

The Internationalization of Small Firms

A strategic entrepreneurship
perspective

Shameen Prashantham

With a foreword by Stephen Young

The Internationalization of Small Firms

This book explores the role of network relationships in the internationalization of small knowledge-intensive firms, by drawing on case-study research carried out in the Bangalore software industry. The book is concerned with small firm growth and the accelerated internationalization of young, small firms – a phenomenon that has attracted widespread research attention over the past decade at the intersection of entrepreneurship, international business and strategy.

Prashantham's study focuses on the value of a strategic approach and highlights the importance of recognizing and leveraging network relationships. It also analyses the idea of using technology from a relational, and not merely transactional, perspective. Other key themes include the significance of location and the role of the entrepreneur. The author also explores the notion that endowment of ties does not automatically result in internationalization unless proactively influenced. The propensity of small knowledge-intensive firms to develop and grow through forging network relationships and the resourcefulness with which entrepreneurial firms can (and do) internationalize is a key lesson learnt from this volume.

This cutting-edge book is particularly relevant to advanced students and academics with an interest in international business and entrepreneurship and will also benefit researchers involved with small business and new technology management.

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A strategic entrepreneurship perspective

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To my wife, Deepali

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Foreword

The subjects of the internationalization of small- and medium-sized enterprises (SMEs) and international entrepreneurship are very exciting and topical ones. In particular the growth of the global knowledge economy is associated with the emergence of many intellectual capital-intensive SMEs, whose adventurous and entrepreneurial strategies may lead to early and rapid internationalization and globalization. These phenomena are not confined to industrialized countries, with India in the forefront of developments, as this volume, drawing on research undertaken in the Bangalore software industry, reveals very clearly and forcefully. The main premise of the volume is that *networks and social capital enable resourceful internationalization*, and its principal contributions lie in improving our understanding of the development of social capital, the leveraging of social capital and the management of social capital portfolios.

It gives me particular pleasure to pen this Foreword since I was privileged to be the principal supervisor for Dr Shameen Prashantham's Doctoral research, and the volume draws substantially on his Doctoral studies. While the PhD process is never easy and Shameen encountered his fair share of challenges along the way, I became increasingly aware that here was an academic star in the making. This view was reinforced by his mature and polished performance at his Viva, the External Examiner for which was Professor Shaker Zahra, a distinguished scholar in the field of SME internationalization, entrepreneurship and strategy. Shameen states that this volume 'represents his "baby steps" in academia' – this may be so, but, like the early internationalizing SMEs he studies, we can anticipate a rapid and accelerated pace of academic development characterized by more radical steps in future! Indeed the final chapter of the volume on *Future Research Directions* suggests some of the ways this may occur, namely through integrating innovation into SME internationalization research and through consideration of the role of MNCs as a source of social capital to local knowledge-intensive SMEs. Enjoy these initial stimulating contributions to the internationalization of entrepreneurial firms ... with much more to follow.

Stephen Young, Professor of International Business
Co-Director, Centre for Internationalisation & Enterprise Research,
University of Glasgow

Preface

That I would develop a research interest in small firm internationalization is perhaps almost inevitable given that, at the turn of the century, I came into contact as a graduate student with renowned internationalization scholars who were generating exciting work on the internationalization of small knowledge-intensive firms in settings as diverse as Britain, Germany and the United States. When I decided to embark on a PhD, I was caught up in the wave of interest in this area.

There were certain distinctive elements that I sought to bring into my doctoral research, with a view to making a unique contribution. I sought to simultaneously (a) examine an emerging economy context (namely, the Indian software industry) which I was sure could yield novel insights, (b) incorporate a contemporary perspective by taking into cognizance the enabling role of technology, and (c) drawing upon both economics and sociology, delve deeply into the role of social capital arising from network relationships of internationalizing small firms.

The work in this volume represents my “baby steps” in academia – in other words, writings based on my preliminary conceptualization and fieldwork which, in the European tradition, focused on qualitative case studies.¹ It explores the role of network relationships in the internationalization of small knowledge-intensive firms, by drawing on case-study research carried out in the Bangalore software industry. The research is, in general, concerned with small firm growth and, more specifically, with accelerated internationalization of young, small firms, a phenomenon that has attracted widespread research attention for over a decade now. The book highlights the propensity of small knowledge-intensive firms to develop and leverage network relationships and thereby, the resourcefulness with which entrepreneurial firms can (and do) internationalize.

The primary audience comprises academics and doctoral students with an interest in the internationalization of entrepreneurial firms. Additionally, there is useful material to supplement core texts in postgraduate courses on internationalization. Furthermore, there are hopefully useful messages for thoughtful entrepreneurs and policy-makers, especially those based in emerging economies, where the opportunity for small firm internationalization has never been greater.

Aside from the introductory and concluding chapters, the eight other papers

in the volume were not intentionally written as chapters of a book and therefore there is some repetition of themes, citations and methodology sections. However, these eight papers offer substantial portions that do not overlap and in general, provide internally consistent ideas. Moreover, the papers were previously published in journals (six) or edited volumes (two), indicating thereby that they benefited from rigorous peer review and critique. Also, in most cases, a previous version had been presented at a conference, resulting in useful feedback from colleagues.

And so, it is my hope that when considered cumulatively, the whole is greater than the sum of the parts, and that the conceptualization and empirical findings presented in this volume informs and provokes further developments in an exciting research stream that I have the good fortune to continue to work on.

Shameen Prashantham

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There have been important influences on my development as a researcher on small firm internationalization and international entrepreneurship. Foremost is Steve Young whom I was fortunate enough to have as doctoral supervisor. As many previous doctoral students of his will attest, I could not have asked for a better mentor. I am grateful for his wise counsel during my doctoral studies and for his collaboration on research papers (including one in this volume). I am also delighted to be continuing to pursue this stream of research as a lecturer within the Centre for Internationalization and Enterprise Research at the University of Glasgow that he co-directs along with another esteemed colleague Marian Jones. Others who helped me enormously during my doctoral studies include Maureen Berry who instilled in me my interest in small knowledge-intensive firms and co-authored a couple of my very first papers (included in this volume) and Pavlos Dimitratos from whom I have learned much about the craft of academic research. I would be remiss not to acknowledge Christine Donald and Jane Brittin, who were a great source of support in numerous ways during the doctoral research process.

There are others who have also contributed to my early development in academia. I thank Shaker Zahra, who was a provocative and thorough external examiner who has subsequently helped me enormously in honing my skills as a researcher and writer. Léo-Paul Dana has been a major source of encouragement and of writing opportunities – which led to a couple of the papers included in the volume. Many scholars have generously provided me valuable feedback on my work at conferences and elsewhere, notably Rod McNaughton who also co-authored one of the papers in the volume and Kevin Ibeh who was my internal examiner and a forerunner in highlighting the importance of small firm internationalization in developing economies. My first academic job as post-doctoral research fellow under the auspices of the Advanced Institute of Management helped me strengthen my knowledge of strategic management through my work with Gerry Johnson, whose encouragement and support has helped me to continue progressing my internationalization research as well, for which I am very grateful indeed.

Most of the work in this volume could not have been written without the access I had to four fascinating small software firms in Bangalore. I am grateful

to their dynamic entrepreneurs who shared so freely of their time and stories. Many industry experts in Bangalore, who are acknowledged by name in my doctoral thesis, were similarly generous with their time and views. During the initial stages of my inquiry in Bangalore, I was provided hospitality and administrative support by Vertebrand Management Consulting and am thankful to its CEO Raghu Viswanath and his colleagues for the intellectually stimulating environment that they provided. My good friends C.G. Srividya and Nidhi Bassi helped enormously with providing me useful contacts in Bangalore and expert advice on my research methodology, respectively – I thank my pals, Ramesh Kumar and Neeraj Bassi for marrying such good wives! Incidentally, my initial research in Bangalore coincided with my getting married to Deepali who then, and since, has been the wind beneath my wings as I have embarked on the journey of an academic researcher and for which reason I can think of no one more appropriate to dedicate this book to. I am also ever grateful for the constant support that I have received from my family, especially my brother and parents and in-laws.

Finally, I express my gratitude to the various publishers who granted me the permission to reproduce my work in this volume. Other than minor modifications for consistency of formatting, no changes have been made. The original publication details and acknowledgement of permission to reprint the papers in this volume are provided below:

Chapter 2: Prashantham, S. and Berry, M.M.J. (2004) ‘The small knowledge-intensive firm: a conceptual discussion of its characteristics and internationalization’, *International Journal of Entrepreneurship and Innovation Management*, 4(2/3): 150–158. © 2004 Inderscience Enterprises Ltd. Reprinted with kind permission of Inderscience Ltd.

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Abbreviations

B2B	Business-to-Business
BoP	Balance of Payment
CEO	Chief Executive Officer
CII	Confederation of Indian Industry
CMM	Capability Maturity Model
DoE	Department of Electronics
EDI	Electronic Data Interchange
EO	Entrepreneurial Orientation
ERP	Enterprise-wide Resource Planning
FDI	Foreign Direct Investment
GATT	General Agreement on Tariffs and Trade
HR	Human Resources
ICT	Information and Communication Technology
INV	International New Venture
IOR	Inter-Organizational Relationship
IT	Information Technology
ITES	Information Technology Enabled Services
KBV	Knowledge-Based View
KIF	Knowledge-Intensive Firm
MBA	Master in Business Administration
MIT	Ministry of Information Technology
MNC	Multinational Corporation
MNE	Multinational Enterprise
MO	Marketing Orientation
NASSCOM	National Association of Software Service Companies
NBD	New Business Development
NPD	New Product Development
PC	Personal Computer
PSU	Public Sector Undertaking
R&D	Research & Development
RFI	Request for Information
RFID	Radio Frequency Identification
RFP	Request for Proposal

SEI	Software Engineering Institute
SKIF	Small Knowledge-Intensive Firm
SME	Small- and Medium-sized Enterprise
STAC	Scottish Technology and Collaboration
STPI	Software Technology Parks of India
TiE	The Indus Entrepreneurs
UK	United Kingdom
UNDP	United Nations Development Programme
US	United States
USA	United States of America
VPN	Virtual Private Network
Y2K	Year 2000

Part I

Conceptual underpinnings

1 Resourceful internationalization

It is resourcefulness, not the mere amount or even types of resources, that matters.

(Zahra 2005: 21)

Internationalization: a strategic entrepreneurship perspective

Firms operating in international markets today seek competitive advantage. It has been suggested that if international business scholars agree on a ‘big question’ for the field, it ought to concern explanations of the differential performance of internationalizing firms – that is, ‘What determines the international success and failure of firms’ (Peng 2004: 99). Competitive advantage is at the very core of strategic management and an issue of interest to many researchers who focus on internationalization. Internationalization, after all, is ‘a major dimension of the ongoing strategy process of most business firms’ (Melin 1992: 101). Ultimately, successful internationalization is pointless if it does not help firms achieve greater strategic performance.

Today, it is widely recognized that international expansion can no longer be deemed the exclusive domain of the established multinational corporations (MNCs) (Wright and Ricks 1994; Zahra 2005). Despite a general preoccupation with large multinational enterprises, recent years have seen a surge in the study of internationalization of the smaller firm, especially in knowledge-intensive industries (Etemad and Wright 2003; Peng 2001). While Young (1987) was among the first to highlight the emerging importance of the internationalization of knowledge-intensive smaller firms, such interest caught on fairly rapidly within the international business field as evident from the following observation by Wright and Ricks (1994: 699) seven years later on significant trends in international business research:

Another, even newer thrust of research activity is *international entrepreneurship* and the internationalization of *small business*. In the emerging global environment, entrepreneurs and their businesses become less limited

4 *Conceptual underpinnings*

to domestic markets. Even small firms are entering the realm of international business.... International players in the world of tomorrow will no longer be limited to big business.

It was, coincidentally, in the same year that Oviatt and McDougall (1994) profoundly influenced internationalization researchers with their ideas on the accelerated internationalization of international new ventures, resulting in considerable research activity over the subsequent decade (Zahra 2005). Thus Wright and Ricks' words have proved to be prophetic.

Scholars whose pioneering efforts seek to foster a research agenda at the strategy/entrepreneurship interface suggest that the internationalization of smaller firms is a topic that can be fruitfully examined from a strategic entrepreneurship perspective. Hitt *et al.* (2001) identify internationalization – along with external networks, resources/organizational learning and innovation – as a naturally occurring domain in strategic entrepreneurship. Smaller firms lack the resources of their large counterparts. Yet many are able to successfully leverage limited resources in an enterprising yet sensible manner. It is therefore appropriate that research on the internationalization of small and new firms be approached from *both* strategic and entrepreneurial perspectives.

Hitt *et al.* (2001: 480) note, 'Entrepreneurship is about creation; strategic management is about how advantage is established and maintained from what is created.... Wealth creation is at the heart of both entrepreneurship *and* strategic management....' Scholars have pointed out the need for an entrepreneurial mindset as they engage with risks and dangers presented by international expansion (Oviatt and McDougall 1994). Equally, attention has been drawn to the importance of a strategic orientation (Welch and Welch 1996) in relation to the key choices to be made in terms of market selection, entry mode choice and timing of entry. A strategic entrepreneurship perspective is consistent with internationalizing small firms' need to 'punch above their weight', as it were, and resourcefully use their limited means to internationalize (Zahra 2005).

Other scholars echo the call for integrating strategic and entrepreneurial perspectives. Venkatraman and Sarasvathy (2001) colourfully argue that strategic management and entrepreneurship are incomplete without the other – much as Romeo would be incomplete without a balcony, and vice versa! Shane (2003) discusses the need for entrepreneurial strategies that synthesize opportunity recognition and strategic choice. McGrath and McMillan (2000) call for strategists to adopt an entrepreneurial mindset. As such, these two fields are seen as offering mutually beneficial perspectives (Zahra and Dess 2001).

The three other domains of strategic entrepreneurship identified by Hitt *et al.* (2001) can all be related to resourceful internationalization. There are certain *resources* that firms need to possess themselves. The influence of Penrose (1959), whose work inspired the resource-based view of the firm (e.g. Barney 1991), is evident in the small firm internationalization literature. In particular, knowledge is seen as a vital resource (Wiklund and Shepherd 2003). As Yli-Renko *et al.* (2002: 280) observe, 'Given the importance of knowledge as a

central value-adding resource of firms, it is not surprising that the current dominant theories on the internationalization process of new and small firms treat knowledge as a central enabling and driving resource.’ Reflecting the wider literature that emphasizes the role of market and technological knowledge with respect to smaller firms (Wiklund and Shepherd 2003), the internationalization literature documents the role of market knowledge as a regulator of resources (Johanson and Vahlne 1977) and of technological knowledge as an enabling resource (Oviatt and McDougall 1994). An important complementary perspective to the resource/knowledge-based view is that of *organizational learning*. As Hitt *et al.* (2001: 483) assert, ‘Knowledge is generated through organizational learning.’ Both traditional (e.g. Johanson and Vahlne 1977) and more recent (e.g. Sapienza *et al.* 2006) perspectives of internationalization highlight the importance of learning (Cyert and March 1963). Linking this notion with that of external networks above, a significant potential outcome for internationalizing firms is that ‘social capital facilitates learning’ (Hitt *et al.* 2001: 482); in other words, ‘external networks can be valuable because they provide the opportunity to learn new capabilities’ (Hitt *et al.* 2001: 481). The role of resources and organizational learning in small firm internationalization is considered in this volume (see Chapter 3).

A key manifestation of knowledge and learning, including via social capital, is in terms of *innovation*. The literature is replete with exhortations for firms to succeed at innovation. The significance of innovation is evident from Hitt *et al.*’s (2001: 481) suggestion that innovation ‘is considered by many scholars and managers to be critical for firms to compete effectively in domestic and global markets’. The role of innovation in internationalization is evident, at least implicitly, in the literature. McDougall and Oviatt’s (2000) definition of international entrepreneurship identifies cross-border innovation as a component. Also, innovation can be expected to precede international expansion given that ‘the capability to develop and introduce new products is a primary driver of a successful global strategy’ (Hitt *et al.* 2001: 484). Finally, parallels have been identified between the processes of innovation and internationalization – in other words, internationalization is an innovative process (Johanson and Vahlne 1992; Knight and Cavusgil 2004). While the importance of innovation is unmistakably acknowledged in this volume, its role in small firm internationalization is, in the main, implicit; indeed, a major call in the concluding chapter is for future research to take innovation into account more explicitly.

Of all the domains of strategic entrepreneurship, perhaps none is more relevant to small firms’ resourceful internationalization than *external networks*, the focus of this volume. External networks are an important means by which internationalizing firms are able to augment their limited resource base. As Hitt *et al.* (2001: 481) observe, ‘the greatest value of networks for entrepreneurial firms is the provision of resources and capabilities needed to compete effectively in the marketplace.’ This notion is expanded upon presently. Thus, in terms of the four domains of strategic entrepreneurship, this volume is primarily concerned with the relationship between external networks and internationalization. This

introductory chapter explores some key themes on the role of networks in internationalization, to set the tone for the rest of the volume.

Networks and internationalization

A long-standing tradition, perhaps originating with Johanson and Mattsson's (1988) network model of internationalization, has emphasized the role of interorganizational relationships in the internationalization process. Recently, internationalization scholars have drawn on social capital theory to conceptualize and study this phenomenon (e.g. Coviello 2006). Social capital emanating from network relationships provides internationalizing small and new firms with vital network resources (Gulati 1999). In this volume, social capital is taken to mean 'the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit. Social capital thus comprises both the network and the assets that may be mobilized through that network' (Nahapiet and Ghoshal 1998: 243). The rationale for the choice of this definition is threefold. First, this definition is conducive for research on firm-level social capital, including social capital derived from inter-firm relationships, which is the focus in the present volume. Second, this definition is integrative of previous work, which is useful given the diversity of views on social capital; for instance, it combines both the public and private good perspectives and is neutral on social capital typologies (Adler and Kwon 2002; Inkpen and Tsang 2005). Third, Nahapiet and Ghoshal's (1998) definition – along with their ideas – establishes a relationship between social capital and knowledge wherein repeated and intensive social interaction facilitates the transfer of knowledge (Yli-Renko *et al.* 2001; Zahra *et al.* 2000). This approach therefore sits harmoniously with the knowledge-based view of the firm, which is dominant in the internationalization literature (see Chapter 3).

According to Portes (1998), it was Bourdieu (1986: 248) who provided the first systematic analysis of social capital, which he defined as 'the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition'. That one kind of social tie (e.g. friendship) can achieve a different purpose (e.g. work-related advice) is a long-held belief in sociology (Portes 1998). Social relations – as distinct from market or hierarchical relations – underlie social capital. Of course, market or hierarchical relations may, over the course of time through repeated interaction, yield social relations – and therefore social capital (Adler and Kwon 2002). The social capital concept has formalized the notion that benefits can be derived from social ties and encapsulated it in a manner that has attracted considerable interest beyond the confines of sociology. For the purposes of the present discussion, the key facet of social capital is that it allows small firms to achieve levels of internationalization and performance that they would not have been able to achieve on their own. In other words, *social capital enables resourceful internationalization.*

A number of scholars have acknowledged the role of network relationships and social capital in small firm internationalization. With regard to the emergent body of work on accelerated internationalization, Johanson and Vahlne (2003: 83–84) observe that ‘a common feature of much of this research is that it places attention on networks and network relationships when trying to understand and explain the rapid internationalization of the firms’. They go on to suggest that ‘there is a need for new and network-based models of internationalization’ (Johanson and Vahlne 2003: 84). In similar vein, Oviatt and McDougall (2005a: 544) acknowledge that ‘network analysis has been a powerful framework for international entrepreneurship researchers’ and that ‘networks help entrepreneurs identify international opportunities, establish credibility, and often lead to strategic alliances and other cooperative strategies’. Also, as Zahra (2005: 24) notes, ‘Building relationships and gaining access to existing networks can help to shorten and expedite INVs’ learning.’

Three facets of network relationships or social capital, with respect to internationalizing small firms, seem especially relevant and are echoed in the following chapters of this volume. These facets, discussed briefly below, are

- 1 the development of social capital;
- 2 the leverage of social capital;
- 3 the management of portfolios of social capital.

Developing social capital

As Coviello (2006) has recently pointed out, new ventures have certain network relationships that can play a significant role in initial market entry. It would seem likely that such founding relationships can have path-dependent consequences in terms of the subsequent development of the firm. Initial network relationships are often directly attributable to the entrepreneur and/or top management team (McDougall *et al.* 1994). Over time, however, additional network relationships can – and indeed, must – be built. These relationships will likely influence subsequent international expansion. Oviatt and McDougall (2005a) argue that initially strong ties are important to ventures but over time a set of weak ties are more likely to provide information and opportunities that facilitate accelerated internationalization. As the portfolio of network relationships expands, and especially as the ventures’ confidence and capabilities grow (Coviello and Munro 1997), international growth accrues.

However, network relationships are not easy to come by and cannot be taken for granted. Research at the strategy/entrepreneurship interface suggests that ventures can develop the capability to replenish extant network relationships (i.e. its stock of social capital) with the addition of new ties (Hitt *et al.* 2001). However, while ventures’ network range, density and centrality are bound to increase over time (Coviello 2006), they must overcome key barriers and be able to achieve visibility, efficiency and intimacy with respect to their network of relationships.

8 *Conceptual underpinnings*

Achieving *visibility* is an important challenge for the smaller firm. A large established MNC seeking strategic alliances is quite different from a small, often young, firm attempting to establish network relations. While there are specific smaller social networks within a given milieu wherein even smaller firms *can* gain visibility, this requires time and effort and often it is the entrepreneur who bears the burden of networking activity that must be undertaken if the smaller firm is to become, and remain, well known among key actors. Difficulty arises from these firms' liability of foreignness (Zaheer 1995) – which has been viewed by some scholars as a symptom of deficient international social capital (Arenius and Autio 2005) – and liability of smallness (and of newness, for young firms). As Zahra (2005: 23) suggests, in relation to international new ventures (INVs),

INVs usually experience three types of liability. The first relates to their newness and inexperience, which limits their access to resources and existing networks. Newness raises questions in the minds of other stakeholders about INVs' credibility and potential viability. The second liability stems from their size, as many INVs are small. This limits the slack resources of INVs and, as a result, their ability to withstand the challenges of internationalization. The third and final liability arises from the foreignness of INVs, which means that they have to work hard to overcome barriers to entry, build links to their customers and suppliers, and gain the acceptance of potential customers.

The next aspect of developing social capital can be referred to as the achievement of *efficiency* in relationships, once they are formed. The point being made here is that social capital is more likely to result when a firm is seen to be efficient and competent in its interactions. Efficiency in carrying out its part in a transaction or engagement ensures that a firm instills confidence and trust in the other actor(s) involved. As Gulati (1995: 92) notes, trust is built over time through repeated interactions. Implicit in this assertion is the importance of small firms ensuring that they 'deliver': that is, do a good job of whatever it is that has been undertaken. Initial interactions and impressions can be particularly important in establishing the reliability of the firm as an efficient player.

Finally, not in all but in some cases, it becomes possible and appropriate for small firms to build *intimacy* with the other actor(s). Intimacy implies knowledge about the other actor(s), which in turn increases the odds that any assistance provided is timely and relevant. Frequent interactions over time lead to stronger ties (Granovetter 1973) which can yield useful benefits (Krackhardt 1992). Even moderate levels of intimacy in relatively weaker ties can lead to the exchange of useful information and trade leads (Coviello 2006; Oviatt and McDougall 2005a). An important case of network relationship where intimacy can be particularly valuable is that of the involved customer, defined as 'a customer who regularly makes purchases ... and with whom the relationship also involves considerable interaction and information exchange and the discussing

of past, present and future needs' (Yli-Renko *et al.* 2002: 293). Such relationships can be a valuable source of technological knowledge (Yli-Renko *et al.* 2001), thereby resulting in useful innovation and internationalization outcomes.

Leveraging social capital

As noted, the initial network relationships of a small internationalizing venture can often be attributed to the entrepreneur and/or top management team. The extent to which a firm is initially endowed with social capital can vary greatly. The work of Bourdieu (1986), for instance, would suggest that ventures where the top management team is drawn from the elites of society – marked by attendance at prestigious educational institutions, for example – possess greater stocks of social capital. Certainly in the context of management education, the popular press emphasizes the importance of connections that are fostered at business schools through an MBA degree, implying that alumni networks from top educational institutions constitute a valuable source of social capital.

Similarly, another determinant of the stock of social capital that a firm is endowed with is the prior professional affiliations of the founding team. Former employees and colleagues can be an important source of information and advice (Nebus 2006). Also, as with educational institutions, former employers can signal pedigree which in turn helps to overcome barriers to social capital, such as a lack of visibility, while seeking to form network relationships (e.g. with banks). Finally, friends and family cannot be discounted as an important source of social capital. A variety of studies by entrepreneurship scholars (e.g. Davidson and Honig 2003) indicates that family and friendship ties can result in tangible help in the form of start-up capital as well as intangible assistance (e.g. moral support). Thus, in a variety of ways, a small firm may be well endowed with social capital.

A well-endowed stock of social capital of itself, however, cannot guarantee success for the firm. Rather, social capital must often be 'leveraged' in order to yield useful network resources such as information (Gulati 1999). Small firms seem to vary in their capability to leverage social capital through, for instance, integrating knowledge within and outside its boundaries or adeptly tapping into a relatively small set of network relationships with a view to achieving initial successes (Lorenzoni and Lipparini 1999). Building upon these successes, such firms could expand further, adding additional ties to their portfolio of network relationships in the process.

However, it is also conceivable for smaller firms to have a sizeable number of network relationships and yet fail to utilize them effectively. This would occur for a variety of reasons. One, the top management team may not actively recognize these relationships as a valuable resource. Two, the top managers may be bashful when it comes to asking for help. Three, the managers may make suboptimal requests of network relationships. For instance, weak ties may be better used in obtaining novel information while strong ties may be more likely to yield timely assistance (Granovetter 1973). If, however, top managers have

inappropriate expectations that all ties, whether strong or weak, will yield timely help, then they are likely to face disappointment in their interactions with less intimate associates.

It is noteworthy that the main emphasis in terms of leveraging social capital is on *active*, rather than passive, utilization of network relationships. This would be reflected in the difference between consciously attending a carefully selected set of industry conferences in order to build and maintain visibility and failing to do so. This active utilization suggests that there is virtue in communicating, within key close relationships, the nature of assistance that would be truly beneficial. What it certainly does *not* imply is that phoney or opportunistic behaviour in relation to building networks will yield fruit. At best, such efforts can lead to positive outcomes in the short term. In the medium to long term, such behaviour will destroy social capital. Furthermore, cultural differences and nuances will likely have to be taken into account while interacting with other actors. Persistence in making a request may be appreciated in one culture and frowned upon in another. Thus efforts to leverage social capital have to be accompanied by cross-cultural sensitivity.

Finally, it is suggested that the leveraging of social capital is likely to yield useful *learning* outcomes. As noted earlier, social capital can facilitate the creation and acquisition of market and technological knowledge, thereby leading to useful innovation and internationalization outcomes. Social capital fosters trust and decreases barriers to the exchange and combination of new knowledge (Nahapiet and Ghoshal 1998). This is likely to be increasingly the case as firms develop their visibility, efficiency and intimacy vis-à-vis their networks of relationships.

Managing social capital portfolios

Building upon the idea that network relationships differ in their characteristics and potential benefits, it would seem that firms possess *portfolios* of different network relationships. There are various ways of identifying social capital types. Granovetter (1973) differentiated between strong and weak ties which primarily differ in terms of their degree of intimacy and frequency of interaction. Putnam and Goss (2002) distinguish bonding from bridging social capital. According to Putnam and Goss (2002: 11), 'Bonding social capital brings together people who are like one another in important aspects (ethnicity, age, gender, social class, and so on), whereas bridging social capital refers to social networks that bring together people who are unlike one another.' In other words, bonding social capital pertains to social groups that are homogenous or similar; bridging social capital pertains to heterogeneous or dissimilar groups (Putnam 2000).

In the context of small firm internationalization, there exist important differences between network relationships in the local milieu and those in international markets. In other words, geographic location of social capital (local/domestic versus foreign/overseas) is another important dimension that differentiates between social capital types in a small firm's social capital portfolio.

Again, the entrepreneur or top management team is often crucial in determining the extent of local and overseas network relationships that a small firm possesses. When these individuals have studied and/or worked abroad, they may have access to network connections that yield valuable social capital (McDougall *et al.* 1994). Furthermore, friends and family may live abroad, constituting a valuable source of coethnic social capital.

However, in general, small firms are likely to have a greater number of local network relationships compared to their network relationships in international markets. The latter are therefore coveted connections and the first instinct of small firms appears to be to look overseas to its existing network relationships (Johanson and Vahlne 2003) and to make further efforts (e.g. via trade missions) to develop further connections. Such an intuitive preference for overseas or foreign network relationships is understandable. Indeed, foreign network relationships do yield valuable benefits in terms of international expansion. Coviello and Munro's (1997) insightful research into the evolution of small firms' international growth patterns as a consequence of their network relationships suggests that initial relationships with large customers can be especially valuable in providing a breakthrough in initial international market entry. In some cases clients may themselves expand internationally, in the process providing new international business opportunities for the internationalizing small firm (Bell 1997). Network relationships in international markets can yield valuable information and leads, as well as advice (e.g. on the timing of market entry) that may be difficult to obtain elsewhere. Internet technology makes communication with network relationships easier and so valuable opportunities, information and advice can emanate from social capital in international markets.

The above benefits of international networks notwithstanding, the value of *local* network relationships ought not to be overlooked. There may be a tendency to do so, however, in the context of internationalization given firms' instincts to look beyond its own national boundaries for valuable networks (Johanson and Vahlne 2003). Yet, the local milieu is crucial in terms of providing the inputs that go into the creation of globally mobile offerings in the first place (Fernhaber *et al.* 2003). In other words, for small knowledge-intensive firms (SKIFs), the local milieu is ultimately associated with innovation, resources and learning (Hitt *et al.* 2001). Where agglomeration leads to specialization, small firms may also benefit from reputation effects and access to infrastructure. Intriguingly, local milieus also attract MNCs to set up local subsidiaries (Birkinshaw and Hood 2000), which constitute a potential source of social capital that could lead to interesting possibilities, both locally and internationally (see the Chapter 10 for a fuller discussion of this idea).

The important point here is that small firms must take a holistic perspective in recognizing their wider portfolio of network relationships, which could have potential direct and indirect benefits – both in international markets and in the local milieu. Taking a portfolio approach increases the odds that firms will have realistic expectations of network ties without becoming overly reliant on any. It

could also provide an antidote against negative effects of social capital such as groupthink or overembeddedness (Yli-Renko *et al.* 2001). Internationalizing small firms that curb their instinct to look for social capital exclusively in international markets are likely not to overlook valuable resources in their own backyard, as it were.

The contents of this volume

The themes discussed hitherto recur in the remaining chapters, which are concerned with conceptual underpinnings, exploratory insights (based on case-study findings) and future research directions.

In relation to *conceptual underpinnings*, Chapter 2 makes the point that network relationships constitute a key driver of the internationalization of SKIFs. This is found to be entirely consistent with the nature of these firms; their resource-poverty and proclivity for innovation make the leverage of network relationships crucial. Chapter 3 presents a synthesis of the internationalization literature and highlights the ways in which network relationships could influence small firm internationalization. In addition to the internationalization opportunities that emanate from networks, it is posited that network relationships (and the resultant social capital) lead to market knowledge and knowledge-intensity, which in turn influence internationalization. In other words, knowledge may mediate the role of network relationships in the internationalization of SKIFs. Chapter 4, the final conceptual chapter, develops the argument that information technologies, such as the Internet, could facilitate the internationalization of SKIFs. It is suggested that the Internet will be particularly influential in the internationalization of SKIFs when applied to enhancing their visibility, efficiency and intimacy in the context of their network relationships, which may be either local and spatially concentrated or foreign and spatially dispersed. The chapter notes in conclusion that most prior research has been conducted in advanced economy settings.

Indeed, a key distinguishing point about this volume is the empirical setting which the subsequent four chapters that discuss *exploratory insights* are based upon – the software industry in Bangalore. Most of the extant literature deals with advanced economy contexts. The Bangalore software industry is, by contrast, based within a developing economy – clearly of growing interest to scholars – and has yet achieved prominence for its international orientation and, increasingly, technological excellence. This empirical setting has certain unique features that emphasize resourcefulness. There are accentuated resource constraints. In a developing economy context, there are greater challenges to overcome, and hence highly entrepreneurial behaviour is required given the limited size of the domestic market and the environmental hostility manifested through frustrations with infrastructural shortcomings and bureaucratic red tape. This challenge, in turn, accentuates the resource constraint commonly associated with SKIFs. Consequently, reliance on network relationships is likely to be particularly high.

Also, the reliance on network relationships is further strengthened by cultural factors in an Asian context such as the Bangalore software industry, given the well-known emphasis on relational capital in Asia. As Hitt *et al.* (2002: 354) note:

In the West (i.e. North America, Western Europe), business dealings have been largely based on the concept of transactions. However, in most Asian societies, they are based on relationships. For example, when an executive is regarded as successful in Western societies, s/he is often described as wealthy. However, an executive of similar success in China is referred to as well connected.

Finally, the Bangalore software industry has acquired prominence as an important base for multinational corporations to set up subsidiaries, not merely to exploit the Indian market for technology but also to tap into its innovative milieu. This is consistent with the notion of the 'metanational' – firms that learn from the rest of the world and redeploy the acquired knowledge (e.g. innovation or new technologies) on a global basis. Thus unique opportunities for local network relationships to be utilized by SKIFs exist in Bangalore.

The above factors collectively provide a unique setting in which entrepreneurial firms could demonstrate (or not) resourcefulness in their internationalization activity. The empirical insights begin with Chapter 5, a chapter that points out the dearth of published research on the internationalization of SKIFs in a developing economy context. It provides an overview of an interesting setting, the Indian software industry, in which research can be undertaken to address this shortcoming. Additionally, the four case-firms are briefly introduced. Chapter 6, based on the four case studies, highlights the role played by network relationships that are local and spatially concentrated, which can be seen as an important resource in enhancing international competitiveness. It is seen, however, that the benefits accruing from location in a reputable software cluster like Bangalore can be easily overlooked and not exploited actively, a danger to be guarded against. In Chapter 7, the role played by network relationships that are based outside a firm's home country is examined. Like local network relationships, they constitute an important resource for a small knowledge-intensive firm, often leading to their entering or consolidating a presence in foreign markets. Entrepreneurs are seen to be particularly vital in, and burdened with, developing and maintaining foreign network relationships. The final chapter based on the four case studies, Chapter 8, reports the role of the Internet in the internationalization of SKIFs in Bangalore and brings together several of the themes discussed in the preceding chapters. The hope for enhanced internationalization prospects that the Internet provides is reiterated; some evidence of this comes from a preliminary exercise that finds a significant correlation between the quality of Internet application and international growth among 30 small Bangalore-based software firms. Equally, however, the scope to do more by way of applying the Internet to facilitate internationalization is also

noted. An evolutionary approach to sophistication of the application of the Internet appears to exist.

The final section seeks to draw attention to *future directions* in terms of research on small firm internationalization. A key theme in the final two chapters (Chapters 9 and 10) is the potential role of MNCs as a source of social capital to internationalizing small firms. The penultimate chapter (Chapter 9) presents a brief case study of public policy efforts – within my own current local milieu, namely, Scotland – that seek to foster the links between MNCs and small- and medium-sized enterprises (SMEs). Clearly, MNCs can play an important role in small firm internationalization, in both advanced economies like Scotland and emerging economies like India, particularly given the importance of innovation to many internationalizing small firms. The concluding chapter expands on these ideas and calls for the explicit incorporation of technological innovation in future studies of small firm internationalization. It is suggested that the role of MNC links can be even greater when both internationalization and innovation outcomes are taken into account in concert.

As such, this volume should make it clear that small firm internationalization constitutes an ‘entrepreneurial strategy’ (Lu and Beamish 2001: 565) and that research in this area has the potential to gain from, and contribute to, the wider conversation at the intersection of strategy and entrepreneurship, especially with respect to the role of network relationships to foster strategic entrepreneurship on the part of the internationalizing small firm.

2 Networks and internationalization

Prashantham, S. and Berry, M.M.J. (2004) 'The small knowledge-intensive firm: a conceptual discussion of its characteristics and internationalization', *International Journal of Entrepreneurship and Innovation Management*, 4(2/3): 150–158.

Abstract

This conceptual chapter seeks to answer the research question: What are the determinants of internationalization in small knowledge-intensive firms (SKIFs)? It does so by establishing the meaning of the term 'small knowledge-intensive firm', by synthesizing literature from the small firm and knowledge-intensive firm literatures, and then subsequently marrying this definition with internationalization literature to yield a conceptual framework involving such key influences on internationalization as firm size, knowledge-intensity, the entrepreneur and environment. In each of these aspects, network relationships are seen to be influential. Implications of this discussion include the importance for SKIFs to prioritize and nurture network relationships, while seeking to strike a balance between strategy-making and responding opportunistically to new possibilities that emerge through these relationships.

Introduction

There has been growing interest in the internationalization of small knowledge-intensive firms (SKIFs) and while much good work has been done in this area – which this chapter cites – a nagging problem has been the non-standard use of the term 'small knowledge-intensive firm', which has rendered comparisons across most studies difficult. Further, it is argued here, the findings from many of these studies is actually seen to be much more meaningful when considered in the light of an in-depth understanding of the nature and characteristics of the SKIF. Thus, this conceptual chapter seeks to answer a research question that has been posed before: What are the determinants of internationalization in SKIFs? However, it does so differently – by seeking first to establish the meaning of the term 'small knowledge-intensive firm', by synthesizing literature from the small firm and knowledge-intensive firm literatures, and then subsequently marrying this definition with literature on small firm internationalization. It is in this definition-led approach to the subject that the contribution of this chapter to the extant body of literature lies. This chapter is structured as follows: the next section discusses the definition of a SKIF; the following section highlights four influences – derived

from the definition – on SKIFs’ internationalization; the penultimate section focuses on network relationships and their role in SKIFs’ internationalization; and the final section draws out managerial, theory- and policy-related implications.

Defining a small knowledge-intensive firm (SKIF)

While categorizing firms in terms of size, the primary variable utilized is number of employees (see, e.g., Hadjimanolis 2000b). The US Small Business Administration defines a small- and medium-sized enterprise (SME) as one with fewer than 500 employees (Carlsson 1999: 107). The European Union defines a small firm as one with fewer than 50 employees (Wiklund and Shepherd 2001). In certain studies a lower limit is used as well: for example, in a study of Cypriot firms, small firms are defined as those with between ten and 50 employees (Hadjimanolis 2000b); a similar definition has been used in a study of Irish firms (McNamee *et al.* 2000). The most common understanding of a ‘small firm’ appears to be one with fewer than 100 employees (Brock 2000), and this understanding of a small firm will be adopted for this chapter.

The term ‘knowledge-intensive firm’ (KIF) has by no means a unique and universally understood meaning and has been somewhat ambiguous (Robertson and Hammersley 2000). It has superseded the terms ‘high-technology firm’ and ‘technology-based firm’ in studies about software firms. Alvesson (1995) has defined a knowledge-intensive firm as ‘a company where most work can be said to be of an intellectual nature and where well-qualified employees form the major part of the workforce’. Elkjaer (2000: 344) sees a KIF as ‘a company of knowledge workers’ where ‘human competencies are the main assets’. According to Robertson and Hammerlsey (2000: 241), ‘KIFs have always been in the business of managing knowledge – knowledge being their primary asset and source of competitive advantage’. Autio *et al.* (2000) define knowledge-intensity as ‘the extent to which a firm depends on the knowledge inherent in its activities and outputs as a source of competitive advantage’, a view accepted by McNaughton (2001). Examples of knowledge-intensive disciplines include software (McNaughton 2001), law, accountancy, management consulting, advertising (Robertson and Hammersley 2000), engineering and computer consulting firms (Elkjaer 2000).

A synthesis of the above literature leads to the following definition of a SKIF:

A small knowledge-intensive firm is one that has fewer than 100 employees, the majority of whom comprise a highly qualified workforce which is its most important resource and is engaged in knowledge work – meaning that knowledge is inherent in the firm’s main activities – as its central preoccupation.

Influences on the internationalization of SKIFs

Drawing on the foregoing definition of a SKIF, four influences on the internationalization of SKIFS can be identified, explicitly or implicitly: size (smallness), knowledge-intensity, the environment and the entrepreneur.

Smallness: Three characteristics of small firms that are prominent in the literature are their *innovation*, *informality* and *interaction* with other actors. Small firms play an important role in innovation (Almeida 1999) and have been described as agents of change (Audretsch 1999), creators of radical innovation (Acs *et al.* 1999) and carriers of new ideas (Carlsson 1999). Small firms have a tendency to specialize in a niche area, which may even lead to their internationalization (Acs *et al.* 1999). It may, however, be pointed out that some small firms – even new ventures – are not innovative (Zahra and Neubaum 1998). Strategy-making in small firms can be very different from that in large firms (Manimala 1992b), is often informal and flexible (Carlsson 1999; Hadjimanolis 2000a) and has a short-run, opportunistic focus on operational, rather than strategic, issues (Bhide 1994). Of course, exceptions to the rule do exist (Berry 1998; Berry and Taggart 1998; Hadjimanolis 2000b; Manimala 1992b). Small firms are resource-poor, and external relationships can be vital to a small firm's viability and compensate for resources it lacks in (McNamee *et al.* 2000), as well as facilitate knowledge-building (Almeida 1999) and, therefore, innovation. These relationships may be available through regional networks which lead to opportunities for exploration and exploitation of new knowledge, local sourcing of resources and job-related information flows that allows for inter-firm mobility of labour (Almeida 1999; Saxenien 1990).

Knowledge-intensity: Knowledge-intensive firms have a propensity to be *born global*, that is, international virtually from inception. Berry *et al.* (2001) have pointed out that for knowledge-intensive firms, their key markets are often spread across geographies and yet concentrated in the triad economies of North America, Western Europe and Japan, and, consequently, these firms tend to focus on global niches, in which they must compete successfully in order to remain viable. Clearly, the motivation to internationalize – and that too at a rapid pace – is understandable. Not surprisingly then, SKIFs have constituted several instances – although not the only ones – of firms that have been international virtually from inception, which have been variously referred to as 'born globals', 'new international ventures' and 'global start-ups' (Knight and Cavusgil 1996; McDougall *et al.* 1994; Oviatt and McDougall 1994, 1997; Rennie 1993; Shrader *et al.* 2000;). This is often in contradiction to, and inconsistent with, the traditional stage theories (Bell 1995; Coviello and McAuley 1999; Coviello and Munro 1997; Crick and Jones 2000).

Environment: SKIFs operate in environments with rapidly changing technology, increasing research costs, ever shortening product life cycles and consequently greater uncertainty compared to manufacturing firms (Bell 1995; Jones 1999; McNaughton 2001; Young 1987), which accentuate the need for and impact of networking (Coviello and Munro 1997). This may also impact firms' appropriability of technology and lead them to seek strategic alliances (Rao and Klein 1994). As noted, markets for SKIFs tend to be concentrated, generally within the triad markets of North America, Western Europe and Japan (Bell 1995; Young 1987). This may prompt SKIFs based in less-advanced economies to seek symbiotic or collaborative relationships for market and

technology access (Fontes and Coombs 1995, 1997). Also, instances of SKIFs internationalizing as a consequence of client followership in these triad markets have been reported (Bell 1995; O'Farrell *et al.* 1998). While these markets have attracted many SKIFs from developing economies, these entrepreneurs often fear the challenge of competing internationally (Bartlett and Ghoshal 2000). Further, SKIFs operate in markets marked by intensive competitiveness. This too is sometimes a driver for firms to seek alliances and network relationships and may have a bearing – with a view to protecting knowledge-based assets – on the choice of foreign market entry modes, which are often multiple or integrated (Brouthers *et al.* 1996; McNaughton 1996; McNaughton and Bell 2001). Of course, a hostile environment – marked by strong rivalry (Athreye 2001), for instance – could also be a driver of greater innovation on the part of small firms (Hadjimanolis 2000b; Zahra and Neubaum 1998).

Entrepreneur: While no particular personality trait is 'truly' entrepreneurial (Bhide 1994), the business-related characteristics of the entrepreneur have a strong bearing on the internationalization of small firms (Aaby and Slater 1989; Chetty and Hamilton 1993; Leonidou and Katsikeas 1996; Welch and Luostarinen 1988); this is particularly true in relation to firms that are international from inception (Madsen and Servais 1997). Three aspects of the entrepreneur that particularly matter for SKIFs' internationalization are his or her *knowledge*, *intent* and *networks*. The entrepreneur's technical domain of knowledge is very likely to determine the niche area that the firm focuses in while his or her business knowledge – including international experience and knowledge of foreign languages – will impact on decisions of market selection, entry mode and timing of entry. In terms of intent, an entrepreneur's strategic orientation (Berry 1996) and international orientation (Aaby and Slater 1989), or 'global mindset' (Berry 1998), will similarly influence the SKIF's attitude and approach to internationalization. As for networks, the entrepreneur brings to the table experience and contacts that influence the location and networking potential of the firm (Almeida 1999).

The internationalization of SKIFs: role of network relationships

A common thread running through the literatures on the small firm, knowledge-intensive firms and entrepreneurship, as seen in the preceding sections, can be termed as the role of network relationships, that is, relationships with customers, suppliers, competitors, alliance partners, universities, government bodies, industry associations and so on. The motivations for these, as seen, include resource-dependence and competitive considerations.

International entrepreneurship scholars Dana *et al.* (2000, 2001) have recently highlighted the role of network relationships in small firm internationalization, as an emerging paradigm (Wright and Dana 2003). This echoes Johanson and Mattson's (1988) argument that network relationships, which may exist across borders (Johanson and Mattsson 1988) or be spatially bound (Enright 1999; Porter 1990), influence internationalization decisions of firms.

Based on the foregoing discussion, this is likely to be especially true for SKIFs, and evidence for this is available in the literature; indeed, network relationships have been found to accelerate the internationalization of small firms and specifically SKIFs (Bell 1995; Coviello and Munro 1995, 1997). Coviello and Munro's (1995, 1997) work suggested that networks lead to rapid internationalization across several markets, new market opportunities, identification of potential partners, restructuring of relationships through power-play by firms including acquisition of some firms and emergence of dominant players. Key internationalization issues identified in relation to networks are impact on market selection, relative influence of other firms, evolution of power and control, interconnectedness, effect on growth and outsourcing of marketing (given the resource scarcity of smaller firms). Other impacts of the network were seen on the marketing aspect; these included: the ability of firms to focus on new product development (i.e., their core competency, while other members in the network dealt with marketing), evolution of relationships from distributorships to subsidiaries, and perception of a need for marketing intelligence and planning. The role of networks acquires significance when SKIFs specialize (Carlson 1999). In some cases a large firm may dominate while in others there are a large number of small firms; strategic alliances may be entered into (Rao and Klein 1994) or the lead taken from key clients (Bell 1995; O'Farrell *et al.* 1998). Thus, network relationships are significant – both facilitating and constraining – for competitive advantage in general and internationalization in particular (Bell 1995; Johanson and Mattsson 1988).

To summarize, by deriving a coherent definition of a SKIF, four key elements can be identified which influence SKIFs' internationalization: their size, knowledge-intensity, environment and entrepreneur (Figure 2.1). The interplay between these elements is further moderated by network relationships, which are found to be vital when considering the elements individually and collectively. As mentioned earlier, this definition-led approach vindicates and renders more meaningful the strand of the internationalization literature which has highlighted the relevance of network relationships, especially in the case of SKIFs.

Implications

The foregoing discussion leads to important implications for entrepreneurs and managers in SKIFs, in terms of marketing. These include the need for them to prioritize meaningfully among their network relationships and accordingly allocate the time and energy that is invested in each. Having done so, they should network proactively; this would mean setting up face-to-face meetings, in both professional and social settings as appropriate. They should actively consider the prospect of driving their firms to specialize in areas of technical and market strength and collaborate with other players, including SKIFs, having complementary technical and marketing strengths. An element of choice certainly exists in how firms respond to opportunities arising from their network relationships and a balancing act is required between strategy-making and

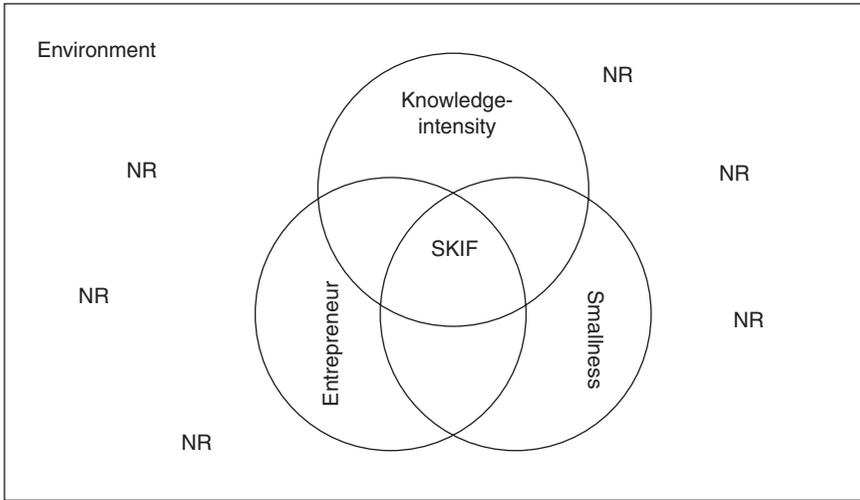


Figure 2.1 Determinants of the internationalization of small knowledge-intensive firms.

opportunism. Attention is drawn to the resource constraints that SKIFs face and therefore their managers should explore efficient and effective options such as the application of Internet technology to their marketing and internationalization efforts.

In terms of theory-building, it should be evident that consensus and clarity do not exist among researchers in relation to defining terms such as ‘small firms’ and ‘knowledge-intensive firms’, and this lack of uniformity will hinder the progress of the development of theory. Greater collaborative efforts will thus have to be undertaken by scholars with an interest in SKIFs. Specific research avenues that could be undertaken include studying the impact of Internet technology application on SKIFs’ network relationships, the role of network relationships in SKIFs’ internationalization in a developing economy context and differences between the impact of spatially bound and geographically dispersed network relationships of SKIFs on their internationalization.

Policy-makers should facilitate the setting up of networks for SKIFs with a view to promoting their internationalization. Such arrangements will lead to contacts, which in turn could result in knowledge development, joint marketing activity and potentially long-term network relationships. Specifically, activities that could be undertaken by governments include mentoring programmes in collaboration with internationalization experts and consultants, organizing training seminars which also provide networking opportunities and offering subsidized foreign trips to key markets. It is important that policy-makers adopt a persistent approach that allows concerted networking over a period of time, something that may not always happen if discontinuity in policy accompanies changes in government.

3 Knowledge and internationalization

Prashantham, S. (2005) 'Toward a knowledge-based conceptualization of internationalization', *Journal of International Entrepreneurship*, 3(1): 37–52.

Abstract

This conceptual chapter contributes to the internationalization literature in response to previous criticisms by enabling the integration of apparently contradictory strands of the literature and incorporation of the potential role of the Internet. Knowledge is at the core of received wisdom on internationalization. This is consistent with the notion that internationalization represents an innovation of the firm and often entails decision-making under conditions of uncertainty, for both of which knowledge is vital. Given the link between knowledge and internationalization, apparent tensions in the literature can be resolved by recognizing its different types, consequently varying roles and diverse sources. Furthermore, network relationships – of growing significance in the literature – yield social capital, which in turn leads to knowledge acquisition and creation; thus it is worthwhile to integrate knowledge and social capital perspectives. Finally, consistent with the knowledge-based approach adopted in the chapter, the application of Internet technology is conceptualized in terms of information effects such as information dissemination, acquisition and sharing which could lead to enhanced internationalization, knowledge and social capital, respectively.

Introduction

Internationalization, commonly understood to be the process of adapting firms' operations to international environments (Calof and Beamish 1995: 116), is an issue of importance for firms; it often results in vital growth (Luostarinen 1980), useful learning outcomes (Zahra *et al.* 2000) and enhanced financial performance (Lu and Beamish 2001). Recent focus on the internationalization of the smaller firm has resulted in a growing overlap of interest between international business and entrepreneurship researchers (Coviello and Jones 2004; McDougall and Oviatt 2000; Oviatt and McDougall 2005b). While these scholars have made considerable progress in taking forward the internationalization literature, issues that have not been satisfactorily addressed as yet include its fragmentary nature and the need to take recent technological developments on board (Andersen 1993; Melin 1992; Singh and Kundu 2002).

This conceptual chapter therefore seeks, first, to integrate, by drawing on the emerging knowledge-based view of the firm from the strategy literature, two dominant yet apparently contradictory strands of the small firm internationalization literature: the internationalization process model (Johanson and Vahlne 1977) and international new venture perspective (Oviatt and McDougall 1994). Thereafter, (whilst still dealing with the first concern – the fragmentary nature of the internationalization literature), the chapter seeks to further strengthen its integrative approach, by also considering the role of network relationships in internationalization, on the basis of social capital theory, owing to its link with knowledge formation (Nahapiet and Ghoshal 1998). Finally, in order to address the second concern (i.e. the need to incorporate recent technological developments), the chapter considers the rise of Internet technology and, consistent with the knowledge-based approach adopted in the chapter, identifies three information effects of the Internet and their potential impact on internationalization. The subsequent discussion examines these three issues, in turn, and is followed by a concluding section on implications for further research and managerial practice. It may be noted that this chapter does not aim to provide a comprehensive survey of the internationalization literature, but rather focuses on certain key seminal ideas, thus encouraging a more holistic and up-to-date (having taken into account recent technological developments) approach to research on small firm internationalization.

Knowledge and internationalization

Knowledge is at the core of received wisdom on internationalization. In the 1970s, international business scholars, notably Johanson and colleagues¹ (Johanson and Vahlne 1977; Johanson and Wiedersheim-Paul 1975), argued that a firm's market knowledge determines its internationalization, of which three dimensions are conspicuous: international market selection, entry mode choice and pace of internationalization (Jones and Coviello 2005). Such knowledge regulates the resources committed to a foreign market, a notion that has been supported in the literature (Eriksson *et al.* 1997). With respect to market selection, Johanson and colleagues postulated that psychic distance distorts the acquisition of market knowledge and therefore foreign markets that are initially selected will be psychologically proximate to the firm's domestic market. In terms of mode choice, a firm was envisaged as traversing a sequential set of stages, from indirect exporting at one end of the spectrum to wholly owned production-oriented subsidiaries at the other. As for pace, the manifestation of this model was anticipated to be incremental international expansion following a period of domestic growth. However, many empirical studies of firms' internationalization behaviour, especially in technology-based knowledge-intensive sectors, contradicted all three predictions (Andersen 1993). That is, these firms were international virtually from inception, entering psychically distant markets through high-commitment modes from an early stage in their life cycle. In the 1990s, this led to a different perspective among certain US-based entrepreneurship scholars, notably McDougall and

colleagues² (McDougall *et al.* 1994; Oviatt and McDougall 1994). Their views were seen as a challenge to Johanson and Vahlne's thesis.

However, in relating key notions from the internationalization literature to the emerging knowledge-based view (KBV) of the firm in the strategy literature, a fruitful basis for synthesizing these apparently disparate views, at least partially, can be found. A useful overview of the KBV is provided by Grant (2002) according to whom:

[t]he emerging 'knowledge-based view of the firm' is not a theory of the firm in any formal sense. It is more a set of ideas about the existence and nature of the firm that emphasize the role of knowledge.

He identifies certain assumptions on which this view is based: (a) the great importance of knowledge as a productive resource, (b) the variation in transferability of knowledge – it is high for explicit knowledge and low for tacit knowledge (skills, know-how, and contextual knowledge); knowledge-intensive industries may therefore enjoy increasing returns, (c) knowledge is more expensive to create than replicate, leading to potential economies of scale, (d) specialization leads to greater efficiency in knowledge creation and storage and (e) the requirement, often, for many types of knowledge in firms' operations. Distinction is drawn between the creation and application of knowledge: while the former requires specialized skills, the latter calls for diverse ones. Knowledge management has emerged as a subject of great interest to managers all over the world and is a central issue posed by the KBV.

While KBV is informed by a variety of perspectives, it draws heavily on Penrose's (1959) theory of the growth of the firm. Penrose posited that a firm's knowledge to productively integrate resources into higher-level capabilities determines its growth. Several scholars have developed their ideas further in the 1990s. Strongly echoing Penrose, Spender (1994) has argued that competitive advantage is not merely explained by individual resources but by a different type of resource – knowledge; this refers to the *coordination* of resources, which inheres in the activity itself and therefore the firm (rather than its individual members). Thus, competitive advantage has come to be seen as based on knowledge, not raw materials; consequently firms create and sustain competitive advantage by protecting valuable knowledge through preventing its migration and reducing its imitability (Liebeskind 1996). Similar notions are expressed by Demsetz (1991: 172), who conceptualizes firms as 'repositories of specialized knowledge and of the specialized inputs required to put this knowledge to work', and by Kogut and Zander (1993: 627), who proffer the 'notion of the firm as a repository of social knowledge that structures cooperative action'.

That knowledge is a necessary driver in the successful internationalization of the firm becomes clear in the light of the notion that internationalization constitutes a form of innovation (Bilkey and Tesar 1977; Simmonds and Smith 1968), of which knowledge is a vital source (Penrose 1959). Furthermore, knowledge is vital in dealing with environmental uncertainties that characterize inter-

nationalization (Liesch and Knight 1999) and informing decisions on market selection, mode choice and pace of internationalization (Young *et al.* 1989). Given the link between knowledge and internationalization, the apparent tension between the perspectives of Johanson and Vahlne and that of Oviatt and McDougall can be mitigated by recognizing the Penrosian roots in both perspectives, albeit with differing emphases (Sapienza *et al.* 2003; Yli-Renko *et al.* 2002). These differences primarily pertain to the *type* of knowledge emphasized in each approach, the *role* that knowledge plays in internationalization, and the *sources* of the knowledge. For Johanson and Vahlne, the type of knowledge that is vital is market knowledge,³ and the role it plays is regulating the resources committed to a foreign market by the firm; by extension, a lack of market knowledge is a significant obstacle for firms' internationalization (Eriksson *et al.* 1997). Its main source is the firm itself, through its experience of foreign operations (Johanson and Wiedersheim-Paul 1975) and (as recently emphasized) network relationships (Johanson and Vahlne 2003). Oviatt and McDougall's perspective differs from this view in that, in addition to market knowledge, there is an emphasis on the role of (technological) knowledge-intensity in internationalization; consequently software and biotechnology firms, to cite two popular examples, have been noted for their proactive and early internationalization. In other words another type of knowledge – (technological) knowledge-intensity – is highlighted which plays a separate role from resource-regulation, that of an enabling resource leading to the firm's globally mobile offerings in the marketplace. Support for the notion that knowledge-intensive firms internationalize with greater market diversity and more involved modes (Zahra *et al.* 2000) and earlier in their life cycle (Autio *et al.* 2000) can be seen in the literature.

Furthermore, Oviatt and McDougall explicitly identify the entrepreneur as a vital source of a firm's knowledge resources, from prior professional experience (see also McDougall *et al.* 1994). In other words, while Johanson and Vahlne emphasized Penrose's *managerial* knowledge, Oviatt and McDougall focused on her *entrepreneurial* knowledge concept (Sapienza *et al.* 2003; Yli-Renko *et al.* 2002). Sapienza *et al.* (2003) correctly note that 'implicitly, the core of the difference in the two views is that Johanson and Vahlne do not see prior, individual experience as mitigating firm-level aversion to new markets'. Yet, this is perplexing in the light of observations made by some of Johanson's colleagues, at the time of the original Uppsala model, that the 'pre-export' experience of individual decision-makers – who might often be the entrepreneur – can greatly influence a firm's internationalization decisions (Wiedersheim-Paul *et al.* 1978). This inexplicable oversight of individual entrepreneurs' role can, however, now be rectified by extending the sources of a firm's market knowledge and knowledge-intensity to include the firm itself, its network relationships and individual decision-makers or entrepreneurs. More recently, extending Oviatt and McDougall's views, Reuber and Fischer (1997) have highlighted the important role of the prior international experience of the top management team as a whole. In summary, both traditional internationalization process and international new venture perspectives, though apparently contradictory in their

Table 3.1 Knowledge and internationalization: a synthesis

<i>Types</i>	<i>Theory</i>	<i>Role</i>	<i>Sources</i>
Market knowledge	Penrose's managerial knowledge	Resource regulator	<ul style="list-style-type: none"> • Firm (Johanson and Vahlne 1977) • Entrepreneur (McDougall <i>et al.</i> 1994)
Knowledge-intensity	Penrose's entrepreneurial knowledge (Sapienza <i>et al.</i> 2003)	Enabling resource (Yli-Renko <i>et al.</i> 2002)	<ul style="list-style-type: none"> • Top management team (Reuber and Fischer 1997) • Network relationships (Oviatt and McDougall 1994; Johanson and Vahlne 2003)

manifestations, have sufficient commonality in the knowledge-based view underpinning each to warrant an integrative approach that includes a wider set of knowledge types, role and sources than included in either approach taken on its own. This integration is summarized in Table 3.1.

The foregoing constructs can also be fruitfully considered in the context of organizational capabilities⁴ (Teece *et al.* 1997). Differential resources, particularly knowledge, are seen to explain firms' performance (Barney 1991) and capabilities (Prahalad and Hamel 1990). Knight and Cavusgil (2004: 126) note that 'knowledge is the most important resource, and the integration of individuals' specialized knowledge is the essence of organizational capabilities'. Thus the notion of organizational capabilities further accentuates the vital significance of knowledge, which is further captured by Johanson and Vahlne's (2003: 90) assertion that 'an important implication of the process view of internationalization is that development, integration, and transfer of knowledge should be regarded as a critical aspect of [the] strategic management of internationalization'.

There would seem to be a mutually reinforcing effect between knowledge and organizational capabilities. On the one hand, organizational capabilities enable firms to create and leverage knowledge (Eisenhardt and Martin 2000), as urged by Johanson and Vahlne (2003). On the other hand, the creation of new knowledge by firms leads to the development of organizational capabilities (Nelson and Winter 1982). As stated by Knight and Cavusgil (2004: 126), 'The idiosyncratic knowledge base acquired by following pathways gives rise to organizational capabilities.' Thus there is, as Tallman and Fladmoe-Linquist (2002) note, a capability-leveraging and a capability-building aspect to the international expansion of firms; both outcomes can be expected, potentially resulting in a virtuous cycle.

Such capabilities as learning (Fiol and Lyles 1985) and absorptive capacity (Cohen and Levinthal 1990) are highly complementary to the present discussion. Internationalizing firms need to be adept at learning to enhance their stock of market knowledge and knowledge intensity. Closely related is the aspect of absorptive capability, which is the ability of a firm to recognize, assimilate and apply information from the external environment and influences its ability to enhance market knowledge in the context of internationalization (Eriksson and

Chetty 2003). Indeed, considerable work by international business scholars in the tradition of Johanson and Vahlne (e.g. Blomstermo *et al.* 2004; Eriksson *et al.* 1997) has focused on learning by internationalizing firms. Similarly, and furthermore, the work of some entrepreneurship scholars extending Oviatt and McDougall's work has focused on learning both as an antecedent (e.g. Autio *et al.* 2000) and as a consequence (e.g. Zahra *et al.* 2000) of internationalization; this is consistent with Tallman and Fladmoe-Linquist's (2002) capability-leverage and capability-building, noted above. Thus, complementary to the knowledge-based conceptualization of internationalization espoused in the present discussion is the notion of organizational capabilities, where the importance of a firm's capacity to learn and absorb new information (and subsequently, knowledge) is paramount.

Social capital, knowledge and internationalization

Having established a knowledge-based conceptualization of internationalization, the discussion now turns to network relationships, whose role in internationalization has acquired significance in the literature in recent years (Holm *et al.* 1996; Johanson and Mattsson 1988; Oviatt and McDougall 1994). Integrating network approaches with the 'mainstream' models of internationalization has in fact been strongly advocated recently by the very scholars whose work is highlighted in this chapter (Johanson and Vahlne 2003; McDougall and Oviatt 2003). Furthermore, the value of invoking social capital theory in the context of this chapter's knowledge-based conceptualization of internationalization lies in recent developments in the strategy literature,⁵ which suggests that social capital leads to the creation and acquisition of knowledge (Nahapiet and Ghoshal 1998; Tsai and Ghoshal 1998; Yli-Renko *et al.* 2001). Of course, firms must have the organizational capability to leverage inter-firm relationships effectively (Lorenzoni and Lipparini 1999).

The primary tenet of social capital theory is that benefits accrue to actors from their social networks (Burt 1992; Coleman 1988). This applies to a business context as well, and a firm's network relationships can, and often do, yield social capital to it. 'Social capital' is a broad umbrella term, which is variously defined; in this chapter, the definition of Nahapiet and Ghoshal (1998: 243) is adopted, according to whom social capital is 'the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit'. In the context of internationalization, social capital could emanate from a variety of network relationships, including those with customers, suppliers, distributors and strategic partners (Yli-Renko *et al.* 2002). As noted, the internationalization literature has highlighted the importance of these relationships; such research can, however, be enhanced in terms of its theoretical rigour by utilizing a social capital perspective.

Information, influence and solidarity have been identified as key benefits arising as a consequence of social capital (Adler and Kwon 2002). Of these, in

the context of internationalization, information is the most significant (Liesch and Knight 1999) and has been referred to as a network resource – that is, a resource that resides not within a firm's boundaries, but rather in inter-firm relationships (Gulati 1999). This notion is useful in terms of theorizing, as it allows for Penrosian and social capital theories to be creatively combined, resulting in greater explanatory power for ensuing research frameworks. Lee *et al.* (2001: 616) argue that such an integration is appropriate, given that (resource-constrained) firms 'develop firm-specific assets while obtaining complementary external resources through their social networks'.

Information-related benefits arising from social capital include access to new information, timeliness of information, and referrals (Burt 1992). Furthermore, social capital can result in enhanced volume, diversity and richness of information for actors (Koka and Prescott 2002). The notion that social capital enhances knowledge (Nahapiet and Ghoshal 1998) is thus consistent with the view that social capital often results in information benefits, given the strong relationship between information and knowledge, which is evident from Liebeskind's (1996) definition of knowledge as 'information whose validity has been established through tests of proof'. The role of network relationships in providing access to knowledge may be greater in dynamic environments, such as those that characterize knowledge-intensive industries (Grant 1996).

The application of social capital theory to the multinational enterprise context and internationalization phenomenon is relatively recent. In terms of the former, Kostova and Roth (2003) have argued that social capital in multinational subsidiaries, when transformed from a private to a public good, has significant potential to influence headquarters-subsidiary and other intra-organizational relationships. In terms of the latter (which is more directly linked to this chapter), a pioneering study is the case-based research of Arenius (2002) [see also Jones (2003) for a summary]. She has proposed that a new venture's social capital positively influences its speed of internationalization, international diversification, success of international market entry and international growth. Another vital contribution is made by Yli-Renko *et al.* (2002) who demonstrated empirically that social capital positively influences market knowledge and knowledge intensity, which in turn positively influence the firm's international growth, an indicator internationalization performance (Manolova and Manev 2004). Given that their research builds upon the same bases of the present discussion – the work of Johanson and Vahlne (1977) and Oviatt and McDougall (1994) – we extend their ideas to internationalization more broadly (i.e. in terms of market selection, mode choice and pace) and summarize the foregoing synthesis of the internationalization in Figure 3.1.

Internet technology, social capital, knowledge and internationalization

While authors such as Yli-Renko *et al.* (2002) and Sapienza *et al.* (2003) have made significant progress in developing a knowledge-based view of

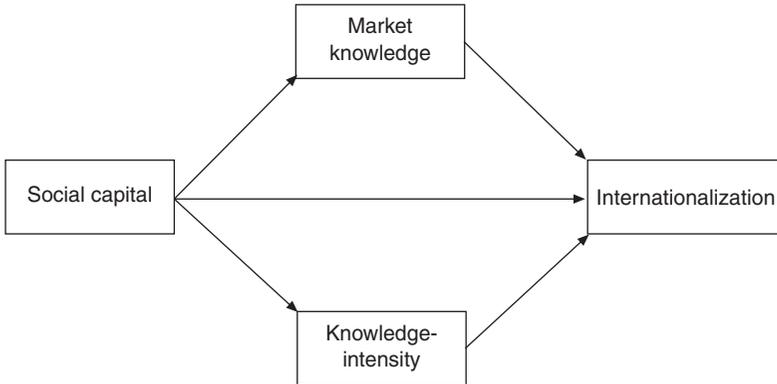


Figure 3.1 Social capital, knowledge and internationalization.

internationalization that is enriched by social capital, they – as also Johanson and Vahlne as well as Oviatt and McDougall – have thus far failed to explicitly incorporate in their approaches recent developments in information technology such as the Internet. Indeed, despite recognition of the vital importance of the Internet to business in general (Afuah 2003) and to the specific context of internationalization in particular (Quelch and Klein 1996), surprisingly little progress has been made in incorporating the role of the Internet in the mainstream internationalization literature; perhaps this shortcoming will be mitigated as more empirical studies (e.g. Berry and Brock 2004; Prashantham and Young 2004) of this phenomenon emerge. In any case, considering the role of the Internet in internationalization is important. As Porter (2001: 64) notes, ‘The key question is not whether to deploy Internet technology – companies have no choice if they want to stay competitive – but how to deploy it.’

Therefore, this final section of the conceptual discussion seeks to incorporate the role of the Internet in internationalization. The knowledge-based conceptualization developed thus far in this chapter makes this possible through the link between information and knowledge, noted earlier (Liebeskind 1996). As noted by Sampler (1998), the emergence of the Internet has made information an increasingly important resource for firms. Thus irrespective of whether or not e-commerce transactions are carried out, the Internet offers firms an information-intensive environment, allowing them to disseminate, acquire and share information. These applications could lead to, respectively, enhanced internationalization (in terms of market diversity and pace), knowledge and social capital, as discussed below.

Information dissemination: The Internet allows firms to disseminate information about themselves to potentially any part of the world. Kobrin (2001: 688) asserts that ‘[c]yberspace and e-commerce are intrinsically international’. On similar lines, Kotha *et al.* (2001: 776) suggest that ‘[i]n principle, an Internet firm gains immediate access to international customers by virtue of launching a

website'. The underlying principle behind these new possibilities is described by Evans and Wurster (1997) as the 'blowing up' of the trade-off between reach and richness of communication. In other words, a firm could either communicate intimately with a small audience (e.g. a salesman interacting with a prospective customer) or superficially with a large audience (e.g. a commercial on national television). The Internet, however, allows firms to provide in-depth and interactive (i.e. rich) content to a potentially global audience (i.e. reach) using a Web site. It should thus be theoretically possible for information dissemination to result in unsolicited orders from abroad, and therefore in greater market diversity, less involved entry modes and more rapid internationalization (Quelch and Klein 1996); indeed as a consequence of this, one study found that small firms with Web sites perceived themselves to be engaging in 'border-crossing' (Walczuch, van Braven and Lundgren 2000). Although the notional instant global presence was at the heart of early excitement regarding the Internet, a more realistic perspective now prevails. For instance, a Web site or hub site (Kaplan and Sawhney 2000) will attract traffic only if proactively promoted (Hoffman and Novak 2000); furthermore, despite the Internet's global reach, country-specific Web sites may be required in key markets (Kotha *et al.* 2001) and the importance of physical presence is seen to be virtually undiminished in many respects (Leamer and Storper 2001). Nonetheless, internationalization is likely to be facilitated by the Internet (Berry and Brock 2004; Prashantham and Young 2004).

Information acquisition: A corollary to information dissemination is the acquisition of information through Internet technology. Although the following observation was made in relation to customers, it applies equally to the internationalizing small firm: the Internet 'expands the potential (credible) sources of information that is available' (Parasuraman and Zinkhan 2002: 286). Firms can access much information about existing and prospective foreign markets, which is of immense value in the context of internationalization (Liesch and Knight 1999), through relevant Web sites such as specialist search engines. Thus the Internet has the potential to enhance aspects of a firm's market knowledge. A firm's own Web site can be used to capture information from customers, business partners and other visitors to the site through database technology that can then yield, for example, a nuanced understanding of international market segments (Davenport *et al.* 2001). Further, information for specific tasks or transactions can be acquired from suppliers, customers or distributors through Internet-supported supply chain management applications (Evans and Wurster 1997; Porter 2001).

Information sharing: Perhaps the most significant aspect of the Internet is interactivity (Hoffman and Novak 1996), which allows firms to exchange information. In the context of internationalizing small firms, Singh and Kundu (2002: 680) suggest that as a consequence of Internet technology, such firms 'have a unique set of advantages based on network resources, open accessibility, innovative entrepreneurship, and *information sharing*' [emphasis added]. Intranets and extranets constitute important tools for information exchange, in

which context Parasuraman and Zinkhan (2002: 288) observe that ‘organizations now have an opportunity to use information technology and information systems to make closer connections with their relational partners’. Another tool is Internet-supported groupware, the use of which is patently evident in the active exchange of information among open-source software developers (von Krogh 2003), suggesting that certain knowledge-intensive firms are particularly likely to adopt such technology. Also of relevance to such firms is the suggestion that Internet technology offers ‘a powerful platform for collaborating with customers on innovation’ (Sawhney *et al.* 2003: 77). It may be noted, however, that the vital importance of face-to-face contact cannot be discounted; as Leamer and Storper (2001: 641) observe, the Internet ‘allows long distance “conversations” but not “handshakes”’. The foregoing discussion is summarized in Table 3.2.

In terms of the Internet, as with the knowledge constructs discussed earlier, organizational capabilities such as the internationalizing firm’s ability to learn (Fiol and Lyles 1985) are vital, given the rapid changes in information technology. Furthermore, the Internet literature emphasizes the importance of a customer-led approach in applying new technology. Thus borrowing from the marketing literature, market orientation, which has received widespread attention as a predictor of firms’ performance (Hult and Ketchen 2001; Kohli and Jaworski 1990), is a useful ability for internationalizing firms to cultivate. Kohli *et al.* (1993: 467) define marketing orientation as ‘the organizationwide generation of market intelligence pertaining to current and future needs of customers, dissemination of intelligence horizontally and vertically within the organization,

Table 3.2 The Internet and internationalization: information applications

	<i>Internet properties</i>	<i>Internet tools</i>	<i>Internationalization effects</i>
Information dissemination	‘Explosion’ of reach and richness (Evans and Wurster 1997); so, intrinsically international (Kobrin 2001)	<ul style="list-style-type: none"> • Web site (Hoffman and Novak 2000; Kotha <i>et al.</i> 2001) • Business-to-business ‘hub’ site (Kaplan and Sawhney 2000) 	International growth (Quelch and Klein 1996; Singh and Kundu 2002)
Information acquisition	Information-intensity and expanded sources of credible information (Parasuraman and Zinkhan 2002)	<ul style="list-style-type: none"> • Other Web sites (Parasuraman and Zinkhan 2002) • Own database-driven Web site (Davenport <i>et al.</i> 2001) 	Enhanced market knowledge (Liesch and Knight 1999; Parasuraman and Zinkhan 2002)
Information sharing	Interactivity (Hoffman and Novak 1996)	<ul style="list-style-type: none"> • Intranet/extranet (Parasuraman and Zinkhan 2002) • Groupware (Sawhney <i>et al.</i> 2003) 	Enhanced social capital (Sawhney and Zabin 2002)

and organizationwide action or responsiveness to market intelligence'. Such an approach, in combination with a learning orientation, can facilitate internationalizing firms' efforts to obtain insights through the effective application of Internet technology from key network relationships, notably – although not exclusively – customers. Sawhney and Zabin (2002) point out that social capital 'is not limited to relationships with customers but also includes relationships with partners, suppliers, and employees'.

Implications and conclusions

The foregoing discussion has implications that are both theoretical and practical. From a theoretical perspective, the discussion provides direction for extending the internationalization literature through an eclectic approach combining knowledge-based and social capital theories. This is particularly useful in the multidisciplinary context in which contemporary internationalization research is being carried out. Future research utilizing this approach and developed further by the articulation of propositions, development of construct measures⁶ and reliable survey instrument, and rigorous analysis of data from a range of empirical settings (e.g. from both developed and developing economies) is encouraged. Small knowledge-intensive firms constitute a particularly interesting subject for empirical research, owing to their inherent knowledge-intensity and propensity to leverage social capital, as seen in the literature (Prashantham and Berry 2004a).

Furthermore, in relation to future research, it has been emphasized that the role of the Internet must be actively considered. An objective of academic research dealing with the Internet has to be to separate the hyped claims of the past from the reality of the present – both potential and actual. Towards this end, the conceptual discussion presented in this chapter considers how, *potentially*, the Internet could influence the internationalization of firms. Empirical investigation which would entail similar attention to measures,⁷ instrument and data analysis as mentioned above should aim at describing what, *in practice*, is the extent of the application of Internet technology for international business by firms and what impact, if any, it has on internationalization. Any theory–practice gap may well be an indication of the shortcoming of firms – due to ignorance or ineffectiveness in application. Whatever the case, rigorous and scholarly research alone will shed light on this important matter.

Managerial implications include the importance of managing knowledge, leveraging social capital and effectively applying Internet technology with a view to achieving successful internationalization outcomes. First, knowledge can be better managed when firms are aware of their extant knowledge stocks through gap analyses, which are often difficult to implement in reality. Nonetheless, a conscious effort to enhance, preserve and apply knowledge is vital. Firms will also do well to seek to acquire knowledge through inter-firm collaboration and interaction. Second, leveraging social capital can be managed effectively when firms consider their endowment of social capital. Furthermore, firms need

to be aware of the extent to which they are leveraging extant social capital. Thus unexploited network relationships can be consciously strengthened and utilized; new network relationships can be sought when potentially useful. Third, the application of Internet technology to facilitate internationalization requires firms to utilize the whole spectrum of information applications, without confining themselves to information dissemination (Walczuch *et al.* 2000). Furthermore, they need to be systematic and consistent with their use of these technologies.

The foregoing managerial applications also lend themselves to policy implications in that policy-makers must facilitate the acquisition and development of skills for small firms to manage knowledge, social capital and technology. Policy-makers should foster inter-firm networks that lead to social capital. Further, knowledge-management and the management of learning within firms are vital for their international success; policy-makers would do well to educate (particularly smaller) firms on effective means of achieving this, including through the Internet. The key to successful internationalization, in the light of the discussion in this chapter, is a holistic approach of leveraging available and potential resources of the firm, with a particular emphasis on creating, acquiring and leveraging knowledge.

This chapter has sought to facilitate the continued progress of research in small firm internationalization, which is of considerable importance both in theoretical and in practical terms, given the significance of the internationalization phenomenon as noted at the outset. This chapter has presented an integrative knowledge-based conceptualization of internationalization that reconciles two dominant yet conflicting perspectives in the literature and incorporates the potential influence of Internet technology. In doing so it is acknowledged that the internationalization literature has not been exhaustively covered; this, however, was not the intent. Rather, the focus has been on demonstrating that more holistic (integrating apparently divergent views where possible and appropriate) and up-to-date (incorporating recent technological developments such as the Internet) approaches to studying this important subject are possible, and it is hoped that future research will continue to result in worthwhile contributions to internationalization theory and practice.

4 Technology and internationalization

Prashantham, S. and Berry, M.M.J. (2004) 'The Internet and the internationalization of small knowledge-intensive firms: a conceptual approach', in M.V. Jones and P. Dimitratos (eds) *Emerging Paradigms in International Entrepreneurship*, Northampton, MA: Edward Elgar, 192–213.

Introduction

There is growing interest in the internationalization of small knowledge-intensive firms (SKIFs), particularly with respect to their often rapid internationalization and the role played by network relationships. The research question that this chapter seeks to answer is: What is the potential impact of the Internet on the internationalization of SKIFs?

Berry *et al.* (2001) have drawn attention to the apparent tension between themes such as 'global strategy', 'multinational enterprise' and 'born globals' in the literature. It may be argued that this has arisen from the dominance of the study of large multinational firms in international business theory (Oviatt and McDougall 1994). However, it appears that more recently there has been growing interest in the internationalization of small firms. A specific subset of this interest has emerged in relation to those small firms that have exhibited accelerated internationalization (Shrader *et al.* 2000; Young 1987), in contradiction to prevalent notions of incremental and gradual internationalization. This phenomenon has been noticeable in SKIFs (Bell 1995; Crick and Jones 2000).

Given this propensity to internationalize at a rapid rate and early on in their lives, it seems fair to suggest that SKIFs lend themselves readily to enquiry in the realm of international entrepreneurship, going by McDougall and Oviatt's (2000) 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'.

The focus of this chapter, as indicated, is small knowledge-intensive firms. A 'small' firm – based on the most common cut-off in the literature (Brock 2000) – is taken as a firm with less than 100 employees, and 'knowledge-intensity' as 'the extent to which a firm depends on the knowledge inherent in its activities and outputs as a source of competitive advantage' (Autio *et al.* 2000). Researchers such as McNaughton (2001) have accepted this definition of knowledge-intensity. It may be noted that some of the literature reviewed in subsequent sections makes reference to high technology or technology-based firms; using the above definition, such firms can be categorized as SKIFs.

The ensuing discussion begins with an overview of the literature on (a) the

internationalization of SKIFs and (b) the Internet with respect to network relationships, followed by an attempt to synthesize these two bodies of literature with a view to inferring the potential impact of the Internet on the internationalization of SKIFs. In conclusion, implications for academics, managers and policy-makers are drawn; in relation to theory development, the virtual absence of published research on the impact of the Internet on the internationalization of small knowledge-intensive firms in a developing economy context is identified and highlighted.

The internationalization of SKIFs – the role of network relationships

Within the body of literature on internationalization theory it is seen that the so-called stage theories have acquired a dominant position. According to this school of thought there is an incremental process of internationalization among firms in terms of the commitment demonstrated through the selected entry mode (progressing from simple exporting to ultimately foreign direct investment to set up production facilities in international markets) and in terms of the psychic distance of the targeted markets. Key to this incremental process is the firm's progressively enhanced experiential market knowledge (Johansson and Vahlne 1977, 1990). Summaries and reviews of the key literature on internationalization of the firm are well documented (see for example Andersen 1993; Coviello and McAuley 1999; Leonidou and Katsikeas 1996), and therefore, rather than a repetitive account of internationalization theory in general, the specific focus of this section is on SKIFs.

The 'stage' theories have come under a fair amount of criticism (see e.g. Andersen 1993; Bell and Young 1998) particularly due to their failure to accurately predict the internationalization patterns of SKIFs. There is growing evidence that SKIFs have demonstrated acceleration in the internationalization process (Crick and Jones 2000) and are often examples of a 'born global' (Rennie 1993) or 'international new venture'. A 'international new venture' is defined as 'a business organization that, from inception, seeks to derive significant competitive advantage from the use of resources and sale of outputs in multiple countries.... In contrast to organizations that evolve gradually from domestic firms to MNEs, these new ventures begin with a proactive international strategy' (Oviatt and McDougall 1994).

Bell (1995) and Coviello and Munro (1995, 1997) have studied SKIFs – software firms – that demonstrated rapid internationalization. A significant factor that influenced the accelerated internationalization of these SKIFs was reported to be inter-firm relationships within a wider international network that might include customers, competitors, suppliers, support agencies – even family and friends. These network relationships influenced SKIFs' choice of markets and market entry mode. For example, Bell's (1995) study of software firms in Finland, Ireland and Norway suggests that three factors influenced the choice of market: client followership, sectoral targeting and computer industry trends – these in turn are influenced by relationships with other firms (such as clients).

Of course, there may be product and market characteristics that facilitate – and perhaps necessitate – such accelerated internationalization. For example, Coviello and Munro (1995) mention the high research costs, shorter product life cycle and competitive markets that SKIFs tend to operate in, while Jones (1999) and McNaughton (2001) make reference to SKIFs' greater uncertainty in terms of technology and strategy. However, in addition to these factors, it appears that network relationships accelerate SKIFs' internationalization process, resulting in what is often referred to as the 'network' approach. The interaction between firms is seen as the most important factor in the choices made by firms vis-à-vis targeted markets and entry mode. However, this does not mean that the 'stage' and 'network' schools of thought are mutually exclusive; they may be seen as complementary rather than contradictory (Bell and Young 1998; Coviello and McAuley 1999).

In the wider context of firm internationalization, Johanson and Mattsson (1988) drew attention to the impact of network relationships; this has been reiterated by other authors as well (see e.g. Johnsen and Johnsen 1999; Kornohien *et al.* 1996). Network scholars have identified three interdependent elements of networks: actors, activities and resources (Johnsen and Johnsen 1999). According to Johanson and Mattsson (1988), knowledge and social bonds between actors play a vital role in the emanation of international opportunities for members of a network. They made a useful distinction between the internationalization of firms and of their markets. Gulati *et al.* (2000) have proposed that networks can be 'strategic' for firms, that is, a source of competitive advantage albeit this may also be a constraining factor, given the low mobility across networks that many firms experience. A significant point they make is that firms could earn rents on network resources – those that are external to the firms but internal to their network.

Kogut (2000) points out that firms in a network will often compete and cooperate with each other simultaneously. Firms will often jostle for greater control within their networks, and their *relational position* – not unlike Johanson and Mattsson's (1988) *market position* – could be a source of competitive advantage (Gulati *et al.* 2000). This makes the issue of trust among members of a network a significant one, particularly among competing firms (Johnsen and Johnsen 1999). Distinction is made between a firm's cooperation with customers and suppliers on the one hand and competitors on the other (Chetty and Blankenburg Holm 2000). These challenges notwithstanding, the resources and markets that firms may have access to through their network relationships are clearly seen as potentially beneficial to them, and policy-makers have been urged to facilitate such relationship building (Demick and O'Reilly 2000; Welch *et al.* 1998).

In the context of network relationships it is worthwhile to touch upon the issue of clusters, given the interesting parallels between network theory and cluster theory. Clusters, according to Porter (1998a: 199), are 'geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (e.g. universities, standards agencies, and trade associations) in particular fields that compete

but also cooperate'. Local rivalry tends to be of great intensity – partly since rival entrepreneurs compete not just commercially but also for a better position in the local social hierarchy (Enright 1998) – which pushes firms to achieve greater levels of innovation and success (Porter 1998b). A comparison of network and cluster, summarized in Table 4.1, suggests that – contrary to Enright's (1998; see his first footnote) distinction between clusters and business networks – it is reasonable to view a cluster as a type of network, albeit a geographically concentrated one. Indeed certain networks have been referred to as 'clusters' in the literature (Chetty and Blankenburg Holm 2000). In the words of Porter (1998a: 225), 'A cluster is a form of network that occurs within a geographic location, in which the proximity of firms and institutions ensures certain forms of commonality and increases the frequency and impact of interactions.'

Returning to the specific matter of the internationalization of SKIFs, network relationships within a cluster could lead to marketing externalities such as, for example, intra-cluster referrals (Brown and Bell 2000). Brown and McNaughton (2000) suggest that while the selection of the original location of a cluster may have been accidental rather than rational, younger firms often locate in such clusters to benefit from the ensuing externalities. While various so-called cluster strategies have been employed around the world by governments, a common element in these has been the facilitation of business networking and inter-firm collaboration; of vital importance in this connection is putting in place a coordination mechanism (Enright 1999). Thus network relationships that influence the internationalization of SKIFs may exist within clusters.

This section has reviewed a selection of the key literature on the internationalization of SKIFs and the main point made is the significance of influential network relationships – which may also be geographically concentrated within clusters – on this process. To gauge the potential impact of the Internet on the internationalization of SKIFs, it therefore seems worthwhile to review the literature on the Internet in relation to inter-firm relationships in a network,

Table 4.1 Parallels between network and cluster theory

<i>Aspect of the collective entities (i.e. networks and clusters)</i>	<i>Network scholars</i>	<i>Cluster scholars</i>
Simultaneous competition and cooperation exists	Kogut 2000	Porter 1998a
Main elements are interdependent firms, resources and activities	Johnsen and Johnsen 1999	Enright 1998
Resources that are external to firms but internal to the collective entity may be a source of competitive advantage	Gulati <i>et al.</i> 2000	Porter 1998a
The free flow of information and building of inter-firm bonds are vital to the success of the collective entity	Johanson and Mattsson 1988	Saxenien 1990
Policy should facilitate strengthening of the collective entity	Demick and O'Reilly 2000; Welch <i>et al.</i> 1998	Enright 1998; Porter 1998a

which is the subject of the following section. The subsequent section will then discuss how the Internet could influence the internationalization of SKIFs, in the light of the literature reviewed in this and the following section.

The Internet and network relationships

As evident from the wide coverage in the business press, the Internet was the object of much hype, which appears to have been the result of over-exaggerated faith in its ability to foster a new era in which old business or economic rules did not apply. The sentiment has dramatically changed since the heady days of 1999 and appears to be leading to a middle-of-the-road perspective that acknowledges the power of the Internet without abandoning business principles; it is the applications of the Internet that will create value, not the Internet itself (Porter 2001).

A key theme in the literature on the business applications of the Internet deals with the digital networking of companies, which is unsurprising given that the Internet is, by definition, a network of networks (Hamill 1997; Poon and Jevons 1997). A unique characteristic of this medium of communication, in comparison with traditional broadcast media, lies in its ability to support many-to-many communication, that is, interactivity (Hoffman and Novak 1996). Interactivity could greatly facilitate relationships with entities such as suppliers, customers and rivals as implied by the references made in the literature to: the 'e-business community' comprising networks of suppliers and distributors who communicate and transact via the Internet (Tapscott 1999); the 'virtual factory' (Upton and McAfee 1996) or 'virtual enterprise' (Schlegelmilch and Sinkovics 1998) that operate in 'marketspace' (Rayport and Sviokla 1995); 'microbusinesses' that tap into global networks that were previously the preserve of large MNEs (Malone and Laubacher 1998); and the 'b-web' which is 'a distinct system of suppliers, distributors, commerce services providers, infrastructure providers, and customers that use the Internet for their primary business communications and transactions' (Tapscott *et al.* 2000: 17).

While the literature tends to have a large-firm bias (see for e.g. Hacki and Lighton 2001; Hagel 1996), the opportunities for small firms are great (Cronin 1995). Poon and Jevons (1997) have addressed the issue of the Internet and network relationships from the perspective of small firms. Drawing on the work of Golden and Dollinger (1993), they argue that the Internet can enhance network relationships and discuss the potential impact of the Internet on four kinds of networks: confederations, conjugate collectives, agglomerate collectives and organic collectives, as shown in Table 4.2.

Three broad applications of the Internet in particular appear to contribute towards the building and/or enhancement of such relationships: Internet marketing, Internet-supported supply chain management and Internet-supported customer relationship management; these applications broadly correlate to Feeny's (2001) three dimensions of Internet application in companies: e-marketing, e-operations, and e-services respectively. These are briefly discussed below.

Table 4.2 The Internet and small firm network relationships

<i>Inter-organizational relationship</i>	<i>Definition</i>	<i>Internet marketing strategy</i>
<i>Confederations</i>	Firms which compete with one another but which maintain some contractual functional activities in common, co-ordinated by a central management (e.g. small business groups sharing resources through contractual agreements)	Central management provide resources for network members to market their products and services on the Internet (e.g. a virtual agency service). Include in the agreements to provide reciprocal homepage links between members included in the contract.
<i>Conjugate collectives</i>	Firms which have contractual arrangements for symbiotic purposes (e.g. closed group agreements between supplier and customer)	Allow reciprocal links on members' homepages. Make available market intelligence on the closed-group's intranet (if available) with login control. Share market intelligence in order to improve supplier-buyer relationship.
<i>Agglomerate collectives</i>	Firms which compete within the same industry but have no contractual 'business' arrangements (e.g. trade associations)	Trade association provide market intelligence data (local and international) on their homepage for members use. Mutual agreement between [international] trade associations to market the members' products and services.
<i>Organic collectives (e.g. community service groups)</i>	Firms (or the representative thereof) which engage in traditional networking, such as board memberships or other voluntary organization, in an indirect and non-contractual form.	Advertise products and provide low-cost/free services for charity members of community networks on the Internet (e.g. LinkNet; www.link.net.au) Link community calendar of events to one's home page.

Source: Adapted from Poon and Jevons (1997: 36–37; based on Golden and Dollinger 1993).

Internet marketing

While firms now have access to Internet technology that facilitates inter-firm network relationships, the task of creating such relationships in the first place remains. One possible means of doing so is through Internet marketing, where firms seek to make themselves known to other entities in ‘cyberspace’ generally with a view to directing ‘traffic’ or visitors to a destination Web site (Kenny and Marshall 2000). In relation to destination Web sites, recommended procedures include registration on prominent search engines (Hamill and Ennis 1999) and partnership arrangements – another form of network relationships – such as obtaining reciprocal links on Web sites of interest (Hoffman and Novak 2000). Also of potential benefit in relation to creating inter-firm relationships is participation in business-to-business (B2B) Internet hubs, variously referred to as B2B marketplaces, exchanges or e-hubs (Kaplan and Sawney 2000).

Ramsdell (2000) defines a B2B marketplace as ‘a World Wide Web site where goods and services can be bought from a wide range of suppliers’. He identifies three kinds of marketplaces based on their focus in terms of industry, product and function: vertical (based on industries), horizontal (based on products), and focusing on function (based on functional skills, e.g. human resources). According to Sculley and Woods (1999), ‘the unique feature of a B2B Exchange is that it brings multiple buyers and sellers together (in a “virtual” sense) in one central market space and enables them to buy and sell from each other at a dynamic price which is determined in accordance with the rules of exchange’ (Sculley and Woods 1999: 14). According to Kerrigen *et al.* (2001), B2B marketplaces offer ‘four roads to value’: expanded market reach, lower prices, reduced buying costs, and identification of industry best practices.

Internet-supported supply chain management

A second application pertains to digitizing and connecting business activities with those of other firms that may be operating in a value chain. While this has been practised through proprietary networks such as electronic data interchange (EDI) in the past, the advantage that the Internet provides is universal standards that broaden the scope of participation, particularly in favour of smaller firms (Evans and Wurster 1997, 2000). In the value chain, Internet-supported supply chain management primarily concerns three activities of the value chain: inbound logistics (e.g. real-time integrated scheduling), operations (integrated information exchange) and outbound logistics (e.g. real-time transaction of orders) (Porter 2001). The specific application of the Internet will depend on the nature of the supply chain that a firm operates in (Poon and Joseph 2000). Evans and Wurster (2000) highlight the implications for supply chain management of different kinds of companies and transactions as a consequence of the ‘deconstruction’ of businesses wrought by the Internet (Table 4.3).

Here again B2B hubs could play a useful role, especially those that are centred around the value chain of an industry or organization. Klein and Quelch

Table 4.3 The impact of the Internet on supply chains on businesses

<i>Types of businesses and transactions</i>	<i>Impact of the 'blowing up' of supply chains</i>
<i>Large corporations doing business with each other</i>	The richness and reach they want already exist (through VPNs). New technologies can provide operational (rather than strategic) benefit – lower costs, improved functionality.
<i>Smaller companies (and larger companies e.g. Wal-Mart and mid-sized suppliers)</i>	Reach is sacrificed at present for richness (through EDI which locks in suppliers). New technologies allow public networks to replace the private ones; reach is enhanced and 'vertical ties loosened'
<i>Small, peripheral transactions</i>	New technologies explode the possibilities for reach and comparing offerings at little extra cost.
<i>Small companies doing business with each other</i>	Market makers have great scope to reduce the difficulties and cost of search.

Source: Adapted from Evans and Wurster (2000: 171).

(1997) suggest that smaller firms can particularly gain from such entities, as they 'expand the market so that buyers and sellers, primarily smaller ones, who may have enjoyed only limited access to traditional distribution channels, can now participate on a more level playing field' (Klein and Quelch 1997: 346). According to Porter (2001: 70), the benefits to buyers of digital marketplaces include low transaction costs, easier access to price and product information, convenient purchase of related services and the pooling of volume of transactions; benefits to vendors include lower selling costs, access to wider markets and non-confrontation with powerful channels.

Internet-supported customer relationship management

There is a growing and prominent strand in the Internet-related business literature that highlights the role of the Internet in supporting customer relationships (Hamill and Prashantham 2001). The interactivity element of the Internet makes it particularly amenable to the creation and management of individual relationships or 'one-to-one marketing' (Peppers and Rogers 1997; Peppers *et al.* 1999) with other entities (Ellsworth and Ellsworth 1995; Wind and Mahajan 2001), especially customers. According to Siegel (1999), a customer-oriented web strategy should be based on principles such as discriminating and dealing appropriately with different types of 'e-customers' (e.g. on the basis of whether they are beginners, intermediates or experts).

Of vital importance in Internet-supported customer relationship management is the management of databases for the storage and subsequent utilization of knowledge about customers (or indeed, business partners) that may be captured through the firm's Web site or social interactions within a network (Brown and Duguid 2000; Davenport *et al.* 2001). Obtaining information as wide and deep

as possible allows firms to obtain an in-depth understanding of customers (Seybold 2001), which in turn could result in collaborative new product development (Iansiti and McCormack 1997) and thereby greater personalization of service, something that may be especially important for SKIFs.

The Internet and the internationalization of SKIFs

Let us recall the research question that this chapter seeks to answer: What is the potential impact of the Internet on the internationalization of SKIFs? Answers are not easily forthcoming from the limited body of literature on the Internet and small firm internationalization, the main themes of which include the potential for leapfrogging conventional stages of internationalization and the diminished importance of psychic distance (see, e.g. Bennett 1997; Hamill 1997; Samiee 1998; Quelch and Klein 1996). However, the veracity of such claims, including those made by Yip (2000), that ‘cyberspace’ can substitute much of the learning that takes place in the traditional global marketplace, is difficult to judge as surprisingly little empirical work has been done in this area (Brock 2000). The answer must therefore, for the moment at least, be sought conceptually through a synthesis of the literature mentioned in the previous sections.

It should be evident from the preceding two sections that (a) network relationships have a strong influence on the internationalization of SKIFs and (b) the Internet offers applications that facilitate network relationships, enabling firms to interact more widely and intimately with other actors including customers, suppliers and fellow-competitors. It can thus be argued that the Internet offers SKIFs the potential for creating and enhancing network relationships, which in turn are likely to influence and shape their internationalization process. This section amplifies this argument, making reference to the three Internet applications discussed in the previous section and drawing out a key benefit of each that influences network relationships. Internet marketing is seen to contribute to greater visibility (Hoffman and Novak 2000) within a network; Internet-supported supply chain management can contribute to greater operational efficiency or performance (Fisher and Reibstein 2001); and Internet-supported customer relationship management could lead to greater intimacy (Seybold 2001; Siegel 1999) in network relationships.

Visibility

In relation to the first-mentioned application – Internet marketing – it is argued that this could potentially raise *visibility* for SKIFs in market space, as they seek to create network relationships. Visibility is important in view of the *competition* for network relationships that SKIFs will face from other SKIFs and actors in a network. It is argued that – although the literature does not seem to clearly deal with the strategic value of network relationships – in the internationalization of SKIFs, their network relationships are a potential source of competitive advantage and differentiation. Thus it is worthwhile for SKIFs to proactively seek

network relationships that will potentially lead to useful internationalization opportunities. A starting point to this would be visibility within a network in the first place to provide the opportunity to interact with other players, which is clearly the chief benefit of Internet marketing.

Efficiency

In relation to the second-mentioned application – Internet-supported supply chain management – it is argued that this could potentially lead to *efficiency* in business activities conducted in the context of SKIFs' network relationships. Efficiency is important because of the issue of *control* in network relationships. Coviello and Munro (1995; 1997) have highlighted the jostling for power and control that typically accompanies those network relationships that influence the internationalization of SKIFs. The literature on the internationalization of SKIFs (e.g. Coviello and Munro 1997) and that on the Internet and network relationships (e.g. Hacki and Lighton 2001) mention the tendency for large firms to dominate networks. Such a scenario suggests that SKIFs could be at a relative disadvantage with greater need for inclusion in the network and consequently lower bargaining power. It is argued that efficient functioning of business activities could lead to better performance (say, in terms of meeting targets or deadlines, as well as cost-cutting) and thereby stronger financial position and reputation, which in turn could strengthen SKIFs' ability to control network relationships better, or at the very least be less buffeted by undesirable shaping of their internationalization by actors with greater power.

Intimacy

In relation to the third-mentioned application – Internet-supported customer relationship management – it is argued that this could potentially enhance the *intimacy* of SKIFs' network relationships in terms of helping them better understand the needs of their partners. Intimacy is important because of the *coherence* it can lead to in a SKIF's internationalization process. As has been alluded to, the literature that highlights the crucial role of network relationships in the internationalization of SKIFs does not appear to clearly grapple with the strategic issues involved; for example, can every opportunity that emanates from the network be acted upon irrespective of its fit with the firm's overall strategy (if it has one)? It is argued that a strategic approach is required on the part of SKIFs in relation to their internationalization process, and greater coherence in their strategy can be achieved by better understanding the strategic intents of their fellow-actors in the network as well as expressing their own. This can result when there is greater intimacy, that is, greater knowledge of the other actors. Further, intimate network relationships could lead to indirect positive consequences for SKIFs' internationalization process through a greater propensity to share business leads or do business in new foreign markets with them, rather than their rivals within a network. Table 4.4 summarizes the foregoing discussion.

Table 4.4 The Internet and the internationalization of SKIFs

<i>Internet application</i>	<i>Impact on network relationships</i>	<i>Impact on internationalization</i>
<p><i>Internet marketing</i> Involves the proactive marketing of a destination Web site, chiefly with a view to generating awareness and disseminate information</p>	<p><i>Visibility</i> Makes the SKIF visible within a network and provides an opportunity to offer information about itself and credentials</p>	<p><i>Competition</i> Visibility is important given that SKIFs and other actors within a network compete for network relationships that will positively influence their internationalization</p>
<p><i>Internet-supported supply chain management</i> Involves the digitizing and connection of activities into a wider value chain network via the Internet and Web-enabled networks (such as Intranets)</p>	<p><i>Efficiency</i> Provides savings of cost through greater efficiency of information transfer and the saving of time; also allows for the pooling of resources to achieve greater volumes and lower prices in B2B exchanges</p>	<p><i>Control</i> Efficiency is important given that actors in a network jostle for control and greater efficiency could lead to a more competitive position and consequently greater bargaining power.</p>
<p><i>Internet supported customer relationship management</i> Involves the building and maintenance of deep relationships with 'customers', a broad definition of which would include business partners</p>	<p><i>Intimacy</i> Provides the opportunity for SKIFs to better understand the strategic intents and other aspects of fellow-actors in a network and to be better understood as well</p>	<p><i>Coherence</i> Intimacy is important because it allows SKIFs to better ensure coherence and consistency in their internationalization strategies in relation to long-term objectives.</p>

Implications

This chapter attempts to synthesize literature on the internationalization of SKIFs, and the Internet and network relationships. In doing so, the authors' aim is to develop a new conceptual approach to the potential impact of the Internet on the internationalization of SKIFs and to propose associated implications for theory development, management, and policy-making. This is now discussed below.

Theoretical implications

The development of the Internet and its growing ubiquity implies that Internet-related variables – such as access to the Internet, experience with Internet usage and so on – must inevitably be factored into macroenvironment- and firm-related variables while seeking to understand better the phenomenon of small firm internationalization. This, of course, is likely to be handled slightly differently depending upon the main thrust(s) of the theoretical base used in a piece of research. For example, a promising avenue of research is the impact of the Internet on international new ventures – there may well be a chicken-and-egg situation here, with the Internet encouraging firms to be international from inception, and internationally inclined firms finding it easier to be so, as a result of the Internet. It may be noted that studies of international new ventures in particular have used the resource-based view, which is characteristic of a substantial body of literature in strategy but not in internationalization (Bell and Young 1998). Viewing Internet technologies as resources and the ability to apply them as competencies will perhaps throw light on emerging means of managing the internationalization process more effectively.

As mentioned earlier, little empirical work in the area of the Internet and small firm internationalization has been done with notable exceptions being Bennett's (1997) study of British exporters with and without Web sites, Hamill and Gregory's (1997) study of Scottish exporters and non-exporters and Brock's (2000) study of German technology-based firms (possibly the only empirical work that deals specifically with SKIFs). Clearly there is need for further empirical study on the impact of the Internet on small firm internationalization in general, and SKIF internationalization in particular, given that the use of the Internet is no longer optional for firms.

It may also be noted that while the Internet's potential benefit for firms based in developing economies has been suggested (Quelch and Klein 1996), no empirical study appears to have been done in a developing economy context, as seen in Table 4.5. This applies to the area of the internationalization of SKIFs as well.

There is clearly a need to address the obvious gap in this area of the literature by conducting empirical research that examines the impact of the Internet, on the internationalization of SKIFs, in a developing economy context. Such work is critical if SKIFs in developing economies are to benefit from the Internet

Table 4.5 Examples of SKIF studies in developed economies

<i>Author</i>	<i>Nationality of sample studies</i>
Bell 1995, 1997	Finland, Ireland and Norway
Coviello and Munro 1995, 1997	New Zealand
Jones 1999	United Kingdom
Brock 2000	Germany
McNaughton 2001	Canada

since most of the small firm internationalization theory focuses on developed economy contexts and may not readily hold in a developing economy context (Ibeh 1999) that has peculiar market- and policy-related problems (Das 1994; Ibeh and Young 2001; Maddy 2000). A potentially interesting case would be the Bangalore software industry, which has been cited as an excellent example of a developing economy plugging into the wider global economy (Kobrin 1999).

Managerial implications

In the days after the Internet hype, it is perhaps easier – and certainly more useful – to assess realistically the benefits and applications of its technologies to firms in general, and SKIFs in particular. It has become more evident that the impact of the Internet is likely to be different on different industries (Evans and Wurster 2000) and on different parts of the value chain (Roehl *et al.* 2001). In the foregoing discussion it has been suggested that firms can improve their visibility, efficiency and intimacy with other actors in a network. This is a more broad-based view compared to the literature that has solely emphasized – sometimes unrealistically – the enhanced visibility that can come from a web site. Thus, an important implication for entrepreneurs and managers is the importance of viewing Internet technologies holistically and at the same time specifically, in terms of specific tools such as B2B exchanges. Managers can expect greater competition from rivals who will also seek cheaper suppliers and deeper customer relationships – to name just a couple of factors – through the Internet. Thus, the ability to exploit Internet technologies can be seen as a determinant of competitive advantage and success.

Another implication, in the context of internationalization, pertains to decisions of market selection and entry mode. Once again, a balanced approach would be prudent – caution is required when receiving the suggestion of certain authors (as discussed earlier) that the entire world is a potential market for a firm and that traditional entry modes are less relevant. Equally, it must be realized that certain barriers and the speed of market development may well be reduced. The network perspective that has been utilized in this chapter suggests that a useful approach is to examine the possibility of network relationships in markets of interest through the Internet, as discussed in this chapter, and the entry modes that are available through these relationships.

Managers responsible for the internationalization of SKIFs will need to

actively take the applications of the Internet into account as part of their activities geared towards creating and enhancing network relationships through greater visibility, efficiency and intimacy in network relationships. Indeed in the case of SKIFs where rapid internationalization is virtually imperative owing to product and market characteristics, the use of the Internet to positively influence this by facilitating network relationships can be deemed to be obligatory. Of course other actors in the network will require access to the Internet as well; this, however, in the developed world at least, is likely to be the case more often than not. More importantly, managers must have the right mindset towards managing information technology such as the Internet and not be apathetic to its potential benefits (Bensaou and Earl 1998; Poon and Joseph 2000). Further, it is recommended that SKIFs adopt a strategic approach to their network relationships and internationalization process so that opportunism is tempered with long-term goals such as profitability.

There exists a strong need for managing knowledge and knowledge-building through collaboration with other firms for SKIFs (Tenkasi and Boland 1996). Such collaboration could constitute a part of a SKIF's internationalization activities. Irrespective of whether these firms are geographically concentrated or not, the application of the Internet as discussed in this chapter is especially relevant. The simple matter of using email has implications for how entrepreneurs and managers in SKIFs communicate, even in respect of the level of formality in their language – email correspondence can be very different from formal correspondence. The cross-cultural aspect of this – just as in other matters such as marketing – must be considered when the communication takes place across international borders. Email aside, more sophisticated components of knowledge management such as electronic repositories or databases of knowledge could use Internet-based interfaces to enhance access to it by network actors.

Policy implications

Policy-makers have a facilitative role to play to ensure that SKIFs have ready access to, and knowledge of, using the Internet. In the case of SKIFs this is expected to be less onerous a task as SKIFs are possibly technology-savvy with access to the Internet and related technologies; nevertheless, appropriate support must be extended to them to make the best use of the Internet in the context of their internationalization.

Indeed, inasmuch as a supportive environment of entrepreneurship is generally helpful, an 'Internet-friendly' environment should facilitate the adoption of Internet technology (Oxley and Yeung 2001). Such an environment could be created through greater access to the Internet. Further, initiatives should be taken to enable SKIFs – and indeed all small firms, in general – to become aware of the potential benefit of the Internet to their internationalization efforts. These firms could then be provided with access to technical expertise – including through consultants in the private sector – to help them apply Internet technologies in practice. These are particularly relevant to a developing economy and the

efforts of multilateral funding bodies and aid agencies in this regard may be particularly helpful.

In relation to clustering policies for SKIFs – which are often based on the regional character of much of the innovation that occurs in an economy (Almeida 1999) – there is nothing to suggest that the Internet necessarily makes agglomeration less relevant or likely (Leamer and Storper 2001). There are therefore no grounds for reversing cluster-facilitating policies. Needless to say, however, firms within clusters can be expected to actively seek network partners beyond their geographic confines utilizing Internet technology, and this should be encouraged as mentioned above.

In the realm of export policy, governments now have to deal with the exports of digitized products, such as software, and this may be of particular concern in developing economies where imports and exports tend to be closely monitored with a view to ensuring that foreign exchange reserves are sufficient. Clearly, it is much more difficult and complicated to monitor the export of software code in comparison to tangible, manufactured goods. One potential approach for governments to take is to set up special export zones to take care of the needs of software firms and other such SKIFs, where the ‘product’ is exported digitally, which provide incentives to these firms by way of infrastructure but also allows easier monitoring of their activities.

Another aspect of policy that must be addressed pertains to international law (Kobrin 2001) governing Internet-related transactions across borders. This requires national governments both to come out with coherent and appropriate legislation pertaining to that nation and to cooperate with each other through forums and agreements that allow smooth transactions while taking into account national interests. For developing economies, the challenge is often to ensure that their legislation keeps pace with international developments in the more advanced economies. Achieving more cooperation in policy- and law-making may be a tall order both because of the degree of multilateral cooperation required and because of the rapidity with which technology changes vis-à-vis policy making, which could struggle to keep pace. Nonetheless, these policy efforts are vital, and imperfect solutions may be more useful than not having any.

Specifically in the context of a developing economy, the following recommendations made by The Boston Consulting Group (2001) to the Indian government are pertinent: legal and regulatory issues for e-commerce transactions should be resolved, development of communications infrastructure should be accelerated, computer and Internet education should be encouraged, the creation of technology standards should be facilitated and industry associations should be encouraged to benchmark Internet technology adoption across industries. Developing economies would do well to follow examples of good policy in advanced economies. For instance, in relation to the last mentioned point, useful examples that could be considered are Australia’s tracking of Internet technology adoption by the Bureau of Statistics and the annual *Digital Economy* publication of the US Department of Commerce, which benchmarks e-commerce and IT adoption (The Boston Consulting Group 2001).

Concluding remarks

The ubiquity and importance of the Internet in the twenty-first century is beyond debate. As Porter (2001: 64) has said, ‘The key question is not whether to deploy Internet technology – companies have no choice if they want to stay competitive – but how to deploy it.’ In the context of small knowledge-intensive firms, whose very nature and operating environment present great challenge, utilizing the Internet to enhance their network relationships and thereby the internationalization process, is a strategic imperative, rather than a luxury. In the context of developing economies, where market- and policy-related factors intensify the challenge of internationalization for small firms, including SKIFs, the Internet offers application of great value. However, bridging the gap between theoretical promise and actual realization calls for considerably more effort on the part of entrepreneurs, managers, policy-makers and researchers.

Part II

Exploratory insights

5 The Indian software industry

Prashantham, S. (2004) 'Indian perspectives of International entrepreneurship', in L.P. Dana (ed.) *The Handbook on Research in International Entrepreneurship*, Northampton, MA: Edward Elgar, 481–498.

Introduction

Internationalization among small firms, and notably small knowledge-intensive firms (SKIFs), can be unusually rapid and is often influenced by three aspects of the international entrepreneur: knowledge, intent and networks. However, both internationalization-related and other entrepreneurial activities – and therefore international entrepreneurship – can be hampered by macroeconomic disincentives or a hostile environment. This often tends to be the case in developing economies such as India, given which, the success story of the Indian software industry acquires great significance as a notable exception to the rule. It has emerged as an exemplar for developing economy entrepreneurs seeking their fortune in the software and other industries. Drawing on the literature relevant to international entrepreneurship, as well as secondary and some primary data on the Indian software industry, this chapter points out that international entrepreneurs in a developing economy can be successful through their own entrepreneurial efforts, especially when encouraged and facilitated by favourable policy measures. There are, however, key challenges that they have to deal with.

Most studies of small firm internationalization have taken place in developed economy contexts (Bell and Young 1998), thus depriving aspiring business people in developing economies of rigorous research-based inputs on international entrepreneurship. Even as more empirical work in this area needs to be done, this chapter seeks to offer some insights into ways in which international entrepreneurs in developing contexts can achieve success, by drawing on literature relevant to internationalization and citing the example of the Indian software industry.

It is hoped that some of the issues dealt with in this discussion of the Indian software industry will be insightful and inspirational to international entrepreneurs in a developing economy context. The following sections deal with small firm internationalization, especially for knowledge-intensive firms, entrepreneurship and the role of entrepreneurs in small firm internationalization, incentives and disincentives for international entrepreneurs in developing economies, the Indian context in terms of fostering entrepreneurship, the development and growth of the Indian software industry, examples of four Indian

software entrepreneurs who were drawn to found firms, implications of the preceding sections for theory, entrepreneurship and policy.

Small firm internationalization

Bell and Young (1998) point out that there is no unanimity in defining the term 'internationalization'. Welch and Luostarinen (1988) have defined it as 'the process of increasing involvement in international operations'. They suggest that internationalization can involve both inward and outward activities. A different perspective is provided by Naidu *et al.* (1997: 115): 'Internationalization is a gradual process whereby a firm develops a network of global trade relationships.'

Jones (1999) comments that surprisingly little is known about internationalization in relation to small firms and blames this on assumptions pertaining to the resource limitations of small firms and literature that is skewed towards the area of export, in part because of the relatively low risk and commitment involved. The focus on a single entry mode – exporting – has contributed to major shortcomings in internationalization theory (Leonidou and Katsikeas 1996). However, several other entry modes exist, which include exporting, licensing, franchising, management contracts, turnkey contracts, international subcontracting, industrial cooperation agreements, contractual joint ventures, equity joint ventures, wholly owned subsidiaries, mergers and acquisitions and strategic alliances – these various modes vary according to the commitment, cost efficiency, control and risk involved (Anderson and Gatignon 1986; Erramilli and Rao 1993; Young *et al.* 1989).

Some of the early thinking on internationalization emanated from work in the 1970s, such as that of Johanson and Wiedersheim-Paul (1975), Johanson and Vahlne (1977) and Bilkey and Tesar (1977), which have come to be known collectively as 'stage theories' or 'incremental frameworks'. These continue to be the dominant theories in the field (Coviello and McAuley 1999; Johanson and Vahlne 1990; Welch and Luostarinen 1988) although they have received much criticism (Andersen 1993; Bell 1995; O'Farrell *et al.* 1998; Turnbull 1987). Among the stage models, distinction has been made between the work of Nordic authors such as Johanson and Vahlne (1977) and American authors such as Bilkey and Tesar (1977); the former is referred to as the Uppsala Model and the latter as the Innovation Model (Andersen 1993). The overall thrust of both models is similar to the extent that they suggest that firms internationalize in incremental steps. They differ, however, in their emphasis: the Uppsala Model views the internationalization process as a result of firms' commitment and knowledge, while the Innovation Model views the internationalization process as the consequence of innovation, where firms respond to, for example, unsolicited orders.

Some authors take a resource-based view of the firm and suggest that small firm internationalization, at least initially, is largely a function of the firm's resources and competencies. The competencies of the management team, in

particular, have been recognized (Aaby and Slater 1989; Chetty and Hamilton 1993). The resource issue also has a bearing on another theme mentioned in the internationalization literature: strategy, which follows, in part, from a firm's resource base. Young *et al.* (1989) rejected existing theories of internationalization and presented one of their own, based on the firm's objectives (short or long term) within the overall scope of the firm's corporate strategy.

An alternative perspective on internationalization has been the so-called networks approach, which can, however, be seen as complementary rather than contradictory to the stage theories (Coviello and McAuley 1999). Johanson and Mattsson (1988) argued that industrial networks involving other players such as customers and suppliers influence internationalization decisions of firms. Even Johanson and Vahlne (1990, 1992) have acknowledged the role of other actors in the internationalization process, while other scholars suggest that the network perspective is a contingency model to existing stage theories (Bell and Young 1998).

Network relationships are 'stable and changing' (Johanson and Mattsson 1988: 291) and may exist across borders or be spatially bound in 'clusters' (Enright 1999; Porter 1990). Clusters may influence the internationalization of SKIFs through *marketing externalities* such as, for example, intra-cluster referrals, credibility and reputation, informational spillovers and active joint marketing (Brown and Bell 2000). Brown and McNaughton (2000) suggest that, while the original location of a cluster may have been accidental rather than rational, younger firms often locate in such clusters to benefit from the ensuing externalities.

Network relationships have been found to accelerate the internationalization of small firms (Bell 1995; Coviello and Munro 1997), which is not altogether surprising given that small firms, in general, are renowned for their networking ability (Jones 1999). Indeed, some small firms have been deemed to be international from inception and variously referred to as 'born globals', 'new international ventures' and 'global start-ups' (Johnson 1999; Knight and Cavusgil 1996; McDougall *et al.* 1994; Madsen and Servais 1997; Oviatt and McDougall 1994, 1997; Rasmussen and Madsen 1999; Rennie 1993).

As with the literature on management strategy, individual theories of small firm internationalization at best proffer a partial view of the subject, and there is merit in taking an eclectic view (Dunning 1988; Mintzberg and Lampel 1999). The total incompatibility of the various views on internationalization is debatable. For instance, although sharp differences exist between an objective-led approach, where quantitative, fact-based methodology guides decision-making, and a process-based approach with incremental steps, it is quite conceivable that knowledge (as presented by Johanson and Vahlne 1977, 1990) can inform a firm's strategy process.

Entrepreneurship

While no particular personality trait is 'truly' entrepreneurial (Bhide 1994), the business-related characteristics of the entrepreneur have a strong bearing on the

internationalization of small firms (Aaby and Slater 1989; Chetty and Hamilton 1993; Leonidou and Katsikeas 1996; Welch and Luostarinen 1988); this is particularly true in relation to firms that are international from inception (Madsen and Servais 1997; Rasmussen and Madsen 1999). A synthesis of the literature on entrepreneurship, small firms and knowledge-intensive firms (given this chapter's reference to software firms) suggests that three interdependent factors, which are mostly brought to the table by the entrepreneur himself or herself, play an important role in the development of small entrepreneurial firms, including their internationalization: knowledge, intent and networks.

Knowledge

Innovation is a key goal for small entrepreneurial firms (Acs *et al.* 1999; Almeida 1999; Audretsch 1999; Carlsson 1999; Hagel and Singer 1999; Hamel 1996; Lerner 1999) and knowledge is the chief preoccupation of knowledge-intensive firms (Alvesson 1993, 1995; Autio *et al.* 2000; Elkjaer 2000; Nurmi 1998; Tenkasi and Boland 1996). Domains of specialized knowledge of the entrepreneur often determine the firm's main offerings and therefore the prior *experience* (including education) of the entrepreneur is crucial in the context of SKIFs and may have a bearing on his or her strategic and international orientation, innovativeness and network relationships (Berry 1998; Crick and Jones 2000; Ibeh and Young 2001; McDougall and Oviatt 2000; Madhok 1996; Young 1987). Related to knowledge is *innovativeness*, or innovative behaviour, of the entrepreneur (Baker 1979), which can have a positive impact on the firm's performance in international markets (Kundu and Katz 2000). Although some studies have failed to demonstrate this conclusively, the literature still maintains the importance of innovativeness alongside other characteristics such as autonomy, risk-taking and competitive aggressiveness (Lumpkin and Dess 1996). Innovation is crucial to SKIFs' coping with their competitive environments (Zahra and Neubaum 1998).

Intent

An entrepreneur's *strategic orientation* has a bearing on how well the technology strategy of the firm is integrated with the overall corporate strategy of the firm (Berry 1996; Kundu and Katz 2000) and also has a bearing on the type of planning style adopted. An important factor in the internationalization of SKIFs is the *international orientation* or vision of the entrepreneur (Aaby and Slater 1989). Reference has also been made to the importance of a 'global mindset' on the part of the technology entrepreneur, as a pre-state requirement for success in the global marketplace (Berry 1998). These notions refer to the entrepreneur's philosophy (Becherer and Maurer 1997) or attitude, which may have a bearing on decisions such as changes in entry mode (Calof and Beamish 1995). There is apparently a tension in the literature in terms of whether successful small entrepreneurial firms adopt – or ought to adopt – a formal or informal approach to

strategy formulation, as captured in the debate between marketing orientation (MO) and entrepreneurial orientation (EO), respectively (Tzokas *et al.* 2001). The ideal situation for a small firm is when both an EO and MO coexist, notwithstanding the contradictory skill sets that they entail. Becherer and Maurer (1997) found support for their hypothesis that the EO of an entrepreneur-led firm is directly related to its MO, and concluded that EO and MO are part of the same underlying philosophy.

Networks

Network relationships with players such as suppliers, customers, universities and even competitors have a great influence on small firms' (and especially SKIFs') business activities. Small firms are resource-poor (Hadjimanolis 2000a; McNamee *et al.* 2000), and external network relationships can be vital to a small firm's viability, can compensate for resources it lacks (McNamee *et al.* 2000) and can facilitate knowledge building (Almeida 1999) and, therefore, innovation since resource-rich small firms innovate better than resource-poor ones (Hadjimanolis 2000b). These relationships may be available through regional networks (Saxenien 1990), and smaller firms have been seen to be more adept at integrating into local regional networks than larger firms (Almeida 1999); these subnational regions' climate may, however, be supportive, detrimental or neutral (Goetz and Freshwater 2001). The role of networks acquires significance when knowledge-intensive and high-technology firms (typically small ones) specialize (Carlsson 1999). As discussed earlier, network relationships are significant, both facilitating and constraining, for competitive advantage in general and internationalization in particular (Bell 1995; Coviello and Munro 1995). Strategic alliances may be entered into (Rao and Klein 1994) or the lead may be taken from key clients (Bell 1995; O'Farrell *et al.* 1998). Alvensson (1993) also mentions the importance of inter-firm networks in creating reputation for knowledge-intensive firms.

International entrepreneurship in a developing economy context

The macro-environment in which a firm operates may have certain disincentives with respect to international marketing. Das (1994) suggested that two distinct problems can be identified that face exporters from developing economies: (1) government policies and interventions and (2) market-related problems. She suggests that policy-makers need to focus promotion activities on key industries, motivate managers to export, encourage the diversification of exporters' product mix (i.e. shift to high-value offerings) and liberalize the economy. Policies generally reflect the politicoeconomic philosophy of a particular nation, which, for example, may have socialist leanings, as in the case of India (Vachani 1997). Calof and Vivier's (1995) study of South African small- and medium-sized enterprises (SMEs) found that problems that exporters faced pertained to, among

other factors, domestic and international politics (including the dismantling of sanctions) and trade policy (including the implications of GATT).

Disincentives may take the form of institutional barriers or a lack of 'soft infrastructure' (Khanna and Palepu 1999: 126) such as efficient product, capital and labour markets as well as regulatory mechanisms. These often exist in developing economies and may be a disincentive both for host country firms and for international ones. Other disincentives include elaborate procedures (Jain and Kapoor 1996) and complex bureaucracy (Naidu *et al.* 1997). Ibeh and Young (2001) have identified the following disincentives among Nigerian firms: unstable political climate, low technology level, poor local infrastructure, unstable exchange rate and inconsistent implementation of government policy.

Given that internationalization – notably export development – is seen as a source of economic advancement (Naidu *et al.* 1997), incentives may also be available to firms as part of the local government policy. Government policy in terms of infrastructure provision and positive attitude to entrepreneurs can have a very beneficial impact, especially when concentrated in a geographic cluster, and is particularly beneficial where the national system of innovation is weak, such as in less advanced countries (Fontes and Coombs 1995).

Clearly, operating in a developing economy context can be challenging for an SKIF and requires tenacity, patience and capital resources. Maddy (2000), an African technology entrepreneur, distinguishes between two sources of capital for entrepreneurial firms in a developing economy: 'do-gooders' (e.g. quasi-government agencies) and 'do-wellers' (such as private investors). Disincentives in dealing with them are a lack of trust in the entrepreneur and highly demanding expectations of success, respectively. She warns prospective entrepreneurs that the going can be very very tough.

The fact is, only 2% of the world's 6 billion people have access to the Internet. The revolution has hardly begun. Yes, change may come to emerging-market countries thanks to technology. But it will take time. Entrepreneurs can change the world as long as they don't try – as I did – to do it on a shoe string.

(Maddy 2000: 62)

International entrepreneurship in India

It has been suggested that, owing to cultural factors such as the caste system, Indians have generally not been entrepreneurially minded (Dana 2000) although certain communities among Indians are noted for their business acumen both in India and in foreign lands where they have settled (Bhagwathi 1966). Furthermore, restrictive government policy has not been encouraging of international entrepreneurship. As Naidu *et al.* (1997: 119) say, '[H]igh levels of government interface [have] effectively inhibited international entrepreneurship.'

The underlying philosophy of the initial economic development activities after India gained independence from the British in 1947 was that the govern-

ment knew best and therefore had to be the key driver of business activities. As a consequence, Indian entrepreneurs had to become adept at playing the game of obtaining requisite licenses, which involved a combination of lobbying strength and political connections, which often came at the cost of funding political parties or bribing officials. This, in turn, meant that it was mainly large business houses that had the financial and political clout to succeed over the long haul; small firms, despite the Gandhian sanction bestowed on them – Gandhi was a great believer in encouraging small firms through reserving certain products for their exclusive production – were often hampered by government control (Mahibala 1997; Ramu 1997; Sundarajan 1997). In relation to exports, the Indian government was not very encouraging, especially after an acute balance of payments (BoP) crisis in the 1970s. Public policy at the time tended to be inward-looking, with the emphasis being on import substitution, rather than exports. A key objective was to limit the use of valuable foreign exchange by Indian firms (Naidu *et al.* 1997; Vachani 1997).

The position today is a lot different, especially after the liberalization efforts initiated from 1991 onwards (Vachani 1997). Studies have demonstrated innovative abilities among Indian entrepreneurs (Manimala 1992a, 1992b, 1992c, 1992d). While competing in international markets is highly challenging for family-run businesses in India (Murthy 1999), Indian exporters seem to be upbeat, going by Jain and Kapoor's (1996) survey of the attitudes of Delhi-based entrepreneurs. According to them (Jain and Kapoor 1996: 80–81), 'On the whole, though the surveyed Indian firms viewed exporting as a more challenging and arduous task, they considered it as an activity worth the efforts as it enhances firm stability and entails greater growth and profit potential.' Most exporters had begun international marketing activity as a consequence of internal stimuli, which is different from American exporters discussed by Bilkey and Tesar (1977).

The optimism among Indian exporters detected by Jain and Kapoor is echoed by authors such as Naidu *et al.* (1997: 124), according to whom

India has the potential of being a major player in world exports. It has the ingredients for success – entrepreneurial spirit of business people, ingenuity and motivation, and a wealth of resources. Nevertheless, the export sector has been stifled in the past through bureaucracy and disincentives. Recent liberalization of the Indian economy creates opportunities for Indian enterprises to successfully break into foreign markets. However, a proactive export assistance and promotion policy is required for achieving this objective.

While certain initiatives have been undertaken to foster entrepreneurship in India (as documented by Dana 2000), such as the National Institute for Entrepreneurship and Small Business Development and Entrepreneurship Development Institute of India, arguably the greatest impetus for international entrepreneurship has come from the much-publicized success of the Indian software industry,

which has become an exemplar to budding Indian entrepreneurs, especially those dreaming of success in international markets.

The software industry in India: an exception and exemplar

The case of the Indian software industry is significant in that it has transcended difficulties associated with entrepreneurship in India such as unfavourable cultural biases (Dana 2000) and restrictive policy (Naidu *et al.* 1997; Vachani 1997). According to Correa (1996: 177), 'India is the most successful software exporter among developing economies.'

The origins of the Indian software industry, notable particularly because of its strong export focus, can be seen in the early 1970s when the government promoted software exports (Correa 1996). This was also a period when stringent regulations saw international IT majors such as IBM pulling out of the country, thus creating a void that domestic hardware vendors rushed in to fill. The early 1980s saw the personal computer (PC) revolution enhancing the international demand for software, as well as the beginnings of liberalization policies in the Indian economy. Software exports from India began to grow.

The game plan followed by most Indian software companies was remarkably simple and uniform. It entailed exploiting the low labour costs for software programming talent in India compared to the West and especially the United States through the provision of software developers for on-site work at client sites (often referred to as 'body-shopping'), supplemented by off-shore software development in India.

While the historical basis for the emergence of a pool of technical talent lies in the setting up of educational institutions and public sector undertakings (PSUs) in fields such as aeronautics, especially in the South Indian city of Bangalore (referred to as the Silicon Valley of India), a unique impetus to the Indian software industry came from multinational corporations (MNCs) that set up shop there after the liberalization initiatives of 1991 (Heitzman 1997). Notable in this regard are Motorola and Texas Instruments, who were instrumental in raising labour wages and offering professionals interesting (as opposed to low-end and tedious coding work) projects, with a view to attracting the best talent available locally. Today, several other IT majors such as Microsoft and Sun Microsystems have development centres, many of which deal with state-of-the-art design.

However, these developments have seen wages rise, and as a consequence, the cost advantage of Indian firms, especially reputable ones, is slipping in comparison to rivals in China and the Philippines. Therefore some of the better Indian firms are aggressively seeking to graduate to higher levels of the value chain. Some firms are seeking profitable forays into information technology-enabled services (ITES) such as call centres (Merchant 2001d). The vast majority of Indian software firms, however, remain focused on low-level coding work; their viability in the long term is in serious doubt (Daniel 2001; Merchant 2001a, 2001b; Sadagopan 1999).

It has been said that in recent times India has produced many successful software firms and beauty queens because the government was not involved! That may be somewhat unfair as government policy since the 1970s has justifiably encouraged software exports (Correa 1996). More recently, apart from the tax holiday that software firms enjoy, the government upgraded the Department of Electronics (DoE) into the Ministry of Information Technology (MIT), which has been entrusted to a prominent Cabinet minister. One of the key challenges of this ministry remains the creation of suitable infrastructure (Donald 2001b).

What are the factors that have led to the success of the Indian industry? Kundu and Katz (2000) have determined that managerial characteristics such as entrepreneurs' educational background, technological innovativeness and strategic orientation have played a vital role. According to Correa (1996), factors such as the widespread use of the English language, apart from programmers' skill and quick response to demand, have contributed to success; he warns other developing economies that some of these factors (such as the use of the English language) have a historical basis that other countries (such as, for example, Latin American countries) will find difficult to easily emulate. Although the widespread availability of technical education in India is often mentioned, Merchant (2001c) points out that supply of such education still falls well short of demand. The competencies of software professionals, stemming from their training and experience (Ram and Jagadish 1999), professional treatment of employees in the better software firms (Agarwal 1999) and network relationships with Indian software entrepreneurs in Silicon Valley, United States, (Luce 2001; Murdoch 2000) have been other success factors.

Indian software international entrepreneurs: four examples

As mentioned, the success of Indian software entrepreneurs has led to young entrepreneurs being encouraged to launch their own software start-ups. The following is a brief account of four such entrepreneurs, who were interviewed in Bangalore recently, in terms of their background, knowledge, intent, networks and view of policy. It gives an indication of diverse routes that entrepreneurs take to end up founding and leading a software firm in India.

Firm Vikas

Firm Vikas was started by an engineer upon his graduation in 1995 because of the 'fire in [his] belly' despite pressure from his parents to study further and become the first postgraduate in the family. He is neither from a prestigious Indian university nor foreign-trained; yet his passion to do something innovative led him to pursue aggressively his entrepreneurial dreams.

His knowledge base is constantly evolving, guided by market trends; having begun in software services he is leading the company into a diversification into ITES, such as call centres. His intent, in terms of internationalization, has been to avoid popular and highly competitive markets such as the United States.

Instead, he has focused on Australia, recently setting up a one-man marketing team there; his next targets are the ‘virgin territories’ of South Africa and Zimbabwe. His networks have mainly been domestic, with only recently proactive measures being taken to acquire and cultivate network relationships overseas.

The government, he says, has failed to make life easier for entrepreneurs and he has experienced many instances of running from pillar to post in order to get things done for the business. Policy measures are often half-baked according to him; for instance, the government may improve roads but ‘forget that power also is essential’.

Firm New Creation

Firm New Creation was started by a computer professional trained at Rutgers University, after spending ten years in the United States. Although he harboured the occasional desire to become an entrepreneur at some point, his decision to start Firm New Creation was precipitated by a family crisis which forced him to return to his hometown of Bangalore in 2000. He was given a project to work on by a former American client.

His knowledge base is a function of his more recent work in the United States and deals primarily with e-commerce. His intent appears to be to remain fully focused on international business, as he feels he has a long way to go before establishing himself in India. Towards this end, he relies heavily on the Internet – through B2B portals such as that of *The Economist* magazine and NeoIT – for international business in non-American markets. His networks primarily stem from professional contacts in the United States, and he is trying to expand these by engaging business development contractors who, for a commission, canvass the wares of Indian firms in foreign markets.

In his experience, the government – specifically the Software Technology Parks of India (STPI) – can be very bureaucratic. While seeking to move premises, he found the paperwork and formalities to be cumbersome and unnecessarily multiple; a single-window mechanism would make things a lot easier, he feels.

Firm Ekomate

Firm Ekomate was started by a computer professional who studied at the University of Texas in Austin and stayed on in the United States for a brief professional stint. At Austin he had also attended entrepreneurship classes at the business school, clearly indicating an interest in starting up his own firm, which he did upon his return to India in 1996 after calculating that it could be more remunerative than a salaried job at an IT firm.

His knowledge was chiefly Internet-oriented due to his training and professional experience in the United States. Accordingly, his firm’s chief mandate has been ‘to help firms get on to the Net’. However, his knowledge base has evolved over time, expanding with client needs – especially those of loyal customers. To

that extent, he feels that he has ceased to be a specialist and has become more of a generalist. His intent in terms of geographic focus has been flexible, and it took three years before he received his first international contract – an unsolicited order from a British firm who located him through Firm Ekomate's Web site and were impressed thereafter by his speed of response to requests for information and proposals. His networks today seem to primarily comprise of existing clients, although a few orders did come as a consequence of professional contacts in the United States.

In terms of government-related bodies, he has mainly dealt with the STPI and has found his association with them beneficial although he finds certain rules pertaining to customs bonding to be obsolete. Further, he feels that small firms in general do not have much of a voice in industry associations.

Firm Mitoken

Firm Mitoken has spun off from Motorola's Indian operations and is unique in terms of its focus on being a 'pure product player'; in other words, it offers packaged solutions rather than the customary software services offered by most Indian software firms (including the three discussed above). The directors of Firm Mitoken are graduates of prestigious business and engineering schools in India and abroad; the chief executive officer (CEO) is an alumnus of the Indian Institute of Management in Bangalore, one of India's premier business schools. The timing of the directors' decision to successfully propose the spin-off coincides – rather significantly – with the craze for Internet start-ups. Not surprisingly, the company offers a software product for software companies that it describes as 'Web-native'. Nonetheless, the relevance of the offering has remained undiminished even after the collapse of most dot-coms.

The knowledge of the CEO and his core team follows from the work carried out initially at Motorola and from prior education. The intent has been to target software firms across the world in a cluster-by-cluster approach after initially operating in India, with a view to refining the product before launching overseas. It is envisaged, however, that in less than five years the vast majority of business will be from abroad. The networks, to which much attention is paid, emanate from Motorola and business school contacts, as well as venture capitalists and senior IT and business professionals who have been formally inducted as company 'advisors'.

While the CEO of Firm Mitoken did not voice any strong reservation about government policy, he felt that product-oriented firms did not receive quite the impetus or supportive industry forums that they needed – and even deserved.

Conclusion: implications for theory-building, entrepreneurship and policy

In terms of theory-building, the foregoing discussion has brought out the inadequacy of research in developing economy contexts and would suggest that

greater collaborative research among scholars in developed and developing economies will bridge the knowledge gap that seeks to exist in terms of theory-building. A related issue is the need for forums and publications – such as this book – where insights about various economy contexts can be disseminated to wide audiences of international entrepreneurs. Such efforts, it is suggested, will be of mutual benefit, and international entrepreneurs based in developed economies may well find that they have useful lessons to learn – especially in relation to innovative behaviour – from their counterparts in developing economies who often have to make do with fewer resources and therefore are forced to devise ingenious ways of succeeding.

In terms of managerial practice, software entrepreneurs in India – and indeed, elsewhere in developing economies – would do well to address at least three issues that are emerging. First is the issue of *services versus products*; in other words, firms have to face competitive pressure to cease being mere low-level code-providers and upgrade their offerings to packaged solutions or products. Second is the issue of *software versus ITES*; in other words, software firms are faced with the question of whether or not to diversify in the light of emerging opportunities such as ITES, of which call centres constitute a prominent example. Long-term success will need to be balanced with short-term revenue goals. Third is the issue of *small versus large firms*; in other words, small firms are finding it increasingly hard to survive as large players strive to gain business in a considerably sluggish world economy, and achieving greater knowledge-intensity in specialized domains appears to be fast-becoming mandatory for SKIFs. This in turn will enhance – and make even more challenging – their scope for and efforts towards internationalization. Indeed, it is a matter of survival.

In terms of policy-making, governments in developing economies should seek to provide advanced training inputs to international entrepreneurs and enhance their network relationships through mentoring programmes; useful insight can be obtained from the Irish experience (Bell *et al.* 2004b). In the specific case of India, serious attention must be paid to various policy issues including defining small firms, financing, rules and procedures, technology applications, cluster formation and strategy formulation (Gulati 1997; Krishnan 1997; Mahibala 1997; Prabhu 1997; Ramu 1997; Sundarajan 1997; Thampy and Kulkarni 1997). From the interviews, it is evident that infrastructure in terms of power, communication facilities and transportation need to be improved and common interest groups facilitated for international entrepreneurs. In relation to exports, areas that require improvement include access to marketing information, international promotion, and procedures and documentation (Jain and Kapoor 1996).

6 Local networks and internationalization

Prashantham, S. (2004) 'Local network relationships and the internationalization of small knowledge-intensive firms', *Copenhagen Journal of Asian Studies*, 19: 5–26.

Abstract

This chapter discusses the role of network relationships in the internationalization of small knowledge-intensive firms (SKIFs) by highlighting their local, spatially concentrated network relationships, which can serve as a significant local resource. Little is known in this regard with respect to a developing economy context. Primarily on the basis of a study of four case-firms in Bangalore software industry and available secondary data, two issues are dealt with: (a) how local network relationships – such as those within clusters or industrial districts – are developed and (b) the impact that these relationships have on the internationalization of SKIFs, namely, reputation-related, quality-related and networking benefits. However, it also emerged from follow-up interviews with local academic experts that these benefits may be passively rather than actively accrued, suggesting that some local resources may be overlooked or wasted.

Introduction

Asian firms are renowned for their effective networking capacities (Chen 2003; Redding 1995). In the context of small firm internationalization, a case of special interest to scholars has been the small knowledge-intensive firm (SKIF),¹ which is similarly noted for its leveraging of network relationships, often leading to accelerated internationalization (Coviello and Munro 1997; Prashantham and Berry 2004a). Combining these two observations, it would seem likely that Asian SKIFs constitute a fascinating subject for study of networking dynamics, especially in the context of internationalization. That network relationships constitute a key driver of the internationalization of SKIFs seems consistent with the nature of such firms, their propensity for innovation and their resource-poverty lead to active leverage of network relationships. These relationships may be based locally (Porter 1998a) or overseas (Johanson and Mattsson 1988). Surprisingly little is known about the former, in the context of internationalization; the focus of most network-based studies is on the latter.

Recent work, however, suggests that local, spatially concentrated network relationships, such as those within a regional cluster, lead to positive externalities that

facilitate SKIFs' internationalization (Brown and Bell 2001; Brown and McNaughton 2003) to a greater extent than in less geographically concentrated industries (Fernhaber *et al.* 2003). These studies, like much of the literature on SKIF internationalization, are based on developed economy contexts; little is known in this regard with respect to developing countries. Yet, improving extant understanding of the latter context seems a worthwhile endeavour, given that many developing countries are seeking to develop globally competitive firms, especially in Asia (Zeng and Williamson 2003). In such a setting, cultural and economic factors make external relationships a significant source of new information and know-how for local firms, and therefore a resource for enhancing international competitiveness (Zhou and Xin 2003). This chapter offers a preliminary step toward exploring a developing economy context in Asia, by shedding light on how small Indian software firms benefit from their local network relationships as they pursue international business.

Thus, the fundamental research question that this chapter seeks to address is: How do local network relationships influence the market-seeking² internationalization of SKIFs in a developing economy context? One difficulty in dealing with this topic stems from the relative dearth of dynamic, knowledge-intensive clusters in developing countries. Research was therefore undertaken in the Bangalore software industry, which proves to be a noted exception in this regard (Dunning 2000). Four case-firms were studied; this exercise was supplemented by expert interviews and available secondary data.

This chapter contributes to extant literature by providing a fresh perspective on the role of clusters in small firm internationalization, namely, access to local network relationships with foreign connections, such as with multinational subsidiaries situated within clusters (Birkinshaw and Hood 2000). It also lends its voice to prevailing warnings in the literature that clusters do not always have exclusively positive effects on constituent firms and that cluster-related benefits cannot be guaranteed nor can they be assumed to exist. Furthermore, drawing on the Asian character of the sample studied, the chapter makes the point that Western notions of proximity must be tempered with socio-cultural considerations such as the role of ethnic ties overseas, when examining the internationalization of specifically Asian entrepreneurial firms.

The chapter is structured as follows: the next section examines some of the literature on clusters, a concept closely related to local network relationships and resources. The subsequent section briefly discusses the Bangalore software industry, and provides a discussion of the views of entrepreneurs and experts in Bangalore about the impact of location on SKIF internationalization. The final section concludes with implications for academics, practitioners and policy makers.

The role of local network relationships in internationalization

A relevant strand of the literature in the context of local, geographically concentrated relationships is one that deals with clusters. One of the better-known

definitions is that of Porter (1998a: 199): 'A cluster is a geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities'. Enright (2000) has distinguished between two models of cluster-based development – one where clusters provide the opportunity for firms to develop locally and then compete internationally (see, for example, Porter 1990) and the other where peripheral regions seek to foster clusters and thereby develop the local economy (as discussed in, for example, Peters and Hood 2000). The cluster phenomenon has been generally ascribed to developed economy contexts; there appear to be few healthy clusters in developing economies (Porter 1998a).³

Geographic proximity among firms can reinforce trust, enhance inter-firm cooperation and facilitate the transfer of tacit knowledge (Malmberg *et al.* 1996). Clusters therefore yield potential network relationships⁴ that are local and spatially concentrated to firms located within them, in the form of suppliers, customers, government agencies, multinational corporation (MNC) subsidiaries and even competitors (Birkinshaw and Hood 2000; Porter 1990). Related concepts in the literature include that of 'industrial district' and 'national innovative capacity'. A definition of the former is 'local clusters of numerous, mostly small enterprises which alternately compete and cooperate with one another and specialize in particular aspects and phases of production' (Staber 1998: 701); by virtue of this definition the discussion in this chapter pertains both to clusters and industrial districts interchangeably. National innovative capacity is clearly a different concept however, and encompasses a strong common innovation infrastructure, innovative industrial clusters and robust linkages between these two elements (Furman *et al.* 2002). The spatial concentration of firms does not automatically guarantee a strong innovative capacity.

Clusters emerge for a variety of reasons that span a continuum with serendipity at one end and purely deliberate action – of the public and/or private sectors – at the other. In other words, it is often a combination of serendipitous and deliberate actions and events that lead to the existence of clusters. Determinants of clusters include economies of scale, transport costs, search and transaction costs, innovation, cooperation, knowledge spillovers and uncertainty (Hoen 2001). Enright (1998) identifies the presence of unique natural resources, economies of scale, specialized labour, local suppliers and infrastructure as economic rationales for clusters. In this context, Balasubramanyam and Balasubramanyam (2000) emphasize educational institutions that produce trained technical labour, state support through tax incentives and subsidies, favourable living conditions, venture capital availability and linkages, both forward and backward. Based on the Porterian notion of clusters (Porter 1990, 1998b), the following factors are seen to foster the development of clusters: inherited factors, geography, climate, entrepreneurship, research and educational institutions, regional economy composition, public sector actions and private sector actions. This framework will underpin the discussion of the Bangalore software industry later in the chapter.

Extant literature on the role of clusters in firms' internationalization is at a nascent stage. A notable exception is a study by Brown and Bell (2001), which

indicates that clusters may influence the internationalization of SKIFs through marketing externalities such as, for example, intra-cluster referrals, credibility and reputation, informational spillovers and active joint marketing. Brown and McNaughton (2003) suggest that while the original location of a cluster may have been accidental/fortuitous rather than rational/deliberate, younger firms often locate in such clusters to benefit from the ensuing externalities. Also, Fernhaber *et al.* (2003) have recently demonstrated that SKIFs based within clusters internationalize to a greater extent than their counterparts that are not based in geographically concentrated industrial areas. Clusters can be especially useful by providing external, regional relationships (Almeida 1999; Saxenien 1990) that can compensate for resources it lacks (McNamee *et al.* 2000), as well as facilitating knowledge-building and innovation (Almeida 1999; Audretsch and Feldman 1996; Shaver and Flyer 2000).

In fact, it is suggested that the very nature of innovation (Malmberg *et al.* 1996), which is facilitated by information flow (Enright 1998), causes technological activity to be locally confined. As a consequence, over time, sources of competitive advantage emerge, which are highly localized in nature (Berry and Taggart 1994; Enright 1999; Porter 1990, 1998b). Reiterating this fact, Cantwell and Iammarino (2001: 1007) state that 'innovative activity turns out to be spatially concentrated, and this can mainly be attributed to the benefits that stem from a specific case of agglomeration economies, i.e. knowledge externalities or spillovers'. Berry and Taggart (1994: 351) point out that 'technology development remains confined to local clusters of innovation in a variety of global locations'. Consequently, international networks often tap into the local milieu of clusters⁵ (Todtling 1994), as evident when strategic asset-seeking MNC subsidiaries locate within clusters (Birkinshaw and Hood 2000).

Building upon the foregoing discussion, three potential benefits of being based within a cluster, for the internationalization of SKIFs, can be identified. First, a key benefit of location within a milieu of innovation is *reputation*. Reputation enhances the prospect of a firm within that region being perceived as being competent, and this resource resides outside a firm's boundaries within the collective network resources. When this reputation becomes international, it enhances the possibility of (a) unsolicited orders approaching the firms within the cluster and (b) a positive disposition towards a firm from the cluster that proactively seeks business from a prospective foreign customer (Karagozoglu and Lindell 1998). Second, another key benefit pertains to an *enhancement of quality*; this is distinguished from the perception of quality that comes from reputation, previously discussed. An important determinant of quality is the access to specialized resources, including manpower (Saxenien 1990), suppliers and support services (Lorenzoni and Ornati 1998; Pouder and St John 1996; Shaver and Flyer 2000), that a cluster typically affords its constituent firms. Third, SKIFs enjoy *access to local network relationships with useful international links*. Access to multinational subsidiaries that locate within a cluster (Birkinshaw and Hood 2000), for instance, provide an opportunity to SKIFs for collaboration (Enright 2000), which has the potential to lead to international business opportunities.

To elaborate on the third point, the paradoxical notion that local network relationships – such as with multinational subsidiaries or internationalized domestic firms – could provide useful access to foreign markets is perhaps the most interesting consideration and constitutes the essential focus of the chapter. Brown and Bell (2001) have already indicated that local network relationships can, when leveraged appropriately, lead to joint efforts that are synergistically efficient. This chapter offers an additional perspective, namely, access within clusters to international firms, both MNC subsidiaries (Birkinshaw and Hood 2000) and internationalized indigenous firms (Fernhaber *et al.* 2003), to facilitate small firm internationalization. Furthermore, dynamic clusters in Asia are likely to attract investment from ethnic entrepreneurial firms (e.g. based in the United States) who may wish to invest in their homeland (Saxenian 2002). Potentially, SKIFs could develop ties with such firms and benefit from their foreign links, through business opportunities (including links to their customer bases), trade leads/referrals and advice (Prashantham 2004a); this notion has certain normative and policy-related implications as discussed in the concluding section. The next section discusses the chapter's methodological approach.

Methodology

Two broad questions are addressed in this chapter.

- 1 How are systems of local network relationships built? This is addressed by highlighting the development of the Bangalore software cluster, largely based on ten in-depth interviews with experts and available secondary data.
- 2 How do these local network relationships influence SKIF internationalization? This question is addressed by synthesizing the views expressed by the chief executive officers (CEOs) of four case-firms, supplemented by the views of the experts. The findings are presented in the next section. This section provides further information on the selection of the four case-firms and research methodology employed.

In March 2002, four case studies of small software firms (Eisenhardt 1989; Yin 1994) were undertaken in Bangalore using in-depth interviewing technique, which was deemed as appropriate for this type of research (Easterby-Smith *et al.* 2001). In-depth interviews, ranging in duration from 60 to 120 minutes, were conducted with the four software entrepreneurs. An interview guide was followed to ensure consistency in the issues raised with each of the entrepreneurs. The main issues were

- the development and nature of local networks within the Bangalore software industry;
- the process of internationalization of SKIFs in Bangalore;
- the perceptions of the role played by location in Bangalore to local SKIFs' internationalization.

The selection of the four entrepreneurs was based on two variables: (a) the age of their firm and (b) the current extent of their firm's internationalization. Firms that were founded six or more years before the interview were deemed to be old⁶ (Zahra *et al.* 2000) and firms with greater than 50 per cent of their revenues accruing from overseas were deemed highly international. Each of the entrepreneurs interviewed fall under different categories in relation to the two stated variables of firm's age and internationalization; in other words, a representative cross section was achieved by interviewing:

- an entrepreneur of an old, highly internationalized firm
- an entrepreneur of an old, less internationalized firm
- an entrepreneur of a young, highly internationalized firm
- an entrepreneur of a young, less internationalized firm.

The four case studies were then supplemented by in-depth interviews with ten experts who closely monitor the progress of the local software industry in their respective roles as academics (three experts), consultants (two experts) and managers (five experts).⁷ A similar approach (interview guide; approximately 90 minutes' duration) as in the case of the CEOs was adopted. The purpose of these interviews was to elicit the experts' views on the development and trends in the Bangalore software industry; the main issue discussed was the role they perceived the Bangalore cluster to play in the internationalization of local SKIFs. The next section presents the findings of the study..

Role of Bangalore's local network relationships in SKIF internationalization

As noted, the literature is dominated with examples of dynamic clusters from developed (rather than developing) economy contexts. A significant exception is the Bangalore software industry (Balasubramanyam and Balasubramanyam 2000; Dunning 2000; Nadvi 1995), which could act as an exemplar for developing economies wishing to facilitate the emergence of competitive, knowledge-intensive industries and firms. The Bangalore software industry is discussed below based on the interviews conducted and available secondary data.

Table 6.1 Sample of four small Indian software firms

		<i>Level of internationalisation</i>	
		<i>Low</i> (<i>< 50% export intensity</i>)	<i>High</i> (<i>≥ 50% export intensity</i>)
<i>Firm age</i>	<i>Young</i> (<i>< 6 years</i>)	Mitoken	New Creation
	<i>Old</i> (<i>≥ 6 years</i>)	Vikas	Ekomate

Inherited factors: One view that was expressed more than once by respondents is that Bangalore's software industry emerged quite by accident, facilitated by historical factors. At the time of national independence (August 1947), a strategic decision was taken to locate certain key entities away from the nation's capital of New Delhi owing to its proximity to two potentially hostile neighbours – China and Pakistan. Thus, Bangalore, a city located centrally within the South Indian peninsula and with an established military presence from the days of British rule, was chosen as the location of such vital public sector undertakings as Hindustan Aeronautics Limited and National Aeronautics Limited (Balasubramanyam and Balasubramanyam 2000). Additionally, the Indian Institute of Science was established in Bangalore and together these corporations and educational institutions attracted technical talent from across the country. This pool of talent was arguably the forerunner to the relatively abundant (yet not necessarily sufficient; see Merchant 2001) supply of software professionals now available in Bangalore, which was tapped into by global players such as Texas Instruments and Motorola when they set up offices in Bangalore during the early 1990s (Ramamurthi 2004).

Geography: As discussed above, the militarily 'safe' location of Bangalore induced the location of certain strategic defence-related organizations there.

Climate: Bangalore has a mild climate compared to other major cities in South India which is, at best, a minor incentive for software professionals to settle there as well as for international executives to base themselves there when required; climate, in general however, has little bearing on the software industry (Balasubramanyam and Balasubramanyam 2000).

Entrepreneurship: This, arguably, is of vital importance in relation to Bangalore. The greatest impact of the Indian software industry on the rest of the nation is arguably that of a model in terms of how entrepreneurship – and business management in general – can be a success. In a largely risk-averse part of the country, software entrepreneurs have demonstrated great enterprise and have won the respect of fellow practitioners, the media, the government and public at large (Arora *et al.* 2001). Doyens of the Indian software industry – who are mostly Bangalore based – such as N. R. Narayana Murthy of Infosys and Azim Premji of Wipro are popular speakers at top industry forums and business school convocations. Their esteem has indeed been hard-won, through innovatively attracting talent (such as through equity-sharing schemes, a novelty for India) and building processes of the highest quality (over half of the world's most stringently followed software quality management systems can be found in India-based companies, the majority of which are Bangalore based). These success stories have been an inspiration for others to follow suit and has helped somewhat in stemming the perennial problem of 'brain drain', whereby the best talent had a tendency to emigrate, especially to the United States (Saxenian 2000, 2002).

Research and educational institutions: As discussed, the early establishment of the prestigious and highly capable Indian Institute of Science gave an impetus to technical development in Bangalore. Although several hundreds of engineering colleges have also emerged, of vital significance are a couple of other

centres of excellence which, though not purely technical, have fostered the availability of local talent. These are the Indian Institute of Management and the more recently established Indian Institute of Information Technology (Ramamurthi 2004; Saxenian 2000).

Regional economy composition: In terms of regional economy, there has really not been much else preceding the ‘software boom’ apart from the – almost accidental – location of aeronautical and related organizations in the region, as discussed. As such, the regional economy cannot be said to have greatly influenced the development of the software industry (Balasubramanyam and Balasubramanyam 2000).

Public sector actions: There are some who would argue that the Indian government’s greatest contribution to the software industry lies in its benign neglect of it for so many years (Arora *et al.* 2001)! This apparently uncharitable view suggests that in India governmental intervention has not always been perceived to be conducive to private enterprise. Further, infrastructure shortcomings act as impediments for the software and other industries, and the benefits of technology have not percolated down to the masses of private citizens (Donald 2001a,b). It may be noted, however, that indirect effects of public policy – including an unmistakable element of protectionism and an emphasis on self-reliance – have resulted in the development of indigenous software firms. More recently, however, the government has sought to play a key role by transforming the Department of Electronics (DoE) into the Ministry of Information Technology (MIT), under an able member of the Cabinet, and by setting up Software Technology Parks. However, this is recent and as such it is private rather than public sector initiatives that account for the growth of the software industry in Bangalore (Ramamurthi 2004).

Private sector actions: Some of the most vital private sector actions that facilitated the growth of Bangalore came from foreign players: Texas Instruments and Motorola are often cited as pioneers in this area. Initially seeking low-end coding work to be handled out of their low-cost Indian bases, more and more multinational companies have set up development centres with an ever-growing mandate in terms of the quality of work required (Ramamurthi 2004). One company from Austin, Texas, is rumoured to be paying their Indian professionals in Bangalore the same salaries as their professionals in the United States. Such examples, however, are few and far between, and at this stage cost advantage continues to be a major attraction for foreign firms wishing to outsource labour-intensive parts of their businesses. In addition to the multinationals, Indian firms have also made a significant contribution to developing the software industry. As mentioned already, the most successful firms and their business leaders have emerged as national heroes. Many of them have gained from international networks – primarily involving Indian software professionals and entrepreneurs based in Silicon Valley (Luce 2001). In fact, it is said that one in every three Silicon Valley start-ups was founded or co-founded by an Indian (Murdoch 2000). A vital player in the Indian private sector initiative is the National Association for Software Service Companies (Nasscom), the key

industry body that has taken a strong role both in terms of lobbying the government and representing the Indian software industry abroad in forums such as trade fairs (Arora *et al.* 2001).

The preceding discussion has sought to identify various factors that have led to the emergence of a system of local network relationships, that is, a dynamic cluster in Bangalore. As seen, these factors are a combination of fortuitous circumstances (some historically based) and deliberate public or private sector action. The discussion now turns to the role of local network relationships in the internationalization process, through a discussion of perceived benefits by the four case-firms that were studied in the Bangalore software industry.

The findings from the four case studies suggest a perception of certain benefits accruing from being Bangalore based, which in turn facilitates internationalization – this is a view supported by the received literature. The specific situations of the four firms varied greatly in terms of their origin, domain of expertise and endowment of local network relationships. The following is a brief account of the four firms with respect to their local network relationships.

Ekomate was started in 1996 by a software engineer returning to India following postgraduate study at the University of Texas. His father was also an entrepreneur, albeit in a traditional industry sector, but this has meant strong local business networks. A noticeable effect of this has been the appointment in 2002 of a senior executive of a large software firm as the company's chief mentor; this was a direct consequence of the entrepreneur's (and his father's) local social networks. This chief mentor has been influential in bolstering internationalization efforts and has provided useful foreign contacts of this own. Additionally, *Ekomate* has benefited from unsolicited business from the United Kingdom, which the entrepreneur perceives to be partially a consequence of the effects of Bangalore's reputation with respect to software development.

Mitoken is a unique company in that it was spun off from the Bangalore subsidiary of Motorola created to commercialize technology developed by the CEO and his team of three other directors while they were engineers at Motorola. Thus, in a sense, *Mitoken* was incubated by a multinational subsidiary. As all four managers hold qualifications from prestigious Indian and American engineering and business schools, there currently exist widespread networks both locally and overseas. Further, as a corporate sponsor, Motorola provides strong network ties in India and, potentially, abroad. Such a wealth of relationships has meant that *Mitoken* has adopted a global mindset from inception, although at the time of the interview all business was domestic. This was, however, a deliberate strategy to first perfect the technology with initial customers at home before venturing abroad. Thus, local network relationships with customers were clearly being utilized, albeit indirectly, in the context of internationalization.

New Creation, like *Ekomate*, was started by an Indian software engineer trained in the United States. However, this individual subsequently spent nearly a decade overseas as a software professional, and when he returned to India consequently, he found himself being far better endowed with foreign than local

network relationships. To maximize this advantage, he has sought to focus primarily on international markets, specifically the United States.

Vikas Global Solutions presents the mirror image of New Creation in the sense that its entrepreneur was locally trained with strong local network relationships, but lacked – at least to start with – foreign ties. Consequently, this entrepreneur has always focused strongly on the domestic market; international business has come almost fortuitously and appears to be of relatively less importance in comparison with Ekomate or Mitoken. However, when he had the opportunity to serve foreign markets, he found that he was well placed to do so because of what he perceives as strong infrastructure in Bangalore, relative to other cities of India. Further, he believes that the likelihood of receiving unsolicited international business is higher in Bangalore than in other Indian cities.

The above-mentioned entrepreneurs clearly have different levels of network relationships and utilization of the same. Endowment of these network relationships seems to be largely entrepreneur driven; further, the entrepreneurs' education and prior work experience appear to determine their access to such connections. In terms of utilization or leverage, it appears to be the firms with a clear global mindset that leverage local network relationships, directly or indirectly, with a view to enhancing international competitiveness, thereby facilitating internationalization. Collectively, the four entrepreneurs' views regarding the benefits derived from local network relationships resonate with the literature as briefly discussed in the following text.

First, with respect to reputation, the equity of the 'Bangalore' brand was a recurring theme in the interviews. Especially with international customers, having Bangalore as their address 'makes the job of marketing much easier', in the words of one software entrepreneur. This was particularly the case when certain software 'booms' existed, such as the demand for software to help clients overseas deal with the Y2K (year 2000 problem) – apparently Bangalore was the first stop for many international customers. This is interesting because Bangalore does not boast a significantly larger number of firms than some other regions; in fact, some statistics (Arora *et al.* 2001) suggest that Bangalore had fewer software firms than the National Capital Region (Delhi and surrounding suburbs). Thus, Bangalore has clearly achieved an enviable reputation for its software industry vis-à-vis other Indian cities, and this – as has been discussed in the previous section – has emerged over time as the consequence of a combination of serendipity, entrepreneurial successes and policy efforts. One respondent's first international business contract was the result of a British businessman watching a television programme in the United Kingdom on the Bangalore software industry, which led him to seek out a Bangalore-based software firm through the Internet. Good reputation led to unsolicited orders for another SKIF as well, from Australia. The business this time from Australia was particularly significant for this firm because it did not otherwise have ready access to foreign network relationships, as the entrepreneur had neither worked nor studied overseas. These findings support Brown and Bell's (2001) thesis that clusters lead to externalities such as credibility and reputation.

Second, in relation to quality, a perceived effect of the Bangalore software industry on SKIFs' international competitiveness pertains to support services and infrastructure, which enabled firms to maintain a high level of quality in their offerings. The high standards of quality maintained by Bangalore-based software firms is evident from the fact that approximately half of the world's software companies with the highest international quality ratings⁸ are based in Bangalore (Arora *et al.* 2001). One entrepreneur commented on the ease with which instructions can be given to architects, office equipment suppliers and plumbers as they are well acquainted with the requirements of a typical software office. Reputedly, this level of support service cannot be easily found in other upcoming software centres in India. Related to this locational advantage is the access to computing and communication facilities. The resultant remote electronic access to distant clients is critical to SKIFs' international business activities, especially when they provide real-time service to a customer in, for instance, North America or Europe. In terms of infrastructure, Bangalore city has made noticeable efforts in terms of drainage, cleanliness and garbage disposal and improvement of roads; furthermore, a new international airport is being built. Specifically in relation to internationalization, the presence of suitable infrastructure enhances the confidence of prospective international clients and also attracts foreign players to set up a presence in Bangalore, which could bring with it additional internationalization opportunities for local firms with whom network relationships are formed. One of the respondents was able to gain access in Bangalore to a new type of entity in the Indian software industry, namely, the business development contractor – who would canvass for international business for a set of non-competing clients. Once again, this finding is consistent with the literature (Saxenien 1990).

Third, with regard to cultivating foreign network relationships, it was mentioned during the interviews that networking – albeit primarily informal networking – within the software industry was a useful consequence of being located in Bangalore, and this supports the findings in the extant literature (e.g. Almeida 1999). The opportunities of meeting other entrepreneurs in similar situations are considerable in Bangalore. A few entrepreneurs listed the types of benefits that can accrue from such networking, include effective recruitment, lead generation and general sharing of insights and experiences. Two forums where software entrepreneurs meet were mentioned: one was The Indus Entrepreneurs (TiE) forum, spearheaded by Silicon Valley-based Indian entrepreneurs and the other was the Confederation of Indian Industry (CII) Information Technology panel. Caution must be applied here, however, because such networking can prove to be as much of a problem for entrepreneurs as an opportunity when, for instance, rivals 'poach' good employees from each other. Also, cooperation and sharing of insights may often be superficial and rather basic, given the obsession for confidentiality and secrecy among Bangalore-based software firms. This is consistent with concerns in the literature that the effects of social networks in general (Granovetter 1973) and clusters in particular (Porter 1998b) may not be entirely positive.

Table 6.2 Findings from the four case firms

	<i>Ekomate</i>	<i>Mitoken</i>	<i>New Creation</i>	<i>Vikas</i>	<i>Synthesis</i>
Endowment of local network relationships	Strong ties through family business	Strong local MNC ties through former employer, Motorola; also alumni network	No significant local ties owing to lengthy absence	Strong local ties through conducting business in that market for over six years	Entrepreneur responsible for most network relationships; prior education and work experience are a key source of ties
Leverage of local network relationships	Led to firm's chief mentor, a strong advocate of Ekomate's international business-seeking activities	Led to domestic customers; low-risk opportunity to improve technology before launching overseas	Negligible owing to dearth of relationships	Led to domestic customers, which is the primary focus for this company	Firms that leverage their local network relationships the best (provided they have them) are those with a clear global vision
Role of local network relationships in internationalization	Indirect access to valuable foreign ties through chief mentor; also reputation effects perceived	Indirect access to valuable foreign ties through Motorola	Bangalore's infrastructure is conducive to serving international customers	Bangalore provides good support services and human resources	Benefits that enhance international competitiveness: <ul style="list-style-type: none"> • Reputation • Infrastructure/quality • Networks

Furthermore, the follow-up expert interviews indicated that the benefits accruing from being based within the Bangalore software cluster were often passive rather than active, with little evidence of collaborative marketing efforts or strong inter-linkages to the rest of the economy. This is a cause for concern as it could imply that key local resources are being overlooked and wasted. In the literature, proactive strategies are associated with successful or success-seeking firms (Liao *et al.* 2003) and regions (Beals *et al.* 1995). Asian managers have been found to adopt reactive rather than proactive strategies when faced with an environment that is perceived as hostile or non-conducive to their business (Tan and Litschert 1994). However, this does not generally seem to be the case either with Bangalore locally or the global technology markets that Bangalore-based software firms have traditionally served. Thus, there are clearly warning bells from the experts for the SKIFs in Bangalore that mere proximity to important local network relationships is not enough (Martin and Sunley 2003; Romijn and Albu 2002).

Finally, it must be borne in mind that the importance of proximity to other actors within a cluster or innovative milieu as emphasized in the (developed country) literature, must be 'balanced' by cultural factors in developing countries such as India, as manifested by the importance of family and ethnic networks.⁹ For instance, there appear to be significant links between Bangalore-based software firms, both Indian and multinational, and the Silicon Valley cluster through technologists of Indian origin based in that region (Saxenian *et al.* 2002). An important link is provided by such Indian professionals returning to India, with 45 per cent of those based in Silicon Valley expressing an intention to do so eventually (Saxenian *et al.* 2002). A recent study has estimated that the preferred destination for these returning Indians is Bangalore (Leclerc 2004). Also, as already mentioned, the networking organization TIE provides useful connections between Indian professionals in the West and their counterparts in India. Ethnic ties can result in ethnic social capital, which has both bonding (in terms of ethnicity) and bridging (in terms of geography) properties, and is therefore of great potential value to resource-constrained firms in the home country (Prashantham 2006). Of course, this phenomenon is not surprising in light of Asian firms' acknowledged propensity to leverage network relationships, as noted at the outset. Thus, in the Asian context, Western models of clusters should be supplemented and moderated by cultural influences such as ethnic ties.

Conclusions and implications

This study has sought to contribute to an understanding of the phenomenon of SKIF internationalization in two ways. First, it has focused on local network relationships, which is a relatively neglected area in comparison with network relationships located overseas. Second, it has considered a developing economy context, on which there is generally a dearth of literature. Four case studies that were conducted in an Asian setting, namely, the Bangalore software industry, suggest that important benefits – particularly pertaining to reputation, quality

and networks (including foreign ones) – do accrue to SKIFs in a developing economy. However, subsequent expert interviews highlighted the disturbing passiveness that generally characterizes the accrual of such benefits by these firms. This observation is a vital one and leads to several vital implications, considered in the following paragraphs.

In normative terms, a key implication for SKIFs is that there should be conscious leverage of spatially concentrated *local* network relationships; it may well be the case that SKIFs are overlooking significant resources that are ‘right under their noses’. These local network relationships could lead to international business opportunities, thereby compensating for a firm’s lack of foreign network relationships. There are several practical ways in which this can be achieved. There needs to be wider and more intensive utilization of valuable local forums such as industry bodies. In particular, efforts should be made to build ties with ethnic entrepreneurs in overseas markets, particularly in regions like Silicon Valley, which are at the cutting edge of technology; this of course is easier for certain countries (e.g. China, India and Israel) than others. As seen from (the somewhat extreme) case of Mitoken, potentially useful relationships can be fostered with local multinational subsidiaries (Enright 2000; Zhou and Xin 2003). Equally, ties can be usefully built with other local, domestic firms; SKIFs should seek to leverage economies of scale through efforts such as collaborative marketing (Brown and Bell 2001).

From a policy perspective, an intriguing challenge relates to how developing countries such as India can foster the development of more clusters like Bangalore. While historical factors, such as the linguistic benefits of colonial rule, cannot be reversed, the Bangalore experience does suggest that non-interference with entrepreneurial activities, a clear governmental commitment and the provision of infrastructure (such as the Software Technology Parks of India) can be great facilitators. Indeed, aspiring clusters should also be encouraged by the emerging success of other Indian cities like Hyderabad, which has received very strong governmental support in recent years (Leclerc 2004). Policy makers should make efforts to enhance the international reputation of clusters and, perhaps more importantly, to facilitate the accrual of active benefits for the internationalization of clusters’ constituent firms. Additionally, of concern to policy makers in developing economies, such as India, should be the enhancement of the knowledge intensity of SKIFs so that they move up the value chain to compete for higher-value business from abroad and avoid becoming vulnerable to cost-based competition from other emerging economies, such as China.

In terms of theory development, clearly more scholarly work is required, involving larger samples and quantitative methodology, to provide generalizable findings on the role of clusters in the internationalization of SKIFs, particularly in a developing economy context. Issues of interest that could be explored are

- the differences in propensity to internationalization between SKIFs located within clusters and ones that are not;
- comparisons of developing economy clusters (e.g. Bangalore) with developed economy ones (e.g. Silicon Valley);

- the influence of MNC subsidiaries within a cluster and inter-cluster links on SKIF internationalization.

As for the last mentioned point, it could well be that there is an interesting phenomenon in terms of the link between the Bangalore software industry and Silicon Valley, with its strong Indian presence; this is an issue warranting further research. In summary, consistent with the managerial recommendations mentioned, the most valuable research will seek to unpack the conditions under which local network relationships are leveraged actively, effectively and creatively; herein may lie an important key that unlocks the potential for developing economy SKIFs to become world-class, globally competitive players.

7 Foreign networks and internationalization

Prashantham, S. (2006) 'Foreign network relationships and the internationalization of small knowledge-intensive firms', *International Journal of Entrepreneurship and Innovation Management*, 6(6): 542–553.

Abstract

This chapter discusses the role of network relationships in the internationalization of small knowledge-intensive firms (SKIFs) by specifically highlighting their foreign, spatially scattered network relationships, which can be a significant resource. The following two issues are dealt with: how foreign network relationships are developed and the impact they have on the internationalization of SKIFs. This chapter focuses on the Indian software industry and cites the example of four case-firms in Bangalore. Three effects of foreign network relationships on the internationalization of SKIFs, namely, opportunities, information and advice are noted. Managerial implications include the importance of leveraging network relationships proactively and with discernment.

Introduction

Over the past decade, the internationalization literature has reported cases of accelerated internationalization where the traditional stages of internationalization (Johanson and Vahlne 1977) were truncated or skipped (Bell *et al.* 2001; Wright and Etemad 2001). An important explanation that emerged for this pertained to the role of network relationships. For instance, network relationships could lead to client followership (Bell 1995), that is, a firm's client in a foreign market may open a subsidiary in a third market, leading the firm to follow suit with a view to servicing the client in that new market. Alternatively, an international client may provide useful trade leads in that foreign market.

The role of network relationships has been particularly associated with the internationalization of small knowledge-intensive firms (SKIFs)¹ (Coviello and Munro 1997; Dimitratos *et al.* 2003; Jones 2001), which seems entirely consistent with the characteristics of such firms (Prashantham and Berry 2004a) that are renowned for their networking abilities (Jones 1999). While their small size (resource poverty) warrants extensive networking with other firms possessing complementary resources (Gnyawali and Madhavan 2001), their knowledge intensity calls for a constant focus on innovation, which in turn is often greatly facilitated by collaborative network relationships (Baum *et al.* 2000). The inter-

nationalization of SKIFs is often distinctive as a consequence of its rapidity, the strategic imperative to be global from the outset and consequent technological learning; consequently, this phenomenon has attracted interest among managers, policy makers and academics (Acs *et al.* 2001). The network relationships influencing SKIF internationalization may be spatially concentrated or dispersed (Bell 1995; Coviello and Munro 1997). This chapter deals with the latter kind of network relationship, that is, *foreign, geographically scattered relationships*. Such relationships, it is argued here, are an important international resource that SKIFs often exploit in relation to their internationalization. Given the relative dearth of literature on internationalization in a developing economy context (Ibeh 2003), this chapter reports exploratory research conducted among SKIFs in Bangalore, India. A developing country context can be of interest to scholars because the resource poverty of SKIFs, a driver of the leverage of network relationships, is even more acute than that in developed economies; consequently, the insights that emerge from such a setting could be innovative and of interest to practitioners.

This chapter is structured as follows: the next section synthesizes relevant literature, the one following that discusses the research methodology used, the penultimate section reports the findings of four case studies of small Indian software firms and the final section concludes with some implications for further research, practice and policy.

The development of foreign, spatially scattered network relationships

A useful theoretical foundation for this study is social capital theory, the central tenet of which is that actors (including firms) exist in the context of, and draw resources from, their social relations (Adler and Kwon 2002; Burt 1997; Coleman 1988; Putnam 2000). In the context of small entrepreneurial firms, it is seen that social networks often provide owner-managers with access to critical resources, not available internally within the firm; the personal network of the owner-manager is perhaps the most important resource upon which he or she can draw, especially in the early stages of a firm's existence (Ostgaard and Birley 1994). Such networks are a source of advice, information and reassurance, and informal network relationships are much more predominantly used (Birley 1985). BarNir and Smith (2002) suggest that senior executives' social capital may account for as much as 20 per cent of the variance in the degree to which their (small) firms enter into alliances; as they state, '[E]xecutives' networks are particularly beneficial to small firms and to businesses with limited resources because the network constitutes a resource – a form of (social) capital – that may compensate for the lack of other resources' (221). Social capital is particularly useful in managing ambiguity arising from imperfect information about prospective business partners. According to Rangan (2000: 813), '... when actors need to but cannot, independently or via market mechanisms, cost-effectively ascertain the identity and reliability of potential exchange partners, then scope exists for social networks to appreciably and systematically

influence efficiency'. Thus, social capital theory, which suggests that firms – and especially resource-constrained firms – 'should pursue strategies focusing on the development of valuable networks with external resource holders in order to succeed' (Lee *et al.* 2001: 616) is very relevant to the discussion in this chapter.

In the context of internationalization, valuable social capital emanates from foreign network relationships (Johanson and Vahlne 2003). How do foreign network relationships arise? The extant literature points broadly to two main sources: (a) the firm itself (Johanson and Mattson 1988) and (b) the firm's top management team or entrepreneur (McDougall *et al.* 1994). For a firm, foreign network relationships arise from its cross-border activities; for instance, the customer base has been identified as an important source of network relationships (Coviello and Munro 1997). For an entrepreneur, whose contact base is often a key influence on the firm's internationalization (Madsen and Servais 1997; Wiedersheim-Paul *et al.* 1978), two chief sources of foreign network relationships are (a) educational and (b) professional experience in a foreign country. Additionally, having been raised in or having visited a foreign land on holiday may also be sources of such relationships (Ibeh 2003). The significant role played by the entrepreneur implies that the burden on the entrepreneur of acquiring and nurturing spatially scattered network relationships for SKIFs is a heavy one.

The role of foreign network relationships in internationalization

According to the network approach to internationalization (Johanson and Mattson 1988; McNaughton and Bell 1999), international business opportunities and decisions are driven primarily from relationship considerations. Various studies have adopted or identified a similar approach to internationalization, especially in relation to SKIFs (Bell 1995; Coviello and Munro 1997; Lindell and Karagozoglou 1997; Madsen and Servais 1997; Oviatt and McDougall 1994). Drawing on this literature, three aspects of the facilitative role of foreign network relationships in SKIF internationalization can be identified: (a) the creation of *opportunities* for new international business through, for instance, client followership; (b) the provision of *information* such as trade leads and (c) the provision of *advice* on, for instance, the most appropriate timing of entry into a new market. Networks may sometimes expand as a consequence of serendipity (Meyer and Skak 2002); nonetheless, irrespective of their origin, network relationships have the potential to greatly facilitate internationalization (Lindell and Karagozoglou 1997). However, network relationships could be a double-edged sword (Mitsuhashi 2003); the small software firms that Coviello and Munro (1997) studied received, but were also denied, opportunities for internationalization, to the extent that mobility *across* networks (i.e. cliques) of firms was restricted or rendered difficult.

Methodology

Given the dearth of literature on SKIF internationalization in a developing economy context, the objective of this chapter is to provide insight into the role of foreign network relationships in the internationalization of small Indian software firms. India has a large economy with a well-known information technology industry, but is clearly a developing country marked by widespread poverty and great disparities in income. As such, an inductive case-based approach was deemed appropriate, given the exploratory nature of this study (Eisenhardt 1989; Yin 1994). During the summer of 2002, case-based research was conducted among four small Bangalore-based software firms – Ekomate, Mitoken, New Creation and Vikas Global Solutions. Purposive sampling was undertaken to provide four firms that varied across two variables: level of internationalization (where an export intensity of 50 per cent or above was taken as indicating a high level of internationalization) and age (where less than six years of existence was taken as indicating a young firm), as shown in the table below. All the four firms accepted to be interviewed and were willing to be identified. Their CEOs (also founding entrepreneurs) were interviewed for 90 minutes on average, and additional material about the firm (brochures, Web sites, etc.) were studied.

Development of foreign network relationships for the four firms

Ekomate was established in 1996, when Internet technology was still nascent, by a software engineer who had been trained in Austin, Texas, and had worked on this emerging medium at Intel in the United States. This entrepreneur has the advantage of prior education and work experience in the United States and, therefore, network relationships in that market. However, *Ekomate*'s first international contract was fortuitous, and came from a British firm that found the firm's Web site on the Internet. The motivation to be international was nonetheless a conscious one and the vast majority (90 per cent) of the firm's revenues emanate from overseas. This interest in international business received further impetus when *Ekomate* appointed as chief mentor a retired senior manager with considerable experience within the Indian software industry and with whom the

Table 7.1 Sample of four small Indian software firms

		<i>Level of internationalisation</i>	
		<i>Low</i> (<i>< 50% export intensity</i>)	<i>High</i> (<i>≥ 50% export intensity</i>)
<i>Firm age</i>	<i>Young</i> (<i>< 6 years</i>)	Mitoken	New Creation
	<i>Old</i> (<i>≥ 6 years</i>)	Vikas	Ekomate

entrepreneur had a prior social relationship. The new chief mentor has exhorted Ekomate's owner-manager to further increase the firm's internationalization activities and has offered to make some of his own contacts in the United States available to the entrepreneur. The entrepreneur was also encouraged to proactively explore other non-US markets, such as the United Kingdom and New Zealand.

Mitoken is a rare example of a small Indian software firm that is a 'pure-product player' – it only develops and markets software products, rather than offering software services, as do the majority of Indian software firms. It was spun off from Motorola's Bangalore operations, and is now an independent entity. However, the firm's founders retain strong social and professional ties with senior managers at Motorola who act as mentors. *Mitoken*'s motivation for internationalization lies in the global market potential for its offering (a software product targeted at software companies), and the small size of the domestic market. It is also an example of a SKIF that has considerable access to network relationships in the United States, given the educational background of the founders (trained in the United States or in prestigious Indian universities, many of whose alumni subsequently emigrate to the United States) and their close association with a large US multinational, from which *Mitoken* was spun off. However, at the time of the interview, the firm had no international business, owing to a conscious decision to first perfect their product in the domestic market. A strong intention to internationalize over the following year was expressed; the United States would be the first target market owing to its market potential as well as the extensive US-based contacts of the entrepreneurs.

New Creation is another firm with similarly strong American connections, given the fact that the founder entrepreneur lived in the United States for ten years prior to setting up the firm. The firm was started when he, a software engineer, decided to return to his hometown Bangalore for personal reasons. The firm is small, having fewer than ten employees. Due to his long absence from India, the entrepreneur has little desire to look for domestic business. Thus, this is an example of a firm that is entirely international from inception, and the motivation to be international stems from a lack of familiarity with the domestic market; as such, it appears to be an atypical case for an Indian SKIF with an Indian founder. The main projects to date for this firm are from the United States, and these directly emanated from former clients that the entrepreneur worked with at his former company. Clearly, therefore, network relationships have been utilized for international market entry and development. The entrepreneur is well aware that his connections in the United States are limited to his previous professional circle. At the time of the interview, he had therefore registered with an intermediary that matches Indian software firms with international, and especially American, clientele. This entrepreneur had, however, no business through this means and was considering the use of so-called new business agents who visit foreign markets on a business development mission, typically representing more than one non-competing Indian software firms. In other words, this entrepreneur has considered acquiring foreign network relationships contractually.

The strong American connection of the firms mentioned so far is in direct contrast to the situation of *Vikas Global Solutions*. This firm was started in the mid-1990s by an engineer who had no desire to work for anyone else and entered the software industry as it promised to be a growing one with the opportunity ‘to be innovative’. However, he is locally trained and his business interests are primarily domestic; even today, the majority of his revenues come from within India. It was an unsolicited contract from Australia that brought in any motivation at all for international activities’ as ‘brought in some motivation for international activities. Having experienced the benefits of international business (such as higher margins and highly professional clients), the entrepreneur has subsequently made conscious efforts to obtain additional overseas contracts. He has deemed it best to avoid the American market given his lack of network relationships in that market, and is instead seeking to develop less popular or competitive markets such as South Africa. His biggest overseas market at present remains Australia, and it seems more than mere coincidence that this market was the source of his first international deal. This suggests that the firm’s initial Australian contacts have been exploited, which presents a case of foreign, geographically scattered network relationships being leveraged for international market consolidation.

Role of foreign network relationships in the four firms’ internationalization

The insights that emerged from the experiences of the four small Indian software firms, discussed above, mostly resonate with the received literature (Table 7.2). First, with respect to *opportunities*, one of the firm’s (New Creation) internationalization was purely based on contracts received from the entrepreneur’s former employer and clients in the United States. No instance of client follow-ship was reported, but that is perhaps explained by the mostly offshore nature of the work done by the SKIFs that were interviewed; it seems plausible though that as clients’ international operations expand, so will the amount of software development outsourced to these SKIFs. Second, in relation to *information*, it appears that at least two firms (Vikas and Ekomate), whose first contract from Australia and Britain, respectively, was unsolicited, made inroads into those two markets based on trade leads provided by their initial client in those markets. Another instance of information gleaned from foreign network relationships pertains to the lead received by one of the respondents from a former colleague that Korea had a high demand for that firm’s offering. This entrepreneur is unlikely to have received this information from more conventional sources of information in India. Third, in terms of *advice*, Mitoken reported having received useful guidance from a former MBA classmate in the Bay Area, San Francisco, about when to approach (or not approach) venture capitalists. The foregoing discussion is summarized in the following text.

Further, in agreement with the literature, it was evident that entrepreneurs themselves are the most vital source of foreign network relationships, largely a

Table 7.2 Findings from the four case firms

	<i>Ekomate</i>	<i>Mitoken</i>	<i>New Creation</i>	<i>Vikas</i>	<i>Synthesis</i>
<i>Endowment of foreign network relationships</i>	Strong ties with former colleagues in the US	Strong ethnic ties through b-school network; also Motorola ties through former employer	Strong ties with former colleagues/clients in the US	No significant foreign ties owing to lack of exposure/contacts	The entrepreneur is responsible for most network relationships; prior education/work experience are key sources
<i>Leverage of foreign network relationships</i>	Some business gained (US); supplemented by ties arising from unsolicited business from the UK	No international business accrued, largely owing to a deliberate initial focus on the domestic market	All the business gained from the US through leveraging ties with former colleagues/clients	Initially not possible; unsolicited Australian customer subsequently leveraged however	Extent of leverage is not necessarily related to endowment; when leveraged, ties beget further ties
<i>Role of foreign network relationships in internationalization</i>	A direct source of business (opportunity); additionally, useful trade leads (information)	A source of information and advice (regarding potential opportunities and decisions)	A direct source of business (opportunity)	Unsolicited new ties yielded useful trade leads (information)	Benefits that enhance international competitiveness: <ul style="list-style-type: none"> • Opportunity • Information • Advice

consequence of prior education and professional experience. Thus, for SKIFs, the network-generating burden on the entrepreneur is considerable. The *endowment* of such connections are, however, non-uniform, and entrepreneurs may have to adjust their ambitions to suit their stock of foreign network relationships; alternatively or additionally, they may have to innovatively *leverage* the contacts of their own contacts. For instance, a customer base, once developed, can further lead to network relationships being established with third parties (Lee *et al.* 2001); this behaviour is clearly seen in the case of Vikas and Ekomate. It thus seems reasonable to expect that network relationships beget network relationships – when leveraged skilfully – and that more internationalized firms have more varied and extensive network relationships. Building on the concepts of endowment and leverage of network relationships, the following typology of firms is suggested, the normative implication of which is that firms should seek to be proactive networkers or effective networkers; the former should progressively transform themselves into the latter category by expanding their contact bases.

In terms of the level of internationalization, there seems to be a clear difference with respect to the source of foreign network relationships – both the highly internationalized firms have entrepreneurs who have studied and worked in the United States, while the other two entrepreneurs were locally trained in India. Between the latter two as well, there is a clear difference between the Mitoken CEO who has an MBA from a reputed business school and work experience at an MNC, which suggests that it is only a matter of time before his networks are activated; in the case of Vikas, however, the CEO has a more commonplace education in India and, clearly, has little to draw on by way of foreign network relationships, except his extant customer base in Australia, the origin of which is serendipitous. In terms of the age of firm, no prominent difference was noted.

An interesting finding is the manner in which the entrepreneurs dealt with a lack of foreign network relationships where they had none. When the entrepreneur had no international contacts to start with (as in the case of Vikas), the main course of action was the avoidance of the more competitive markets of the United States and western Europe in favour of less-exploited (and less-lucrative) markets such as Australia. Of course, its situation was considerably facilitated by serendipity in the form of unsolicited custom from Australia, which he then leveraged to obtain other Australian contracts. When entrepreneurs sought

Table 7.3 Typology of small knowledge-intensive firms

		<i>Endowment of network relationships</i>	
		<i>High</i>	<i>Low</i>
<i>Leverage of network relationships</i>	<i>High</i>	Effective networker	Proactive networker
	<i>Low</i>	Passive networker	Non-networker

network relationships in specific new markets like Britain, at least two approaches were observed. The first, as in the case of Ekomate, was to leverage existing network relationships – both local and foreign – in an indirect fashion, that is, trying to establish contact with British contacts of their own network relationships. The second, as in the case of New Creation, was to hire business development agents; in effect, therefore, network relationships were sought at a monetary cost. This second approach appeared to be in its nascent stages, and its efficacy remains unclear at this juncture.

Finally, it has been pointed out in the discussion of the literature that network relationships can be a mixed blessing – both opportunity rich and yet potentially constraining. A comment made by one respondent highlights the need for vigilance and discrimination on the part of SKIFs while leveraging their network relationships. According to him, his firm had accepted every single opportunity that came its way from foreign network relationships – whether or not the required software development dealt with domains of expertise that the firm wanted to specialize in. As a consequence, although the firm is profitable, its image in the marketplace is diffuse in terms of its area of expertise. This firm's opportunism, while understandable in the context of a need for survival, is illustrative of the relatively negative consequences of international business opportunities gained from network relationships.

Implications and conclusions

From a managerial perspective, the foregoing discussion suggests that in relation to the facilitative role of foreign network relationships in the internationalization of SKIFs, a developing country like India is no different from any other. If anything, resource constraints make the leverage of networks even more imperative. Three implications for managers can be identified. First, network relationships should be *proactively* leveraged. A key insight from the study is the distinction between *endowment* and *leverage* of network relationships. Vikas provides a good example of a firm that transformed from being a non-networker to a proactive networker, with the advent of (serendipitous) business from overseas. In due course, it should seek to enhance its network and become an effective networker. Second, also related to the Vikas example and to that of Ekomate, *serendipity* should be exploited, when it occurs. While serendipity, by definition, cannot be planned for, opportunities arising from fortuitous developments should be speedily recognized and effectively exploited. Third, foreign network relationships can be sought for, indirectly, through *local* network relationships, as seen in Ekomate's access to the Bangalore-based chief mentor's overseas connections and Mitoken's access to American contacts through Motorola's Indian subsidiary. The point being made, overall, is that while a large endowment of network relationships per se is not a guarantee of success, a poor endowment can be no excuse. Furthermore, there should be greater attempts at leveraging economies of scope – in other words, SKIFs should enhance the returns, in terms of business itself or information such as trade leads, from

extant network relationships. On a note of caution, *more* social capital is not necessarily *better*; thus, discernment in leveraging network relationships is required. This includes wisdom in judging which network relationships to leverage and to what extent.

From the perspective of advancing theory, further research on a larger scale utilizing quantitative analysis is encouraged. It is pointed out that the sample for this chapter was taken from Bangalore, the city most associated with the software industry in India. It may therefore be well worth comparing a sample of small software firms in Bangalore with one from another region – the National Capital Region (Delhi area) or Hyderabad – to see whether location has an impact on access to foreign network relationships. Alternatively, a sample of Indian software firms could be compared to one from a developed economy context (Ireland or the United States), and a comparison made of how foreign networks are leveraged; this could be related to differences in firm-level factors as well as macro-environmental factors such as infrastructure, policy, size of domestic market or culture (e.g. individualistic versus collectivist cultures). Other questions that remain to be explored include the following: Does the leverage of network relationships in international market entry and development vary with firms' size, knowledge intensity and market knowledge? What types of network relationships are particularly amenable to formalization through strategic alliances or joint ventures?

In terms of policy making, governments of developing economies such as India should follow the lead of developed economies (McNaughton and Bell 1999) to enhance opportunities for SKIFs – and indeed all exporting firms – to establish network relationships in overseas markets. Such efforts should be made increasingly outside the United States, particularly in key European markets, to mitigate the ill effects of a slowdown of the US economy. Initial meetings can and should be facilitated through trade bodies' market visits. In addition, policy-makers should provide training and mentoring programmes that will enhance SKIFs ability to successfully leverage their network relationships. A potential, but largely overlooked, bridge between Indian and Western (especially European) firms is ethnic Indian firms, that is, run by entrepreneurs of Indian origin in Western markets; policy measures to facilitate such linkages is worth considering and exploring further. Ultimately, what is most important for managers and policy makers alike is that networks on their own count for nothing; yet, when leveraged meaningfully, they can be a source of mutual benefit to the actors in the network. Achieving win-win outcomes should be the goal of SKIFs in India and, indeed, of firms anywhere in the world.

8 The Internet and internationalization

Prashantham, S. and Young, S. (2004) 'The Internet and the internationalization of small knowledge-intensive firms: promises, problems and prospects', *International Journal of Entrepreneurship and Small Business*, 1(1/2): 153–175.

Abstract

This chapter presents some exploratory insights; it is based on case studies, supplemented by a preliminary quantitative study from a developing economy context (i.e. the software industry in Bangalore), concerning the role of the Internet in the internationalization of small knowledge-intensive firms (SKIFs). Three main points are made in this chapter. First, the Internet holds great promise in facilitating the internationalization of small firms – especially those in peripheral regions like developing economies; the four Bangalore-based small case-firms shared this view. Second, Internet technology notwithstanding, traditional aspects of business such as the importance of face-to-face interaction and the building of trust remain vital; here a potential facilitator for small firms to overcome this barrier comes in the form of Internet-supported intermediaries. Third, ultimately the prospect that the Internet holds for internationalizing resource-poor firms is that of international growth; a preliminary study of 30 Bangalore-based small software firms suggests that this notion holds credence and is worthy of further study, on a larger scale. These findings have implications for future research, practice and policy making in terms of taking a holistic view of the use of Internet technology and the leveraging of social capital.

Introduction

According to Parasuraman and Zinkhan (2002: 287), 'Internet technology has the potential to alter almost every aspect of business operations'. Developments like the Internet compel business researchers to revisit the adequacy of existing conceptualizations to accommodate its role. The sub-field of small firm internationalization is no exception (Dana *et al.* 2004). Some light is sought to be shed through this chapter on the role of the Internet in the internationalization of small knowledge-intensive firms (SKIFs), an issue that is vital both for practitioners and policy makers seeking to understand how Internet technology can best be utilized to facilitate internationalization efforts. The chapter addresses the following research question: how can the Internet influence the internationalization of SKIFs? It does so by examining the relevant literature and

four case-firms in the Bangalore software industry, which suggest the proposition that *small knowledge-intensive firms that apply the Internet intensively will achieve greater international growth than those that do not*. Preliminary support for this proposition based on data from 30 Bangalore-based software firms is presented. Part of the contribution that this chapter makes is the use of a developing economy context for the empirical setting, where there is generally a dearth of literature (Zafarulla *et al.* 1998).

As indicated, the specific type of firm behaviour of interest to this chapter is internationalization, the ‘process of increasing involvement in international operations’ (Welch and Luostarinen 1988), with special reference to SKIFs. More specifically, the focus is on outward, market-seeking internationalization. In the context of SKIFs, network relationships are known to influence, and often accelerate, their internationalization, resulting in a growing interest in this phenomenon among scholars (Coviello and Munro 1997). The Internet potentially lowers the cost of accessing and leveraging network relationships, by facilitating the enhancement of firms’ visibility, efficiency and intimacy, with respect to their network relationships (Prashantham and Berry 2004b). The Internet’s ease of use, universal standards and remote electronic access result in tools for communication and information sharing (Morgan-Thomas and Bridgewater 2004), enhancing visibility; in collaboration and commerce (Tiessen *et al.* 2001), enhancing efficiency and in communities and privileged-access networks (Tapscott 1999), enhancing intimacy. The Internet was expected to level the ‘playing field’ for resource-constrained firms, and some authors saw the Internet as a means through which small firms in a developing economy context could compete on a global basis with their developed-world counterparts (Quelch and Klein 1996). This argument is explored here through the synthesis of relevant literature and the findings of an exploratory study, comprising case studies that are supplemented by a preliminary quantitative study, conducted among small software firms in a developing economy context. The remainder of the chapter is structured as follows: the next section contains a review of relevant literature, followed by a brief discussion of the methodology employed in this study, after which findings are presented and finally some conclusions and implications are drawn out for academics, practitioners and policy makers.

Internationalization of small knowledge-intensive firms

The growth of the firm constitutes an area of interest for scholars in fields as diverse as economics, strategy, entrepreneurship and marketing. A key source of growth – particularly in an environment with strong globalization drivers – is market-seeking internationalization and subsequent international growth (Jones 2001; Luostarinen 1980; Young *et al.* 1989). Widespread criticism notwithstanding, a useful starting point in the conceptualization of internationalization is Johanson and Vahlne’s (1977) Uppsala model of internationalization, which essentially posits that firms’ internationalization increases as their *foreign market knowledge* does, which has been confirmed as being crucial (Eriksson *et al.* 1997). The role of market knowledge is that of a resource regulator; as this

knowledge grows, so does the amount of resources allocated to a foreign market (Yli-Renko *et al.* 2002). Another source of knowledge that has been posited as being positively associated with a firm's internationalization is its *knowledge intensity* (Oviatt and McDougall 1994). Knowledge intensity leads to greater internationalization given that knowledge-intensive firms have a basis for introducing products and services to the market in the first place, and knowledge is globally mobile (Oviatt and McDougall 1994; Yli-Renko *et al.* 2002). The positive relationship between knowledge intensity and internationalization has been subsequently proved empirically by Autio *et al.* (2000). The role of network relationships in influencing – and often accelerating – internationalization is seen in the literature (Coviello and Munro 1997). As noted by Johanson and Mattsson (1988) – and several authors thereafter (e.g. Chetty and Holm 2000; Coviello and Munro 1997) – a firm may receive useful information and knowledge about foreign markets and opportunities therein from customers, suppliers or other network relationships. This strand of the literature is not necessarily at odds with the Uppsala model, as the importance of network relationships has been acknowledged by Johanson and Vahlne (1990, 2003). Indeed, there are growing calls for an integrative approach to the fragmentary internationalization where the role of market knowledge, knowledge intensity and social capital are incorporated (Bell *et al.* 2003; Yli-Renko *et al.* 2002); such an approach is adopted here.

SKIFs are of particular interest to scholars of small firms' internationalization owing to their often proactive and accelerated internationalization (Bell *et al.* 2004a; Coviello and Munro 1997; Young 1987). A synthesis of the literature on small firms and knowledge-intensive firms leads to the following definition of a SKIF: *A small knowledge-intensive firm is a small¹ firm, the majority of whose employees comprise a highly qualified workforce, which is its most important resource, and is engaged in knowledge work – meaning that knowledge is inherent in the firm's main activities – as its central preoccupation.* Drawing on this definition of a SKIF, four influences on the internationalization of SKIFs can be identified, explicitly or implicitly: size (smallness), knowledge intensity, the environment and the entrepreneur (McNaughton 1996; Oviatt and McDougall 1994). A common thread running through the literatures on all these aspects is the vital role of network relationships, that is, relationships with customers, suppliers, competitors, alliance partners, universities, government bodies, industry associations, and so on. The motivations for these include resource-poverty and competitive considerations arising from market pressure to innovate (Bell 1995; Jones 1999); indeed, a focus on innovation is especially important for internationalizing firms (Acs *et al.* 2001). Not surprisingly therefore, network relationships are found to be a key driver in the internationalization of SKIFs. A criticism of network-based approaches is that they are more descriptive than theory-based ones; in this regard, conceptualizing the role of network relationships in terms of *social capital*, a concept of growing interest and application for business scholars, promises to offer a fruitful approach for future research (Adler and Kwon 2002).

In the context of network relationships it is useful to consider the subject of clusters, given issues of common interest between network theory and cluster

theory. Clusters, according to Porter (1998a: 199), are ‘geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (for example, universities, standards agencies, and trade associations) in particular fields that compete but also cooperate.’ Local rivalry pushes firms to greater innovation and success (Enright 1998; Porter 1998b). Themes common to network and cluster literatures include the coexistence of competition and cooperation (Kogut 2000; Porter 1998b); interdependence of firms, resources and activities (Enright 1998; Johanson and Mattsson 1988); the potential of network resources to contribute to competitive advantage (Gulati *et al.* 2000; Porter 1998b); the importance of free flow of information to build inter-firm bonds (Johanson and Mattsson 1988; Saxenien 1990) and the facilitative role that public policy can play (Enright 1998; Welch *et al.* 1998). The discussion on clusters indicates that internationalizing SKIFs are likely to leverage not only foreign network relationships (Coviello and Munro 1997) but also local ones (Brown and Bell 2001). Thus, it is seen that the network relationships influencing internationalization may be both spatially concentrated and local or spatially scattered and foreign. In general, it is noted that relatively little is known about the role of these networks in a developing economy context (Zafarulla *et al.* 1998); furthermore, the role of recent technological developments like the Internet has not been extensively considered, as seen in the following section.

The Internet and the internationalization of small knowledge-intensive firms

In the preceding section, the point was made that network relationships have a strong influence on the internationalization of SKIFs. In this section, extending the work of Prashantham and Berry (2004b), it is argued that the Internet offers applications that facilitate network relationships, enabling firms to interact more widely and intimately with other actors, including customers, suppliers and collaborators. The literature on the Internet has evolved substantially from the days when incumbent firms were seen as having failed to come to terms with the new technology.² The role of Internet technology has been recognized in the mainstream business literature; according to Porter (2001: 64), ‘The key question is not whether to deploy Internet technology – companies have no choice if they want to stay competitive – but how to deploy it’. In the context of small firm internationalization it has been suggested that ‘technological advances . . . in telecommunications – especially the Internet – allow even the smallest firms access to customers, suppliers, and collaborators around the world’ (Wright and Etemad 2001: 151). Yet, extant understanding of the role of the Internet in small firm internationalization is nascent (Brock 2001; Prasad *et al.* 2001). While this may in part be because small firms have only recently begun to embrace Internet technology (Tiessen *et al.* 2001), relatively few empirical studies of this phenomenon with strong theoretical underpinnings are available. A brief review of the Internet-related literature on internationalization is offered below.

Authors such as Quelch and Klein (1996) foresaw potential benefits for the internationalization efforts of small firms. They argued that the Internet was poised to revolutionize the way international marketing was taught and practised, including in developing economies. According to Quelch and Klein (1996: 62), 'Because distribution channels tend to be less developed, less direct, or less efficient in emerging markets than in the United States, the Internet may offer special opportunities in these markets.' Their work was closely followed by similar articles that made related points from researchers such as Bennett (1997), Hamill (1997), Hamill and Gregory (1997), Poon and Jevons (1997) and Samiee (1998). This was a period when these researchers seemed to be coming to terms with the fact that the Internet was being commercialized, and the primary thrust of their articles was the unprecedented opportunities for smaller firms that the Internet provided to overcome several of the barriers that may have hindered their internationalization potential and efforts in the past. Subsequent work indicates that the adoption of Internet technology is indicative of an entrepreneurial orientation (Knight 2001) and may constitute an 'episode' that leads to rapid internationalization thereafter (Bell *et al.* 2001). It may be noted, however, that this new literature is, surprisingly, not substantial at all; particularly little empirical study has been done (Brock 2001; Prashantham and Berry 2004b).

Of the relatively few empirical studies in this area, the work of Hamill and Gregory (1997) and Bennett (1997) are among the earliest and reveal that exporters and among them, younger firms were more inclined to adopt Web sites as an internationalization tool. Berthon *et al.*'s (1999) exploratory study of small international service firms indicated that the Internet was perceived as providing significant opportunities to target international markets while overcoming some of their traditional barriers to internationalization. Lituchy and Rail (2000) found similar optimism among small inns and bed and breakfasts in Canada and the United States who thought of the Internet as a relatively inexpensive form of marketing with global reach; however, using Web sites had also made them more aware of their own deficiencies, such as a lack of multilingual staff and competition from larger, better-known players. It further emerged that some of the respondents were afraid of the new technology and were in urgent need of training. Brock (2001) found in his study of German small technology-based firms that the Internet had a positive impact on attitudinal, resource-related, information-related and network-related aspects of internationalization, thereby facilitating the process; however, internationalization continued to follow an incremental path, the Internet notwithstanding. Prasad *et al.*'s (2001) study of American manufacturing firms involved in exporting suggests that firms' integration of Internet technology with their marketing activities has a positive impact on export performance when marketing orientation is leveraged. Tiessen *et al.*'s (2001) study of 12 case studies indicates that Internet adoption by smaller firms is driven by a host of factors including dramatic market changes, industry norms and firm characteristics. Kim (2003) found that internationalizing Internet firms in the United States sometimes did follow an incremental approach in entering foreign markets, while Morgan-Thomas and Bridgewater's

(2004) study of British exporters suggests that effective usage of even basic Web sites could lead to significantly higher international revenues.

For a subject that generated the excitement that it did a mere seven years ago (Quelch and Klein 1996), the extant academic literature on the Internet and small firm internationalization appears rather thin. Much of the Internet-related literature has emanated from *practitioners* rather than academics, and while this has certain merits in terms of application to the business world, it may have the failing of not being based on robust empirical inquiry. Further, there is the danger that some of the literature is essentially hype, buzz words or ‘advertorials’ for consultants – in other words, consultants may have a vested interest in gaining business by presenting concepts, which implies the potential for hyperbole in discussing the Internet’s benefits. This chapter has sought to deal with this issue by being discriminatory in terms of the selection of literature that has just been reviewed.

Given the weaknesses of extant approaches to examining the role of the Internet in small firm internationalization, an approach is presented here that takes into consideration the information-related properties of the Internet and the determinants of internationalization, with special reference to SKIFs. The Internet has created an information-intensive environment (Glazer 1991) that offers possibilities that did not exist previously. These primarily pertain to information-related applications – such as the potentially global visibility that a firm can attain – that can influence the market-seeking internationalization of firms. Three possibilities of the application of Internet technology in the context of internationalization are noted. First, information dissemination could result in (theoretically) a foreign customer or client coming across a firm’s Web site on the Internet, subsequently leading to an order being placed and, therefore, international growth for the firm. In other words, information dissemination could directly result in international growth (Morgan-Thomas and Bridgewater 2004; Quelch and Klein 1996). Second, information acquisition through the Internet – information on prospective markets, customers and business partners like suppliers, much of which is free – could lead to augmentation of extant stocks of the firm’s market knowledge (Hamill 1997; Ward and Ostrom 2001). Third, information sharing through the Internet could lead to strengthening network relationships, leading to an increase in the firm’s stock of social capital, which in turn could lead to both greater market knowledge and knowledge intensity, and ultimately to internationalization (Hoffman and Novak 1996; Tapscott 1999). Developing on Prashantham and Berry’s (2004b) ideas, these information-related applications of the Internet could lead to an enhancement of SKIFs’ visibility, efficiency and intimacy in the context of their network relationships, as discussed subsequently. However, it is also pointed out that the Internet per se does not guarantee success (Souitaris and Cohen 2003) or invalidate traditional notions of internationalization, such as the influence of knowledge (Kim 2003; Kotha *et al.* 2001) or location (Leamer and Storper 2001; Zaheer and Manrakhan 2001).

Visibility is the starting point in acquiring and leveraging network relationships (Coleman 1988). SKIFs, by their nature, are likely to target specific market

niches, usually on a global scale (Berry *et al.* 2002). Thus, they are not likely to be well known outside their immediate circles of customers, suppliers and competitors, in contrast to very large knowledge-intensive firms such as IBM or Microsoft. Within their specific niche(s), however, SKIFs generally face stiff competition from other SKIFs to capture mindshare among those entities with which it has, or should have, ties (Jones 1999). It therefore becomes important for SKIFs to be generally visible within their networks, both with existing and potential network relationships. Enhanced visibility will ensure wider access to network relationships, and thereby more opportunities to acquire greater amounts of network resources such as information, influence and solidarity (Adler and Kwon 2002). The Internet provides SKIFs with the potential to achieve greater visibility, on a worldwide basis. According to Yip (2000), the Internet provides instant global reach, owing to its universal standards and easy reach, which has been reiterated by other authors such as Quelch and Klein (1996) and Hamill (1997). A specific Internet application that enhances visibility is Internet marketing through the registering of Web sites on search engines and business-to-business (B2B) hub sites (Hoffman and Novak 2000; Kaplan and Sawney 2000; Kenny and Marshall 2000)

Network relationships of SKIFs may involve a power struggle, with each actor seeking to achieve greater control; this is especially likely when the resource base of the actors involved is asymmetrical. When a SKIF's network relationship is with a larger entity, then the SKIF is often in a disadvantaged position; large firms generally appropriate the greater portion of value created in alliances with small firms (Alvarez and Barney 2001). Greater control is achieved (or the ill effects of a lack of control mitigated) when a SKIF exhibits superior operational efficiency in its network relationship transactions or operations. *Efficiency* is an important basis of reputation for SKIFs, which in turn can enhance the quality of network resources that flow to it owing to the positive disposition of network relationships towards it. The Internet provides SKIFs with the potential to achieve greater efficiency, as a consequence of the connection across value chain activities that it allows (Evans and Wurster 1997; Feeny 2001; Tapscott 1999). This is further accentuated in the case of the software industry where the 'product', that is, software code, is in digitized form. A specific application that is pertinent in this context is collaborative product development (or project management) between a SKIF and its client overseas, using Internet-supported groupware, a form of efficiency-enhancing Internet operation (Evans and Wurster 1997; Porter 2001).

Not every opportunity that emanates from a network relationship is consistent with a firm's strategic orientation (Coviello and Munro 1997). The perennial issue of how opportunistic a SKIF can afford to be does not have an easy answer. Often, strategic flexibility on the part of young firms is warranted and justified. Nonetheless, in the long run, a lack of strategic coherence will be unhelpful for a firm (Nohria *et al.* 2003). Therefore, SKIFs should seek to enhance intimacy among their network relationships. This in turn will result in superior quality of network resources in terms of relevance (Coleman 1988). In

other words, leads and opportunities that arise out of network relationships are more likely to be aligned with a SKIF's own long-term agenda, the more intimately aware its network relationships are about it. The Internet provides SKIFs with the potential to achieve greater coherence as a consequence of the property of *intimacy*. A specific Internet application, relevant not merely to customers but also to business partners, is Internet-supported relationship management, in which regard Intranets and Extranets can be very useful (Davenport *et al.* 2001; Feeny 2001; Hoffman and Novak 1996; Peppers *et al.* 2001; Seybold 2001) (Table 8.1). The foregoing discussion is summarized in the following text.

While the Internet's potential benefit for firms based in developing economies has been suggested (Quelch and Klein 1996), few empirical studies appear to have been undertaken in a developing economy context. This applies to the area of the internationalization of SKIFs as well, where empirical work has chiefly been undertaken in developed economy settings. There is clearly a need to address the obvious gap in this area of the literature by conducting empirical research that examines the impact of the Internet, on the internationalization of SKIFs, in a developing economy context. Such work is critical if SKIFs in developing economies are to benefit from the Internet since most of the small firm internationalization theory focuses on developed economy contexts and may not readily hold in a developing economy context that has peculiar market- and policy-related problems (Maddy 2000). A potentially interesting case would be the Bangalore software industry, which has been cited as an excellent example of a developing economy plugging into the wider global economy (Kobrin 1999). In sum, the review of literature suggests that knowledge (market knowledge and knowledge intensity) and network relationships (more usefully, the social capital that emanates from network relationships) are important determinants of SKIFs' internationalization; furthermore, application of Internet technology in enhancing visibility, efficiency and intimacy with relation to their network relationships is likely to increase SKIFs' international growth.

Research methodology

There are three aspects of the research methodology employed in this study, which are briefly discussed below. The first – and main – aspect of the research methodology comprises the case studies (Eisenhardt 1989; Yin 1994) of four small Bangalore-based software firms during the summer of 2002, which were selected purposively using the researchers' contacts to ensure a spread in terms of age (young being taken as fewer than six years in existence, in keeping with authors like Oviatt and McDougall) and proportion of revenues accruing from international business (taken as 'high' when this was 50 per cent or more). Qualitative research is generally used to generate propositions, especially in the absence of an established body of literature and empirical findings, rather than to test propositions. The four case-firms that were studied are indicated below:

The second aspect of the research conducted was a supplementary case study

Table 8.1 The Internet and internationalization of SKIFs

<i>Aspect of relationship</i>	<i>Strategic issue</i>	<i>Impact on network relationships</i>	<i>Impact on network resources</i>	<i>Internet tool (example)</i>
Network relationship acquisition	Competition – other firms are competing for the same network relationships	Enhanced visibility – this will ensure wider access to network relationships, and thereby more opportunities to acquire network resources	Quantity – more visible firms are likely to attract more network resources	Internet marketing – such as through registering on B2B hub sites
Network relationship operations	Control – network relationships invariably involve a power struggle, especially in network relationships with larger or more focal firms	Enhanced efficiency – this will ensure satisfied network relationships; efficient operations will mitigate negative effects of a power struggle and will result in more positive associations with the firm	Quality (reputation) – more efficient firms are likely to attract positively-disposed referrals, as a consequence of their efficiency	Internet-supported collaborative product development – such as through the use of groupware
Network relationship development	Coherence – not every network resource that emanates from network is necessarily in sync with the overall strategy or welfare of a firm	Enhanced intimacy – this will result in more cohesive network relationships with entities that will have a greater understanding of the firm's strengths and overall strategic direction/goals	Quality (relevance) – more intimate firms are likely to attract more relevant network resources that are coherent with the firm's overall strategic direction and goals	Internet-supported relationship management – such as providing regular updates through access to the firm's Extranet/Intranet

Table 8.2 The four case-firms

	<i>Young (< 6 years)</i>	<i>Old (> 6 years)</i>
High internationalization ($\geq 50\%$ of revenues accrue from international business)	New Creation Established: 2000 Employees: 8 International revenues: 100%	Ekomate Established: 1996 Employees: 30 International revenues: 90%
Low internationalization ($< 50\%$ of revenues accrue from international business)	Mitoken Established: 2000 Employees: 40 International revenues: 0%	Vikas Established: 1995 Employees: 70 International revenues: 20%

of a related firm, NeoIT, which was mentioned repeatedly by three of the four firms as being an important Internet-based intermediary that potentially had a vital role to play in the internationalization of SKIFs like the case-firms. As with the four software firms, the NeoIT case study was based on qualitative research through an in-depth interview with the firm's Bangalore representative, supplemented with secondary data through company reports and media articles.

The third and final aspect of the research was a modest attempt to strengthen the main proposition that this chapter presents, namely, that firms using the Internet intensively achieve greater international growth than those that do not; secondary data on international growth, Internet usage, social capital and knowledge were obtained from India's National Association of Software Service Companies (Nasscom) and company Web sites of 30 small software firms in Bangalore, and subsequently regressed. The focus of this chapter is on exploring and generating a valid proposition that can be tested rigorously in the future, especially in a developing economy context. Nonetheless, a preliminary attempt is made to test the key proposition, and the findings are presented in this chapter.

Discussion: promises, problems and prospects

Promises

The study of the four case-firms focused on two aspects: (a) their process of internationalization, with special reference to the role of network relationships, both local and foreign, and (b) their perceptions of the role of the Internet in internationalization. In terms of internationalization, network relationships – local, foreign or both – were seen to play a vital role in the internationalization of the four case-firms as evident from the brief profiles given subsequently; thereafter, the collective views of the respondents on the role of the Internet are presented.

Ekomate: This firm was started in 1996 by an entrepreneur who returned from graduate studies and short-term employment in the US computer industry. The company received unsolicited business from a British firm and, shortly thereafter, business in the United States through former colleagues of the

entrepreneur. Strong local links through the entrepreneur's father – also a businessman – led to the appointment of a senior Indian IT executive as the firm's chief mentor. Even though currently 90 per cent of Ekomate's sales revenues comes from international business, the chief mentor has been forcefully advocating the proactive pursuit of greater international growth, from the United States and from other markets including the United Kingdom, Australia and New Zealand. Consequently, the firm is seeking to strengthen its presence in overseas markets by utilizing network relationships based there.

Mitoken: While most Indian software firms focus on the software services segment, from its inception Mitoken elected to be a 'pure product player', with an offering targeted at software firms, which enables them to manage their work processes more effectively. The company was created in 2000 when four software engineers left Motorola's Indian subsidiary to commercialize technology developed there; Motorola is a corporate sponsor of Mitoken. Apart from these strong network relationships, by virtue of the prestigious Indian engineering and business schools attended by the four founders, they have access to an enviable network of former classmates now working overseas, chiefly in the United States. At the time of the interview, Mitoken had no revenue from international business, but this was clearly a deliberate strategy as they sought to perfect their technology in the domestic market first. Since then, a director of the company has relocated to the United States and the internationalization of the company is imminent.

New Creation: This firm was founded in 2000 when the entrepreneur returned home to Bangalore, having spent a decade in the United States. Family circumstances necessitated his return to Bangalore, where he was by now, rather unusually, bereft of local network relationships. Therefore, his focus has been on tapping prior network relationships among his former employer and former clients for business, and, consequently, 100 per cent of the firm's revenues accrue from the United States. He, however, wishes to diversify his portfolio of markets, through Internet-based efforts (such as through software service hub sites) and through business development contractors who represent non-competing firms on business trips to markets such as the United States and search for new business.

Vikas Global Solutions: This company was formed in 1995 by a graduate from a local engineering college. In the absence of foreign experience or elite local connections, he deemed it best to avoid active soliciting of business from large competitive markets like the United States and the United Kingdom. This strategy received further impetus when an unsolicited business order was obtained from Australia. Now, 20 per cent of the firm's sales revenues comes from overseas, predominantly from Australia, where a one-man sales office was opened in 2002. He is now seeking further international expansion through 'virgin territories' in South Africa and Zimbabwe.

In terms of the role of the Internet, it was evident that the Internet was a great source of hope and confidence for these firms, as evident from the following discussion. The Internet was essentially seen as a cost-effective means of reaching

global market, especially where the entrepreneur had no personal contacts; thus, Hamill's (1997) notion of the Internet as a low-cost global gateway and Yip's (2000) suggestion that the Internet provides instant global reach were echoed by the respondents. Two of the four firms had received unsolicited business from overseas, and certainly in one case (business from Britain for Ekamate), the client had found the software firm's Web site by searching the Internet. Web sites apart, mention was made of hub sites, such as NeoIT in India, and *The Economist's* hub site for software services in the West. New Creation, for example, had registered on both of these hub sites and although no business had resulted from them at the time of the interview, it was hopeful, particularly about the latter. One entrepreneur saw the Internet as a useful means of keeping updated with technological trends around the world. Another emphasized the collaboration and interaction during the software creation process – with comments on work in progress being constantly posted and monitored on either side of the globe – as being greatly beneficial as a consequence of the Internet. Another use that seemed to hold great promise was for live or semi-live demonstrations of software to clients or prospective clients through the Internet. Mitoken, for example, reported having successfully conducted an extensive 'demo' for a prospective client in the United States, without having to physically leave their office in Bangalore, which was very cost-effective for them.

Thus, in terms of current usage of the Internet, there was evidence of visibility-oriented and, to a lesser extent efficiency-oriented, applications of the Internet. Apparently, firms were not yet exploiting relationship management applications of the Internet. Reasons for this included a base of network relationships that was too small to warrant such application and an acknowledgement that firms – even software firms in India – were yet to adopt the Internet in as sophisticated a manner as they could. As one respondent observed, 'Although the technology is revolutionary, its adoption is evolutionary'. One of the major problems in applying the Internet for internationalization that was perceived by respondents was the difficulty in building trust with prospective clients that they had never met and for whom their reputation was unknown; it was therefore felt that larger firms like Infosys, Tata Consultancy Services and Wipro with well-known brand names would increasingly squeeze out the smaller, less-known players. In this regard, virtually every respondent made mention of the potential benefits of an Internet-based intermediary that could bring small software firms like theirs in contact with Western clients, and in all cases an intermediary called NeoIT was mentioned. In terms of prospects for the future, respondents were confident that the Internet would foster international growth for resource-poor firms like their own; they remained hopeful that the current promise of the Internet as a facilitator of internationalization would hold and that the problem of trust building could be overcome. The problem and prospect mentioned by the respondents are explored in the following sections; a summary of the discussion hitherto of the case-firms is presented below.

Table 8.3 Summary of findings from the four case-firms

	<i>Ekomate</i>	<i>Mitoken</i>	<i>New Creation</i>	<i>Vikas</i>	<i>Synthesis</i>
<i>Internationalization Process</i>	Business both proactively obtained and from unsolicited business	Deliberate focus on domestic market first, but highly global ambition	Only international business through network relationships	Unsolicited international order sparked moderate interest in revenue from abroad	Entrepreneurial <i>vision</i> is crucial; the entrepreneur is responsible for most network relationships
<i>Role of local network relationships</i>	Strong ties through family business; led to firm's chief mentor	Strong MNC ties with former employer, Motorola	No significant local ties owing to lengthy absence	Bangalore provides good support services and human resources	Benefits: Reputation Infrastructure Networks
<i>Role of foreign network relationships</i>	Strong ties with former colleagues in the US.	Strong ethnic network relationships through b-school network	Strong ties with former colleagues/clients in the US	No significant foreign ties owing to lack of exposure/contacts	Benefits: Opportunity Information Advice
<i>The Internet Promises</i>	New business received through the Internet; a more level playing field perceived	Live demos possible through the Internet	Cost-effective for seeking new business through B2B hubs	Allows rapid, cost-effective communication	Cost-effective global reach

Problems

More can be done through the Internet; for now, the role of NeoIT type intermediaries are important

The 'face' still counts; the Internet cannot replace traditional relationship building

Yet to apply the Internet for relationship management; contact base is too small at present

'Face' still counts; human relationships are important and difficult to build

Trust building (in the absence of name recognition or brand awareness)

Prospects

A great opportunity for resource-poor firms to access international markets

High international growth and rapid scaling up can be achieved if the vision is there

A potential source of cost-effective international growth

If there is a positive attitude to the Internet, it can lead to international growth

High international growth for resource-poor firms

Problems

The four case-firms acknowledged that there was scope to do more, mainly in terms of moving beyond achieving greater visibility and efficiency, towards achieving greater intimacy among network relationships. It appeared that there was an evolutionary pattern to the adoption of Internet technologies, their revolutionary capabilities notwithstanding. The more knowledge intensive the firm, the more it appeared to have adopted Internet technology more intensively, that is, to have demonstrated that Internet usage leads to greater efficiency and, ultimately, intimacy..

Greater visibility via the Internet, while an extremely useful starting point, did not in itself yield international business. A major issue that emerged from the preliminary expert interviews was the need for small software firms in India to develop trust among prospective clients, especially those based in the West, the Internet notwithstanding. Further, a major problem for them has been their inability to ‘get a foot in the door’ in the first place, as it were, to gain the attention of a company located halfway around the world. Having a Web site – even a database-driven one that is proactively registered on search engines – is of little use to a small software firm located in Bangalore when a prospective client in Berlin or Chicago looking to outsource software solutions is inundated by a large list of software firms that come up, should she or he search for one on an Internet search engine. In the absence of greater information, familiarity and trust, it becomes likely that many Western firms would be willing to pay a

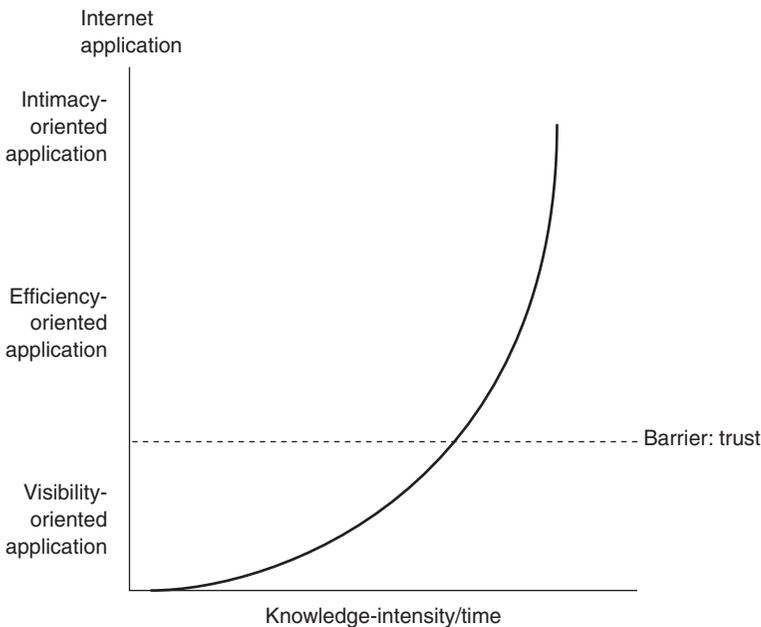


Figure 8.1 Evolution of adoption of Internet applications.

premium to obtain the services of a large, well-known Indian software company rather than run the risk of experimenting with a smaller, less-expensive one. It was suggested that a trusted – and ideally large or resource-rich – intermediary could play two useful roles in this regard: as an intermediary in matching prospective clients with software vendors, ensuring an optimal fit between the software requirement(s) and vendor's capabilities and pricing; and as a guarantor or auditor of smaller software firms' quality. It further emerged from these interviews that NeoIT is an outsourcing intermediary – possibly the best-known one in India – that seeks to fulfill these very roles, and it therefore seemed worthwhile to study it as a case-example.

Headquartered in San Ramon, California, with its Asian headquarters in Bangalore, NeoIT was set up in June 1999 by expatriate Indians with a view to helping buyers and vendors (primarily American and Indian respectively, going by the location of their main offices) of software services to come together. The rationale for this primarily relates to managing better or reducing search costs for buyers and marketing costs for vendors. The Internet is the medium through which software firms register themselves on NeoIT's pre-prepared templates, for a fee varying from \$500 to \$2,000 per year, depending on the firm's size. It is also through the Internet that prospective clients post their Requests for Information (RFIs) and Requests for Proposal (RFPs). The process that then ensues is one of short-listing *by NeoIT*, based on quality and cost parameters, and the short-listed firms are approached to make bids. At the final stage, two companies emerge as 'finalists', and they may have to further negotiate on the price; in fact, price might then become the deal maker or breaker.

NeoIT appears to have built a positive reputation for itself. In addition to the glowing customer testimonials posted on its Web site, it was regularly – and in some cases, exclusively – mentioned by the software industry experts interviewed in Bangalore. As for its outsourcing intermediary role, the key strength of NeoIT appears to be its template-driven database of software firms allowing in-depth knowledge of company *facts* and comparison across companies, to yield shortlists in a relatively short period of time. A report on one client's experience featured on NeoIT's Web site suggests that it took a mere three weeks from the RFP stage to selection of a software service company. While this, no doubt, represents an exceptionally speedy performance, it is indicative of how fast NeoIT may be obliged to react when prospective clients have urgent requirements. In addition, however, NeoIT engages in substantial face-to-face interaction with software companies to get a better sense of their *people* and, therefore, capabilities. This knowledge is factored into the short-listing process and, thus, a subjective element may, at times, be inevitable. While NeoIT is clearly addressing an important role as mentioned earlier – that of a trusted intermediary – there are, however, problems with its current approach. It emerged from the interviews with the four case-firms that transparency was not perceived as total in that often registered software vendors cannot view the RFIs or the RFPs. The imperfections of NeoIT notwithstanding, its case illustrates the Internet's potential in facilitating small firm internationalization.

Prospects

Extant problems notwithstanding, the chief prospect of the Internet for the internationalization of SKIFs that emerged from the interviews with the four case-firms is that firms that apply Internet technology intensively (i.e. progress to exploit the Internet to enhance not merely visibility but also efficiency and intimacy) will achieve higher international growth than firms that do not. The veracity of this proposition can only be known by a large-scale quantitative study, rather than the qualitative research exercise presented in this chapter – which is of course appropriate to help generate propositions in the absence of much previous empirical findings. In the interim, however, a modest exercise based on secondary data from India's apex software body the Nasscom and company Web sites was undertaken to test the aforementioned proposition. A total of 62 Bangalore-based firms adhering to this chapter's definition of a SKIF (i.e. where 'small' is defined as a firm with fewer than 100 employees) were identified from Nasscom's 2000 directory. Data on these firms' international revenue pertaining to 1997–1998 and 1998–1999 were available from that directory. Data for 1999–2000 was obtained from Nasscom's 2002 directory. There was a total of 30 firms, of the original 62, for which data could be found in the 2002 directory; the absence of the remaining is presumably owing to discontinuation of their membership of Nasscom or their business identity (owing to rebranding or acquisition, for example).

Table 8.4 Correlations

<i>No.</i>	<i>Variable</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
1	Internet usage	1			
2	Social capital	0.492**	1		
3	Market knowledge	0.447*	−0.055	1	
4	Knowledge intensity	0.389*	0.292	0.223	1

Notes

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Table 8.5 OLS regression estimates

<i>Variable</i>	<i>B</i>	<i>SE</i>
Constant	606.286	1004.181
Internet usage	521.884*	197.263
Social capital	59.958	177.694
Market knowledge	−546.020*	198.915
Knowledge intensity	110.233	198.525
Adj. R ²	0.307	

Notes

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed);

Using the data of these 30 firms, annualized international growth figures were calculated and regressed with crude measures for the following constructs, based on the earlier discussion of the internationalization literature: market knowledge (Johanson and Vahlne 1977), knowledge intensity (Autio *et al.* 2000; Oviatt and McDougall 1994) and social capital (Johanson and Mattsson 1988; Johanson and Vahlne 2003); to these are added Internet usage (Prashantham and Berry 2004b). Market knowledge was operationalized in terms of market diversity; it was assumed that the more diverse a firm's portfolio of markets (as reported in its profile in the Nasscom directory of 2000), the greater would be its market knowledge (Zahra *et al.* 2000). An independent exercise was undertaken with the assistance of an associate with intimate technical knowledge of the Bangalore software industry to calculate the knowledge intensity of each firm. Evidence of advisors, clients, customers and alliances – as indicated from a content analysis of Web sites – was used as a proxy of a firm's social capital, and firms were categorized as having low, medium or high stocks of social capital. Internet usage was measured using the company's current Web site as a proxy; the more sophisticated it was (i.e. the greater use of efficiency- and intimacy-related applications such as Extranets), the higher the score awarded to it. The operationalization of these constructs is discussed in more detail in the appendix. The results of the regression are indicated below.

The key findings can be summarized as follows:

- Internet usage is positively and significantly associated with international growth.
- Market knowledge is *negatively* and significantly associated with international growth.
- Market knowledge, knowledge intensity and social capital are positively and significantly correlated with Internet usage.

The results of this small effort must be interpreted with caution owing to severe limitations such as the small size of the sample and the crudeness of the measures used. Nonetheless, there appears to be reason to believe that the proposition that Internet application and international growth will be strongly related is one that is well worth testing in future research. The surprising direction of relationship between 'market knowledge' and international growth is perhaps understood in the context of the measure used – which was one of market diversity. A closer inspection of the data revealed that 28 of the 30 firms listed North America (and specifically the United States) as a market. Thus, high scores for this construct reveal that the firm had diversified its portfolio of markets to include others too. It thus appears that the firms with the highest international growth rates were those that focused more or less exclusively on the US market between 1997 and 2000, which should not come as a surprise given the unprecedented growth of IT spending in the American economy during that period. It appears that other markets simply did not yield comparable returns to Indian software firms, which may have well had to also contend with lower familiarity with these non-US markets. This may well change over time, given the subsequent slowing down of the US

economy and, indeed, the more successful Indian software firms of the future may well be those with interests in non-US markets as well, ensuring that all their 'eggs' were not in 'one basket'. The positive correlation between market diversity and Internet application is interesting because it suggests that a wider international experience is accompanied by growing sophistication in Internet technology deployment. Similarly, it can be conjectured that firms possessing stronger technological skills (greater knowledge intensity) and extensive network relationships (greater social capital) have a stronger incentive, and capability, to apply the Internet more intensively – using the Internet not merely to enhance visibility but also to improve efficiency and intimacy in their networks. In sum, tenuous support for the proposition that the Internet facilitates international growth for resource-constrained knowledge-intensive firms is found.

Conclusions and implications

Three main points have been made in this chapter. The first is that the Internet holds great promise in facilitating the internationalization of small firms – especially those in peripheral regions like developing economies; clearly, the four small software firms in Bangalore that were studied shared this hope. The second is that Internet technology notwithstanding, traditional aspects of business such as the importance of face-to-face interaction and the building of trust remain vital; here a potential facilitator for small firms to overcome this barrier comes in the form of Internet-supported intermediaries that attract prospective clients and match them to small firms, whose quality they guarantee. The third is that ultimately the prospect that the Internet holds for internationalizing resource-poor firms is that of international growth; a rudimentary study of 30 Bangalore-based small software firms suggests that this notion holds credence and is worthy of further study, on a larger scale.

The implications of this chapter for academics, managers and policy makers are several. Academics will enhance extant understanding of the role of the Internet in small firm internationalization only through further empirical work. A promising avenue of research is the impact of the Internet on international new ventures. An issue of concern here is establishing causality; Does the Internet encourage firms to be international from inception or are globally minded start-ups able to internationalize more readily as a consequence of the Internet? Longitudinal studies, in particular, will be helpful in unravelling these issues. Entrepreneurs and managers would do well to think holistically about the application of Internet technology to transcend mere visibility-oriented applications and implement efficiency- and intimacy-enhancing applications as well. A related point is that practitioners must think about the portfolio of their network relationships and engage them on an ongoing basis such that greater intimacy results in a greater proclivity for social capital to emanate from these relationships and be leveraged. Furthermore, the value of local network relationships should not be overlooked. In terms of policy making, while efforts to broker network relationships for internationalizing small firms are underway in many parts of the world, policy makers will do well to facil-

itate a more sophisticated understanding of types of social capital (e.g. bonding *and* bridging; foreign *and* local) and their potential role in internationalization; further, efforts must be made to educate small firms on how the Internet can be productively used to foster not merely visibility but also efficiency and intimacy among network relationships. The onus is on the users of Internet technology to maximally utilize its potential.

Appendix

Source of secondary data: The National Association of Software and Service Companies (Nasscom) is the leading software industry body in India. Nasscom's directories constitute the most reliable source of secondary information about member-companies, which includes:

- Number of employees
- Year of founding
- Total revenue
- International revenue
- Profile – technological capabilities
- Indian and overseas contact details

Measure for market knowledge: Based on the fact that the global market for knowledge-intensive industries like software tend to be concentrated in the Triad markets of North America, Western Europe and Japan (Berry *et al.* 2002), a score from 1 to 7 was calculated for each firm based on its list of foreign markets by assigning 2 points each for the three Triad regions and 1 point for the rest of the world.

Measure for knowledge intensity: Based on the profile of technological capability from the Nasscom directory, a judgemental score from 1 to 7 was computed for the knowledge intensity of each firm. Evidence of strong technical expertise was awarded 2 points; platform availability, 1 point; services offered, 1 point; software products, 2 points and software quality, 1 point.

Measure for social capital: The firm's current Web site was content analyzed for evidence of advisors, customers, partners and alliances; where the evidence was high, a judgemental score of 7 was assigned, where moderate, a score of 4 was assigned and where small or non-existent, a score of 1 was assigned.

Measure for Internet usage: The firm's current Web site was used as a proxy for the firm's Internet usage. A score from 1 to 7 was assigned such that lower scores were given to brochure-ware-type Web sites and higher scores were given for evidence of interactivity and the potential to leverage network relationships (through Intra-/Extranets). A score of 1 was awarded in the absence of a Web site, 2 for a brochure Web site of limited design appeal, 3 for a brochure Web site that was well designed, 5 for a Web site with rudimentary evidence of being database driven, 6 for a well-designed, database-driven site and 7 for a Web site with access to an Intra- or Extranet.

Part III

Future research directions

9 MNC social capital

Prashantham, S. and McNaughton, R.B. (2006) 'Facilitating links between MNC Subsidiaries and SMEs: The Scottish Technology and Collaboration (STAC) Initiative', *International Business Review*, 15: 447–462.

Abstract

Multinational subsidiaries constitute a potential source of social capital for small- and medium-sized enterprises (SMEs) that can help in the internationalization process. Such social capital is particularly valuable because it is a form of bridging (socially heterogeneous), rather than bonding (socially homogenous), social capital, and could therefore potentially lead to new information, ideas and opportunities. However, even in the best situations, limits on information exchange and trust hamper collaboration between SMEs and multinational corporation (MNC) subsidiaries. Facilitation by a neutral agency may help in overcoming these barriers. This chapter presents the case of the Scottish Technology and Collaboration (STAC) initiative as an illustration of the facilitation process – comprising architecting, brokering and coaching – and its outcomes, chiefly the formation of social capital, which in turn has the potential to lead to knowledge outcomes and, ultimately, internationalization for the SME. This case reveals important implications for both policy and theories of SME internationalization, especially the need to recognize and lever underutilized sources of social capital.

Introduction

The phenomenon of 'born globals' and more generally the pace and pattern of internationalization by small- and medium-sized enterprises (SMEs) is an important topic at the intersection of research in entrepreneurship (Zahra and George 2002a), international business (Dimitratos and Jones 2005) and strategy (Hitt *et al.* 2001). Of importance in the international entrepreneurship literature is the notion of accessing resources through social capital in networks of relationships (e.g. Johanson and Mattsson 1988; McNaughton and Bell 1999). Indeed, social capital is frequently cited as playing a role in both knowledge creation (Eriksson and Chetty 2003) and accessing international markets (Yli-Renko *et al.* 2002), especially in the context of knowledge-intensive sectors (Sharma and Blomstermo 2003).

A limitation of the extant literature is that *sources* of social capital have

received little attention. Different sources may yield different types of social capital – for instance, bonding (from socially homogeneous ties) or bridging (from socially heterogeneous ties) social capital (Davidsson and Honig 2003; O'Brien *et al.* 2005). Putnam (2000: 22) asserts that ‘of all the dimensions along which forms of social capital vary, perhaps the most important is the distinction between *bridging* (or inclusive) and *bonding* (or exclusive)’. Bridging ties may foster novel ideas, knowledge and opportunities that are valuable to internationalizing SMEs; yet, they tend to be geographically distant and difficult to access (McEvily and Zaheer 1999). However, certain ties may be *local yet bridging* in nature for SMEs – such as ties with local multinational corporation (MNC) subsidiaries – that appear to be overlooked by researchers (and perhaps practitioners) who focus on network relationships between SMEs rather than between SMEs and large MNCs (Etemad *et al.* 2001).

Research from the perspective of MNC subsidiaries finds that subsidiaries tap into rich local networks such as those that locate within industrial clusters (Birkinshaw and Hood 2000) and disseminate locally assimilated knowledge within the wider enterprise (Moore and Birkinshaw 1998). These characteristics are especially associated with ‘metanationals’ that actively leverage local resources to global advantage (Doz *et al.* 2001).

The thesis of this chapter is that relationships between SMEs and the local subsidiaries of MNCs are bridging (yet local) ties that have considerable potential to yield social capital benefits for knowledge-intensive SMEs. However, bridging social capital is, by definition, more difficult to develop in comparison to bonding social capital. Moreover, limitations of time and resource may result in SMEs under-investing in social capital. Therefore, public intervention is often desirable to promote relationships that can contribute to the growth and internationalization of local firms (McNaughton and Bell 2001).

A case study of the Scottish Technology and Collaboration (STAC) illustrates this argument. STAC facilitates relationships between local SMEs and subsidiaries of MNCs, *creating social capital* that SMEs can lever as part of their internationalization process. The chapter proceeds by reviewing literature pertaining to SME internationalization, MNC subsidiaries and formation of social capital between firms. Subsequent sections describe the method employed and the findings of the case study. The final section presents conclusions and their implications for future research, practice and policy.

Literature

SME internationalization: a social capital perspective

The dominant view in SME internationalization points to the importance of knowledge; SMEs leverage their technological and market knowledge to expand into international markets (Autio 2005; Johanson and Vahlne 1977; Oviatt and McDougall 1994; Prashantham 2005; Zahra 2005). Firm resources and the role of the entrepreneur are vital influences on the accumulation of knowledge. But,

consistent with the view that knowledge creation is a social process (Nahapiet and Ghoshal 1998) are external networks. Unsurprisingly, there is a strong tradition of network-oriented perspectives on internationalization (Coviello and Munro 1997; Johanson and Mattsson 1988; Johanson and Vahlne 1992, 2003; McNaughton and Bell 1999, 2001).

Indeed, inter-organizational relationships (IORs) are the focus of management research in a variety of contexts. Barringer and Harrison (2000) provide an instructive overview of a range of theoretical lenses through which IORs have been studied: transaction cost economics, resource dependence, strategic choice, stakeholder theory, organizational learning and institutional theory. They, however, encourage 'blending the theoretical paradigm' in future IOR research to combine some of the above approaches (Barringer and Harrison 2000: 382). More recently, social capital theory has emerged as a useful perspective from which to examine IORs (Adler and Kwon 2002), including in the context of internationalization (e.g. Yli-Renko *et al.* 2002; see also McNaughton and Bell 1999). By social capital, we mean, 'the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or a social unit' (Nahapiet and Ghoshal 1998: 243). This perspective combines ideas from at least three of the lenses reviewed by Barringer and Harrison (2000), namely, resource dependence theory, strategic choice and organizational learning, but particularly the latter.

Social capital facilitates the creation and acquisition of knowledge (Nahapiet and Ghoshal 1998). While networks or IORs can be a source of international opportunity (e.g. trade leads or repeat business in a new market) (Bell 1997; Coviello and Munro 1997), they are often a conduit of vital new information and resources that lead to enhanced knowledge, and thereby internationalization (McNaughton and Bell 1999; Yli-Renko *et al.* 2002). Thus, social capital facilitates learning that results in internationalization (Autio *et al.* 2000). In this regard, a useful concept to consider is absorptive capacity – a dynamic capability to acquire, assimilate, adapt and apply knowledge (Zahra and George 2002b). Lane and Lubatkin (1998) suggest that absorptive capacity within a dyad is relative in nature. Firms' knowledge exchanges – interactive learning – are more effective when there is commonality in their basic knowledge bases, compensation practices and research communities. O'Dwyer and O'Flynn (2005: 402) note, 'firms tend to establish alliances with other firms where they have overlapping technological capabilities'. Interactions in dyadic relationships influence both parties (Lane and Lubatkin 1998), although learning is not necessarily symmetrical between them as their strategic intents and learning capabilities may not be matched (Inkpen 2000; O'Dwyer and O'Flynn 2005). Thus, SMEs and MNCs would not necessarily have reason to interact given the disparities in their capabilities, implying that bridging social capital, in general, does not form easily and, yet, can be very useful to firm learning and growth (McEvily and Zaheer 1999).

Bridging social capital and SME internationalization: the role of MNC subsidiaries

While there is a tradition of interpreting SME internationalization from a network perspective (which has recently drawn on social capital theory), the extant literature pays little attention to the source of social capital (Brown and McNaughton 2003). Much of the literature on this topic focuses on networks of relationships between SMEs (Barclay and Porter 2005; Coviello and Munro 1997; Cubillo and Cerviño 2004; Lin and Zhang 2005; McNaughton and Bell 1999, 2001; Narula 2004). However, ties with large firms are important in terms of both practice and theory, as they are a potential source of bridging (as opposed to bonding) social capital (Putnam 2000).

Bonding social capital, 'brings together people who are like one another in important aspects (ethnicity, age, gender, social class, etc.)' (Putnam and Goss 2002: 11). From the perspective of SMEs, firm size is an important bonding dimension and as noted above, SME networks are not uncommon. Forming bonding social capital is relatively easy. It is likely that smaller firms share similar aspirations and challenges, which enhance cognitive simpatico (Lane and Lubatkin 1998). Bridging social capital arises from ties that link otherwise disparate networks and broker non-redundant information, while bonding ties link similar firms and networks, thus sharing considerable redundant information (McEvily and Zaheer 1999). Bridging social capital thus holds considerable value to firms.

In making the conceptual distinction between bonding and bridging social capital, we recognize that firms may possess combinations of both types. We would expect social capital types to have differential effects on internationalization outcomes since 'bridging and bonding social capital are good for different things' (Putnam 2000: 363). Also, in reality since most forms of social capital are a blend of bridging and bonding social capital, it is possible to identify relevant dimensions (e.g. firm size) and establish whether social capital is predominantly bonding or bridging (Davidsson and Honig 2003). Thus, on the dimension of firm size, large firms constitute a potential (though overlooked) source of bridging social capital (Etemad *et al.* 2001).

Moreover, Coviello and Munro (1997) observed a tendency among SMEs to look overseas for relationships to further their internationalization objectives, rather than thinking about first leveraging relationships with other local firms. Given the utility of bridging social capital, it is interesting to note that bridging ties are associated with spatial dispersion, not proximity (McEvily and Zaheer 1999). We make the counterintuitive suggestion here that some local ties can also be a source of bridging social capital.

The local multinational subsidiary is a potential source of local, yet bridging, social capital (Etemad *et al.* 2001; O'Dwyer and O'Flynn 2005). Birkinshaw *et al.* (2005: 228) note:

as subsidiaries develop resources and capabilities of their own, they take on additional responsibilities – tapping into new ideas and opportunities in the

local market, interacting with other actors in the local environment, and building unique capabilities on which the rest of the MNC can draw.

This is more likely to occur when subsidiaries are cluster based, entrepreneurial and knowledge oriented. Cluster-based subsidiaries make greater strategic contributions to the parent company and are a useful conduit for the transfer of skills and capabilities (Birkinshaw and Hood 2000). In addition, cluster development may be a tool to attract foreign direct investment (FDI) (Young *et al.* 1994), and clusters and subsidiaries can benefit from each other (Enright 2000). Entrepreneurial subsidiaries similarly have the potential to enhance worldwide learning capabilities of MNCs and achieve ‘glocalization’ (Birkinshaw 1997). Finally, knowledge-oriented subsidiaries are often concerned with assimilating and transferring valuable knowledge to other parts of the MNC (Doz *et al.* 2001; Moore and Birkinshaw 1998). These three characteristics – cluster based, entrepreneurial and knowledge oriented – are by no means mutually exclusive, and the probability of overlap is high.

Relatively little attention is paid by established streams of literature to collaboration between SMEs and MNC subsidiaries. There are a few relevant studies in the context of Asian countries that are both important destinations for FDI and where social capital is a defining characteristic of business culture (e.g. Hitt *et al.* 2002). For example, Zhou and Xin (2003: 133) studied the Zhongguancun IT cluster in Beijing. They found that the ‘relationship between MNCs and local firms can also be interdependent even though it is hierarchical’, and cite the example of China’s largest accounting software firm, Ulsoft, being able to target an untapped niche (namely, the SME market for enterprise-wide resource planning (ERP) software) in collaboration with Oracle’s local subsidiary. In another example, Prashantham (2004b) studied the Bangalore software cluster. He found little evidence of collaboration between MNC subsidiaries and local SMEs, but reports the case of Mitoken, a spin-off company from Motorola’s local software operations, which actively collaborates with and leverages social capital from the ‘parent’, that is, Motorola India. Chew and Yeung (2001) in a Singaporean study found that MNC subsidiaries and SMEs enjoy mutual benefits from collaboration, with the latter’s main contribution being their local knowledge. These relationships required proactive effort on the part of SMEs and facilitation by ‘local institutions’ that ‘create an atmosphere for inter-firm cooperation’ (Chew and Yeung 2001: 445). Such collaboration, it would then appear, will likely require the lowering of the substantial barriers to the development of bridging social capital that seem to exist between these sets of firms, as seen below.

Generating bridging social capital: the need for intervention

There are a variety of barriers that prevent the formation of bridging social capital. These include a lack of visibility, efficiency and intimacy within networks (Prashantham and Young 2004). *Visibility* refers to awareness of the firm and is important because of the competition in networks for actors’ scarce

attention and resources (Johanson and Mattsson 1988). When there is a lack of information about actors in a (potential) network, there is low visibility. *Efficiency* refers to transactional competence in carrying out business activities, which may be helpful in mitigating the control exerted by larger and resource-rich actors in inter-firm networks (Chew and Yeung 2001). There is limited efficiency when there is a lack of processes to facilitate interaction and transactions. *Intimacy* refers to a deeper understanding of a firm's goals and resources by other actors, and is of potential utility in allowing greater coherence in the firm's activities and progress (McNaughton and Bell 1999; Spence 2004). A lack of intimacy often follows from a lack of trust. Thus, without high levels of visibility, efficiency and intimacy in local networks, SMEs struggle to engage with larger actors, including MNC subsidiaries. In other words, there are significant barriers because of lack of information, processes and trust. These barriers are particularly problematic in relation to asymmetrical ties, that is, IORs between dissimilar actors (e.g. small and large firms), which although potentially mutually beneficial (Narula 2004), are often faced with problems of ambiguity and inter-cultural differences at the interface (Doz 1988).

There is a substantial literature in sociology showing how small firms cooperate within trusting networks (e.g. Uzzi's (1997) study of textile companies in New York). However, these often tend to be in closely knit geographic communities, with family or other ties. These studies illustrate some of the advantages that can come from networking, but also a tendency for SMEs to focus on bonding – rather than bridging – social capital. Thus, a further problem, notwithstanding examples to the contrary, is that SMEs are known to underinvest in social capital, especially bridging social capital. A number of studies confirm this assumption. For example, Curran *et al.* (1993) found that small firms shunned 'voluntary relationships', and made little use of networking even to overcome problems that threatened the survival of the firm. Curran *et al.* suggest that this is because of the independent attitude of entrepreneurs, coupled with the time constraints created by having to deal with many day-to-day management problems. In addition, the entrepreneurs studied were sometimes fearful of outside interference, loss of control and the potential for local competitors to gain inside knowledge. In another example, Human and Provan (1997) compared firms in two relatively large networks with a control sample of 'market firms' and found that market firms made only minimal use of inter-firm relationships. Managers explained this to be due to limited time, no perceived need and fear of losing proprietary information.

The same considerations that inhibit network formation also mitigate the development of mechanisms for co-ordination within networks. Namely, the benefits of co-ordination are difficult for an individual firm to appropriate, and to achieve collective benefits, firms must give up some autonomy and call on uncommon managerial skills (i.e. managing between firms rather than within them). This is particularly difficult for small firms with few slack resources and for entrepreneurs who have limited experience outside their own firm. The presence of economic development policies aimed at brokering hard networks of

small firms is evidence that they under-invest in social capital (McNaughton and Bell 1999).

Thus, public policy intervention is often required to compensate for SMEs' own under-investment in social capital. Moreover, in the case of asymmetric inter-firm ties – such as between SMEs and MNC subsidiaries – there are significant barriers to be overcome, as discussed previously. Little is known, however, about measures that effectively deal with these barriers and their theoretical implications. Public programmes have long sought to enhance the export success of SMEs through direct intervention, and these have been widely studied (Alvarez 2004; Brown and McNaughton 2003; McNaughton and Bell 1999, 2001). Other policy measures by local government agencies that may indirectly facilitate internationalization include increased access to venture capital, science parks and new venture incubators (Collinson 2000). However, little is known about policy measures that could facilitate the formation of asymmetrical inter-firm ties and, thereby, the generation of bridging social capital. Bridging social capital, in turn, facilitates knowledge creation, which may eventually lead to internationalization. The research reported in this chapter addresses this gap.

Method

Our starting point was secondary data on established information and communication technology (ICT) clusters in both developed and developing countries such as in Bangalore, Beijing, Scotland, Silicon Valley, Singapore and Stockholm. We contacted ten academics and/or policy makers associated with internationalization activities in Australia, Canada, China, India, Ireland, Sweden, the United Kingdom and the United States. Enquiries with these experts identified only one major initiative – the STAC initiative – that explicitly targets relationships between SMEs and MNC subsidiaries. The discovery of STAC was the consequence of a conversation with the then Deputy Chairman of Scottish Enterprise, which is Scotland's main economic development agency. Birkinshaw (2000) notes that Scottish Enterprise, while welcoming foreign investment to set up assembly units in Scotland, is keener to attract R&D-related investment.

Despite the drawback of a single case study (Yin 1994), taking such an approach is appropriate in this instance given the uniqueness and rareness of the phenomenon. Apart from the fact that most policy initiatives focus on fostering relationships between SMEs, the uniqueness of STAC in large measure stems from the strong mutual learning orientation of *both* the SMEs and multinational subsidiaries that are involved. This is quite different from other instances of MNC–SME engagement that are purely transactional, that is, merely a supplier–customer relationship (O'Dwyer and O'Flynn 2005). A single-case approach has precedents in the literature both in terms of clusters (e.g. Birkinshaw's (2000) study of the Stockholm IT cluster and Enright's (2000) study of the Hong Kong financial services cluster, and of interventionist efforts (e.g. McNaughton and Bell's (1999) study of a networking scheme in New Zealand and Prashantham and Young's (2004) study of an international business

intermediary in the Indian software industry. The Scottish IT industry provides a suitable setting for the present study. It contains subsidiaries where all three conditions (entrepreneurial, cluster based and knowledge oriented) overlap in several cases (Birkinshaw *et al.* 2005). One such example is Sun Microsystems Scotland, which was instrumental in the creation of STAC. Scottish public policy has long been concerned with increasing knowledge transfer from what are perceived to be 'lightly embedded' subsidiaries (Collinson 2000), and hence the STAC initiative is relevant to the overall business environment in which it exists.

An overview of the STAC initiative is presented based upon ten interviews with managers involved in the programme conducted between February and November 2004. A daylong participant-observation exercise at the STAC offices in mid-November permitted detailed interaction with the staff members. This approach is similar to Spradley's (1979) ethnographic interviewing technique, which is not ethnography in the strictest sense, but seeks to combine interviews and observation to obtain insight into the phenomenon under study. In addition to interviews with the STAC staff, five interviews were conducted with relevant non-STAC informants in Scotland (e.g. software entrepreneurs not involved in STAC and economic developmental professionals) to corroborate the views expressed by the STAC-related informants. We were also given access to consultancy reports from two different and independent sources on STAC's progress and prospects. Confidentiality agreements preclude referring to those reports in any detail. There was substantial consistency between these reports and the data we collected about STAC. In addition, secondary data were analysed including presentations, reports and case studies of current collaborations.

Findings

The origin of STAC

The origin of the STAC initiative can be traced to a suggestion made in 2002 by Gordon Cameron, then an executive with Sun Microsystems Scotland and a director on the board of the software trade body, ScotlandIS. Cameron, himself a Scot, voiced a desire to engage meaningfully with local innovative SMEs (also represented on the ScotlandIS board) with a view to combining complementary capabilities and achieving mutually beneficial outcomes such as new product development and innovation.

This suggestion was well received, and a feasibility study was conducted during the first half of 2003. This study indicated widespread support for a collaboration-facilitating initiative, but also highlighted the existence of barriers, in terms of limitations of information, processes and trust. Scottish Enterprise and ScotlandIS granted funding for a pilot project in June 2003, and Minister for Enterprise Jim Wallace formally launched STAC in November 2003. Wallace summarized the intended benefits:

Smaller companies at the cutting edge of ideas will benefit by working with larger companies and being able to access new markets. Previously they might have had difficulty attracting the attention of the global players. The larger companies can benefit by knowing which companies in Scotland have the ideas they need, where previously they might have had to shop further afield. All benefit from a greater awareness of what is happening elsewhere in the Scottish software sector and from sharing ideas

(Scottish Executive 2003)

Within the first year, 270 members (of which 25 per cent are ScotlandIS members) signed up as STAC members – though a much smaller number have actually engaged in building ‘stacs’ (i.e. actual collaborative programs).

STAC’s approach

STAC’s approach is based on the notion of ‘virtual enterprise’ where firms collaborate to exploit a business opportunity by focusing on different aspects of the value chain (Katzy and Schuh 1998). In the specific case of the STAC initiative, the approach involves the compilation of so-called ‘stacs’. A ‘stac’ is a group of companies that jointly work towards an innovative outcome, usually a new product offering. A ‘stac’ typically involves a ‘pillar’ MNC subsidiary and two SMEs. These actors pool complementary resources and capabilities to develop, typically, new product offerings. An early learning outcome for STAC was the utility of identifying and involving a potential customer in the collaborative effort.

STAC’s intervention entails three key activities – ‘architecting’, brokering and coaching. *Architecting* is the first stage and typically begins when an initial approach is made by a company (be it an SME or an MNC) with a new product idea. STAC’s ‘architects’ (two full-time staff members) identify the complementary skills needed from other actors and specific potential candidates from its database of organizations. *Brokering* is the next step and is undertaken by the architects (although previously this was outsourced to a networking organization). Brokering involves introducing potential collaborators and facilitating a process of determining a mutually satisfactory work arrangement (e.g. pertaining to intellectual property), often with the help of external legal experts. *Coaching* is included in the mix of activities based on the notion that technological compatibility is no guarantee for interpersonal harmony. A specialist coach (also a former software entrepreneur) is therefore part of the team.

STAC’s outcomes

In its first year (November 2003–November 2004), the initiative identified eight ‘stacs’. These had made different rates of progress. Two were designated as ‘fast-track’ stacs given their rapid and substantial progress. In both cases, the MNC subsidiary involved is Sun Microsystems’ Scottish unit, from which the

idea for STAC had originated in the first place. However, it is also clear that Sun's involvement is not explained by the idiosyncratic behaviour of an individual, since both of these stacs developed after Cameron had left the organization. Thus, Sun's participation in the stacs seems to reflect organizational characteristics – such as its embeddedness within the cluster, entrepreneurial orientation and knowledge intensity.

One of these fast-track stacs is briefly described to illustrate the potential outcomes of the programme. This stac involved two Scottish SMEs, one with expertise in oceanic research and the other, in wireless software. These two firms decided (without external facilitation) to work together on a solution to enhance accuracy in product tracking for the Scottish seafood industry. However, they lacked a technology that could enhance the solution, namely, radio frequency identification (RFID). Sun Microsystems Scotland possessed RFID technology. Through STAC, a stac was 'architected' and brokered involving the two SMEs and Sun. The architect of the stac describes their efforts:

The STAC team highlighted the project as being both extremely innovative and having strong international potential and offered support. STAC brokered the introduction of the two SMEs to a major technology company [i.e., Sun Microsystems] with an internationally renowned RFID capability. STAC team members worked closely with the three companies to build trust and develop a strong collaborative relationship. STAC subsequently facilitated a working session with one of Scotland's top legal firms who, as STAC partners, contributed time and expertise on potential business, IPR and partnership models to the project.

This stac illustrates a common situation – the SMEs found it relatively easy to engage with each other, but struggled to gain the attention of larger multinational entities. Equally, it is evident that Sun Microsystems in Scotland were actively seeking local innovative companies to work with, but failed to identify the local SMEs on their own.

It is worth highlighting the activities that STAC carried out to facilitate joint product development. Sun's input was manifested in the form of meetings arranged at various points in time in the process, initially bringing together the three companies and subsequently other stakeholders as well, such as a prospective client from the Scottish seafood industry. Additionally, the STAC coach had individual meetings with the three companies in order to understand their respective mindsets and aspirations, which he believed was important if he was to foster trust and collaboration among them. In addition, a session with external input was arranged on possibilities and pitfalls concerning legal arrangements of collaboration, covering issues like ownership of intellectual property. Our non-STAC respondents gave us the impression that STAC generally exhibited proactiveness in arranging such inputs and the meetings referred to above.

In this case, the STAC worked to increase the visibility of the two SMEs. A

Sun Microsystems executive commented: ‘STAC ... enabl[ed] Sun to gain *visibility* of, and access to, innovative Scottish SMEs’ [emphasis added]. There was a similar enhancement of efficiency, brought about by legal advice on working arrangements. The managing director of one of the SMEs commented: ‘STAC provided our companies with a top class legal session that helped us cut through the complexities and multiple options involved to suggest workable strategies’. The specific intended outcome of the collaboration was a new product offering, with the clear intent of taking it to international markets. Sun Microsystems Scotland, in turn, benefited from an opportunity to demonstrate and improve its technological capability as it sought an enhanced mandate for RFID research from its parent company. As of November 2004 when this study was concluded, it was unclear whether either of these outcomes would be achieved. The strategic intent and potential for these outcomes – through the formation of social capital – could, however, be clearly seen.

Discussion

Our synthesis of the extant literature suggests that barriers exist that impede the formation of asymmetric ties such as those between MNC subsidiaries and SMEs. Such barriers relate to a lack of information (low visibility), processes (limited efficiency) and trust (absence of intimacy). STAC’s interventionist activities of architecting, brokering and coaching address these gaps. They reflect differences from the creation of hard networks of SMEs (McNaughton and Bell 1999) where the issue primarily addressed is under-investment in social capital rather than the aforementioned barriers per se, which hamper the formation of asymmetrical inter-firm ties, such as those between SMEs and MNC subsidiaries.

Overcoming a lack of information

The architecting process addresses a macro-level information gap – regarding what other capabilities are *available* in the region in the first place. Professional in-groups often create bonding social capital that ‘blinkers’ actors who, as a consequence, have limited awareness of other fields of expertise (Putnam 2000). This is particularly so if these fields comprise dissimilar organizational entities. Thus, in the Scottish IT industry, STAC’s architecting educates actors about other capabilities that can be found in the region. In a similar vein, the architecting function overcomes related informational gaps by identifying specific organizations with relevant and complementary capabilities. The brokering function overcomes somewhat more specific barriers through the provision of technical information of what needs to be done in operational or legal terms in order to establish a collaborative arrangement. Finally, coaching may overcome intra-team information barriers – once a stac is formed – that allows greater visibility for the specific individuals involved in the product development project.

Overcoming a lack of processes

Architecting addresses an extant process-related barrier, namely, that of *assembly* of a set of actors that are prospective collaborators. In the case study, this is achieved through entry into STAC's membership fold. Brokering addresses more specific process issues such as the precise nature of the collaborative arrangement as well as management of the consequences of collaboration – in the case of STAC, mainly intellectual property. Thus, skilful brokering can be useful in facilitating more efficient interfaces between MNC subsidiaries and SMEs (Doz 1988). Coaching also addresses important process issues since merely bringing together actors with complementary goals and capabilities will not by itself result in successful alliances (Inkpen 2000). Coaching helps to develop soft skills such as teamwork. This could facilitate effective processes of teamwork for the product team *and* cross-functional working with the personnel subsequently involved in internationalization.

Overcoming a lack of trust

Architecting brings together, at a more macro-level, 'trustworthy' actors, given STAC's non-partisan image. Perhaps more pertinently, brokering ensures this to a greater extent, at a more specific level, through the quality assurance involved in this process; STAC 'brokers' alliances only after ensuring actors' bona fides. The coaching process facilitates direct and honest communication and empathy, thereby fostering reciprocity and trust. Trust is an important hallmark of social capital, which in turn facilitates the creation and acquisition of knowledge (Nahapiet and Ghoshal 1998; Yli-Renko *et al.* 2001). Of course, while social capital is often treated at the inter-organizational level, in reality social capital arises from the interactions of *individuals*. The coaching process – which is perhaps the most unique and innovative aspect of STAC's intervention – helps to improve this very aspect through improved communication and empathy, as noted earlier. This discussion is summarized in Table 9.1.

It would seem that STAC's three-fold approach has a dual impact on the relationship between social capital (generated among the stac collaborators) and knowledge outcomes (in this case, product development). These outcomes, in turn, have the potential to lead to internationalization. The first impact pertains to the development of social capital. All the three processes of architecting, brokering and coaching seem relevant through the lowering of barriers that impede the formation of network ties, as just noted. The second impact, we argue, pertains to the development of relative absorptive capacity (Lane and Lubatkin 1998). Absorptive capacity, as seen earlier, is the dynamic capability to acquire, assimilate, adapt and apply knowledge (Zahra and George 2002b). It is a key factor in the occurrence of organizational learning in the context of IORs (Barringer and Harrison 2000) where there is the intention, willingness and compatibility to learn (O'Dwyer and O'Flynn 2005). In particular, the activities along the 'diagonal' (top left to bottom right) in Table 9.1 are likely to be particularly

Table 9.1 STAC's activities – overcoming barriers to social capital formation

<i>STAC activity</i>	<i>Lack of information (visibility)</i>	<i>Lack of processes (efficiency)</i>	<i>Lack of trust (intimacy)</i>	<i>Synthesis</i>
<i>Architecting</i>	Overcomes broader information gaps of capabilities available within the region	Overcomes broader processual voids through a set of potential collaborators (via STAC's membership)	Overcomes broader trust issues through STAC's non-partisan, credible image	In general deals with barriers at a more macro (i.e. regional) level
<i>Brokering</i>	Overcomes more specific firm-related information gaps in terms of operational aspects of collaboration	Overcomes more specific firm-related processual voids through legal expertise/arrangements	Overcomes more specific firm-related trust issues through quality assurance	In general deals with barriers at a more meso (i.e. inter-organizational) level
<i>Coaching</i>	Overcomes information gaps at a more micro level (e.g. within an inter-firm project team)	Overcomes processual voids amongst collaborators through 'soft' skills (e.g. teamwork)	Overcomes trust issues within 'stacs' by facilitating honest and direct communication	In general deals with barriers at a more micro (i.e. intra-'stac' or collaborative team) level

relevant in fostering absorptive capacity. In other words, absorptive capacity is enhanced by (a) the role of architecting in overcoming informational barriers, (b) the role of brokering in overcoming process-related barriers and (c) the role of coaching in overcoming trust-related barriers. Of course, the ultimate outcome expected from the process is SME internationalization, through leverage of the ensuing knowledge creation (particularly in the tangible form of a new product). As noted, as of November 2004, it was too early to gauge the realization of these potential outcomes. We recognize this as a limitation of the study. Nevertheless, here we have an insightful illustration of a public policy initiative that recognized a source of (MNC subsidiaries), and sought to develop, local bridging social capital with the clear intent of facilitating international entrepreneurship among local SMEs.

Conclusions

In seeking to shed some light on an underutilized (and under-researched) source of social capital for knowledge-intensive SMEs, this article highlights three points. First, MNC subsidiaries are potentially a source of social capital that may lead to desirable internationalization outcomes. Second, barriers (in terms of a lack of information, processes and trust) to the creation and advantage of such social capital exist. Third, credible facilitative intervention – characterized by ‘architecting’, brokering and coaching – can lower these barriers, as seen from the example of Sun Microsystems and the two SMEs.

Despite the exploratory nature of this study, some useful implications for theory and practice can be drawn. The study suggests a number of research propositions that future research could fruitfully test. These include the notion that multinational subsidiaries can be a source of social capital to SMEs and that intervention in terms of architecting, brokering and coaching lead to social capital and strengthen the likelihood of knowledge outcomes through greater absorptive capacity, which in turn potentially leads to internationalization. It would also be useful for further exploratory research to be carried out to shed more light on SME–MNC subsidiary relationships. This would include further exploring evidence of the incidence of such ties (including unearthing more examples of successful and less-successful case studies), the barriers to establishing these linkages and measures – by both practitioners and policy makers – that seem to overcome these barriers. Our study is a modest effort to highlight some of the basic insights but we anticipate that much more exploratory and theory-testing work can be undertaken quite fruitfully in this overlooked aspect of international entrepreneurship.

International entrepreneurship scholars have called for the broadening and nuancing of the research agenda (Dimitratos and Jones 2005; Oviatt and McDougall 2005b; Zahra 2005) as it moves beyond its first decade (1994–2004). In keeping with its eclectic nature, international entrepreneurship research could fruitfully draw upon ideas from international business and economic geography on locational effects (Buckley and Ghauri 2004), and from research at the inter-

section of strategy and entrepreneurship on the role of social capital in small/new ventures' growth (Florin *et al.* 2003). Combining these ideas, the effects of a small/new firm's *local* social capital on early internationalization and performance merit closer attention. This is particularly true when such social capital is bridging in nature, as recognized by entities such as STAC. Thus, cluster-related initiatives and efforts to bridge small/new firms with valuable sources of social capital, such as MNC subsidiaries, could give rise to born globals. Understanding such phenomena better can enhance extant understanding of born globals and help broaden the international entrepreneurship agenda.

The recognition that MNC subsidiaries constitute a source of social capital to local knowledge-intensive SMEs is of considerable theoretical significance to international business research, but also has useful practical implications. Normatively, entrepreneurs and managers should be encouraged to proactively recognize and leverage sources of social capital that may be underutilized. Such efforts, and policy measures to facilitate this, may be most effective when undertaken within knowledge-intensive clusters. Even in such settings, however, concerted efforts by all actors are necessary. Interventionist efforts need to establish themselves as neutral and honest brokers. Also, a longer time horizon may be necessary before the impact of these interventions can be properly gauged, given that knowledge outcomes (e.g. new product development) are likely to mediate international entrepreneurship. This calls for persistence and patience on the part of practitioners and policy makers. However, there is little doubt that ties between SMEs and MNC subsidiaries hold importance, not just in already thriving business settings but also, potentially, for wider economic development. A recent UN report urges policy makers in developing countries to 'develop linkages with multinational and large domestic companies to nurture smaller companies' (UNDP 2004: 3). Initiatives such as STAC can be vitally important in this regard.

10 Future research directions

This volume's introductory chapter highlighted the significance of small-firm internationalization as a natural domain of strategic entrepreneurship, the core idea of which is that 'firms need to be simultaneously entrepreneurial and strategic' (Hitt *et al.* 2001: 488). The subsequent eight chapters have sought to make a modest collective contribution to extant understanding of how small firms internationalize resourcefully. As noted, network relationships (the study of which is also an important domain of strategic entrepreneurship) can greatly facilitate small-firm internationalization. This idea has been the focus of the volume, comprising both conceptual pieces and the empirical papers based on case study research in the Bangalore software industry. Despite the efforts that this volume represents and the scholarly contributions of many (e.g. Coviello 2006; McNaughton and Bell 1999; Yli-Renko *et al.* 2002), there is still scope for more research in the future that would enhance understanding of this subject and, in particular, deepen linkages to other domains of strategic entrepreneurship. This concluding chapter offers some thoughts on two interrelated future research directions: (1) the utility of integrating internationalization and innovation research with respect to small firms and (2) the potential role of MNCs as a source of social capital. These are discussed in relation to three key themes of this volume:

- 1 the development of social capital;
- 2 the leverage of social capital;
- 3 the management of portfolios of social capital.

Research Direction 1: integrating innovation and internationalization research

As noted earlier in this volume, there is an important interplay between resources (especially knowledge) and networks (social capital). There continues to be great scope to study the role of resources, learning and networks in innovation (e.g. Yli-Renko *et al.* 2001) and internationalization (e.g. Yli-Renko *et al.* 2002). A key thrust in this call for future research concerns the potentially reciprocal relationships between innovation and internationalization. The broad inter-

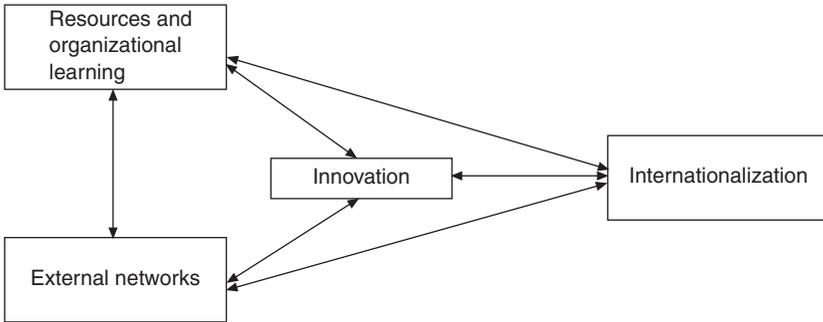


Figure 10.1 An integrated perspective of internationalization research.

relationships between various domains of strategic entrepreneurship are depicted in Figure 10.1.

Developing social capital

While useful insights on the development of social capital have emerged from research on networks and internationalization (including the studies in this volume), clearly more needs to be done to understand *how* internationalizing small firms develop social capital. For instance, little is known about which networking *behaviours* are most strongly associated with achieving greater visibility. Another issue that merits attention is whether social capital types and networking strategies have substitution effects. Also, it would be of interest to understand the nature of knowledge that lies at the core of firms' capability to replenish social capital stocks. Johanson and Vahlne (2006) suggest that social capital and knowledge co-evolve, which implies that inasmuch as social capital leads to knowledge (Nahapiet and Ghoshal 1998; Yli-Renko *et al.* 2002), knowledge may lead to social capital. If so, then surely more research is required to extend our understanding of how, over time, 'firms learn how to work effectively with partners and build trusting relationships' (Hitt *et al.* 2001: 482).

A related aspect of research concerns the distribution of entrepreneurs and top management teams' attention across different network relationships. Indeed, one of their most scarce resources is their attention (Ocasio 1997). The cultivation of network relationships and social capital calls for the allocation of attention across ties (Granovetter 1973). Little is presently known about how international entrepreneurs prioritize their attention across network relationships. Another issue warranting deeper insight is the role of programmes that seek to foster the development of social capital. Private and public sector efforts (e.g. the initiative discussed in Chapter 9) represent the expenditure of considerable time, money and effort to enable small firms to build social capital. However, little is known about their efficiency, and as such this phenomenon seems under-theorized in the internationalization literature.

Furthermore, in relation to the development of social capital, it could be useful to draw upon economic geography to understand better the links between spatial concentration of industries – which have an impact on innovation (Porter 1998b) – and social capital formation. This could relate both to small firms' local milieu as well as to their sub-national location within international markets. Dimitratos *et al.* (2003) have highlighted the fact that internationalizing small firms increasingly establish a presence in international markets, often via alliances and network governance mechanisms (Oviatt and McDougall 1994), which can lead to improved firm performance (Lu and Beamish 2001). Less appears to be known about *sub-national* location choices within international markets. Location within dynamic clusters in international markets could facilitate the formation of social capital (Birkinshaw and Hood 2000; Inkpen and Tsang 2005). It is also likely, however, that such milieus are characterized by greater competition for other actors' scarce attention, thereby increasing the challenge of gaining visibility within social networks. As such, the role of regional agglomeration in social capital formation for internationalizing small firms merits more scholarly attention in the future.

Leveraging social capital

While the preceding chapters shed light on the useful effects of leveraging social capital actively (rather than passively), a more holistic perspective can be obtained by focusing not merely on internationalization outcomes but also on innovation outcomes. As noted in the introductory chapter, like internationalization, innovation is a naturally occurring domain at the strategy/entrepreneurship interface (Hitt *et al.* 2001). However, research in these areas has tended to be undertaken in parallel. To illustrate, Yli-Renko *et al.* (2001) found inter-organizational social capital to facilitate innovation outcomes (e.g. new product development) for a sample of 180 British small/new knowledge-intensive firms. Focusing on key customer relationships, they argue: 'By intensifying knowledge-sharing activities, social interaction serves to increase the relative capacity and effectiveness of a young technology-based firm in recognizing and absorbing external knowledge from the key customer' (Yli-Renko *et al.* 2001: 591). Yli-Renko *et al.*'s (2001) study fails to consider how innovation outcomes from social capital in the *domestic* market could lead to *internationalization*. Separately, Yli-Renko *et al.* (2002) studied small/new Finnish knowledge-intensive firms that grew internationally through leveraging inter-firm social capital. Once again, explicit links between innovation and internationalization are not made.

Such parallel studies suggest that it is plausible that social capital could have mutually reinforcing benefits on innovation *and* on internationalization. Social capital in the local milieu could lead to product innovation (Yli-Renko *et al.* 2001), which in turn could allow smaller firms to make globally mobile offerings, leading thereby to rapid and accelerated internationalization (Autio *et al.* 2000). Furthermore, social capital may not only help smaller firms to interna-

tionalize, but also new stocks of social capital may arise in international markets as a consequence of internationalization. Social capital gained in international markets could lead to technological learning (Zahra *et al.* 2000), which in turn may strengthen or create product innovation. Prior research appears to have overlooked an *integrative* perspective of innovation and internationalization in the context of smaller firms. Future work could go further to shed light on smaller firms' innovation *and* internationalization activities, especially as innovation and internationalization would seem to be strongly intertwined for internationalizing small knowledge-intensive firms (consider the mini-case in the previous chapter, for example).

Managing social capital portfolios

It was noted in the introductory chapter that the spatial concentration (local/domestic versus foreign/overseas) of network relationships is an important means of categorizing social capital within a small firm's portfolio. Research presented in this volume indicated differential effects of local and foreign network relationships on internationalization (Chapters 6 and 7). Future research should take into account the idea that local networks *do* matter in the context of small-firm internationalization. Another potential area of enquiry relates to the nature of learning associated with different network relationships. For instance, it may be that exploratory learning is more strongly associated with weak ties and exploitative learning with strong ties (Hite and Hesterly 2001). The rationale for this suggestion is that weak ties are associated with greater novelty of information (McEvily and Zaheer 1999) that would be conducive for knowledge exploration. Strong ties, on the other hand, are associated with greater trust, a requisite for the inter-firm collaboration that is often entailed in knowledge exploitation (Yli-Renko *et al.* 2001). As a variant of this idea, it may be that certain types of alliances tend to be formed with strong ties rather than weak ties, and vice versa. Lavie and Rosenkopf (2006), for instance, associate new product development (NPD) alliances with exploration while alliances that are focused on sales, which may be referred to as new business development (NBD) are concerned with exploitation. Linking this to the point made previously, strong ties may be associated with NPD alliances (Yli-Renko *et al.* 2001) and weak ties with NBD alliances (Coviello 2006). Of potential interest would also be research into the behaviour and cognition associated with internationalizing small firms being able to leverage network relationships to simultaneously achieve exploration and exploitation. In other words, future research could fruitfully examine strategic ambidexterity in internationalizing small firms (Lubatkin *et al.* 2006).

The innovation–internationalization relationship

A key point made in advocating a more integrated strategic entrepreneurship perspective in small-firm internationalization research is that more attention

ought to be paid to the (potentially reciprocal) relationship between innovation and internationalization. Although it is suggested that 'companies that have internationalized experience economies of scale and have a larger market from which to obtain returns on their innovation' (Hitt *et al.* 2001: 485), relatively little is known about the interplay between innovation and internationalization in the context of the smaller firm.

Innovation may be an antecedent or consequence of internationalization. As an antecedent, there is some ambiguity about the extent to which innovation is associated with internationalization; for example, Bloodgood *et al.* (1996) failed to find a positive relationship between ventures' R&D intensity and extent of internationalization, but Zahra (1996) suggests that internationally oriented smaller firms are inclined to pursue radical innovations aggressively. As an outcome, internationalization is associated with innovation in established MNCs as they have 'incentives to invest in innovation, resources to invest in innovation, and greater returns from innovation' (Hitt *et al.* 1997: 775). The small-firm internationalization literature also indicates that international expansion could lead to useful technological learning outcomes (Zahra *et al.* 2000). More needs to be understood about the causal mechanisms of precisely how technological learning arises through exposure to international markets (Zahra *et al.* 2000) as well as when and how such learning would translate into innovation outcomes. It is also worth highlighting the distinction between incremental and radical innovation and considering the circumstances under which each type constitutes an antecedent or consequence of entrepreneurial internationalization.

As such, paying greater attention to the relationships between innovation and internationalization is pertinent given that other domains in strategic entrepreneurship – notably resources/organizational learning and external networks – are potentially of great relevance to *both* innovation and internationalization (Yli-Renko *et al.* 2001, 2002).

Research Direction 2: the potential role of MNC social capital

Additionally, an interesting notion is that of network relationships that can *span* geographies. An example from the chapter on local network relationships (Chapter 6) relates to the MNC as a source of social capital. This notion was further expanded upon in the previous chapter where a public policy initiative to link small firms with MNC subsidiaries was discussed. Other authors too allude to the possible beneficial outcomes of such links. Acs and Terjesen (2005) describe a mediated route to internationalization for innovative small firms wherein their innovations are absorbed into large MNCs' value chain and, indirectly, deployed on a global scale. It may also be possible for more direct involvement of the smaller firm in its own internationalization while engaging with large MNCs. The appeal of MNCs as a source of social capital¹ lies in the potential for ties to be formed in the small firms' *local* milieu and yet for bene-

fits to accrue in *international* markets as well. The interest in MNCs as a source of social capital lies, at least partially, in the scope it may provide small firms to deal with various tensions and tradeoffs that they must deal with. Three such tensions are discussed below, each relating to the three key themes of developing social capital, leveraging social capital and managing social capital portfolios.

Developing social capital: the overembeddedness trap

As firms develop social capital, they forge an identity for themselves within a network of relationships. It is argued that as these firms' network range, density and centrality increase, and so does their social capital (Coviello 2006). In many ways, the consequences of being embedded within a network are positive; firms' influence, solidarity and information benefits can increase (Adler and Kwon 2002). However, network relationships also have a 'dark side'. One of the key problems is the constraining effects that network relationships may have. Firms that are overly embedded in their social networks may get caught up in a mode of groupthink, a potential problem of which is that they cease to be sufficiently critical in their thinking (Uzzi 1997). Furthermore, overembedded firms are less inclined to behave in a manner that adversely affects the status quo and therefore prefer to engage in incremental rather than radical, entrepreneurial behaviour (Simsek *et al.* 2003). Radical entrepreneurial behaviour, which is more likely to be associated with radical innovation outcomes (Zahra 1996), could lead to competition and friction and may therefore be shunned by the overembedded firm.

Thus, a tension that confronts innovative small firms is a dilemma between getting deeply embedded in a social network – which can result in greater solidarity and support (Adler and Kwon 2002; Granovetter 1973) – and remaining only lightly embedded. Put differently, a tension pertains to how innovative small firms can participate in their social networks without diminishing their propensity for radical entrepreneurial behaviour. Admittedly, not all firms may be conscious of this dilemma or strongly focused on radical entrepreneurial behaviour; indeed, some firms may be content to engage in incremental entrepreneurial behaviour. However, for those small firms and new ventures that are serious about developing technological innovations, they face a dilemma in terms of the extent of the breadth and depth of their network relationships – in other words, about the extent of their embeddedness within inter-firm networks (Simsek *et al.* 2003).

Leveraging social capital: the ambidexterity challenge

It has been argued that effective smaller firms do not passively engage within their inter-firm networks, but rather leverage their social capital actively. In order to leverage their social capital, firms must recognize social capital to be a resource and be able to build trust with other actors (Hitt *et al.* 2001). However,

an issue that small firms must consider is to what end they utilize their social capital. As seen, an important benefit of social capital is the creation and acquisition of knowledge – in other words, learning outcomes (Johanson and Vahlne 2006; Nahapiet and Ghoshal 1998; Yli-Renko *et al.* 2002). The learning outcomes may, however, vary in terms of their orientation towards exploitation or exploration (March 1991). Differing learning outcomes (exploitation vs. exploration) may result from the nature of *activities* pursued through inter-firm efforts. Lavie and Rosenkopf (2006) attribute exploitation outcomes to activities concerned with new business development and exploration to new product development efforts. Exploratory innovation (e.g. new product development) is certainly an important dimension for many small knowledge-intensive firms. Such innovation may have been required for international expansion to have been feasible in the first place. Local network relationships may be utilized in the new product development process (Yli-Renko *et al.* 2001). Subsequent activities may be more exploitative in terms of achieving international sales; strategic alliances with actors possessing valuable local knowledge in international markets may be helpful in this regard (Dimitratos *et al.* 2003).

Even after internationalization commences, the imperative for technological innovation does not cease. Ever shortening product life cycles, competitor moves and client feedback – all can put pressure on small firms to continue generating innovations. Thus, internationalization and innovation are ongoing and often concurrent processes, where learning outcomes – both exploitative and exploratory – are constantly required. The tension between exploitation and exploration is well documented in the literature. Both represent important learning outcomes and both are required. As March (2006: 205) asserts, ‘Exploitation without exploration leads to stagnation and failure to discover new, useful directions. Exploration without exploitation leads to a cascade of experiments without the development of competence in any of them or discrimination among them’. It is difficult to achieve both simultaneously because these knowledge processes are contradictory (Smith and Tushman 2005). However, firms that are able to achieve ambidexterity consequently achieve superior performance (Lubatkin *et al.* 2006). While firm-specific factors such as top managers’ cognition and behaviour (Lubatkin *et al.* 2006; Smith and Tushman 2005) influence firms’ ability to balance exploitation and exploration, clearly an additional issue comes into the picture – learning outcomes as a consequence of social capital, as seen.

Managing social capital portfolios: the attention deficiency

It has been noted that firms possess portfolios of network relationships that differ variously – for instance, in terms of intimacy (strong vs. weak ties) or social homogeneity (bonding vs. bridging social capital). It has been argued that geographic proximity (local vs. foreign network relationships) is another relevant dimension in the context of small-firm internationalization. As noted, social capital in both the local milieu and in international markets can lead to innova-

tion outcomes. However, the spatial distribution of network relationships across national borders (local vs. foreign) can be a source of tension, given the limited amount of attention (Cyert and March 1963; Ocasio 1997) that small firms have to devote to the cultivation of network relationships. Despite advances in communication technology that facilitate the nurturing of relationships (see Chapters 4 and 8), choices have to be made in terms of prioritizing attention across network relationships. International travel and face-to-face communication remain important. Entrepreneurs, who bear a great burden in terms of managing social capital as seen in this volume, have finite resources of attention and travel budgets that they must judiciously utilize. From the perspective of innovation, the acquisition of technological knowledge from international markets may require large amounts of attention to be allocated to key relationships (Yli-Renko *et al.* 2001; Zahra *et al.* 2000). The challenge of managing cross-border social capital portfolios is also exacerbated by cross-cultural differences – greater attention may be required when dealing with network relationships where these differences are considerable.

The role of MNC social capital

While scholars tend to focus on internationalization or innovation when studying small and new firms, in reality the firms have to deal with both challenges simultaneously, which leads to certain tensions. Those firms that adopt a strategic entrepreneurship perspective would seek to deal with these issues using ‘entrepreneurial action with a strategic perspective’ (Hitt *et al.* 2001: 480). With respect to each, the potential role of MNC social capital in alleviating these tensions is briefly considered, with a view to stimulating future research.

In terms of the overembeddedness trap, relationships with local MNC subsidiaries could be a useful antidote. MNC subsidiaries are known to be fleet-footed and lightly embedded (Birkinshaw and Hood 2000) – often to the regret of local policy makers who would prefer their closer involvement with local actors. However, this very attribute of MNC subsidiaries could be a ‘blessing in disguise’ for small firms; in other words, ties with MNC subsidiaries are likely to be devoid of the intense reciprocity that may characterize other local network relationships (e.g. with other local, small firms). Consequently, smaller firms may be less inhibited from engaging in radical entrepreneurial behaviour (Simsek *et al.* 2003). Indeed, it is likely that MNC partners would encourage such behaviour without feeling threatened by smaller firms that are unlikely to pose direct competition.

In terms of the ambidexterity challenge, MNC social capital provides scope for both exploration (e.g. new product development) and exploitation (e.g. new business development) activities. Subsidiaries of MNCs like IBM and Microsoft offer partnering programmes that cover both of these activities as long as firms use their technology platforms. Initial activities tend to comprise exploratory innovation, that is, new product development; resources that small firms could tap into include free software and free advice from the MNCs’ in-house

competency centres. Subsequently, MNCs are often willing to promote the technological offering worldwide, that is, to engage in exploitation (new business development), especially if there are derivative sales for its own technology platform (e.g. an operating system). In reality, this of course means that a small firm would compete with several other firms that sign up for the same partnership programme. Moreover, not every subsidiary or sub-unit of the MNC may be equally cooperative or interested in assisting small firms. Nonetheless, at least in principle, frameworks are in place for partnering activities that cover both exploration and exploitation. In other words, MNC social capital can be a vehicle for ambidexterity.

In terms of small firms' attention deficiency, the MNC provides the scope for both local and international relationships by virtue of itself being a globally dispersed multi-unit network. The small firm may have to take the initiative to become well known within the local subsidiary in the first instance and, in due course, gain visibility at the MNC's headquarters and/or other subsidiaries. Nonetheless, the *possibility* exists that the MNC can provide an efficient focus for small firms' attention, thereby offsetting the burden of allocating scarce attention across milieus owing to its inherent spatial dispersion.

Thus internationalizing small firms have to cope with various tensions – which may interact and overlap with each other, as evident from the above discussion – as they develop and leverage their social capital portfolios. It is conceivable that ties developed with MNCs via their local subsidiaries could help small firms deal effectively with these tensions. An important theoretical consideration is that these *geography-spanning* relationships could provide an efficient means for small firms to channel their attention into *both* local and international markets through MNC links. Given the ever-growing pressure to identify and absorb external innovation across the world (Doz *et al.* 2001), many technology-intensive MNCs are making exactly such an offer to innovative small firms through partnership programmes. Provided the small firm uses the MNC's technology, the offered links could potentially facilitate NPD in the local market and subsequently NBD efforts in international markets. In short, MNCs can be a source of social capital that spans geographies (local vs. international milieus) and functions (exploratory innovation via NPD and exploitative learning via NBD). Attractive though the proposition may be to some small firms, the challenge of building visibility, efficiency and intimacy would be, if anything, even greater when engaging with giants such as IBM or Microsoft. MNCs are complex organizations where the development and leverage of social capital calls for boundary-spanning activities across various sub-units (Inkpen and Tsang 2005; Kostova and Roth 2003).

It is worth pointing out, in passing, that MNCs are likely to pursue not only conventional innovation such as technological breakthroughs or improvement (Doz *et al.* 2001). They are also poised to increasingly seek out non-conventional innovation that allows them to benefit from opportunities at the 'bottom of the pyramid' comprising millions of people of the lowest means (Prahalad 2004). The argument is that the bottom of the pyramid represents a largely

untapped market for those innovative MNCs that can adopt a novel mindset and formulate relevant offerings at appropriate price points (see Prahalad 2004 for examples such as rural microfinance and shared telephony services in the Indian subcontinent). In doing so, MNCs will almost certainly have to engage with local actors, including small knowledge-intensive firms which possess valuable, local knowledge. It is conceivable that these smaller firms, especially those based in developing countries, could achieve unprecedented innovative outcomes in concert with MNCs at the bottom of the pyramid. Given the widespread dispersion of bottom of the pyramid markets across the world, the opportunity is inherently international.

* * *

And so in conclusion, it is suggested that a wonderful opportunity exists for small-firm internationalization researchers to extend the field through explicitly integrating innovation into their work and by considering the role of MNC social capital. Of course, it is not implied that either achieving innovation outcomes or building social capital with MNCs is that easy. These endeavours are certainly not for the faint-hearted; yet for those innovative small firms that do engage in these activities, potentially great rewards will accrue. Even as innovative and internationally minded small firms have unprecedented opportunities before them, small-firm internationalization researchers should be pleased that the research agenda in this area promises to remain as exciting as ever.

Notes

Preface

- 1 My subsequent work has used survey data in hypothesis-testing mode.

3 Knowledge and internationalization

- 1 The contributions, along similar lines, of other scholars such as Bilkey and Tesar (1978) and Luostarinen (1980) are acknowledged; however, on the basis of its widespread citation, Johanson and Vahlne's (1977) thesis has clearly been the most dominant perspective in the literature and informs this chapter's discussion as the standard treatment of traditional internationalization theory.
- 2 The contribution, along similar lines, of Knight and Cavusgil (1996) is acknowledged; however, based on citation count, the Oviatt and McDougall thesis is taken as the standard treatment of more recent perspectives of internationalization that have challenged traditional approaches, as typified by Johanson and Vahlne (1977).
- 3 Market knowledge encompasses three dimensions, identified by Eriksson *et al.* (1997) as business knowledge, institutional knowledge and internationalization knowledge:
 - Business knowledge pertains to knowledge about the micro external environment of foreign market(s), that is, knowledge about such aspects as market's customers, competitors and distributors.
 - Institutional knowledge pertains to knowledge about such aspects as business laws, cultural norms, regulatory standards and language skills; in other words, those facets of a market that typically lead to psychic distance (Johanson and Vahlne, 2003).
 - Internationalization knowledge refers to knowledge that leads to an ability to develop and implement an internationalization strategy; one anonymous reviewer refers to this as international business 'how-to'.
- 4 The author thanks an anonymous reviewer for this helpful suggestion.
- 5 This chapter is *not* concerned with proposing a social capital theory of internationalization. Rather, the focus is on knowledge, in which context social capital can be fruitfully integrated as discussed in this section.
- 6 For knowledge construct measures, see Autio *et al.* (2000) and Eriksson *et al.* (1997); for social capital construct measures see Yli-Renko *et al.* (2001, 2002).
- 7 New construct measures pertaining to the application of Internet technology may have to be developed, but see Brock and Berry (2004) for an example of how this could be done.

6 Local networks and internationalization

- 1 This study adopts Prashantham and Berry's (2004a: 152) definition of a small knowledge-intensive firm: a firm:

that has fewer than 100 employees, the majority of whom comprise a highly qualified workforce which is its most important resource and is engaged in knowledge work – meaning that knowledge is inherent in the firm’s main activities – as its central preoccupation.

- 2 While it is recognized that internationalization may be both inward and outward (market seeking), the latter remains a vital component of the firm’s growth and continues to attract widespread policy interest. Moreover, the work that this chapter builds upon (e.g. Brown and Bell 2001) explicitly focuses on market-seeking internationalization, and as such, that is where this chapter’s interests lies.
- 3 Harvard’s meta-study of clusters worldwide (Van der Linde, 2002, 2003) identified no fewer than 106 clusters in India; however, only one appears to be a truly knowledge-intensive one, namely, the software cluster in Bangalore. Another software cluster identified in the study is based in Dublin, Eire. It thus appears that although other regions in India, such as the National Capital Region surrounding and including Delhi, have a comparable number of software firms, they are not densely concentrated or perceived to be a cluster. Of course, other authors such as Ramamurthi (2004) take the view that India’s software industry comprises a ‘cluster of clusters’ but even he acknowledges the leading role played by Bangalore as evident from the fact that eight of the top 20 MNC subsidiaries, in terms of software exports, are located in Bangalore, more than in any other Indian city.
- 4 The study adopts Prashantham and Berry’s (2004a: 153) definition of network relationships, which are ‘relationships with customers, suppliers, competitors, alliance partners, universities, government bodies, industry associations and so on’. Thus, a distinction is made between the concept of a cluster and of network relationships; the latter form a constituent of a cluster and cannot be deemed to be a given; indeed, they must be created and cultivated (Dyer and Singh, 1998; Gulati, 1999). Local network relationships can be a valuable resource to firms (Westlund and Bolton, 2003).
- 5 Paradoxically, the emergence of information technology and digitization has been argued as reinforcing, rather than dampening, agglomerative tendencies of firms including those in the information technology sector, owing to their propensity for innovation-seeking behaviour, as noted earlier. Leamer and Storper (2001) point out that the Internet facilitates ‘conversations’ but not ‘handshakes’, and therefore the clustering of knowledge-intensive firms can be expected to continue.
- 6 This proved to be quite appropriate and useful in the case of the sample given that firms with at least six years of existence were likely to be quite different from younger ones, given the impetus – particularly around 1998/1999 – for new venture creation to leverage software-related business opportunities arising from requirements in developed countries relating to Y2K and Euro conversion.
- 7 The experts were a professor from the Indian Institute of Management, two professors from the Indian Institute of Information Technology, a consultant each from McKinsey and Boston Consulting Group, two executives each from Sun Microsystems and MindTree and a manager from VisualWeb.
- 8 Bangalore is home to 19 of the world’s 40 companies with the highest international quality ratings based on the system developed by Carnegie Mellon University’s Software Engineering Institute (i.e. Capability Maturity Model or SEI CMM level 5 companies).
- 9 The author thanks an anonymous reviewer for the thoughtful suggestion of including this facet of SKIFs in Bangalore in the present discussion.

7 Foreign networks and internationalization

- 1 Integrating the literatures on small firms and knowledge-intensive firms, Prashantham and Berry (2004a: 152) define a SKIF as a firm:

that has fewer than 100 employees, the majority of whom comprise a highly qualified workforce which is its most important resource and is engaged in knowledge work – meaning that knowledge is inherent in the firm’s main activities – as its central preoccupation.

This chapter adopts their definitions.

8 The Internet and internationalization

- 1 While there is no universally accepted definition of a ‘small firm’, a review of the literature suggests that the most common operationalization of firm size is in terms of number of employees, and firms with fewer than 100 employees are generally seen to be ‘small firms’. This is the understanding adopted in the fieldwork reported in this chapter.
- 2 A typical sentiment of the dot-com era is: ‘History will pity the managers of the 1990s. The Internet touched down in their midst like a tornado, tearing up the old game book, disrupting every aspect of business, and compelling them to manage for a new economy’ (Brown and Duguid 2000: 74).

10 Future research directions

- 1 See also Hitt *et al.* (2006) for a discussion of MNC social capital in the context of internationalizing professional service firms.

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