

A Model of Rapid Knowledge Development: The Smaller Born-global firm

ABSTRACT

Existing models of the internationalization process have not captured the important phenomenon of accelerated international growth of born-global firms, which led Johanson and Vahlne (2003) to revise their model. However, the revised network model falls short of explaining *rapid* internationalization of firms. While they indicate a “specific relationship development process” used by born-global managers, Johanson and Vahlne (2003) still suggest the existence of an incremental learning and “responsive” model, which is based on pre-existing relationships. We extend current theory in arguing that born-global managers can use *both* pre-existing *and* newly-formed relationships, to quickly and *proactively* develop new knowledge for rapid commercialisation of their products. Proactive, advanced relationship-building capability is based around locating partners with technological knowledge with a view to ensuring ease of sharing knowledge. We explore the development of trust and inter-firm partnerships in established and newly-formed networks and how these lead to tacit knowledge, absorptive capacity and new knowledge generation. While Johanson and Vahlne’s (2003) emphasise “market specific experience and operation experience” we emphasise “technological experience”. The reason that knowledge sharing is able to proceed quickly is that the shared “technological knowledge” allows rapid transfer and development of new knowledge and the drive to commercialise a product before a competitor, promotes the “mutual need” (co-dependency) to act quickly, characteristic of technology-based industries, which face rapid change. As an outcome of the born-global manager’s ability to locate new partners through existing networks, new international links *may* be quickly developed, with internationalization being an *outcome, but not necessarily a driver* of behaviour in smaller born-global supply chains.

Keywords: absorptive capacity, knowledge based view, network perspective, smaller born-global firms, tacit knowledge, trust

1. Introduction

Recent studies have revealed the proliferation of “accelerated internationalization” (Shrader, Oviatt & McDougall, 2000) by some small-medium enterprises (SMEs) (Coviello & Munro, 1995; Crick & Jones, 2000; Freeman, Edwards & Schroder, 2006; Johanson & Vahlne, 2003; Knight & Cavusgil, 2004; McDougall, 1989). Born-global firms (Freeman & Cavusgil, 2007) or international new ventures (INVs) (Oviatt & McDougall, 1994)

internationalize early in their lifecycles - many seeking international opportunities shortly after their inception (Coviello & Munro, 1997; Rennie, 1993). While there is some disagreement with regards to the time lapse before internationalization of born-global firms (Coviello & Munro, 1995; McDougall & Oviatt, 1996), Rennie (1993) considers born-global firms as those firms which have internationalized less than two years after inception (Madsen & Servais, 1997; Moen & Servais, 2002). However, an explanation as to why they skip stages or internationalize at an accelerated pace is still not adequately addressed in extant models of internationalization.

Researchers suggest that these new organizations engage in dis-internalizing activities outside their core competencies and rapidly enter into strategic alliances and network relationships (Dunning, 1995; Madsen & Servais, 1997). Such practice is acknowledged by Johanson and Vahlne (2003) in their revised model which emphasizes the facilitation role of network partners. Similarly, Mascarenhas and Koza (2008) refer to the “emergence of nimble competitors and shorter product cycles [which] pressure firms to expand their reach quickly, requiring resources that are beyond their in-house capabilities” (p. 121). These new organizations lack comprehensive explanation within current international supply chain management (Chen & Paulraj, 2004) and international business theory, because the firms do not follow a gradual commitment to international expansion, nor are they necessarily reactive or seek out psychically close markets early in their international expansion. This is in contrast to older firms which have internationalized following a period of domestic business success, as suggested by the Uppsala Model (Johanson & Vahlne, 1977) and revised internationalization-network model (Johanson & Vahlne, 2003).

Johanson and Vahlne (2003, p. 83), acknowledge that extant models of the internationalization process, such as their own (Johanson & Vahlne, 1977) Uppsala Model, do “not capture important phenomena in the modern internationalization business world”. This

led Johanson and Vahlne (2003) to develop a revised internationalization-network model based on an experiential, learning-commitment interplay. However, we suggest that their revised model does not explain *rapid* internationalization. While, they do give some indication of how networks are used by born-global managers, with suggestion of a “specific relationship development process” (Johanson & Vahlne, 2003, p. 97), they nonetheless adopt an incremental learning and “responsive” model, based on pre-existing relationships, which build trust and thus ongoing commitment to internationalization. We address this gap by outlining a new model for rapid knowledge development, which better explains accelerated internationalization. We suggest that born-global managers can use both pre-existing and newly-formed relationships to quickly and proactively develop new knowledge for the rapid commercialisation of their products, with internationalization being an outcome.

Research on knowledge management in international business highlights the value of sharing knowledge for achieving organizational competitive advantage. However, these studies suggest that building trust and absorptive capacity, as key determinants of the knowledge sharing process, are generally developed through long-term relationships (Inkpen, 2008; Ireland & Webb, 2007; Johanson & Vahlne, 2003; Kotabe, Martin & Domoto, 2003; Roy, Sivakumar & Wilkinson, 2004). Yet, for high-technology, knowledge-intensive as well as other more traditional contexts (Blomqvist et al (2008) in which smaller born-global firms also emerge, customer relationships in the early phase of international expansion are compressed (Knight & Cavusgil, 2004; Freeman et al., 2006). According to the Uppsala internationalization school (Johanson & Wiedersheim-Paul, 1975) smaller firms, in contrast to older, more experienced firms, may not have the time to fully integrate prior knowledge along their supply chains (Johanson & Vahlne, 1977). This view is confirmed in Johanson and Vahlne’s (2003) revised internationalization-network model and they also argue “that smaller firms are generally more inclined to be responsive” (p. 97) rather than proactive in nature.

This is despite earlier studies (Freeman & Cavusgil, 2007) finding that smaller born-global firms proactively use technologies available to them (e.g. e-commerce and interoperable systems). Kuivalainen, Sundqvist and Puumalainen (2004) argue that industries facing rapid technological change, such as the high-technology sectors, face pressures which can push the firm into early internationalization. As Johanson and Vahlne (2003) do not explain *why* born-global internationalization is *rapid*, our research is significant in addressing this gap.

Etemad (2004) suggests that there is a lack of theory available to guide smaller firms, with most internationalization models, such as the Uppsala model, based on research of large, multi-national enterprises (Johanson & Vahlne, 1977; Johanson & Wiedersheim-Paul, 1975). Johanson and Vahlne's (2003) earlier and revised models continue to highlight incremental and ongoing involvement in foreign markets (Johanson & Vahlne, 1977; 1990; 2003). These incremental models either explicitly or implicitly suggest that serving the domestic market is an initial first step in internationalization (Bilkey & Tesar, 1977; Cavusgil, 1980; Rao & Naidu, 1992). However, Autio, Sapienza and Almeida (2000) argued and found that the age of a high-tech firm at international entry was negatively related to its subsequent growth in international markets. In contrast to the Uppsala Model (Johanson & Vahlne, 1997), which emphasizes gradual experiential learning over time, Autio et al. (2000) reasoned that an initial focus on the domestic market may hinder the rate of a high-tech firm's subsequent internationalization. This is because domestic firms may have to unlearn existing routines relevant to the domestic market, before they can pursue international market opportunities. On the one hand Autio et al., (2000) agree with the Uppsala Model's (Johanson & Vahlne, 1977) position that knowledge about international markets is an important determinant of international sales growth. On the other hand, however, they argue that born-global firms in high-tech sectors have "learning advantages of newness" which underpins the acquisition of new knowledge and their rapid internationalization.

Other research suggests that SMEs do not focus on their domestic markets before internationalizing (Freeman et al., 2006; Freeman & Cavusgil, 2007; Nordman and Melen, 2008). Earlier research on smaller firms has revealed that they can either skip some of the stages or de-internationalize (Freeman, 2007; Welch & Luostarinen, 1988). Born-global firms display periods of early, accelerated outward growth, sometimes followed by a return to the home market before further rapid foreign expansion (Freeman, 2007). Thus strategies utilized by smaller born-global firms to achieve knowledge sharing (and subsequent associated competitive advantage) will need to be different from the reactive strategies employed by more traditional SMEs. Our model explains the process through which rapidly internationalizing smaller born-global firms quickly develop new knowledge.

Some studies have incorporated a resource-based view (RBV) and inter-organizational perspective to explain more comprehensively the non path-dependent behaviour of smaller born-global firms (Chetty & Campbell-Hunt, 2004). Such research has suggested that the rapid expansion of born-global firms is facilitated by seeking out larger foreign customers for distributing their high-technology-knowledge-intensive products quickly along their extensive global supply chains (Freeman & Cavusgil, 2007). The role of accessing resources, and in particular intangibles, are especially important to SMEs that face international barriers due to their lack of financial and human capital, relative to larger organizations (Leonidou, 1995). An important example of such an intangible resource used by SMEs, and in particular, born-global firms, is tacit knowledge, which may be leveraged to develop new knowledge.

We address these shortcomings in our model of rapid knowledge development, in suggesting that there may be key factors involved in the development of trust and absorptive capacity that lead to new knowledge for rapidly internationalizing smaller born-global firms which makes their international knowledge distinct from older, larger international firms. We argue that proactive, advanced relationship-building capability by born-global managers is

based around locating partners with technological and other knowledge to ensure ease of knowledge sharing. We explore how development of trust and inter-firm partnerships differs between established and newly-formed networks. We suggest that knowledge sharing is able to proceed rapidly because the drive to commercialise a product before a competitor, promotes the “mutual need” (co-dependency) to act quickly – an issue not addressed by Johanson and Vahlne (2003). Based on their review of the literature on early internationalizing small firms, Rialp, Rialp and Knight (2005) emphasized the importance of developing theory, constructs and conceptual frameworks to better understand rapidly internationalizing SMEs. In this paper, we respond to these calls. We provide a new model of rapid knowledge development, for understanding the inter-relationships of trust and inter-organizational co-dependency, which rapidly generate tacit knowledge and absorptive capacity in smaller born-global supply chains. Keeping with the suggestions of Rialp et al. (2005) our proposed model integrates multiple theoretical perspectives including the resource based view (RBV), knowledge based view (KBV) and network perspective.

In the next section we define the key theoretical underpinnings of smaller born-global firms’ internationalization. This is followed by the presentation of propositions suggesting that newly internationalizing smaller born-global firms do have unique and proactive strategies for building trust and absorptive capacity to achieve new knowledge. We then present a new model for understanding the building blocks of networks, inter-firm partnerships, trust, tacit knowledge and absorptive capacity in leading to knowledge development in the supply chain of smaller born-global firms. Finally, we provide conclusions summarizing our key contributions, implications for international business managers and issues for further research.

2. Key concepts and theoretical underpinnings for small born-global firms' internationalization

2.1. The concepts of time and internationalization

Jones and Coviello (2005) depict internationalization as a “time based process of entrepreneurial behavior” (284). According to them, “internationalization is a process, and therefore by definition, internationalization behaviour takes place over time, manifesting in a time sequence in which events occur” (p. 290). A number of authors have called on researchers to incorporate the element of time into their examination of SME internationalization (Anderson 1993; Oesterle, 1997; Zahra, Matherne & Carleton, 2003) and studies agree that born-global firms differ from other SMEs in that they enter foreign markets sooner (Knight & Cavusgil, 1996), and increase their percentage of sales generated from foreign markets at a faster rate (Jones, 1999). Jones and Coviello (2005) suggest that there is a need to capture the time-based dynamics of internationalization and argue that the internationalization behaviour of SMEs can best be conceptualized in terms of three dimensions. These include: the time and pace of internationalization; the location of operations; and the mode of entry.

Hurmerinta-Peltomaki (2003) suggests studies of time and internationalization received renewed interest in the 1990s as expansion in the number of international SMEs and new ventures challenged traditionally-held views of stage-by-stage internationalization models as they did not adequately address the position of newly internationalizing firms without domestic experience and market position. Consistent with this, other authors have explored the notion of speed of internationalization of small and new entrant firms (Oviatt & McDougall, 2005; Vermeulent & Barkema, 2002). Autio et al. (2000) moreover suggested that early initiation of internationalization and greater knowledge intensity is associated with faster international growth and that early pursuit of international opportunity induces greater entrepreneurial behaviour and confers a growth advantage.

According to Autio et al. (2000) born-global firms are able to internationalise quickly because of a lower degree of organizational inertia. Thus, the younger the firm when it first internationalizes, the faster it will enter other foreign markets. However, Vermeulen and Barkema (2002) argue that the degree of internationalization within a given time is constrained by the firm's ability to absorb the complexities of internationalization. They found that the positive relationship between international diversity and internationalization was negatively affected by a faster and irregular pace of foreign market entry.

Research has also explored how relationships evolve over time in the internationalization process and in particular how the networks of born-global firms develop. Tsai (2000) questions why some organizational units can quickly create an inter-unit linkage for resource exchange (or knowledge transfer) while others take longer to do so? The same question can also be explored across organizations in which there is need to examine how some organizations develop new knowledge quickly whilst others may be ineffective in doing so. Thus it can be argued again that there is a need to integrate traditional stage-models of internationalization with network perspectives. This analysis has been partially provided by Johanson and Vahlne (2003) and Madsen and Servais (1997). Coviello and Munro (1997) also developed a model of internationalization that integrates: (1) time; (2) the influence of network relationships on market entry and market development; and (3) characteristics of the internationalizing firm. However, neither model explains how the networks transfer tacit knowledge quickly and why the pace of internationalization is rapid. Consistent with Johanson and Vahlne (2003), Gulati's (1999) research suggests that over time, the proclivity of firms to enter new alliances is influenced by the amount of network resources available to them, which suggests that there is an important relationship between time and development of networks in determining a firm's ability to build knowledge. The underlying assumption is

that time is needed for relationship development which impacts on internationalization and new knowledge.

2.2. *Knowledge-based-view within born-global research*

The concept of tacit knowledge was first articulated by Polanyi (1966), who suggested that as well as reasoned and critical written (explicit) knowledge there is also ‘tacit’ knowledge which is held by individuals but not necessarily verbalised in that ‘*we can know more than we can tell*’ (Polanyi, 1966, p.4). Inkpen (2008) argues that when “knowledge is highly tacit, it is difficult to transfer without moving the people who have the knowledge” (p. 78) because it is both context bound and people-embedded. However, for tacit and context-specific knowledge to be successfully transferred and adapted to a new context, it requires intensive social interactions involving managers and in some cases, employees, at all levels of the organization. Yet, it has also been noted that tacit knowledge takes time to develop as it is built on trust relationships through which individuals are prepared to share information (Husted & Michailova, 2002; Staples & Webster 2008). The knowledge-based view (KBV) posits that organizations are repositories of knowledge and competencies (Grant, 1996; Kogut & Zander, 1996; Spender, 1996; Teece, 1998; Turvani, 2001), and has been examined in a number of studies and models on smaller born-global internationalization (Autio, et al., 2000; Johanson & Vahlne, 2003; Knight & Cavusgil, 2004). However, just how born-global managers learn quickly is not fully addressed in Johanson and Vahlne’s (2003) revised internationalization-network model. It has been argued that born-global firms have learning advantages that older, domestic firms may lack (Autio et al. , 2000). Absorptive capacity, defined as “the ability of the firm to recognize the value of new, external information, assimilate it, and apply it to commercial ends” (Cohen & Levinthal 1990, p.1) is one of the advantages of the born-global firm. Because born-global firms frequently have educated senior managers or founders with international experience and knowledge (Oviatt &

McDougall, 1994), they can better acquire new knowledge, required for internationalization (Cohen & Levinthal, 1990). Eriksson and Chetty (2003) and Johanson and Vahlne (2003) argue that the depth and diversity of international experience influences absorptive capacity which, in turn, affects the extent to which a lack of foreign market knowledge may be perceived as an obstacle to internationalization.

It has long been recognized that new knowledge drives the development and growth of firms (Penrose, 1959; Spender & Grant, 1996). However, the Uppsala model does not explain how knowledge is developed in the context of accelerated internationalization, which is most important within born-global research. In their revised model, Johanson and Vahlne (2003) argue that actors or relationship partners are central to the process, “with relationship partners gradually learning about each other’s needs, resources, strategies, and business contexts. This is a time and resource demanding process, which requires that both partners become committed to the relationship. Thus, mutuality is also a basic feature of business relationships. This means also that the relationship partners have a common interest in the future development of the resources” (p. 93). Oviatt and McDougall (1994) argue that in smaller born-global firms, it is the knowledge of senior management that mostly influences the internationalization process between buyers and sellers. It is important to recognize, though, that knowledge is embedded in particular cognitive and behavioural contexts and is asymmetrically distributed throughout organizations and may actually prove inaccessible to some members of the organisation (Davenport & Prusak, 1998). Moreover, sharing of knowledge is voluntary but depends upon commitment on both sides of the exchange, namely, the transmitter *and* the receiver (Bouty, 2000). Cohen and Levinthal (1990) proffer, an individual’s ability to appreciate new knowledge is a function of their ‘absorptive capacity’. Further, smaller born-global firms rely on social and business networks to develop inter-firm partnerships to overcome their lack of experience and to provide them with

knowledge about new foreign markets (Freeman & Cavusgil, 2007). By entering foreign markets, born-global firms are able to acquire knowledge used to build value-creating capabilities and resources (Barkema & Vermeulen, 1998; Freeman et al., 2006). However, no explanation is given in prior models to account for why this process is *rapid*.

It is also worth noting that Spender and Grant (1996) suggest that though knowledge is one of the most important assets of the firm it can be the most difficult to identify or measure. To some extent this reflects that knowledge may be held by individuals or organisations and that individual knowledge can often be tacit and thus difficult to quantify whereas organizational knowledge, for example, tacit knowledge internalized at the organizational level, tends to be explicit and being known, is measurable. It is important to note that knowledge is created by individuals (Grant, 1996) and depends upon the willingness of individuals to identify the knowledge they possess and to share it when required (Nonaka, 1994) through a trust relationship, in a certain cognitive and behavioural context, but that networking occurs not only at an individual level but also through organizations. Thus, understanding knowledge sharing is about understanding the thinking and the experiences of the individual who possess and provides knowledge and how this manifests at an organizational level. Lam (2000) argues that at the cognitive level, the notion of social embeddedness underlines the 'tacit' nature of human knowledge and the dynamic relationship between individual and collective learning and that a large part of human knowledge, such as skills, techniques and know-how, cannot be easily codified but rather is transmitted through social networks. For the organization, the focus of knowledge is structure of coordination, and behavioural routines and work roles of organizational members within which the knowledge of the firm is embedded. Lam (2000) further suggests that the structure of coordination determines the organization's capability to mobilize and integrate different types of knowledge, and shapes the relationship between individual and collective learning. Yet,

Hutchings and Michailova (2006) caution that as knowledge is held by individuals, when an individual resigns from an organization that knowledge and networks may be lost for the organization as the networks held by an individual may be taken with them to a competitor organization – and the value of these networks may be difficult to quantify.

2.3. Network perspective within born-global research

An underlying assumption of the network perspective is that the firm depends on resources that are controlled by other firms in the network, but which can be acquired via its network position (Johanson & Mattson, 1988). Firms use networks to generate resources which they would otherwise have to develop themselves (Gulati, 1999). For SMEs, the resources gained from networks can facilitate growth and thus expansion into foreign markets (Chetty & Wilson, 2003). Oviatt and McDougall (1994) suggest that born-global firms lack sufficient resources to control assets through ownership. Taking a KBV we specifically note the importance of the role of organizational knowledge resources and their value in, and between, these relationships. Chetty and Campbell-Hunt (2004) and Freeman et al. (2006) found that many smaller born-global firms, with limited competencies, entered foreign markets by forming strategic partnerships and taking advantage of the marketing capabilities and local knowledge of their network partners. Johanson and Vahlne (2003) describe this as “interacting in a relationship [where] two partner firms learn some skills, which may be transferred to and used in other relationships...how to get in touch with new partners...seen as relationship experience (p. 93). Thus, relationship experience through pre-existing networks is seen as a precursor to knowledge, as the relational interactions between partners, over time, lead to knowledge exchange and new knowledge development.

Membership in a network, and the resulting exchange relationships, provide the network member with the opportunity to acquire knowledge (Johanson & Mattson, 1988). Evidence also shows that networks provide SMEs with access to international market opportunities and

influence which foreign markets are chosen for initial and subsequent entry by smaller born-global firms (Freeman & Cavusgil, 2007; Nordman & Melen, 2008). In addition to direct knowledge, the individual with whom the entrepreneur has a relationship can offer linkages to their own networks in other countries (Welch & Luostarinen, 1993). Welch and Luostarinen (1993) argue that relationships with firms in foreign markets can present a firm with opportunities to expand abroad. Thus, inward linkages can lead to outward linkages and further cycles of inward-outward linkages, in smaller born-global firms as they restructure their organizations following periods of rapid expansion (Freeman, 2007). In addition, supply chains are regarded as important networks for rapidly internationalizing born-global firms (Coviello & Munro, 1997; Freeman et al., 2006; Yli-Renko, Autio & Sapienza, 2001).

3. Proposing a model for understanding rapid knowledge development in the smaller born-global firm

In this section we present a model of rapid knowledge development alongside seven propositions for explaining the building blocks of networks, inter-firm partnerships, trust, tacit knowledge, and absorptive capacity as leading to the development of new knowledge in the international supply chain of early internationalizing smaller born-global firms.

For smaller born-global firms, entry into an international market and sharing knowledge is particularly complex from a theoretical perspective. In the international context we are taken beyond the usual conceptualization of *intra*-organizational knowledge sharing (Davenport, 2006; Zyngier, Burstein, & Rodriguez, 2003) to examine theory in relation to sharing *inter*-organizational knowledge (Hult, Ketchen, Cavusgil & Calantone, 2006; Inkpen & Pien, 2006). Inter-organizational knowledge sharing can also occur at the domestic/national firm level. Further, in an international market firms are in transition from knowledge sharing in a single nation environment to a trans-national environment where the situation is made more

complex by ambiguities of understanding between partners. Variables impacting knowledge ambiguity include the physical environment, individual perspectives, individual characteristics, background and needs of the knowledge seeker and the knowledge provider (Inkpen & Pien, 2006). Beyond knowledge ambiguity and cultural distance, Simonin (1999) specifies certain key constructs which impact on the transfer of knowledge (and ultimately knowledge development) in strategic supply activities that operate in an international context, including: tacitness in procedural knowledge that cannot be explicated (Inkpen, 2008; Polanyi, 1966); knowledge asset specificity (Grant, 1996); and organizational distance (Ess, 2002).

Between strategic supply partners, transactions are supported by both procedural knowledge (Simonin, 1999), being knowledge of the procedures required to support a specific task, and declarative knowledge that has been made explicit in a written form as information, instructions or statements. Knowledge that can be codified (explicit) is most readily transferred between partners. However, the transfer itself implies both a high level of trust and the capacity of the receiver to absorb or understand and act on the knowledge. Crucial to the transfer of knowledge is the degree of knowledge redundancy – the mutual understanding of business processes, aims and objectives (Kotabe et al., 2003; Sivakumar & Roy, 2004). The absorptive capacity of an organization (Cohen & Levinthal, 1990) is linked to that level of known and assumed knowledge and predicates the capacity of receivers to absorb new knowledge; and the capacity of that new knowledge to “stick”, i.e. embed itself in the organization (Lane, Koka & Pathak, 2006; Szulanski, 2003).

It is therefore important for organizations to allow time for the learning curve to occur within the transfer process, especially in the cross-cultural learning environments of collaborative ventures (Simonin, 1999). Thus time is crucial to knowledge development, to absorptive capacity and the development of trusting relationships that supports the

development of knowledge (Aulakh, Kotabe & Sahay, 1996; Simonin, 1999). However, many smaller, younger firms, such as born-global firms are involved in the supply of 'high-technology-knowledge-intensive' goods in rapidly developing and changing markets and rely on intangible resources, such as senior management networks, for tacit knowledge sharing (Freeman & Cavusgil, 2007). It is argued that in these types of industries, the complexity and tacit nature of products requires a high specificity of the knowledge in relation to a product and process. This suggests there is likely to be a high level of knowledge ambiguity associated with the transfer of inter-organizational knowledge within smaller born-global firms, and in particular, technological knowledge, recently confirmed in Nordman and Melen (2008). Johanson and Vahlne (2003) support the idea of shared specificity of knowledge which they describe as "similarity" which "may concern partner size, technology, or cultural and institutional setting" (p. 93). However, they do not explicitly state which particular "similarity" is distinct for the born-global firm.

According to Nordman and Melen (2008) the similarity in born-global firms is primarily based around technology, which explains why cultural and institutional barriers are less of a concern for them than for other SMEs (Freeman & Cavusgil, 2007). This is acknowledged by Johanson and Vahlne (2003) when describing relationship building, as they state "t[T]here is nothing outside the relationships. Internationalization is, in this network world, nothing but a general expansion of the business firm which [is] in no way is affected by country border" (p. 93). They go on to say that "we were somewhat overemphasizing psychic distance between countries as [an] explanation to the internationalization process...realizing the distance can change due to experiential learning and trust building" (p. 98). We agree that experiential learning (which we describe as technological knowledge) is also important to born-global firms. We argue that under conditions of technological knowledge overlap between buyer and

seller, as is the case in the majority of born-global firms and partners, psychic distance is of minimal importance.

The higher level of ambiguity relates to the absorptive capacity of the receiver of knowledge in an environment where there is constrained opportunity for deep or known knowledge of the supply partner's products or processes (Szulanski, 2003). According to Nordman and Melen (2008) constrained opportunity is a window of opportunity in which born-global firms act. Absorptive capacity and constrained opportunity are not explicitly addressed in existing internationalizations models. The concepts explain first, why knowledge learning is rapid with absorptive capacity and second, in relation to pace, why the born-global firm must build knowledge quickly because of the limited window of opportunity. This is because of the pressure placed on the smaller born-global firm to get their high-technology, knowledge-intensive products into foreign markets ahead of their competitors (Freeman & Cavusgil, 2007). This implies correct timing and speed are essential elements impacting the success of their commercialization process, which as an outcome of their ability to locate partners (Freeman & Cavusgil, 2007), some of whom are local and others whom may reside in international locations. In particular, timing and speed explain why smaller born-global firms must frequently rely on a *reactive*, opportunistic, first mover-advantage (Bell, McNaughton, Young & Crick, 2003; Johanson & Vahlne, 2003), as well as *proactively* searching opportunities (Freeman & Cavusgil, 2007; Nordman & Melen, 2008).

What extant literature has been unable to explain, and our model addresses, is how tacit knowledge is integrated and transferred quickly through international supply chains of smaller born-global firms. Figure 1 presents the model and relationships described in the propositions. Relying broadly on RBV, and specifically on KBV and network theory, we provide alternative theoretical perspectives for explaining the absorptive capacity of smaller born-global firms in international supply chains and specify the concepts in our model which

challenge the notion of experiential knowledge (Eriksson, Johanson, Majkgard, and Sharma, 1997). We posit that trust and the time taken to develop that trust take on a new importance in relation to tacit knowledge along supply chains of smaller born-global firms which operate in a context where the duration of supply relationships may be very short.

Please insert Figure 1 here

3.1. Relational Trust

In this paper we refer to both established networks and newly-formed networks in their association with relational trust or trust-like relationships. Established networks are those that are based on long-standing, strong ties, while newly-formed networks are those that are rapidly, and often, expediently, developed. Building on earlier theory developed by Mainela (2007) and Svejenova (2006), we argue that when strong, highly interactive relationships exist, they operate in a trusting environment. In this paper when we use the term trust we are referring specifically to relational trust i.e. trust that depends upon networks and relationships. Relationship quality of this nature is acknowledged in born-global firm research (Autio et al., 2005; Yli-Renko, Autio and Tontti, 2002). This type of relational context allows the technological knowledge that has been acquired to be more readily understood, assimilated and applied. We develop a new understanding of *relational trust*, by extending the arguments of Lane et al. (2006) as they did not explicitly recognize the different types of trust-like relationships as forming part of the development of absorptive capacity. We also extend understanding of the importance of the time required for the effective establishment of trust in inter-organizational relationships. By extending the arguments of Lane et al. (2006) we build a new understanding of trust as relationships being linked to absorptive capacity.

We build on earlier theory by indicating how significant trust and trust-like relationships as well as time are in the early phase of the firm's evolutionary path, especially for the smaller born-global firm undergoing accelerated internationalization. Our model addresses limitations in the extant research. First, we include the linked elements of trust and time (referred to by Lane et al., 2006), which we argue are required in order to develop strong, highly interactive, personal, friendship, trust-like relationships (referred to by Mainela, (2007), inter-firm partnerships, that support the acquisition of external and internal organizational knowledge. Second, we incorporate weaker types of senior manager relationships into the framework, as they too enable the development of absorptive capacity through professional associations, alumni and workplace. These relational types take time to develop and by incorporating them into the model we show how they provide opportunities for newly-formed relationships, both of which enable organizational learning to occur. In addition, both established and newly formed business and social networks may exist prior to the born-global firm's foundation or inception. Thus, we contribute new understanding about how these relational types allow knowledge transactions to occur at both the procedural and declarative levels, thereby, extending work by Polanyi (1966) and Simonin (1999).

Trust is defined as a confident mutual reliance on or expectation of some qualities or attributes engendering goodwill between partner organizations. Aulakh et al. (1996) and more recently Li (2005) suggested that the relationship between trust, shared vision, the knowledge transfer environment and the knowledge exchange relationship is a mix of both social and economic exchange. Trust plays an important part in the capacity or willingness of organizations to share knowledge and operates at an inter-organizational level. Specifically, a partner needs to have "confidence in an exchange partner's reliability and integrity" (Li, 2005, p. 80). Trust increases openness in sharing knowledge, including problem solving and

supports innovation and creativity in processes and in product development activities (Davenport, 2006).

Maznevski and Athanassiou's (2006) work on inter-organizational knowledge transfer found that the flow of knowledge depends on informal personal influence and persuasion – attributes that are intrinsically difficult to regularize or to control. Zaheer and Zaheer (2006) also found that inter-organizational trust is contextually constrained across differing national landscapes – bound by differing concepts of trust which must be understood to allow on-going development. This will have implications for relationship development in SMEs depending on their level of foreign experience, and cultural, psychic and geographic distance from their selected markets, especially for early location choices. However, we know technological experience will mitigate psychic distance (Johanson & Vahlne, 2003; Nordman & Melen, 2008). In addition, Hutchings and Michailova (2006) suggest that sharing of knowledge, particularly cross-culturally, depends on pre-existence of insider relationships and a disposition towards cooperative interdependence with the converse, a lack of knowledge sharing, occurring where there is no pre-existing insider, trust relationship established.

Dixon (2002) argues that the better a group of people knows each other, the more people in the group will call on each other's knowledge, while Williams (2001) maintains that perception of an individual within a group (in the context of our discussion, an organisational group) trustworthiness effects interpersonal trust development. Knowledge must therefore be leveraged through the development and use of social capital and personal networks (Coleman, 1988). Relationships are the best and fastest conduit of tacit knowledge. This has implications for a definition of relational trust in the context of the smaller born-global firm. Our definition is based around the concept of trust that is of a kind that is fast developing between business relationships, essential to the reality of the smaller born-global firm. These small firms that must work quickly with customers, may exist in developing and developed nations, to

establish relational trust leading to the ultimate development of new knowledge, under pressure of time, i.e. the commercial pressure of getting their products to market before a competitor. This context requires an understanding of the development of *relational trust*. Strong relationships are built up over time and characterized by relational trust, and hence lead to absorptive capacity. Weak relationships are those that exist through association, such as alumni, workplace, and professional associations, and are less likely to involve relational trust which may subsequently lead to knowledge sharing. Cousins and Menguc (2006) confirm that interpersonal activity builds trust within the supply environment, and that it has a “positive effect on both supplier communication and supplier operational performance. It also has a positive effect on the buyer's perception of the supplier's contractual performance” (p. 618). Thus, we propose that:

Proposition 1. Early internationalizing smaller born-global firms build relational trust through long standing, pre-existing connections accessed through established network partners.

Yet, we suggest that relational trust does not always have lengthy time dimension. We know that at inception born-global firms come into being because of their technological knowledge, based on considerable technological experience of the senior management team (Nordman & Melen, 2008; Zahra et al., 2003). Thus, in addition, to established networks, formed over earlier associations, we also know that born-global managers rely on newly-formed networks in the rapid transfer of shared technological knowledge with their partners (Freeman & Cavusgil, 2007). Johanson and Vahlne (2003) describe this as an outcome of three effects of relational learning, namely: first, *common interest* (doing business in a customer-supplier relationship, they learning things that are partner specific and how to coordinate activities to strengthen their joint productivity); second, *relationship experience* (interaction between partners provides skills that can be transferred to other relationships, such as how to get in touch with new partners and steps to develop relationships); third,

coordinating activities (interactions lead to learning how to coordinate activities with partners, including multiple suppliers and even customers, to speed up the process) (p. 93). In this manner, born-global managers can learn “how to build new business networks and connect them to each other” (Johanson & Vahlne 2003, p. 93). We know that these managers have advanced business relationship ability, as Freeman and Cavusgil (2007) found that they can use a range of strategic approaches to building and managing these relationships that can be short-term opportunistic and self-orientated through to long-term problem-solving and “other” orientated. Freeman and Cavusgil (2007) and Nordman and Melen (2008) also confirm born-global managers can use both proactive and reactive approaches to relationship development and management. Thus established networks help the born-global manager to reactively and proactively locate new relationships for potential partnerships.

Proposition 2. Newly-formed networks in early internationalizing smaller born-global firms are based on long standing, pre-existing connections accessed through established network partners.

3.2. Inter-firm partnerships

Kotabe et al. (2003) support the emphasis on interpersonal relationships in building trust. Mainela (2007) identifies four levels of interpersonal relationships, between IJVs partners and their parents and suggest that for effective knowledge transfer between a parent and subsidiary, highly responsive relationships are required. Effective knowledge transfer is dependent upon the firm’s willingness to transfer salient information to customers, as well as their evaluation, creation and management of that knowledge. Since the pattern of interactions between partners will determine the outcomes of the relationship (Arino, 2003), the only types of relationships that effectively transfer knowledge are at the higher interpersonal level. These relationships need to exist between the management team for effective knowledge transfer. Table 1 summarizes key extant studies on trust and knowledge transfer.

Please inset Table 1 here

These highly personal relational types are very stable (Mainela, 2007) and Svejnova (2006) found that they were linked to trust and enforcement of the relationship. While Madhok (1995) viewed 'trust', 'relationship' and 'cooperation' as one in the same, Svejnova (2006) strongly disputed this idea, arguing that different measures provide the foundation for inter-firm partnership stability. The use of dyad analysis in studying relationships between IJVs and their parents, to examine trust, has also been criticized. This suggests a broader understanding of relational enforcement within a network (Parise & Casher, 2003) is needed. Enforcement is a concept that explains why partners continue to reinforce behaviours that maintain relationships. Svejnova (2006) argues that there is a lack of research examining when trust is the enforcement mechanism and when there may be other mechanisms that create an enforcement environment which results in *relational trust-like outcomes*. Other mechanisms that might explain relational enforcement could include mutual need (Johanson & Vahlne, 2003), which builds cooperative interdependence (Mainela, 2007). Svejnova (2006) argues that social embeddedness is a more likely source of relational enforcement of cooperation than other mechanisms, for example 'friendship', 'reputation' and 'social norms and sanctions'.

Strong relationships were found to exist between smaller born-global firms and their foreign customers and were frequently based on long-standing past associations of the senior management team developed through prior employment, trade associations, school friends and family ties (Freeman et al. 2006; Freeman & Cavusgil, 2007). So, we know that established networks have built relational trust which has led to inter-firm partnerships but that established networks also lead to newly-formed business and social networks. In contrast

to earlier research, it is argued that the nature of high-technology, knowledge-intensive firms, suggests that technological knowledge is not affected by psychic distance and cultural distance to the same extent as other product categories. This is because network connections and not country location per se, determine where the firms locate *inter-firm partnerships* (Johanson & Vahlne, 2003). Thus, inter-firm partnerships are network-based and not country-based. Inter-organizational co-dependency directly determines inter-firm partnerships, which in turn decides the pace of accelerated internationalization of smaller born-global firms. In addition, similarities among partners contribute towards the development of trust between firms (Robson, Katsijeas and Bello, 2008). Yet, with the newly-formed networks trust does not yet exist – rather, smaller born-global firms move quickly into inter-firm partnerships for competitive necessity (mutual need) with the trust being developed later. Thus we propose that:

Proposition 3. Strong inter-firm partnerships in early internationalizing smaller born-global firms are based on relational trust developed through established network partners.

Proposition 4. Relational trust-like outcomes in early internationalizing smaller born-global firms is based on inter-firm partnerships built through newly-formed networks developed through established network partners.

3.3. Tacit knowledge

In a traditional supply chain a major reason for sustaining a long-term relationship with a firm, over perhaps choosing a new, cheaper firm, is that the value placed on the shared tacit knowledge with the existing firm is of greater value than the possible savings with an alternative firm (Sivakumar & Roy, 2004). This view is confirmed as being typical of the behaviour of the born-global firm (Yli-Renko, et al., 2002; Autio, 2005) who leverage tacit knowledge through their social capital (Yli-Renko et al., 2002) and personal networks (Harris & Wheeler, 2005).

Dedicated or sole firms protect knowledge but reduce variety of available knowledge to share. Shared knowledge from a single firm to an industry sector provides less knowledge protection but increases variety within the same industry. Shared knowledge from a firm across a number of industry sectors brings a variety of industry learning to each relationship but reduces the overall redundancy within each individual relationship. The research of Maznevski and Athanassiou (2006) contrasts with Dyer and Hatch (2006) and examines the major motor vehicle manufacturers in the USA. They conclude that Toyota's development of a long-term firm relationship, where the firm shares knowledge assets embedded in firm routines as if it were part of a collaborative network, produces a superior outcome compared to the cooperative network that keeps firms at a greater distance. In that circumstance, it would also appear that collaboration and trust stem from inter-organizational co-dependence. We build on earlier theory by providing new understanding of how profoundly internal and external knowledge resources drive the organization to absorb and integrate the new knowledge into existing knowledge resources to effectively leverage those resources.

Kotabe et al. (2003) support the emphasis on interpersonal relationships in building trust. They further separate trust into the three categories, namely, contractual trust, competence trust and goodwill trust. Contractual trust is a belief in the capacity of each party to abide by the contractual arrangements. Competence trust is the expectation about the parties' capacity to deliver effectively the required goods or actions, while "goodwill trust refers to the degree to which one partner trusts the other to look after its interests without explicitly asking for such help" (Kotabe et al., 2003, p. 69). Therefore, goodwill trust relies on an increased number of interpersonal interactions. Thus relational trust is a conduit to effective inter-organizational knowledge sharing.

We argue that in supply relationships, trust may be the primary organizing principle to safeguard against opportunistic behaviour in tacit knowledge sharing. However, earlier

literature (Yli-Renko et al., 2002; Autio, 2005) indicates that trust is developed over a lengthy period with substantial investment of time and interaction in that relationship. As we explain in our model trust grows from established networks or through inter-firm partnerships of newly-formed networks. But the very nature of high-technology, knowledge-intensive smaller born-global firms, is the speed at which they form, disaggregate and then reform supply relationships. This suggests that trust is ever more critical for the transient and high speed environment of the high-technology smaller born-global firm to ensure that tacit knowledge develops. Thus, we propose that:

Proposition 5. Relational trust and relational trust-like outcomes in early internationalizing smaller born-global suppliers develop tacit knowledge between customers and their firms.

3.4. Absorptive capacity

We build on work by Drucker (1964) in identifying the context of organizational knowledge in the supply chain for smaller born-global firms. Given that born-global firms have educated and experienced senior managers, we use the term *absorptive capacity* to refer to the ability of these managers to recognize the value of new information, and absorb and assimilate it into their existing knowledge (Cohen & Levinthal, 1990). Szulanski (2003) identifies obstacles to the effective sharing of knowledge, including: a recipients' lack of absorptive capacity to understand or apply knowledge from a source that is outside their worldview or experience; context ambiguity; and an arduous, non-trusting or strained relationship. In short, it has been argued that, "unless the knowledge held by the buyer and seller overlaps, they are incapable of working together" (Sivakumar & Roy, 2004, p. 243). In a supply context, this is reflected in discussion of the need for there to be assumed knowledge which facilitates knowledge sharing. There are three contexts of knowledge in the supply environment. First, the knowledge that is in the domain of Firm A. Second, the knowledge that is in the domain of Firm B. Third, the knowledge that is common or already shared

between the firms. Redundant knowledge is that which is neither unnecessary nor duplicated but is the known knowledge common to all parties and which is critical to superior supply performance (Roy, et al., 2004). Knowledge redundancy is developed through long-term relationships in which there are strong ties between partners (Aulakh et al., 1996). Therefore, a low level of redundancy (which results from weak ties or short term, transient relationships) makes knowledge exchange more difficult. Kotabe et al. (2003) and Sivakumar and Roy (2004) support the expectation that new knowledge is more often sought and better integrated when there is already an established context of 'old knowledge'.

Lane et al. (2006) and Spekman, Spear and Kamauff (2002) summarize the literature on the influence of environmental conditions on antecedents (trust and time) and outcomes (recognition, assimilation and application) for driving absorptive capacity, which leads to enhanced firm performance. However, they limit their discussion to the exchange of explicit knowledge. This is a narrow view of the knowledge resources to be shared in the quest for rapid innovation and adaptation to anticipate market needs (Roy, et al., 2004; Tyre & Von Hippel, 1997). Their research does not provide any understanding of how this process for driving absorptive capacity occurs for SMEs, or quickly in the case of smaller born-global firms. In particular, the constraints of developing absorptive capacity in a high velocity commercial environment are not considered. The rapid rate of change in the supply environments of smaller born-global firms suggests that while time-related constraints do exist in developing knowledge redundancy, the ability to develop inter-firm partnerships quickly through established networks, leads to trust and tacit knowledge, which, in turn, develops knowledge redundancy. The ability to develop technological knowledge redundancy quickly between partners builds absorptive capacity swiftly in high-technology knowledge-intensive smaller born-global firms. The interpersonal relationships, inter-firm partnerships and cooperative interdependence which lead to trust may be viewed as the fastest and most

expedient conduit of tacit knowledge. Strong relationships built up over time or newly-formed networks developed quickly through established networks (which already possess trust) and characterized by partnerships which have led to trust result in a quick time period for absorptive capacity to occur; critical to ensuring new knowledge. Thus we propose that:

Proposition 6. Tacit knowledge amongst early internationalizing smaller born-global firms increases absorptive capacity.

We have argued thus far that, for early internationalizing smaller born-global firms, established networks, newly-formed relationships (identified through established networks) and cooperative interdependence of inter-firm partnerships and relational trust leads to tacit knowledge which increases absorptive capacity. We further suggest that absorptive capacity is then operationalized as development of new knowledge in the international supply chain. Our model represents a causal chain. We note that business and social networks over time will lead to the development of new knowledge, and that this new knowledge will be used in the future as it is the starting point for the ongoing development of business and social networks.

Thus, we propose that:

Proposition 7. Absorptive capacity generates new knowledge in the international supply chain for early internationalizing smaller born-global firms.

In so doing we have extended the RBV, KBV and network theory by specifying the level of interaction required for the *development of new knowledge* process to occur. The contributing concepts to new knowledge development for early internationalizing smaller born-global firms are summarized in Table 2.

Please insert Table 2 here

Thus we contribute by developing a model highlighting new rapid knowledge development as it applies to smaller born-global firms. Our contribution extends previous

research which posits that born-global firms have learning advantages emanating from the previous international experience of senior managers (Autio et al, 2000, Oviatt & McDougall, 1994), advanced relationship capability (Freeman & Cavusgil, 2007; Johanson & Vahlne, 2003), and maintaining that their prior international experience (e.g. established networks) and technological experience (Nordman & Melen, 2008) leads to trust and inter-firm partnerships. Established networks also build newly-formed networks, which allows for quick inter-firm partnerships to develop, based on mutual need, leading to relational trust-like outcomes. Thus relational trust is an outcome for the later network. Both established and newly-formed networks lead onto to tacit knowledge, which enhances the firm's absorptive capacity (Cohen and Levinthal, 1990). Eriksson and Chetty (2003) explain that the depth and diversity of managers' international experience influences absorptive capacity which affects the way foreign market knowledge is perceived as an enabler to internationalization. More particularly for born-global firms, technological experience (Nordman & Melen, 2008) influences absorptive capacity which affects the manner in which industry knowledge is perceived as a driver of commercialization. A major theoretical implication is that technological experience impacts upon strategic choices, action on internal resources, processes and procedures, and facilitates innovation and best practice. This in turn influences the flow of tacit knowledge through informal personal influence and persuasion, which directly affects absorptive, quickly developing new knowledge for smaller born-global firms.

4. Conclusion

The propositions and model developed in this paper build upon earlier international business theories, KBV and network theory to develop new understanding of the necessity for smaller born-global firms which are rapidly internationalizing, to leverage networks, partnerships and relational trust to ensure tacit knowledge and absorptive capacity emerge

which lead to the development of new knowledge. We have suggested that earlier and revised Uppsala “stage model” perspectives of understanding international supply chains do not adequately explain the rapid internationalization of smaller born-global firms. We have explored the characteristics and complexity of knowledge development for the smaller born global firm, which emphasizes technological knowledge and have theorized and confirmed the link between pre-existing networks and newly formed relationships, both of whom can lead directly to inter-firm partnerships. Because the born-global management teams have advanced relationship capabilities they are able to quickly build strong inter-firm partnerships from both sources. Further, we have provided new understanding of the importance of relational trust and tacit knowledge for smaller born-global firms who need to quickly provide high-technology, knowledge-intensive products and processes to customers, to take benefit of first or early mover advantage, necessitating both reactive and proactive strategic approaches. Importantly we suggest though that while established networks have built relational trust which has led to inter-firm partnerships, newly-formed networks commence with inter-firm partnerships through necessity but that these partnerships develop relational trust-like outcomes over the long-term.

The arguments posited in this paper support prior research that particular interpersonal relational types, such as ‘personal’ and ‘friendships’ (Mainela, 2007), and inter-firm partnerships build trust-like outcomes, such as ‘friendship’, ‘reputation’ and ‘social norms and sanctions’ (Svejenova, 2006) in a business setting which lead to relational trust, tacit knowledge and the development of absorptive capacity and that, for smaller born-global firms, this environment maintains relationships long-term and leads to the development of new knowledge for effective, efficient and speedy supply operation. Thus, building on understanding of knowledge acquisition is a key focus of the smaller born-global firm for achievement of competitive advantage and survival.

4.1. Future research

While our research advances understanding of the relationships between networks, trust, absorptive capacity and knowledge, further research is recommended which utilizes qualitative approaches to refine the conceptual framework and applicability of KBV, RBV and network perspectives. We also suggest that there is need for empirical quantitative research to test the propositions developed herein. In this paper we have explored how we believe new knowledge is built in born global firms but we have not actually assessed the long-term benefits to the firm of new knowledge and how it is utilized. There is need for future empirical research to explore how knowledge is manifest in smaller born-global firms in terms of what are the implications for firm performance of such knowledge development. Further, while we suggest that born-global firms do have a need to build networks rapidly, earlier research has suggested that individuals can take knowledge from an organization to a competitor firm – this seems particularly likely given the prevalence within high-technology, born-global firms of younger, mobile employees focused on their own career development. There is also need to further explore the concept of time in relation to the propositions and model developed within this paper. More particularly, it could be empirically tested whether business and social networks which develop new knowledge will result in future development of other business and social networks. There is need for empirical longitudinal research to explore what happens to firms' knowledge when their employees move quickly from firm to firm utilizing acquired knowledge to their own career advantage.

4.2. Managerial implications

A number of managerial implications are established on the basis of the propositions and conceptual framework developed in our paper. First, smaller born-global firms internationalize more rapidly than their older, domestically established counterparts,

therefore, there is need to form networks and inter-firm relationships to assist in building new knowledge. Second, smaller born-global firms need to leverage inter-organizational co-dependency to assist in keeping pace with a high speed, competitive and inter-linked environment. Third, senior management of smaller born-global firms need to utilise their international experience and institutional memory to enhance trust and absorptive capacity. Fourth, senior managers of smaller born-global firms need to constantly develop, reuse and transfer tacit knowledge from one organization to another to ensure maintenance of long-term relationships which lead to tacit knowledge and absorptive capacity which allows for development of new knowledge. Finally, while working with competitors through inter-firm partnerships, which produce mutual knowledge benefits, smaller born-global firms also need to be cognizant of the need to quickly provide high-level tacit knowledge to their various supply chain partners to ensure competitive advantage.

References

- Andersen, O. (1993). On the Internationalisation Process of Firms: A Critical Analysis. *Journal of International Business Studies*, 24/2, 209-231
- Aulakh, P. S., Kotabe, M. and Sahay, A. (1996). Trust and Performance in Cross-border Marketing Partnerships: A Behavioral Approach, *Journal of International Business Studies*, 27/5, 1005-1032.
- Arino, A. (2003). Measures of Strategic Alliance Performance: An Analysis of Construct Validity, *Journal of International Business Studies*, 34(1), 66-79.
- Autio, E., Sapienza, H. J. and Almeida, J. G. (2000). Effects of Age at Entry, Knowledge Intensity, and Imitability on International Growth, *Academy of Management Journal*, 43/5, 909-924.
- Barkema, H.G. and Vermeulen, F. (1998). International Expansion Through Start-up or Acquisition, *Academy of Management Journal*, 44/1, 7-26.
- Bell, J., McNaughton, R. B., Young, S. and Crick, D. (2003). Towards an Integrative Model of Small Firm Internationalisation, *Journal of International Entrepreneurship*, 1/4, 339-362.
- Bilkey W. J. and Tesar G. (1977). The Export Behaviour of Smaller Sized Wisconsin Manufacturing Firms. *Journal of International Business Studies*, 8/Spring/Summer, 93-98
- Blomqvist, K., Hurmelinna-Laukkanen, P., Nummela, N. and Saarenketo, S. (2008). The role of trust and contracts in the Internationalization of Technology-intensive Born Globals, *Journal of Engineering and Technology Management*, 25, 123-135
- Bouty, I. (2000). Interpersonal and Interaction Influences on Informal Resource Exchanges Between R&D Researchers Across Organisational Boundaries, *Academy of Management Journal*, 43/1, 50-65.
- Cavusgil, S. T. (1980). On the Internationalisation of Firms. *European Research*, 8/Nov, 273-281
- Chen, I. J. and Paulraj, A. (2004). Understanding Supply Chain Management: Critical Research and a Theoretical Framework, *International Journal of Production Research*, 42/1, 131-63.
- Chetty, S. and Campbell-Hunt, C. (2004). A Strategic Approach to Internationalization: A Traditional Versus a "Born Global" Approach, *Journal of International Marketing*, 12/1, 57-81.
- Chetty, S. and Wilson, H. I. M. (2003). Collaborating With Competitors to Acquire Resources, *International Business Review*, 12/1, 61-81.
- Cohen, W. M. and Levinthal, D. A. (1990). Absorptive Capacity: A New Perspective on Learning and Innovation, *Administrative Science Quarterly*, 35/1, 128-153.
- Coleman, J. S. (1988). Social Capital in the Creation of Human Capital, *American Journal of Sociology*, 94, 95-120.
- Cousins, P. D. and Menguc, B. (2006). The Implications of Socialization and Integration in Supply Chain Management, *Journal of Operations Management*, 24/5, 604-620.
- Coviello, N. E, Munro H. (1995). Growing the Entrepreneurial Firm. *European Journal of Marketing*, 29/7, 49-61
- Coviello, N. E. and Munro, H. (1997). Network Relationships and the Internationalisation Process of Small Software Firms, *International Business Review*, 6/4, 361-386.
- Crick, D, and Jones M. V. (2000). Small High technology Firms and International High-technology Markets. *Journal of International Marketing*, 8/2, 63-85

- Crick, D. and Spence, M. (2005). The Internationalisation of 'High Performing' UK High-tech SMEs: A Study of Planned and Unplanned Strategies, *International Business Review*, 14/2, 167-185.
- Davenport, T. (2006). The Different Domains of Innovation, *Babson Insight*, May.
- Davenport, T. H. and Prusak, L. (1998). *Working Knowledge: How Organisations Manage What They Know*, Boston: Harvard Business School Press.
- Dixon, N. (2002). The Neglected Receiver of Knowledge Sharing, *Ivey Business Journal*, 66/4, 35-40.
- Drucker, P. F. (1964). *Managing for Results*. New York: Harper Collins
- Dunning, J. H. (1995). Reappraising the Eclectic Paradigm in an Age of Alliance Capitalism. *Journal of International Business Studies*, 26/3, 461-492.
- Dyer J. H. and Hatch, N. W. (2004). Using Supplier Networks to Learn Faster, *Sloan Management Review*, 45/3, 57-63.
- Eisenhardt, K. M. (1989). Building Theories from Case Study Research, *Academy of Management Review*, 14/4, 532 - 550.
- Eriksson, K. and Chetty, S. (2003). The Effect of Experience and Absorptive Capacity on Foreign Market Knowledge, *International Business Review*, 12/6, 673-695
- Eriksson, K., Johanson, J., Majkgard, A., and Sharma, D. D. (1997). Experiential knowledge and cost in the internationalization process. *Journal of International Business Studies*, 28/2, 337-360.
- Ess, C. (2002). Cultures in Collision; Philosophical Lessons from Computer-mediated Communication, *Metaphilosophy*, 33/1/2, 229-253.
- Etemad, H. (2004). Internationalization of Small and Medium-sized Enterprises: A grounded Theoretical Framework. *Canadian Journal of Administrative Sciences*, 21/1, 1-21
- Freeman, S. and Cavusgil, T. (2007). Towards a Typology of Commitment States among Managers of Born-global Firms: A study of Accelerated Internationalization. *Journal of International Marketing*, 15/4, 1-40.
- Freeman, S. (2007). An Integrated Framework of De-internationalization Strategies for Smaller Born-globals. *The 23rd Industrial Marketing and Purchasing (IMP) Group Conference, Manchester, United Kingdom, 30 August – 1 September 2007*.
- Freeman, S., Edwards, R. and Schroder, B. (2006). How Smaller Born-global Firms use Networks and Alliances to Overcome Constraints to Rapid Internationalization, *Journal of International Marketing*, 14/3, 33-63.
- Grant, R. M. (1996). Toward a Knowledge-Based Theory of the Firm, *Strategic Management Journal*, 17/Winter Special Issue, 109-133.
- Gulati, R. (1999). Network Location and Learning: The Influence of Network Resources and Firm Capabilities on Alliance Formation, *Strategic Management Journal*, 20, 397-420.
- Harris, S. and Wheeler, C. (2005). Entrepreneurs' Relationships for Internationalization: Functions, Origins and Strategies, *International Business Review*, 14/2, 187-207.
- Hult, G. M., Ketchen, D. J., Cavusgil, S. T., and Calantone, R. J. (2006). Knowledge as a Strategic Resource in Supply Chains, *Journal of Operations Management*, 24, 458-475.
- Husted, K., & Michailova, S. (2002). Diagnosing and Fighting Knowledge: Sharing Hostility. *Organizational Dynamics*, 31/1, 60-73.
- Hurmerinta-Peltomaki, L. (2003). Time and Internationalisation: Theoretical Challenges Set by Rapid Internationalisation. *Journal of International Entrepreneurship*, 1/2, 217-236
- Hutchings, K. and Michailova, S. (2006). Impacts of Culture and Institutions on Knowledge Sharing in Russia and China, *International Journal of Emerging Markets*, 1/1, 21-34.

- Inkpen, A. C. (2008). Managing Knowledge Transfer in International Alliances, *Thunderbird International Business Review*, 50/2, 77-90.
- Inkpen, A. C. and Pien, W. (2006). An examination of collaboration and knowledge transfer: China-Singapore Suzhou Industrial Park, *Journal of Management Studies* 43/4, 779-811.
- Ireland, R. D. and Webb, J. W. (2007). A Multi-theoretic Perspective on Trust and Power in Strategic Supply Chains, *Journal of Operations Management*, 25/2, 482-497.
- Johanson, J. and Mattson, L. (1988). Internationalisation in industrial systems - A network approach. In N. Hood & J. Vahlne (eds.), *Strategies in Global Competition*, New York: Croom Helm, 287-314).
- Johanson, J. and Vahlne, J. (1977). The Internationalization Process of the Firm: A model of Knowledge Development and Increasing Foreign Market Commitments, *Journal of International Business Studies*, Spring/8, 23-32.
- Johanson, J. and Vahlne J. (1990). The Mechanism of Internationalisation. *International Marketing Review*, 7/4, 11-24
- Johanson, J. and Vahlne, J. (2003). Business Relationship Learning and Commitment in the Internationalisation Process, *Journal of International Entrepreneurship*, 1(1), 83-101.
- Johanson, J. and Wiedersheim-Paul, F. (1975). The Internationalisation of the Firm-Four Swedish Cases, *Journal of Management Studies*, 12/3, 305-322.
- Jones, M. V. (1999). The Internationalization of Small High-technology Firms. *Journal of International Marketing*, 7/4, 14-41.
- Jones, M. V. and Coviello, N. E. (2005). Internationalisation: Conceptualising an Entrepreneurial Process of Behaviour in Time, *Journal of International Entrepreneurship*, 6/3, 284-304.
- Knight, G. A. and Cavusgil, S. T. (1996). The Born-global Firm: A Challenge to Traditional Internationalization Theory, *Advances in International Marketing*, 8, 11-26.
- Knight, G. A. and Cavusgil, S. T. (2004). Innovation, Organizational Capabilities, and the Born-global Firm, *Journal of International Business Studies*, 35/2, 124-141.
- Kogut, B. and Zander, U. (1996). What Firms Do? Coordination, Identity and Learning, *Organization Science*, 7/5, 502-18.
- Kotabe, M., Martin, X. and Domoto, H. (2003). Gaining from Vertical Partnerships: Knowledge Transfer, Relationship Duration, and Supplier Performance Improvement in the U.S. and Japanese Automotive Industries, *Strategic Management Journal*. 24/4, 293 - 316.
- Kotha, S., Rindova, V. P. and Rothaermel, F. T. (2001). Assets and Actions: Firm-specific Factors in the Internationalization of U.S. Internet Firms, *Journal of International Business Studies*, 32/4, 769-791.
- Kuivalainen, O., Sundqvist, S., and Puumalainen K. (2004). The Effect of Environmental Turbulence and Leader Characteristics on International Performance: Are Knowledge Based Firms Different? *Canadian Journal of Administrative Sciences*, 21/1, 35-50
- Lam, A. (2000). Tacit Knowledge, Organizational Learning and Societal Institutions: An Integrated Framework, *Organization Studies*, 21(3), 487-513.
- Lane, P. J., Koka, B. & Pathak, S. (2006). The Reification of Absorptive Capacity: A Critical Review and Rejuvenation of the Construct, *Academy of Management Review*, 31/4, 833-863.
- Lane, P. J., Salk, J. E. and Lyles, M. A. (2001). Absorptive Capacity, Learning, and Performance in International Joint Ventures, *Strategic Management Journal*, 22/12, 1139 - 1161.
- Leonidou, L. C. (1995). Empirical Research on Export Barriers: Review, Assessment, and Synthesis, *Journal of International Marketing*, 3/1, 29-43.

- Li, L. (2005). The Effects of Trust and Shared Vision on Inward Knowledge Transfer in Subsidiaries' Intra- and Inter-organizational Relationships, *International Business Review*, 14/1, 77.
- Madhok, A. (1995). Revisiting Multinational Firms' Tolerance for Joint Ventures: A Trust-based Approach, *Journal of International Business Studies*, 26/2, 117-137.
- Madsen, T. K., & Servais, P. (1997). The Internationalization of Born Globals: An Evolutionary Process, *International Business Review*, 6/6, 561-583.
- Mainela, T. (2007). Types and Functions of Relationships in the Organizing of An International Joint Venture, *Industrial Marketing Management*, 36/1, 87-98.
- Mascarenhas, B. and Koza, M. P. (2008). Develop and Nurture and International Alliance Capability, *Thunderbird International Review*, 50/2, 121-28.
- Maznevski, M., and Athanassiou, N. (2006). Bringing the Outside Knowledge in: Learning and Knowledge Management through External Networks. In K. Ichijo & I. Nonaka (eds.), *Knowledge Creation and Management : New Challenges for Managers*, New York: Oxford University Press.
- McDougall, P.P. (1989). International Versus Domestic Entrepreneurship: New Venture Strategic Behaviour and Industry Structure. *Journal of Business Venturing*, 4, 387-400
- McDougall, P.P. and Oviatt, B.M. (1996). New Venture Internationalization, Strategic Change, and Performance: A Follow-up Study. *Journal of Business Venturing*, 11/1, 23-40
- Nonaka, I. (1994). A Dynamic Theory of Organizational Knowledge Creation, *Organization Science*, 5(1), 14-37.
- Nordman, E. R., and Melen, S. (2008). The Impact of Different Types of Knowledge for the Internationalization Process of Born Globals in the Biotech Business, *Journal of World Business*, 43, 171-185.
- Oesterle, M. (1997). Time-span until Internationalization: Foreign Market Entry as a Built in Mechanism of Innovations, *Management International Review*, 37/2, 125-149.
- Oviatt, B. M. and McDougall, P. P. (1994). Toward a Theory of International New Ventures, *Journal of International Business Studies*, 25/1, 45-64.
- Oviatt, B. M. and McDougall, P.P. (2005). Defining International Entrepreneurship and Modelling the Speed of Internationalization. *Entrepreneurship Theory and Practice*, 29/5, 537-553
- Parise, S. and Casher, A. (2003). Alliance Portfolios: Designing and Managing your Network of Business-Partner Relationships, *Academy of Management Executive*, 17/4, 25-39.
- Penrose, E. T. (1959). *The Theory of the Growth of the Firm*. Oxford: B. Blackwell
- Polanyi, M. (1966). *The Tacit Dimension*. Garden City, New York: Doubleday & Company Inc.
- Rao, T. R. and Naidu, G. (1992). Are the Stages of Internationalisation Empirically Supportable? *Journal of Global Marketing*, 6/1/2, 147-170
- Rennie, M.W. (1993). Born Global. *The McKinsey Quarterly*, 4, 45-52
- Rialp, A., Rialp, J. and Knight, G.A. (2005). The Phenomenon of Early Internationalizing Firms: What Do We Know After a Decade? *International Business Review*, 14(2), 147-166.
- Robson, M. J., Katsijias, C., and Bello, D. (2008). Drivers and Performance Outcomes of Trust in International Strategic Alliances: The Role of Organizational Complexity, *Organization Science*, 19(4), 647-665.
- Roy, S., Sivakumar, K., and Wilkinson, I.F. (2004) Innovation Generation in Supply Chain Relationships: A Conceptual Model and Research Propositions, *Journal of the Academy of Marketing Science*, 32(1), 61-79.

- Shrader, R. C., Oviatt, B.M., and McDougall, P.P. (2000). How New Ventures Exploit Trade-offs among International Risk Factors: Lessons for the Accelerated Internationalization of the 21st Century. *Academy of Management Journal*, 43/6, 1227-1247
- Simonin, B. L. (1999). Transfer of Marketing Know-how in International Strategic Alliances: An Empirical Investigation of the Role and Antecedents of Knowledge Ambiguity. *Journal of International Business Studies*. 30/3: 463- 490.
- Sivakumar, K. and Roy, S. (2004). Knowledge Redundancy in Supply Chains: A Framework, *Supply Chain Management*, 9/3, 241-249.
- Spekman, R.E. Spear, J., and Kamauff, J. (2002). Supply Chain Competency: Learning as a Key Component, *Supply Chain Management: An International Journal*, 7(1), 41-55.
- Spender, J. C. (1996). Making Knowledge the Basis of a Dynamic Theory of the Firm. *Strategic Management Journal*, 17, 45-62
- Spender, J.C. and Grant, R.M. (1996). Knowledge and the Firm, *Strategic Management Journal*, 17, 5-9.
- Staples, D. S., and Webster, J. (2008). Exploring the Effects of Trust, Task Interdependence and Virtualness on Knowledge Sharing in Teams. *Information Systems Journal*, Prepublished online 17 Feb.
- Svejenova, S. (2006). How Much Does Trust Really Matter? Some Reflections on the significance and Implications of Madhok's Trust-Based Approach, *Journal of International Business Studies*, 37/1, 12-20.
- Szulanski, G. (2003). *Sticky Knowledge: Barriers to Knowing in the Firm*, London: Sage.
- Teece, D. J. (1998). Capturing Value from Knowledge Assets: The New Economy, Markets for Know-how and Intangible Assets. *California Management Review*, 40/3, 55-79.
- Tsai W. (2000). Social Capital, Strategic Relatedness and the Formation of Intraorganizational Linkages. *Strategic Management Journal*, 21/9, 925-39.
- Turvani, M. (2001). Microfoundations of knowledge dynamics within the firm. *Industry and Innovation*, 8(3).
- Tyre, M. J. and Von Hippel, E. (1997). *The Situated Nature of Adaptive Learning in Organizations*. *Organization Science*, 8(1), 71-83.
- Vermeulen. F. and Barkema, H. (2002). Pace, Rhythm, and Scope: Process Dependence in Building a Profitable Multinational Corporation. *Strategic Management Journal*, 23, 637-653
- Welch, L. S. and Luostarinen, R. K. (1988). Internationalisation: Evolution of a Concept. *Journal of General Management*, 14/2, 34-55.
- Welch, L. S. and Luostarinen, R. K. (1993). Inward-outward Connections in Internationalization, *Journal of International Marketing*, 1/1, 44-57.
- Williams, M. (2001). In Whom We Trust: Group Membership as an Affective Context for Trust Development, *The Academy of Management Review*, 26/3, 377-396.
- Yli-Renko, H., Autio, E. and Sapienza, H. J. (2001). Social Capital, Knowledge Acquisition and Knowledge Exploitation in Young Technology-based Firms, *Strategic Management Journal*, 22/ 6/7, 587-613.
- Yli-Renko, H., Autio, E. and Tontti, V. (2002). Social Capital, Knowledge and the International Growth of Technology-based New Firms. *Strategic Management Journal*, 21, 587-613.
- Zahra, S. A., Matherne, B. P. and Carleton, J. M. (2003). Technological Resource Leveraging and the Internationalisation of New Ventures, *Journal of International Entrepreneurship*, 1/2, 163-186.
- Zaheer, S. & Zaheer. A.. (2006). Trust Across Borders, *Journal of International Business Studies*, 37, 21-29.

Zyngier, S., Burstein, F. and Rodriguez, M.L. (2003). Knowledge Management Strategies in Australia. In H. Hasan & M. Handzic (eds.), *Australian Studies in Knowledge Management*, Wollongong: University of Wollongong Press.

Table 1: Trust and knowledge transfer

Extant studies	Role of trust and knowledge transfer
(Aulakh et al., 1996)	Trust for knowledge transfer requires mix of social and economic exchange.
(Kotabe et al., 2003)	Trust relies on an increased number of interpersonal interactions
(Sivakumar & Roy, 2004)	Building trust takes long-term relationship
(Li, 2005)	Trust for knowledge transfer requires mix of social and economic exchange requires long-term relationship
(Maznevski & Athanassiou, 2006)	Knowledge transfer depends on informal personal influence and persuasion
(Cousins & Menguc, 2006)	Knowledge transfer requires building interpersonal relationships
(Dyer & Hatch, 2006)	Quality of long-term relationship and nature of knowledge sharing increases quality and quality within the supply-environment.
(Zaheer & Zaheer, 2006)	The nature of trust and the institutional and cultural support for trust can vary across different national contexts

Table 2: Concepts incorporated into the development of the model

Concepts	Studies from which concepts are developed
<p>Knowledge sources</p> <p><i>Internal</i> Experience Human/physical Person-centred networks Organizational-centred networks</p> <p><i>External</i> Tacit Customers/suppliers Informal networks Experts Professional associations</p>	<p>Underpinned by RBV and KBV Penrose (1959) Drucker (1964) Grant (1996) Johanson, & Vahlne (1977) Inkpen (2008) Oviatt & McDougall (1994) Mascarenhas & Koza (2008)</p> <p>Leonidou (1995) Kotha, Rindova & Rothaermel (2001) Freeman, Edwards & Schroder (2006) Oviatt & McDougall (1994) Lane, Salk, & Lyles (2001) Coviello & Munro (1997) Inkpen (2008) Mascarenhas & Koza (2008)</p>
<p>Established business and social networks</p> <p>Newly-formed networks</p>	<p>Underpinned by RBV, KBV and Network perspective Yli-Renko, Autio & Sapienza (2001) Oviatt & McDougall (1994) Grant (1996) Freeman & Cavusgil (2007) Bell, McNaughton, Young & Crick (2003) Crick & Spence (2005) Autio, Sapienza & Almeida (2000)</p>
<p>Inter-firm partnerships</p> <p><i>Interpersonal Interactions</i> Numerous Responsive Willing Relational</p> <p><i>Strong relationships</i> Over time Characterised by trust Customers/suppliers</p> <p><i>Highly interactive relationships</i> Personal Friendship</p> <p><i>Weak relationships</i> Professional associations</p>	<p>Underpinned by RBV and Network perspective Harris & Wheeler (2005) Coviello & Munro (1997) Svejenova (2006) Ireland & Webb (2007)</p> <p>Aulakh, Kotabe & Sahay (1996) Johanson & Mattson (1988) Ireland & Webb (2007)</p> <p>Underpinned by Network Perspective Mainela (2007) Svejenova (2006)</p> <p>Jones (1999) Welch & Luostarinen (1993)</p>

Alumni Workplace	
Trust <i>Enforcement environment</i> Trust-like outcomes Collaboration Trust *contractual *competence *goodwill	Underpinned by KBV and Network Perspective Svejenova(2006) Coviello & Munro (1997) Szulanski (2003) Lane, Koka & Pathak (2006) Cohen & Levinthal (1990) Freeman, Edwards & Schroder (2006) Freeman & Cavusgil (2007) Oviatt & McDougall (1994) Aulakh, Kotabe & Sahay (1996) Li (2005) Mainela (2007) Svejenova (2006)
Tacit knowledge Procedural knowledge Declarative knowledge Time taken for knowledge development Level of Interaction for knowledge development	Underpinned by KBV and Stage model (Uppsala) Polanyi (1966) Simonin (1999) Johanson & Vahlne (1977) Jones & Coviello (2005) Inkpen (2008) Mainela (2007)
Absorptive capacity Tacit knowledge in the domain of the customer (Firm A) Shared tacit knowledge (known knowledge) Tacit knowledge in the domain of the smaller born-global firm (Firm B)	Underpinned by KBV, RBV and Network perspective Drucker (1964) Cohen & Levinthal (1990) Aulakh, Kotabe & Sahay (1996) Kotabe, Martin & Domoto (2003) Szulanski (2003) Sivakumar & Roy (2004) Johanson & Mattson (1988) Aulakh, Kotabe & Sahay (1996) Barkema & Vermeulen (1998)
Development of new knowledge <i>Effective inter-organizational new knowledge development by smaller born-global firms</i>	KBV, RBV and Network perspective This final concept needs confirmation through future research

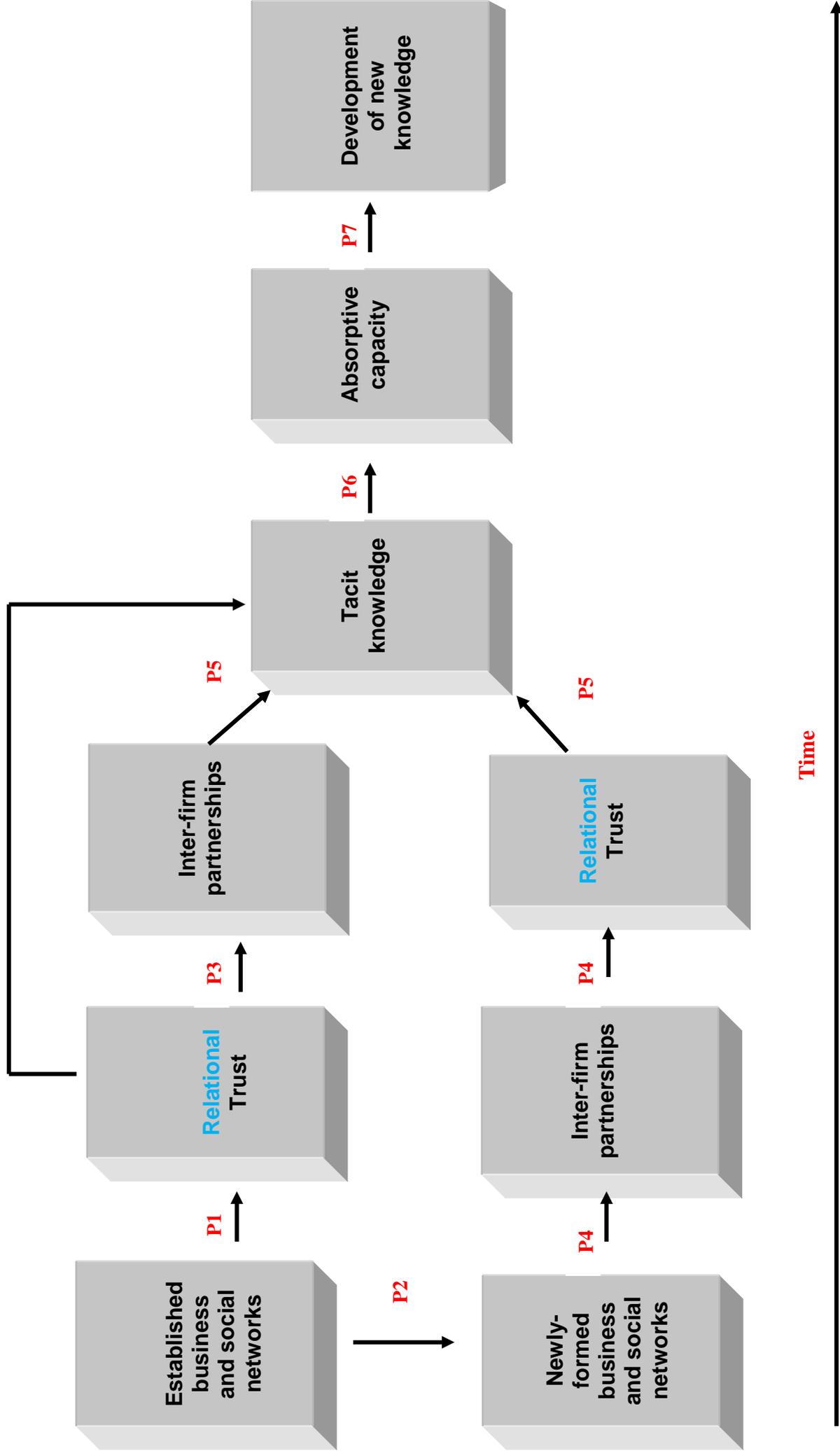


Figure 1: A Model of Rapid Knowledge Development: The Smaller Born-global firm