61, 2014). Management of trade and industry associations see their roles as

disseminating information, encouraging communications and creating collaboration opportunities among members and even, encouraging innovation diffusion (Swan & Newell, 1995; Von Nordenflycht, 2010). Through industry networks, SMEs exchange information and knowledge, seek resource opportunities and link with industry mentors. In an internet survey of 202 information technology companies in America, Ozgen and Baron (2007) find that the role of industry associations as information-mentors expose their members to more business opportunities. In a survey of 194 SMEs in nine selected regions in Britain, Bennett and Ramsden (2007 p.62) find that the top four benefits SMEs seek from their trade associations are information, advice, lobbying/representations and networking opportunities. Lobbying activities suggest that trade associations present a collective voice on issues that concern their industry and in doing so yield better benefits for their members when communicating with governments and other institutions (Izushi, 2002; Luna & Tirado, 2008). British SMEs that pursue international business with EU countries look to their trade associations for advice, information and lobbying activities with both UK and Brussels (Bennett & Ramsden, 2007 p.68). Other motives to join trade associations include: looking for market opportunities, engaging in social activities and acquiring accreditation.

Other external organizations operating in the same industry are often included in industry networks, such as, business networks of suppliers, distributors and competitors. Supplier networks are well studied with results suggesting that collaborative engagement between parties leads to knowledge transfer and creation of new products and services (Nyaga, Whippleb, & Lynch, 2010; Zacharia, Nix, & Lusch, 2011). Studies on competitor networks, however, have mixed findings. For example, in a case study of New Zealand winemakers, Chetty and Wilson (2003) find positive outcomes of SMEs collaborating with competitors while other studies suggest detrimental results in cooperating with competitors in product innovations (Annique Un, Cuervo-Cazurra, & Asakawa, 2010; Nieto & Santamaria, 2007). Other scholars suggest that alliances with competitors are strategic moves to gain knowledge and competitive advantages (Ahuja, 2000; Phelps, Heidl, &

Wadhwa, 2012; Pina-Stranger & Lazega, 2011). On the basis of this discussion we offer our third hypothesis:

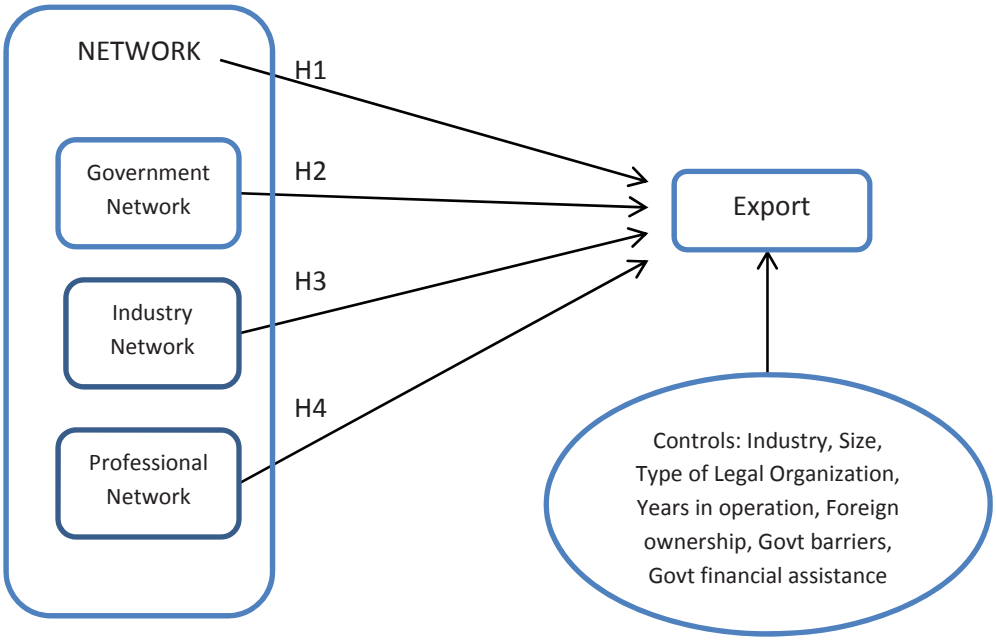
Hypothesis 3: Industry networks, comprising organizations operating in the same industry, positively influence SMEs export likelihood.

Professional networks make up another subset of business networks. International business studies suggest that there is a role for professional networks of consultants in providing resources to assist exporting SMEs, but few studies are specific as to the type of consulting services required by exporting SMEs (Chetty & Holm, 2000; Johanson & Vahlne, 1990; Kontinen & Ojala, 2011). Scholars in management and sociology suggest that professionals bring specialized knowledge and prestige to their occupations (Larson, 1977; Von Nordenflycht, 2010). According to Abbott (1988 p.8), *"… professions are exclusive occupational groups applying somewhat abstract knowledge to particular cases."* Sharma (1997) offers a loose list of professionals which include accountants, architects, engineers, lawyers, doctors and others in occupations who apply their expertise through training and experience, such as bankers, advertisers and management consultants. These professions offer their expertise as services to those who lack such expertise. For example, SMEs lacking the expertise to internationalize might seek the services of networks of professionals with the relevant expertise. Indeed, the services of professional consultants have been growing and continue to grow. For example, in the US, export of services has increased by 4.5 per cent while import of services increased by 3.5 per cent over the period December 2012 to December 2013 (BEA, 2014). Services in the BEA (2014) report include business, professional, technical, insurance and financial services. In an Australian context, total export of services grew by 3.7 per cent while total import of services grew by 4.5 per cent over the period 2011-12 to 2012-13. In this case, business services, including consulting services, increased by 9.2 per cent (exports) and 25.2 per cent (imports), respectively (DFAT, 2013). Based on aforesaid arguments, we hypothesize that there are positive relationships between professional networks and SMEs export.

Hypothesis 4: There are positive relationships between professional networks and SMEs export likelihood.

We summarize our theoretical discussions and hypotheses development in Diagram 1.

Diagram 1: Summary of hypotheses



METHOD

To test our hypotheses, we use a panel study from the Australian Bureau of Statistics (ABS), the Business Longitudinal Database (BLD) which is released through an Expanded Confidentialized Unit Record File (CURF). The BLD CURF data excludes big businesses employing more than 200 people and businesses with complex structure. Panel 1 data collected for the period 2004-05, through self-administered questionnaire released by ABS in 2009 (ABS, 2009) form the basis of the study as this dataset includes information on the frequency of use for different types networks. The total sample used in this study consists of 2263 SMEs from a population frame of 1,563,857 registered Australian businesses in 2004-05 selected by ABS using a stratified random sampling framework.

Measures and Models

The dependent variable is income received from export which is coded 0 if No and 1 if Yes. Based on literature, export income is an established measure of export performance (Coeurderoy & Murray, 2008; Gao, Murray, Kotabe, & Lu, 2010). We test our hypotheses using regression analysis and control for other known determinants of export likelihood. Our model is:

$$\begin{aligned}\text{Logit (Export)} = \alpha &+ \beta\ \text{NETWORK} + \beta\ \text{Size} + \beta\ \text{Years in Operation} \\ &+ \beta\ \text{Foreign Ownership} + \beta\ \text{Govt Controls} + \beta\ \text{Govt Financial Asst} \\ &+ \sum \beta\ \text{Type of legal organization} + \sum \beta\ \text{Industry} + \varepsilon\end{aligned}$$

Eight networks are recorded in the CURF data: External Accountants, Financial Advisors/Banks, Solicitors, Business Management Consultants, Others in the same industry, Industry associations/ Chambers of Commerce, Australian Tax Office and Other government organizations. We generate the variable, NETWORK as the key independent variable. NETWORK is the average of all eight network variables, this variable range from 0 to 2. We apply Cronbach's alpha to test the reliability coefficient of this set of eight networks. The test scale obtained is 0.77, with each network alpha score ranging from 0.73 to 0.75. The generally agreed lower limit is 0.70 (Hair, Black, Bagin, Anderson, & Tatham, 2006 p.137) while in some studies, a level of 0.60 is considered sufficient (Nunnally, 1978 p.230). As a next step we apply factor analysis with rotated factor loading (pattern matrix) on all eight network variables to condense the list of networks into smaller sets so as to establish convenient and logical descriptions of smaller set combinations (Hair et al., 2006). Factor analysis resulted in three factors which we name Government Networks (comprising Australian Tax Office and Other Government Organizations), Industry Networks (comprising Business Consultants, Others in same Industry and Industry associations including Chambers of Commerce) and lastly, Professional Networks (comprising External Accountants, Financial Advisors and Solicitors). Factors were rotated using VARIMAX

rotation and robustness checks on all factors have acceptable Cronbach's alpha, between 0.54 to 0.69. While higher Cronbach's alpha is generally desired, levels of 0.50 is considered satisfactory (Nunnally, 1967). In practice, these three smaller subsets are logical categories of networks based on business functions.

SMEs frequently seek advice and information from their business networks (Hoang & Antoncic, 2003). Frequency of interaction is typically used to measure relationship strength (Borgatti & Li, 2009) as frequent interactions indicate intensity of network activities which in turn, increase flow of exchanges (Almeida, Hohberger, & Parada, 2011). Frequency of interactions is measured as the number of times firms engage in seeking information and/or advice within a year, with coding as 0= Never, 1= 1-3 times, 2= More than 3 times.

To control for other known determinants that affect likelihood of exports, we use firm size, firm age, foreign ownership, government controls, government financial assistance, types of legal organization and industry segments. Firm size which is often used as proxy for firms' resources (Coeurderoy & Murray, 2008; Hessels & Parker, 2013) is operationalized based on employment size and coded 0= non-employer, 1= 0 to less than 5, 2= 5 to less than 20 and 3= 20 to less than 200. Firm age is used as a proxy for accumulated experience (Basile, Giunta, & Nugent, 2003; Hessels & Parker, 2013) and operationalized as Years in operation, coded 0= Don't know, 1= less than 5 years, 2= 5 years to less than 10 years, 3= 10 years to less than 20 years and 4= 20 years or more. Foreign ownership suggests international links which may provide more opportunities to international markets (Ellis, 2011; Sui & Baum, 2014), this is coded 0 = No and 1 = Yes. Many governments provide incentives to encourage SMEs to export but equally, governments can sometimes inadvertently present barriers to export through regulations and compliances barriers (Luo, Hsu, & Liu, 2008; Wilkinson & Brouthers, 2006). We include the variable Government Financial Assistance to indicate if the SMEs have received government assistance, coded 0= No and 1= Yes. To test if government regulations and compliances are barriers to exports, we include the variable Government Regulations and Compliance, coded 0= No and 1= yes.

Firms' strategies and internationalization efforts can be influenced by the firms' legal form (Hessels & Parker, 2013; Zahra, Neubaum, & Naldi, 2007). We control for this to include Types of legal organizations as Registered Company, Sole Proprietor, Partnership and Trusts and other unincorporated identity. Appendix 1 provides further details of measurements.

ANALYSES AND RESULTS

Not all SMEs are exporting, as shown in Table 1. Only 12.8 per cent, i.e. 290 out of 2263 SMEs, are exporting.

Table 1: Comparing SMEs with Export and No Export by Industry Segments

	Export			
	No		**Yes**	
Industry Division	**Freq.**	**Percent**	**Freq.**	**Percent**
Agriculture, Forestry and Fishing	460	23.31	80	27.59
Mining	82	4.16	11	3.79
Manufacturing	277	14.04	82	28.28
Construction	117	5.93	2	0.69
Wholesale Trade	176	8.92	49	16.9
Retail Trade	137	6.94	10	3.45
Accommodation, Cafes, Restaurants	145	7.35	5	1.72
Transport and Storage	122	6.18	9	3.1
Communication Services	93	4.71	13	4.48
Property and Business Services	120	6.08	14	4.83
Cultural and Recreational Services	107	5.42	10	3.45
Personal and Other Services	137	6.94	5	1.72
Total	1,973	100	290	100

Descriptive statistics is provided in Table 2. Firms in the sample reporting some form of foreign ownership is low at 4.3 per cent (untabulated results show 15.5 per cent for exporting SMEs). In terms of firms' businesses being hampered by government regulations and compliance, only 19.8 per cent reported yes while only 13.7 per cent reported no government financial assistance. The statistics for these two variables of Government Control and Government Assistance suggest a government that is active in assisting SMEs to

export through various forms of financial incentives and at the same, minimizing regulations and controls to facilitate export processes. The median firm size shows an employment range of five to less than twenty employees and the median for firms' number of years in operation is ten to less than twenty years.

Table 2: Descriptive Statistics

Variables	Obs	Mean	Std. Dev	Min	Q1	Median	Q3	Max
Export	2263	0.128	0.334	0	0	0	0	1
NETWORK	2263	0.526	0.410	0	0.26	0.50	0.76	1
External Accountants	2263	1.171	0.749	0	1	1	1	2
Financial Advisors	2263	0.627	0.740	0	0	0	1	2
Solicitors	2263	0.533	0.708	0	0	0	1	2
Business Consultants	2263	0.190	0.502	0	0	0	0	2
Others in same Ind.	2263	0.650	0.777	0	0	0	1	2
Industry Ass.	2263	0.303	0.609	0	0	0	1	2
Aust. Tax Office	2263	0.435	0.632	0	0	0	1	2
Govt Organizations	2263	0.303	0.586	0	0	0	0	2
Foreign Owners	2263	0.043	0.203	0	0	0	0	1
Govt Controls	2263	0.198	0.399	0	0	0	0	1
Govt Assist	2263	0.137	0.344	0	0	0	0	1
Firm Size	2263	1.547	1.051	0	1	2	2	3
Years in Operation	2263	2.602	1.174	0	2	3	4	4

Table 3 shows that on average, 39 per cent of SMEs in the panel use each form of networks. Preliminary evidence suggests that firms with exports consistently use networks more often, at 51 per cent, compared with firms with no exports at 37 per cent. The biggest difference in terms of use of networks comes from Solicitors, at 21 per cent, i.e. firms with exports use more Solicitors at 59 per cent than SMEs without exports at 38 per cent. At the other end of the spectrum, the lowest difference in terms of use of networks comes from Others in the same industry at 7 per cent, implying that all SMEs under study reported similar levels of connecting with Others in the same industry in seeking information and advice.

Table 3: Differences in use of Networks between SMEs with Export and those with no Export

	Total	Export	No Export	Difference
External Accountants	79%	88%	78%	10%
Financial Advisors	47%	61%	45%	16%
Solicitors	41%	59%	38%	21%
Business Management Consultants	14%	23%	13%	11%
Others in same Industry	46%	53%	45%	7%
Industry Associations	22%	39%	20%	19%
Australian Tax Office	36%	49%	34%	15%
Other Government Organizations	24%	40%	21%	18%
Average	39%	51%	37%	15%

Statistical analyses are performed using STATA, embedded in the ABS data (STATA, 2007). Correlations are shown on Table 4. In correlations, we measure associations between nominal data using Cramer's V correlation (Cramer, 1999; Liebetrau, 1983) and for ordinal data, we apply gamma measures of association (Goodman & Kruskal, 1972; Rosenthal, 1966). Table 4 shows positive and significant correlations between NETWORK and Export at 0.20 ($p<0.01$). Positive and significant correlations are also evident between other variables with Export and NETWORK, suggesting that NETWORK, together with all control variables, incrementally explain export likelihood. T-test with networks as the grouping variable and export as the dependent variable shows that on average, exporting SMEs use networks more frequently than non-exporting SMEs. Each of the control variables including Size, Years in operation, Foreign Ownership, Government controls and Government financial assistance show positive and significant correlations to Export. Correlation between firms with foreign ownership and export is particularly significant at 0.21 ($p<0.01$) and Size with export at 0.20 ($p<0.01$). For the item NETWORK, many of the positive correlations are expected such as Size with NETWORK at 0.39 ($p<0.01$) and government financial assistance at 0.25 ($p<0.01$). This suggests that bigger sized firms may have more resources to work with different business networks and government financial assistance creates more export opportunities for firms. Type of legal organizations is

negatively correlated to Industry divisions. There is no evidence of correlations between foreign ownership and years in operation, government compliance and government financial assistance. This suggests that other variables influence decision-making by foreign investors when investing in Australian firms. Various factors determine foreign investment decisions, such as location and ownership advantages (Buckley et al., 2007; Galan & Gonzalez-Benito, 2006) but these are beyond the scope of this study.

Table 4: Correlations

	1		2		3		4		5		6		7		8		9
1. Export	1																
2. NETWORK	0.198	***	1														
3. Industry Segments	0.208	***	0.034	**	1												
4. Firm Size	0.198	***	0.387	***	0.030	*	1										
5. Type of Legal Organization	0.133	***	-0.116	***	-0.148	***	-0.153	***	1								
6. Years in operations	0.135	***	0.085	***	0.085	***	0.303	***	0.090	***	1						
7. Foreign ownership	0.213	***	0.188	***	0.186	***	0.155	***	0.174	***	0.071	**	1				
8. Government Compliance	0.092	***	0.198	***	0.118	***	0.114	***	0.057	*	0.100	***	-0.012		1		
9. Government assistance	0.128	***	0.246	***	0.107	***	0.182	***	0.084	***	0.087	***	-0.015		0.054	**	1

N obs 2263

*p<0.1, **p<0.05, ***p<0.01

We follow these results by running regression analyses (refer Table 5) to estimate the relationships and effects of our independent variables on Export, the dependent variable. With a binary dependent variable, we use logistic regression to test our hypotheses. Logistic regression is similar to multiple regressions but is more robust when certain assumptions, such as multivariate normality, are not met (Hair et al., 2006). In Model 1, all variables except networks are entered into the logistic regression analyses. This is followed by the order of network variables. Chi2 shows that all five models are statistically significant with varying p-values. H1 is confirmed in Model 2 in the regression results suggesting that Network is positively and significantly related to Export. The coefficient of 0.649 with *p-value of <0.001* in Model 2 explains that, compared to non-exporting SMEs, exporting SMEs are 65 per cent more likely to increase exports if they access all eight networks between 1 to three times a year, or four of the eight networks for over three times a year holding all other variables constant. Results for Model 3 support H2 for Government Network, with a coefficient of 0.473, at *<0.001* significance, suggesting that Government Network as a single variable is as significant as NETWORK in Model 2, supporting H2 that government agencies play significant and instrument roles in the export activities of SMEs. Regression results for Model 4 also support H3 on positive relationships between Industry Network and Export, with coefficient of 0.384, and *p-value <0.007.* Model 5 shows a weaker support for H4, with coefficient of 0.326 at *< 0.012* significance, suggesting that Professional Network appears to show less significant relationship to SMEs export likelihood compared to Government Network and Industry Network.

For logistic regression, pseudo R2 is used to indicate goodness of fit measure of which a maximum value of 1 indicates perfect model fit (Hair et al., 2006; Long, 1997). Model 1 with no networks shows a pseudo R2 of 17.33 per cent indicating the significant and positive relationships of other key variables to export. In Model 2, NETWORK appears to be the best fit model with the highest pseudo R2 of 18.13 per cent. This means that Network, together

with other variables, explains 18.13 per cent of Export. Psuedo R2 for all other models range from 17.62 per cent to 18.11 per cent indicating the effect that each respective network group has on export. We perform variance inflation factor (VIF) analysis using OLS tables to check for multicollinearity between independent variables. An acceptable threshold for VIF is 10 (Hair et al., 2006; O'Brien, 2007). Our VIF values range from 1.27 to 1.28 for all five models in our regression models, suggesting that multicollinearity is not at all severe in our regression models.

Table 5: Logistic Regression

Dependent Variable: Export (0,1)

Variables	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**
Intercept	-3.463***	-3.652***	-3.569***	-3.512***	-3.628***
	(0.311)	(0.316)	(0.314)	(0.312)	(0.319)
Size	0.377***	0.287***	0.315***	0.339***	0.318***
	(0.082)	(0.086)	(0.084)	(0.083)	(0.085)
Years in operation	0.226***	0.233***	0.248***	0.221***	0.229***
	(0.067)	(0.068)	(0.068)	(0.068)	(0.068)
Foreign Ownership	1.747***	1.707***	1.690***	1.762***	1.706***
	(0.257)	(0.259)	(0.260)	(0.258)	(0.258)
Government Controls	0.513***	0.441***	0.457***	0.466***	0.481***
	(0.156)	(0.158)	(0.158)	(0.158)	(0.157)
Govt Financial Assistance	0.812***	0.671***	0.711***	0.714***	0.752***
	(0.171)	(0.176)	(0.174)	(0.176)	(0.173)
NETWORK		0.649***			
		(0.173)			
Government Network			0.473***		
			(0.127)		
Industry Network				0.384***	
				(0.142)	
Professionals Network					0.326**
					(0.129)
Industry dummies	Yes	Yes	Yes	Yes	Yes
Type of legal organization dummies	Yes	Yes	Yes	Yes	Yes
Pseudo R^2	17.33%	18.13%	18.11%	17.62%	17.69%
Mean VIF (OLS)	1.27	1.28	1.27	1.27	1.28
N Obs	2,263	2,263	2,263	2,263	2,263

Standardized errors in parentheses

*p<0.1, **p<0.05, ***p<0.01

DISCUSSION

While many studies highlight the positive role that networks in SMEs internationalization (Bangara, Freeman, & Schroder, 2012; Fernhaber & Li, 2013), few empirically test networks' relationship to exports. Accordingly, our key research aim is to empirically test the relationship between networks and export. While our results indeed show a positive and significant relationship between networks and export, we find surprisingly, that Model 1 with all control variables and no networks also show positive relationship, indicating that SMEs cannot rely on networks alone as other variables such as firm size, firm age, government controls and assistance and having foreign owners significantly affect export likelihood. Furthermore, our study indicates that the significance of relationships differ based on different types of networks. This is important because, although SMEs need many business networks to provide resources, maintaining network relationships require time and effort, so priority needs to be established in accessing effective networks (Gulati, 1998; McFadyen & Cannella Jr., 2004). Our study indicates, not surprisingly, that Government networks have the most significant relationship to SMEs export likelihood. Government agencies are instrumental in helping SMEs to internationalize through their many export programs and incentives (Martincus et al., 2012; OECD, 2013). While our empirical results show the positive and significant relationship of government networks, this contrast with some past studies that suggest that SMEs regard government networks as bureaucratic and difficult (Neergaard & Ulhoi, 2006; Yiu et al., 2007). Industry Network and Professional Network also show statistically significant relationships to SMEs export likelihood. While the study confirms the positive relationship of networks, it is surprising to note that SMEs' rate of accessing networks appears to be quite low. For example, only 39 per cent of SMEs use each form of networks and while this percentage increases to 51 per cent of exporting SMEs, we suggest there is potential for SMEs to increase use of networks to achieve higher likelihood of export. This is not to imply that SMEs use networks for the sake of using networks, but rather to strategically connect with

networks so as to achieve balance of diversity in gaining novel information and knowledge resources (Martinez & Aldrich, 2011; Nieto & Santamaria, 2007).

CONCLUSION, SUGGESTIONS FOR FURTHER RESEARCH AND LIMITATIONS

This study supports past internationalization studies which suggest that a relationship exists between networks and export performance (Johanson & Vahlne, 2009; Vasilchenko & Morrish, 2011; Zhang et al., 2010). Our empirical testing of this relationship contributes to internationalization studies. Furthermore, we expand on the types of networks by explicitly showing the differences in how different set of networks such as, Government, Industry and Professional affects export likelihood. With a big dataset of 2263 SMEs sourced from the Australian Bureau of Statistics, our empirical results are significant. The practical implication for SMEs is to tap wisely into resources that networks provide but also to be strategic in establishing network relationships. Although close relationships creates trust and easy communication (Coleman, 1988), loose and diverse connections bring more novel resource opportunities (Burt, 1992; Granovetter, 1973). As noted in our results discussion, the low rate of accessing networks by SMEs is surprising. On this note, we suggest that an interesting stream of future research is to examine the reasons why SMEs use and/or do not use networks.

Working with established datasets has some limitations. This is acknowledged by previous studies using datasets from ABS (Gronum, Verreynne, & Kastelle, 2012; Watson, 2007). For our study, the measurement item for networks is quite restrictive. For example, much richer information can be obtained if certain important specialized functions, such as export consulting, are included in Business Management Consultants. Equally, we do not know if crucial organizations such as suppliers, distributors, competitors and customers are included in the item, Others in the Same Industry. This is potentially a category that has rich business actors but, unfortunately, is not clarified in the data. Networks of friends and family

also need to be considered as research shows that friends and family are often sought when seeking advice and information (Birley, 1985). Despite these limitations, a wealth of information is provided by the dataset.

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Appendix 1: Summary of Measurements

Variables	Measurement Item	Values
Export	Did this business receive any income from the export of goods and/or services during the year ended 30 June	0 = No 1 = Yes
NETWORK	How frequently did this business seek information or advice from the sources below during the year ended 30 June External Accountants Financial Advisors or banks Solicitors Business Management Consultants Others in the same industry Industry Association/Chamber of Commerce Australian Tax Office Other Government offices	0 = Never 1 = 1-3 times 2 = More than 3 times
Size	Based on Derived Size Benchmark employment (DSB)	0 = Non employer 1 = DSB 0 to 5 2 = DSB 5 to less than 20 3 = DSB 20 to less than 200
Firm Age	As at 30 June, how many years had this business been in operation regardless of changes in ownership	0 = Don't know 1 = Less than 5 years 2 = 5 years to less than 10 years 3 = 10 years to less than 20 years 4 = 20 years or more
Foreign ownership	Did this business have any degree of foreign ownership as at 30 June	0 = No 1 = Yes
Type of legal organization	Type of legal organization	1 = Registered company 2 = Sole Proprietor 3 = Partnership 4 = Trusts/unincorporated
Government compliance	Did federal government regulations or compliance significantly hamper the activity or performance of this business during year ended 30 June	0 = No 1 = Yes
Government financial assistance	Did this business receive any financial assistance from Australian Government organizations during the year ended 30 June	0 = No 1 = Yes
Industry	Agriculture, Forestry and Fishing Mining Manufacturing Construction Wholesale Trade Retail Trade Accommodation, Cafes, Res. Transport and Storage Communication Services Property and Business Services Cultural and Recreational Services Personal and Other Services	A B C E F G H I J L P Q