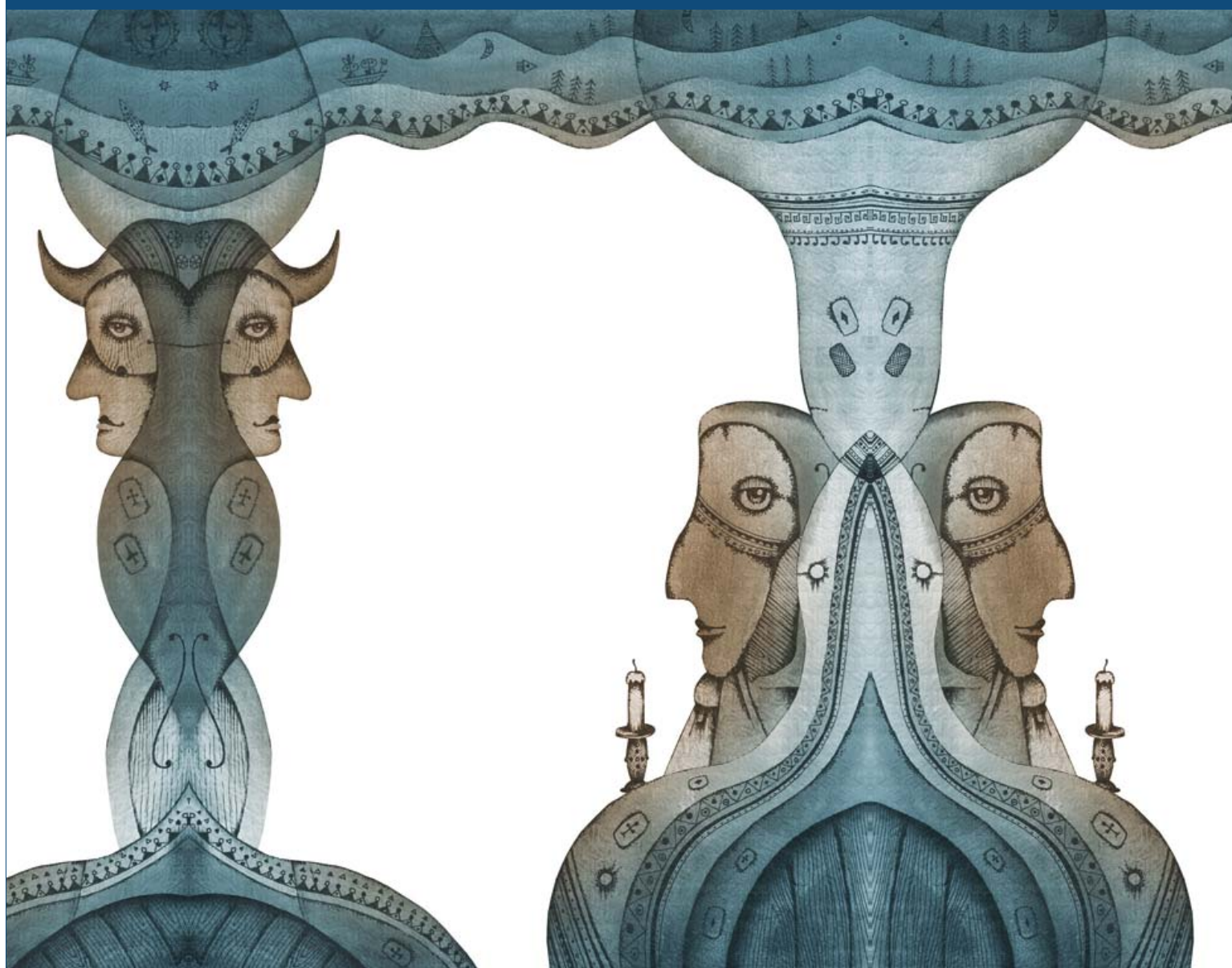


Entering a Global Play

Insights into Swedish Small Life science
Firms' Legitimation in International Networks

Nurgül Özbek



Entering a Global Play

Networks are essential components of successfully commercializing and exploiting life science technologies in world markets. But how can a small life science firm build the key relationships, many of which are new to itself and to its counterparts, and be able to access its desired networks? And how can the firm retain future access to critical resource-holders?

This dissertation adopts an organizational institutional view and argues that, in order to achieve these ends, firms seek to be perceived as acceptable and worthy in the eyes of their potential network partners, and continually pursue legitimation in prospective networks. By taking this assumption as its main point of departure, the PhD project develops a framework that may help researchers and managers to address the above questions.

Scholars have already addressed the fact that inter-organizational networks provide insights into the social stratification in markets. By utilizing a variety of data sources – survey, interviews, archives – the dissertation empirically and theoretically examines *how small life science firms pursue legitimation in international networks* and displays the significant role of firms' network partners. The overall findings suggest that as different actors provide diverse legitimacy spillovers; organizational legitimation is created by *legitimation network paths* through which different actors successively connect to the focal firm.



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*To
the Memory of Hamiyet Özbek*

Foreword

This volume is the result of a research project carried out at the Department of Marketing and Strategy at the Stockholm School of Economics (SSE).

This volume is submitted as a doctor's thesis at SSE. In keeping with the policies of SSE, the author has been entirely free to conduct and present her research in the manner of her choosing as an expression of her own ideas.

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When I was given the opportunity of receiving the training to be an academic researcher, I felt great enthusiasm and joy. After all, I have always aspired to become one. However, it did not take me long to realize that my greater fortune was having the amount of intellectual and emotional support that got me to complete it. For that, I would like to thank all the scholars to whom I read and who charged me with inspiration and knowledge. However, there is a list of people who has personally put effort on my development and to whom I am truly grateful.

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For that, thank you and I dedicate this dissertation to you!

Istanbul, December 25, 2015

Nurgül Özbek

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PART I: Summary of the Dissertation

Chapter 1

Introduction

The title “Entering a global play” exhibits clues about the subject of this dissertation’s research inquiries: small life science firms. In many cases, these clues stem from the presence of a global network of researchers, customers, suppliers, venture capitalists, and talents as keys to commercialize and exploit life science technologies (Onetti, Zucchella, Jones, & McDougall-Covin, 2012). In accordance with this view, the ultimate goal of life science ventures is to establish positions in this network ideally to be able to develop their technologies and eventually sell their products and services (Jones, Wheeler, & Dimitratos, 2011). Sociologists have argued that economic behavior is embedded in an ongoing pattern of social relations and logic of exchange (Granovetter, 1985). In this manner, the international/global life science network provides a social structure in which firms operate, but also forms the basis on which their activities are observed and interpreted by other actors. Thus, firms that pursue exploitation of their technologies in international markets come to perform roles within this network in front of a local, international, and global audience all at once, while at the same time entering the scene of a global play.

Built on this metaphor, this dissertation project searches for answers to a number of naturally provoked questions in this context, such as: Whom do firms perceive as the audiences that evaluate their adequacy to become legitimate actors? How do firms display their fitness for their roles? And last but not least, how do firms ensure their suitability for the next scene? The study aims to shed some light on these questions, and investigates how

small life science firms pursue legitimation when entering a global play as a requisite of developing and establishing a global business.

1.1. Motivations of the study and the research purpose

Small life science firms, among other technology ventures, are broadly recognized as the engine of global sustainable growth and value creation (Fontes & Coombs, 2001; Grinstein & Goldman, 2006; Vinnova, 2014). Life science entrepreneurial success, on the other hand, is commonly associated with not just the advancement of a valuable technology, but also how skillful the firm is at exploiting this technology in world markets (Acs, Morck, & Yeung, 2001). However, achieving this task in an industry characterized with long product development lead-times coupled with short windows of opportunity and rapid technological change is not straightforward. It often requires a complex blend of managerial skills and technical proficiency. Among these, one managerial challenge has been given particular importance in the previous literature: the ability to convince customers, investors, and critical third parties that an organization is perceived as meaningful and worthy in the marketplace (Garud & Rappa 1994; Van de Ven, 2005). It has been widely acknowledged that firms founded to introduce new technologies to markets often confront challenges that emanate from external actors' lack of motivation to engage in exchanges with them. Hence, attaining legitimacy is considered one way of managing these relationships and is vital for organizational survival and success (Hargadon & Douglas 2001).

According to organizational institutional theory, once conferred legitimacy, external actors identify organizations as more predictable and more trustworthy (Suchman, 1995). Consistent with this view,¹ legitimacy has

¹ Legitimacy in this study manifests itself in the attitudinal and behavioral decisions of the external parties and advantageous and disadvantageous outcomes for the focal firm as a result of these behaviors. Among these outcomes, the ones that are emphasized most often in the literature are enhanced or restricted resource access and social support (Aldrich & Fiol, 1994; DiMaggio & Powell, 1983; Meyer & Rowan, 1977), fewer constraints due to liability of newness (Stinchcombe, 1965), and attraction of customers, clients, and investors (Aldrich & Ruef, 2006; Shane & Stuart, 2002). However, I acknowledge that

been widely accepted to have economic and strategic implications for organizations in terms of increasing their chances of social support and access to resources (see review by Bitektine, 2011). Overall, the significance of legitimacy and the fact that organizations act in a world of socially constructed prescriptions of appropriateness has become widely acknowledged in a variety of social science fields (Scott, 1995, 2008). A number of scholars have even viewed legitimacy as a meta-resource that must be acquired by new ventures in order to access other resources (Dowling & Pfeffer, 1975; Zimmerman & Zeitz, 2002). However, others have argued that legitimacy is not another type of resource but rather a condition of consonance with prevalent rules and laws (e.g., Scott, 1995). Nevertheless, from a small and young life science firm's perspective, pursuing legitimation in the eyes of the firm's immediate resource-holding audience becomes a primary managerial undertaking, either as a condition to achieve and sustain or as a resource to acquire. Hence, this assumption comprises the main point of departure for this dissertation.

However, this study does not consider attaining legitimacy to answer all the questions regarding how a start-up moves beyond the laboratory stage of technological advancement where a firm has few or no business relationships to an organization with products and services sold in international markets. Many other factors are important when trying to comprehend a young life science firm's successful venturing, such as the state of the financing climate, latent demand for the niche product or service, and competitive pressures (Ernst & Young, 2015). However, this study suggests legitimation issues to be more eminent than previously recognized.

We can take the case story of Company N, one of the life science companies studied in this dissertation that works with bio- and medical-technologies, as an illustrative example.

in the original construction of the concept legitimacy, the explanatory reasoning suggested between the outcomes and the legitimacy was in the reverse order. As theorized by DiMaggio and Powell (1983), legitimacy is an explanation of the similarity ("isomorphism") and the stability of organizational practices and structures in a given field.

1.1.1. Case Company N – Story of an international life science small firm

Company N was a start-up in Stockholm, spun-off from academia and based on an innovation with estimated market potential. The company succeeded in developing its technology further into products and services through several research projects in collaboration with universities, research institutions, and companies of diverse sizes and from a range of countries – Bulgaria, Germany, Italy, Netherlands, Switzerland, and UK, among others. In a few years, it achieved a licensing agreement for its product with two multinational corporations based in the US and Japan. At the same time, the company began directly offering its service to a number of customers in the US and Europe. Soon, it achieved substantial sales growth, and expanded the geographical diversification of its customer portfolio to over 50 countries in Europe, Asia, and North America. At the same time, Company N broadened the range of its technology and business with drug development projects, mostly by utilizing research collaborations. It is hoped that products developed for this new target business segment, if successful, will be applicable in tens of national markets concurrently.

The case company provides a single, yet typical, example of a small firm with products and services successfully flowing through the international innovation and production value systems of the life science industry. In brief, Company N, while providing services for pharmaceutical companies that are operating internationally in the manufacturing and marketing stages of a global value chain, was also engaged in developing a range of technologies, and in discovering drugs with the aim of marketing them internationally (Hine & Kapeleris, 2006, p. 184). In line with previous studies of life science ventures' internationalization, Company N's international network expansion took place as entangled with its overall activities involving innovation and commercialization, as well as marketing, sales, and distribution (Jones, 1999; Onetti et al., 2012). To summarize, the story of Company N's internationalization was built on advancement of the firm's technological capabilities through exchanges and collaborations, mostly with international actors, and the transfer of these technologies to international markets. However, let us return to the case for a moment, for a different version of the story.

The founder started Company N based on the technology developed during his PhD studies at a Swedish university. Inherent in the nature of the defining science and technology base of the company, starting a business involved further development of the case firm's original technology, and, therefore, the gathering of a diverse range of necessary expertise. At the beginning, the company looked to collaborate with partners that could provide the specific technology that it lacked in the organization and in its present network. It utilized public research projects to gain access to these international collaborations, such as EU framework programs. Simultaneously, participation in these programs functioned both as a way to access complementary technological capabilities and as a validation for their technological capabilities towards future research and development (R&D) partners. While continuing to advance its technology base, Company N also pursued international customers to exploit its technology. However, it had limited market performance records connected to its technology's outcomes, as well as limited organizational network records due to the absence of any previous business relationships; therefore, it faced difficulties in reaching prospective customers. Thus, it proactively engaged in specific practices in order to be perceived as a valid prospective supplier. It engaged in collaborations with several institutions in Sweden and pursued associations with certain business organizations by providing low-margin services. The founding CEO of Company N mentioned one of the central management activities initially involved efforts to assure the presence of key actors in the company's focal network in order to validate their technology and the organization, and thus to become a legitimate actor in an international market.

The storyline in the latter version revolved not around the number or the type of business partners and business relationships the firm achieved, but around the management's efforts to approach specific external actors in order to commence interactions and subsequently develop the business relationships it intended. It demonstrates that if Company N did not validate its technology and organization, it might have put itself at risk of lack of attention or outright rejection by its technology-development collaborators or customers, which might have resulted in its access to international networks being restricted. Network views on markets and internationalization suggest that as a firm becomes established in a foreign market, it also becomes an insider in its business networks (Johanson & Vahlne, 2009). On the other hand, in order to become established in a market, a firm initially needs to build relationships, which are new both to itself and to its counterparts (Johanson & Mattsson, 1988). According to Arthur L. Stinchcombe's (1965) study, which is presently one of the most cited studies of organizations, new ventures in particular face a difficult task while inventing and managing new organizational roles among potential strangers, as

opposed to cases of more established organizations, which can rely on a stable set of existing relationships. Due to the characteristically limited size of its focal network, a new firm often needs to build many relationships from scratch, yet at the same time confront difficulties that are mostly associated with the liability of newness (Stinchcombe, 1965) and liability of smallness (Freeman, Carroll, & Hannan, 1983). Put differently, if the other actors do not know the processes and the outcomes of an organization, and if that focal organization cannot show sufficient resources or records of accomplishment, initiating a relationship to access a network as the first step to insidership becomes a significant challenge. A 2012 European Union (EU) report identified one of the most common difficulties that technology firms face during international venturing as occurring when they seek their prospective exchange partners' attention and support for a product or service of an unknown and untested company (Eurofound, 2012). Hence, firms' main motivation to pursue legitimation is to manage and eventually overcome these liabilities.

The main theoretical reasoning behind this suggestion is that the economic exchange between actors in a market typically reflects more than transactions, and that beneath most formal ties lie a vast number of social interactions and dynamics (Powell, Koput, & Smith-Doerr, 1996). Economic sociology (Macaulay, 1963) has demonstrated that even highly purposive economic exchanges are entangled with social expectations. When actors make a decision, whether it is closing a deal or initiating a contract with another actor, they are exposed to uncertainties and bounded rationality and often turn to unwritten rules, norms, and models while forming their judgments. Thus, legitimacy judgment reduces the evaluator's costs of information search and organization (Cyert & March, 1963; March & Simon, 1958), and allows the actor to appoint the organization as an eligible prospect for resource exchange (Bitektine, 2011).

Consequently, the second version of Company N's case story, in which the firm pursued organizational legitimation, potentially had implications on the direction that it took in the former version to achieve international growth. In this view, international development and growth of a small life science firm is at the same time a story of legitimation in international networks. My dissertation places the second story at its center and is motivated

to provide empirical insights and to present elements of theory on this topic. Thus, the overall research purpose of the dissertation is as follows:

Research purpose: to develop a deeper understanding of small life science firms' legitimation in international networks.

1.2. Research focus and questions

Legitimacy refers to “the degree to which beholders perceive an organization as being congruent to social norms and standards” (Haack, Pfarrer, & Scherer, 2014, p. 635; Suchman, 1995; Tost, 2011). Categorized mainly according to the institutional pressures behind them, frequently studied legitimacy types are regulative legitimacy (its alignment with rules and laws), normative legitimacy (its alignment with norms and values), and cognitive legitimacy (its alignment with dominant ideas and beliefs) (see DiMaggio & Powell, 1983; Scott, 1995). In this dissertation, the organizational legitimacy studied is cognitive legitimacy. This type is generally related to knowledge about an organization and the products and services it offers (Aldrich & Fiol, 1994, p. 648). As the motivation for small life science firms' quest for legitimacy emerges mostly from the high uncertainty factor surrounding them, cognitive legitimacy is accordingly considered the most relevant one for this study.

Contemporary perspectives view legitimacy as the outcome of legitimation; a collective process of validation that takes place throughout the existence of a social object, such as a new organization and its audiences (e.g., Cattani, Ferriani, Negro, & Perretti, 2008; Johnson, Dowd, & Ridgeway, 2006). First, by collective legitimation, the present study refers to the process of international/global market legitimation, during which a life science venture is validated by various individual actors if it is in consonance with the widespread beliefs about what constitutes “standard” or “normal” organizational behavior (Bitektine & Haack, 2015). Thus, it gradually becomes easier and more likely for the firm to find the endorsement and support of these actors throughout legitimation. Hence, in this study, cognitive legitimacy is considered to be attained if the understanding and

knowledge about a life science venture is spread among the actors in international markets, or at least among the most prominent ones.

Small firms' legitimation during internationalizing has provoked remarkable research interest recently, especially in the area of international entrepreneurship. Studies that have adopted an entrepreneurially driven view of small-firm internationalization have mostly concentrated on firms' proactive strategies that help them deal with the liabilities associated with new ventures in general (e.g., Bailetti, 2012; Simba & Ndlovu, 2014; Sullivan Mort et al., 2012; Turcan, 2013). In this respect, this body of research provides valuable conceptual and empirical insights that capture the conditions inherent in these firms' small size and young age. However, research on the topic is still at an embryonic stage. Hence, the first research question emerges broadly as:

Research question 1: How do small life science firms pursue legitimation in international networks?

Furthermore, although the challenge of attaining legitimacy is considered generic for all life science firms, it is recognized that not all the firms are identical. In line with the legitimation view adopted in this dissertation – that it is a context-dependent social construction process (Johnson et al., 2006) – firm-specific factors are also expected to create variations of firm legitimation. Thus, the second research question is presented as follows:

Research question 2: How do firm-specific differences influence small life science firms' legitimation in international networks?

1.3 Delimitations

In an effort to address the aforementioned research questions, the principal empirical focus of the study is small Swedish companies that have been founded for the purpose of exploiting their life science technologies in markets and pursue the use of resources and the sale of outputs in multiple countries for achieving this task. While pursuing this undertaking, the study has been constrained by a variety of delimitations (that is, characteristics

that limit the scope and define the boundaries of the study based on the choices made (Leedy & Ormrod, 2010)). The delimitations regarding the dissertation's core research focuses are outlined below (however, the limitations emanating as the results of these choices are highlighted in more detail under each relevant chapter).

This dissertation views the process through a lens dominated by the focal firms' perspective. Hence, the study is delimited to what the informants in the firms perceive as valuable for their organizational legitimation, and the actors they perceive as influential. However, when it comes to drawing empirical boundaries for the presence of external legitimacy, explicit proxies have been taken into consideration. Legitimacy ultimately exists in the eyes of the beholder (Bitektine, 2011); it is an unobservable construct, and can only be derived from the actions of the external actors (Tornikoski & Newbert, 2007). This study relies mainly on the argument that recognizes validation and endorsement as the tenacity of legitimation and legitimacy to enhance firms' resource access, survival, and growth. Legitimate firms are accordingly appointed as those that are successful. Correspondingly, firms that lack legitimacy are considered as lacking the required social support, and will eventually fail or cease to operate (Zimmerman & Zeitz, 2002). Growth, a history of network expansion with critical resource holders, and a presence in world markets are all taken as indicators of success, which have been pointed out as crucial for survival specific to the industry chosen in the study (Ernst & Young, 2015). On the other hand, "illegitimacy" is recognized as analytically distinct from "lack of legitimacy". The concept of illegitimacy is mainly defined by the notion of "negative legitimacy", or "social disapproval" (see Haack et al., 2014; Hudson, 2008; Hudson & Okhuysen, 2009), and does not fall within in the dissertation's focus.

The present study is designed to consider firms in the life science industry. However, despite the idiosyncrasies of the industry, the results are considered relevant for firms in many technology-driven markets, such as IT and electronics, which often carry the dynamics that stem from certain conditions that distinguish them from their counterparts in more conventional business fields. These are mostly the essentialness of assuring access to the required set of technical knowledge that might generally be spread across borders, the fast pace of product cycles, and pressure from world-

wide competitors that prevent their domestic markets from truly offering any exclusion from international competition (Crick & Jones, 2000; Gassman & Reepmeyer, 2005). Comparing the results of this study with firms in the context of other technology-driven industries, as well as conventional ones, is expected to enhance the generalizability of the study's results; however, it is beyond the delimitations drawn.

In the dissertation, with the exception of the first article, which is appointed to a supplementary role in answering the study's main research questions, the research purpose is pursued from a qualitative point of view. Qualitative methods provide this study the opportunity to investigate legitimation at a micro level through the stories of the firms. Hence, it serves as a suitable instrument for exploring the subject in a more comprehensive way. At the same time, the ambition is to be more than simply descriptive. Based upon the findings, I aspire to generate elements of theory and a preliminary framework that provides a basis of understanding small-firm legitimation in international networks. Eventually, the study may offer future research opportunities to apply other relevant methods to study the causalities between the proposed constructs.

1.4 Structure of the dissertation

The dissertation is a compilation of articles and comprises two parts. Part I is a dense summary of the dissertation project as a whole, while Part II consists of the four articles that cover the project's studies. Part I is presented in separate chapters. These are:

- Chapter 1: The present chapter has introduced the topic and laid the foundation of the research purpose and its relevance to life science firms' international development and growth. It has depicted the study's research focus and presents the principal research questions.
- Chapter 2: The research design is outlined.
- Chapter 3: Empirical foundations of the dissertation project and information on the market structure and prominent actors of the life science industry are provided.

- Chapter 4: Theoretical foundations from which the main reasoning of the study is derived when pursuing the dissertation's principal purpose are presented.
- Chapter 5: An analytical framework of capturing small life science firms' legitimation in international networks in light of the theoretical foundations displayed in the previous chapter are developed and presented.
- Chapter 6: Brief summaries of each article in the dissertation and their individual contributions to the purpose are portrayed. Findings of the articles are discussed in the form of answers to each of the two individual research questions; therefore aims at synthesizing the major findings of the whole study.
- Chapter 7: The particular contributions of the dissertation to the theory and practice are outlined, and avenues for future research are discussed.

1.5 Key concepts

Table 1 provides a list of short definitions of key concepts used in the dissertation. Each concept will be further elaborated in relevant sections.

Table 1. Definitions of key concepts used in the dissertation

Term	Definition
Business networks	"A set of two or more connected business relationships, in which each exchange relation is between organizations that are conceptualized as collective actors" (Anderson, Håkansson, & Johanson, 1994, p. 2).
Business relationship	The interaction and resource exchange between the firm and the other actors (Gadde and Mattsson, 1987).
Institutions	"Regulative, normative, and cognitive structures and activities that provide stability and meaning to social behavior" (Scott, 2001, p. 33).

Legitimacy		"The degree to which beholders perceive an organization as being congruent to social norms and standards" (Haack et al., 2014, p. 635; Suchman, 1995; Tost, 2011).
Legitimacy-seeking		A focal organization's engagement in practices of proactively influencing legitimation through activities of interaction, communication, and exchange with external actors (Kostova, Roth, & Dacin, 2008).
Legitimation		A collective validation process that takes place throughout the existence of a social object, such as a new organization and its audiences (e.g., Cattani et al., 2008; Johnson et al., 2006). In this study, the term refers to market legitimation, during which a new firm is supported to exist, and grows among the aggregate market players (Dacin et al., 2007). Thus, what is accepted as legitimate depends on the consensus among the aggregate actors of a specific market about what features or activities of a firm are acceptable.
Legitimation network path	net-	Interdependencies of validations by different actors throughout a focal firm's legitimation over time.
Life science industry		"A complex amalgamation of interconnected sectors comprising a diverse range of knowledge-intensive and often highly specialized companies" (Jones et al., 2011, p. 3).
Small-firm		Firms with employees fewer than 50 (OECD, 2005).
Technology firm		The definition by sector is used, which is a common approach in the literature to distinguish technology-based firms operating in high-tech industries. Based on OECD definitions (2012), a wide range of sectors are normally considered high-tech, such as aerospace, biotechnology, chemistry, electrical machinery and apparatus, ICT, pharmaceuticals, and robotics and process automation.

Chapter 2

Research Design

2.1 Overview of the research design

In designing the research methodology of this dissertation, my work has been influenced to a large extent by the transformation process I was going through as a PhD student. Overall, the research design employs mixed methods, and I made particular methodological choices along the process during which the body of knowledge and my understanding continually extended. The process initially began by studying my research topic in general and by conducting a number of explorative interviews with a preliminary group of small life science firms in Istanbul, Turkey in the first half of 2012. I continued my research by applying quantitative analysis techniques to a large data set, which was built with the purpose of investigating the international business relationships of Swedish small- and medium-sized firms (SMEs) from various industries. I was able to access survey-based data that had been collected by my colleagues from the research group “Internationalization in Networks” (INET)². My collaboration with my two co-authors from the INET group provided the opportunity to inspect the relationship between the focal firms’ connectedness to the host country networks and its relationship with perceived institutional impediments and

² The members of the INET group included Dharma Deo Sharma, Kent Eriksson, Angelika Lindstrand, Jessica Lindberg, Jukka Hohenthal, Sara Melen Hanell, Sara Jonsson, Emilia Rovira Nordman, Daniel Tolstoy, and Angelika Löfgren. This data set resulted in several research publications, including dissertations by Melen (2009), Rovira-Nordman (2009), Tolstoy (2010), and Löfgren (2014).

performance implications (Article 1). The findings pertained not only to small life science firms but also to a wider range of industries and firm sizes. Nonetheless, this part of the study has served my project by showing that institutions matter for firms when expanding into international networks, thus confirming the research value of my principal interest.

At the same time, in order to examine the legitimation of small life science firms in greater depth, the qualitative part of the study was designed by selecting cases from Swedish life science firms. The sampling and the data collection parts of the qualitative study were conducted in collaboration with the project International Life of Biotech³. The qualitative data provided the insights into the legitimation of these firms. The empirical and conceptual findings derived from the case studies are then presented in Articles 2, 3, and 4. The development of Part I, the summary of the dissertation project, is then conducted at the same time of developing these three articles. Thereby the formulation of both parts mutually shaped each other.

The primary unit of analysis in the overall study is organizational legitimation, in which the level of analysis is the organization. This principal unit of analysis is then operationalized by incorporating different units throughout the different papers in the thesis. In Article 1, the analysis is aimed at investigating the dyadic network relationship belonging to an individual firm and testing how it is influenced by the firm's investments within the specific relationship and the presence of connections to other actors. However, the analysis is on an aggregated level, where my co-authors and I concluded our findings from the analysis of dyadic network relationships from a group of firms.

In Article 2, the previous literature focusing on international new venture legitimacy is reviewed. A conceptual model for small and new firm legitimation is proposed, where the unit of analysis is organizational legitimation.

In Article 3, the unit of analysis is organizational legitimation through legitimacy spillovers from focal firms' network partners. Case firms' indi-

³ International Life of Biotech is a research project led by Angelika Lindstrand at the Stockholm School of Economics and is currently being conducted on Swedish biotechnology firms and the development of their business networks in foreign markets.

vidual networks are analyzed by investigating legitimacy spillovers between actor groups.

In Article 4, the aim is to investigate the practices of individual firms that are likely to enhance their legitimation in international markets and facilitate firms' network expansion by decreasing the uncertainty perceived by their prospective customers and network partners. Thus, the unit of analysis is again organizational legitimation.

Table 2 displays information about the general features of the research designs in the articles.

Table 2. General features of the research design of articles in the dissertation

Articles	Research approach	Objective	Primary data source	Unit of analysis	Level of analysis
Article 1	Quantitative	Confirmatory	Survey data, archival data	Dyadic network relationships	Firm level
Article 2	Qualitative	Conceptual development	Literature review	Organizational Legitimation	Firm level
Article 3	Qualitative	Exploratory	Interviews, archival data	Organizational legitimation	Firm level
Article 4	Qualitative	Exploratory	Interviews, archival data	Legitimacy-seeking practices	Firm level

Further information regarding the data and the methods are described in detail in the following sections under the subtitles of “Quantitative” and “Qualitative” studies.

2.2 Evaluating the quality of the study

A high-quality study answers research questions in a scientifically rigorous manner. Threats to a study's validity are generally found in three areas: external validity, internal validity, and construct validity (Mitchell, 1985). External validity – in other words, generalizability – indicates that new knowledge produced by the studies is practically or theoretically useful in

contexts other than the one studied (Ondercin, 2004). Generalization of research can be considered by two means: empirical and theoretical (Robson, 2002). Empirical generalizability depends on the extent that the sample studied was representative of the population, and theoretical generalizability extends findings to theoretical propositions. The overall research design in this dissertation utilizes theory building, where theory-building research aims to develop a generalizable theory from data (Hallen & Eisanhardt, 2012). Accordingly, theoretical generalizability was sought by comparing the findings from the empirical data with the extant literature and refining and positioning the findings into propositions accordingly.

Construct validity criterion refers to establishing correct operational measures for the concept being studied (Mitchell, 1985). In the quantitative part of the study, construct validity was assured by building the questionnaire with variables that stemmed from empirical observations and theoretical reviews. More specifically, variables were developed from three sources: previous research group questionnaires, a literature review conducted between the years 2002 and 2003, and case studies conducted before 2003. This data set resulted in several research publications, including dissertations by Melen (2009), Rovira-Nordman (2009), Tolstoy (2010), and Löfgren (2014). In the qualitative part, construct validity was sought by blending data from multiple sources as suggested by Eisenhardt (1989). Primary and secondary data sources were used for data collection and later for triangulation of the findings during analysis. Internal validity, on the other hand, denotes the extent to which the explanatory or causal relations built in the study are credible, such that alternative explanations of the results may be put aside (Yin, 2003). In this study, the explanations brought up in the findings were cross-checked and distinguished by enfolding the relevant conflicting literature.

The reliability of the data in the quantitative part of the study was ensured by conducting a pilot study in which the questionnaire was tested on six firms in Stockholm and Uppsala. Respondents' opinions about the clarity of the questions and whether they had experienced any problems while completing the questionnaire were collected before distributing it to the full sample. All six respondents informed the investigators who visited their offices and were present in the room while they answered the questionnaire

that the original questionnaire was too long. After the assessment of the respondents' feedback, the research group decided to shorten the questionnaire and modify and clarify certain expressions. To further ensure reliability, members of the INET research team travelled to the firms and administered distribution of the questionnaire personally to make sure that the right person was filling out the questionnaire.

In the qualitative part, choosing the respondents selectively, employing a carefully designed interview guide, presenting focal-firm network visualizations,⁴ having two researchers on site during most of the interviews, and carefully transcribing the interview material contributed to the study's reliability. The reliability of the secondary data was achieved by using specific collection procedures. Reliability in qualitative inquiries refers to methodological transparency (Guba & Lincoln, 1994). This transparency is achieved by the rich descriptions of the analysis and the research context in the study (Marschan-Piekkari, Welch, Penttinen, & Tahvanainen, 2004). In addition, the reliability of the analysis is considered to be further improved by the researcher taking the opportunity to reach a comprehensive understanding of the case material by personally collecting all the secondary material, making the network visualizations, being present at all interviews, and transcribing them entirely.

2.2.1 Network visualizations: Improving the reliability of the interview data of networks

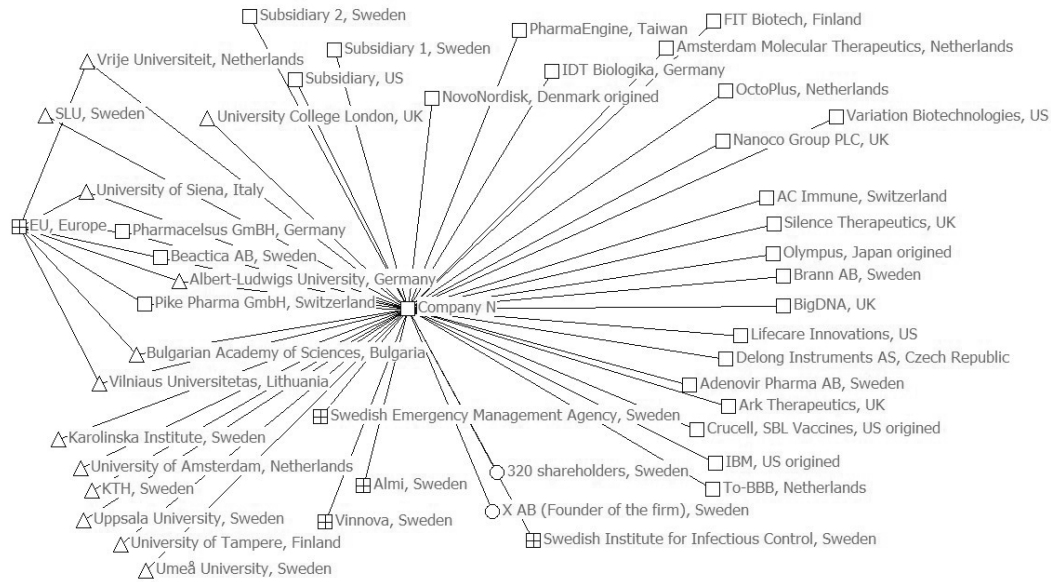
A stream of network scholars has raised concerns about the methodological implications of respondents' inability to accurately report their interactions (Borgatti & Foster, 2003). For this study, special efforts were made to overcome these concerns by presenting visualizations of their organizational networks to the respondents during the interviews.

The network visualizations comprised graphic illustrations of each interviewed firm's network relationships based on the data collected from the secondary sources prior to the interviews. These network relationships were outlined by identifying the key actors throughout the organizational

⁴ Descriptions of the use of the network visualizations for this study, as well as information about how the data that the visualizations are based on were collected and sorted out are provided in detail in the subsections 2.2.1 and 2.6.2.

story of each case firm (refer to section 2.6.2, Data Collection, for further information on how secondary data is collected and sorted). The data about the case firms' organizational relationships was entered into the Social Network Analysis software UCINET (Borgatti, Everett, & Freeman, 2002). The individual networks of the case firms were then visualized using the software NETDRAW (Borgatti, 2002). Hence, 17 network visualizations were made before the 18 case interviews. These visualizations were used for presenting the firms' focal networks to the respondents during the interviews. The respondents were given the opportunity to comment on the content of their relationships with the displayed network partners, or add any missing ones. Thus, presenting the network visualizations to the respondents improved the accuracy of the respondents' perceptions of their firms' networks, and accordingly improved the reliability of the relevant discussions. Furthermore, it was observed that these pictures were highly appreciated by the interviewees and positively influenced their willingness to discuss their networks. I also found this visualization process useful as it provided a chance to form an understanding of the firms' network relationships and discuss with the respondents each firm's influence on the formation of others in a comprehensive manner. Figure 1 displays an example of network visualizations; this belongs to Case Company N, whose company history has been presented in the earlier parts of the dissertation document.

Figure 1: Illustration of case network visualizations



Example from Case Company N. Network partner categories are shown using the following symbols: Business organizations: square; research organizations: triangle; state organizations: square with cross; financial organizations: circle.

2.3 Research ethics

Ethics refers to conforming to a code or set of principles (Robson, 2002). The most important part of ethical considerations in social research relates to participants in the study. Such ethical considerations were aimed to operationalize in various ways in this study. For example, it was ensured that informants participated voluntarily, without compensation, and had the option to withdraw at any time. The participants were not involved in the research without their knowledge and consent in any part of the data collection processes. Furthermore, no information was withheld about the true nature of the research. Consequently, while disseminating the findings, the anonymity and protection of informants was considered.

2.4 Limitations regarding the research design

This study aims to investigate legitimation of small life science firms in international networks, and, as such, is subject to a number of limitations arising from the research design. First, the design relies on the history of the firms as reported by the interviewees and derived from secondary sources. In this manner, cases are all retrospective, in which all data was collected after the fact. This creates limitations compared to a longitudinal research design, such as in a retrospective case study, and the events and activities under study have already occurred, meaning the outcomes of these events and activities are known (Street & Ward, 2010). However, this provided the research design with the possibility of being able to recognize legitimacy in retrospect, which is very difficult to observe otherwise and therefore common in legitimation studies (Tornikoski & Newbert, 2007; Zimmerman & Zeitz, 2002). Furthermore, the cases comprise companies with a variety of ages. This variation allowed the study to enhance the reliability of the design by offering the opportunity to receive timely data from the sources in a range of cases at a variety of points along their legitimation. Thus, the time of the inquiry was recent enough that respondents were likely to recall events correctly (Huber & Power, 1985).

Another potential limitation concerns the selection of sources within the organizations. Those interviewed were narrowed down to a limited number of relevant informants. However, by choosing these respondents from key positions in the organizations, the study could obtain adequate information about the cases given their small sizes.

Additionally, there are limitations related to the research setting and unit of analysis brought about by the focus on business organizations and firms in only one country, Sweden. Sweden provides a suitable context for the study by demonstrating leading research institutes and a high number of international technology-based firms. However, the research design can be considered limited compared to one that would expand the empirical focus to firms from a number of different country contexts.

2.5 Quantitative study

2.5.1 Sample selection

A questionnaire-based statistical survey was conducted in Sweden in 2004/2005. A random sample of firms (belonging to various industries), each with 6–249 employees, was obtained from the Statistics Sweden Business Register. All of the firms included in the sample had at least 10 percent of their turnover abroad. The original sample consisted of 2000 firms, but after excluding firms that no longer matched the selection criteria (6–249 employees, 10 percent of turnover abroad), a final sample of 1666 firms was obtained. The data collection yielded a sample of 255 usable responses, and the overall response rate was 15 percent. For each of the respondents in the sample, national databases were used to collect accounting data (Business Data, Sweden), and data on the firms' exports to and imports from other countries, divided into eight regions (SCB, Statistics Sweden). This was done to obtain information on performance and internationalization. Altogether, the data used came from three different sources, which was essential in order to avoid common method bias (Podsakoff & Organ, 1986).

2.5.2 Data collection

Via joint collaboration, researchers from the Stockholm School of Economics, Uppsala University, and the Royal Institute of Technology in 2004/2005 conducted the collection of survey data. The questionnaire was directed to respondents in SMEs that conduct international business. When answering the questionnaire, the respondents were asked to select a specific international business relationship with an international partner that had resulted in actual business and that was considered to be important to the respondent's firm. The questionnaire focused on performance in an international business relationship, institutional impediments to that relationship, business networks, and institutional organizations. The questionnaire was divided into three parts: one on the firm, one on the international business relationship, and one on institutional organizations and networks. A seven-item scale ranging from "strongly disagree" to "strongly agree"

was used to check the respondents' views on various questions (see Appendix 1 for the survey questions).

2.5.3 Description of the data

Among the respondents, 174 (68 percent) chose a relationship that had existed for three years or more and 188 (73 percent) had had operations in a foreign country for more than three years. Two firms had initiated relationships as early as 1950 and one firm had carried out its first operations in the country in 1926. A total of 138 firms had 6–49 employees and 117 firms had 50–249 employees. The data contained both technology-based (45 percent) and non-technology-based firms (55 percent) indicating that the analysis of the data may be valid for both types of firms (for information on the descriptive statistics, please refer to Article 1).

2.5.4 Data analysis

The analysis was conducted by developing hypotheses on theoretical assumptions and then testing them using structural equation modeling (SEM). SEM is a multivariate statistical technique that combines aspects of factor analysis and multiple regressions. The advantage of this method is that it enables the researcher to simultaneously examine a series of interrelated dependence relationships among the measured variables and latent constructs, as well as between several latent constructs (Hair, Black, Babin, & Anderson, 2010: 634). LISREL 8.71 is used as an SEM method. LISREL analyzes both error covariance and regular correlations of these relations in the model (Jöreskog & Sörbom, 1993). The analysis is computed in two stages. The first uses confirmatory factor analysis in a measurement model. The LISREL analysis provides factor scores that are used as weights in order to transform multiple item factors into composite factor variables, or constructs. The second stage of analysis comprises analyzing the constructs according to the hypothesized causal relationships. Thus, the method suits the purposes of this study as it provides the basis on which to represent unobserved concepts such as institutions in the networks of relationships” and defines a model to explain the entire set of relationships.

2.6 Qualitative study

A multiple-case study design was chosen because it is a suggested strategy when doing research that “involves an empirical investigation of a particular contemporary phenomenon within its real-life context using multiple sources of evidence” (Robson, 2002, p. 178). Furthermore, multiple case studies provide the opportunity to study the same questions in a number of organizations and compare them with each other to draw conclusions. Both secondary data sources and interviews with the companies and non-business actors were employed correspondingly as the principal data sources of the cases.

2.6.1 Case selection

The selection of all the cases in the thesis was made in the second half of 2012, according to literal replication logic. Yin (2003) proposed that the researcher can have two types of logic underlying the use of multiple case studies: Either the researcher can predict similar results (a literal replication) or predict contrasting results due to an existing theory (a theoretical replication). In literal replication, cases are sequentially analyzed as repeated experiments and the choice of cases is based on its contribution to theory development (Yin, 2003).

In this aim, first, a list of companies that belong to the whole population of life science firms in Sweden was extracted from the 2012 Swedish life science industry report of Vinnova, the Swedish State Innovation Agency. Sweden, despite its small size, has a strong presence on the global life science map due to its high reputation and firmly established institutions, which makes it a valid country context from which to choose life science companies. The population comprised 685 companies of a range of sizes. In accordance with the purpose of the thesis, the sample was limited to small-sized companies (those with fewer than 50 employees). Within that frame, I focused on firms that originated within a limited geographical area in order to minimize sample variation due to environmental factors. Cases were all from the Stockholm region, which is the largest life science region in Sweden (Vinnova, 2014). Regardless of having international revenues or not, all the case firms had been engaged in one or more forms of interna-

tional activity from their inception. The case companies had also had at least one of the following international activities in more than one foreign market since their foundation: purchasing, sales, marketing, distribution, or R&D collaborations. Thus, they were all connected to international networks. Subsidiaries, divisions, and joint ventures of multinational large firms were excluded from the sample as the constraints and the resources available to these firms are estimated to vary compared to those of individual start-ups.

Furthermore, I chose to follow previous studies that intentionally excluded firms in environmental, food-related, and industrial biotechnology segments and concentrate instead on the segments with a health focus, as they have been found to show significant differences compared to other segments, and have similarities to one another (Powell, Koput, & Smith-Doerr, 1996). I chose the cases from the specialized fields of therapeutics, diagnostics, biotech medical technology, and biotech production. Descriptions of segments are taken from the Vinnova, 2014 Life Science Sweden Report. Finally, the cases represented 18 firms, some of which are displayed in two separate articles (Articles 3 and 4). The overall sample size provided sufficient basis for testing theoretical saturation and for mimicking the segmented nature of the life science industry. Table 3 provides descriptions of the case firms.

Table 3. Case descriptions

Case name	Reg. date	No. of employees	Business segment	No. of patents	Geographical diversification	No. of International subsidiaries
Company A	2008	9	Therapeutics	3	Europe	
Company B	2006	5	Therapeutics	3	Europe, North America	
Company C	2000	28	Therapeutics	9	Europe, Far East, North and Central America	
Company D	2002	1	Therapeutics	13	Europe, North and Central America	

Company E	1984	7	Therapeutics		Europe, North and Central America
Company F	2010	1	Therapeutics		Europe
Company G	2010	1	Therapeutics		Europe, North America
Company H	2004	3	Therapeutics	1	Europe, South east Asia
Company I	2010	2	Therapeutics	4	Asia
Company J	2008	9	Biotech production	5	Europe, Far East, US (1) South Pacific
Company K	2005	23	Biotech production	20	Europe, Far East, North and Central America
Company L	1999	29	Biotech medical technology		Europe, North and Germany (1); Central America, US (1) South Pacific
Company M	2004	19	Biotech medical technology	41	Europe, North America, Far East
Company N	2005	20	Biotech medical technology	4	Europe, North and US (1) Central America
Company O	2002	6	Biotech medical technology	6	Europe, Far East, US (1) North and Central America
Company P	2006	11	Diagnostics	1	Europe, Far East Italy (1)
Company Q	2008	0	Therapeutics		Europe
Company R	2006	29	Therapeutics	6	Europe, Asia, North US (1) and South America

Note: Geographical diversification represents the geographical regions in which the case firms have partners from those regions in their inter-organizational network ties based on a contractual agreement; for example, a commercial transaction or agreement, a formal collaboration and/or a grant of funding, or a certificate relating to development of the firm.

In order to collect contextual data for the case firms and build the empirical foundations for the entire thesis, a number of non-business actors were interviewed during the same time period that the interviews with the case companies were conducted. Inspecting the state organizations' or industrial associations' websites, as well as utilizing the information from the interviews, led to the selection of these actors. Thus, 10 respondents from six of the non-business actors in the life sciences from the Stockholm region were

interviewed during the same period. Including the preliminary interviews, the study eventually comprised 28 organizations, 30 interviews, and 35 interviewees. The business and non-business organizations interviewed, as well as information about the interviewees, are listed in Table 4.

Table 4. Information about interviewees and the business and non-business organizations interviewed

No.	Organization type	Interviewee(s) position(s) in the organizations
1	Life science firm	CEO
2	Life science firm	Founding CEO
3	Life science firm	CEO & the board director
4	Life science firm	Founding CEO
5	Life science firm	CEO; Founding CSO
6	Life science firm	CEO
7	Life science firm	CEO & co-founder
8	Life science firm	CEO
9	Life science firm	CEO
10	Life science firm	CEO
11	Life science firm	Founding CEO
12	Life science firm	CEO
13	Life science firm	CEO
14	Life science firm	CEO & co-founder
15	Life science firm	CEO & co-founder
16	Life science firm	CEO
17	Life science firm	CEO; CSO
18	Life science firm	Founding CEO
19	Life science firm	CEO
20	Life science firm	CEO & co-founder
21	Life science firm	CEO & co-founder
22	Life science firm	Founding CEO
23	Cluster organization	CEO; Project manager
24	University technology transfer office	Director
25	Technology transfer/ Incubator State innovation agency	CEO; Chairman Senior advisor

26	Industrial association	CEO; Director of research
27	State advisory and financing agency	Senior advisors
28	Industry consultant	CEO

Note: The list includes preliminary interviews with five business organizations in Istanbul, Turkey interviewed in the first half of 2012 (four life science firms and one industry consultant; rows 1-4, and row 28).

2.6.2 Data collection and preparation

Data collection began with the preliminary interviews in 2012 and continued during the three-year period 2012–2014. In order to place the data and analysis in context, an in-depth background study was completed with respect to the Swedish life science industry. Published reports and analyses, as well as findings from the interviews with non-business actors, have been utilized. While participating in a number of industrial events and seminars during the same period, further insights about the Swedish life science climate were gained from the observational data collected, and this was sufficient for placing the cases in their contexts. Table 5 displays the list of industry events participated in during this period.

Table 5. List of organizers and contents of industry events participated in

No.	Event year	Organizer	Event name
1	2015	Stockholm Corporate Finance & SwedenBIO	Life science/Healthcare Financing
2	2014	Swedish Entrepreneurship Forum	Does Swedish life science have a future?
3	2014	Vinnova	Horizon 2020
4	2014	BioCity Scotland	Life Science in Scotland
5	2014	Vinnova	The Swedish Life Science Industry Report
6	2013	Stockholm Life	Horizon 2020
7	2013	Stockholm Business Region	Nobel breakfast
8	2013	SwedenBIO	

9	2013	Karolinska Institute Science Park	Yearly industry meeting
10	2013	Stockholm Life	KI Science Park Day
11	2012	Stockholm Life	Innovation place: Karolinska International Business in Biotechnology

Data for the case studies was derived from both secondary and primary sources congruently. Secondary data sources included databases, websites, and archival documents, such as news articles and press releases, as well as company annual reports. Primary data sources comprised the interviews.

Secondary data collection and network visualizations

Before visiting the companies, a detailed historical event list of each company was outlined. Data extracted from the secondary sources is listed in Table 6 below. Affärsdata, Retriever Business, Life Science Sweden, and company websites were all used in order to reach the press releases, news articles, and company annual reports for each case company. Thus, they were sources of the archival documents. Orbis was utilized in order to find information about the number of patents granted to each company. Eventually, the EU Cordis Database was utilized to verify each company's participation in European Union- (EU-) funded projects and the information about their project partners received from their archival documents.

Table 6. Secondary data sources

Name	Definition
Affärsdata	A business database providing relevant market information about the companies in Sweden, as well as information retrieved from media
Company Websites	Websites designed and maintained by the companies
EU Cordis	Database for EU Framework project participation
Life Science Sweden	The largest newspaper of the Swedish biotechnology, medical technology, and pharmaceutical sectors
Orbis	A business database that provides comprehensive information on companies worldwide

Retriever Business Media & Retriever Business Analysis	A provider of media monitoring, tools for editorial research, media analysis, and company information. All relevant information is provided from newspapers, magazines, radio, television, websites, and social media.
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The event data collected from the secondary sources was coded systematically in accordance with the following steps:

- An overall review of the company websites to obtain a preliminary understanding of the companies' practices, with events conveyed on the websites recorded according to their dates.
- Review of the companies' annual reports to outline major events in their history; recording of events according to their dates.
- Review of the press releases and news articles extracted from the company websites and the databases; recording of events according to their dates.
- Recording of name(s) of the partner(s) if the event involved external party(s) engaged.

The secondary data was utilized firstly in order to map the case firms' individual networks, in addition to its later usage for triangulating the primary data in all the articles. Thus, based on the data collected from the secondary sources, the key actors in each case firm's network were identified through their organizational story prior to the interviews. Network relationships were identified by investigating whether they had been stated in the secondary data material as inter-organizational relationships based on a contractual agreement. These included: commercial relationships (if the relationship between the case company and a network partner referred to in-/out-licensing, sales, supply, distribution, marketing agreements); research relationships (if the relationship between the case company and a network partner referred to co-development, research collaborations, or common project participation); organizational relationship (if the relationship between the case company and a network partner referred to an organizational relationship, such as one with a holding company, mother company, or any subsidiaries); financial relationships (if the relationship between the case company and a network partner referred to holding

shares and any financial investments in the case company); and grants (for example, relationships with EU or Vinnova as a result of research grants or other organizations resulting in awards and grants). At this point, the relationships had not been distinguished by their duration or strength but instead mapped out on a zero–one basis emerging from the presence or absence of a tie. Network partners were categorized into four prominent actor categories: (1) research organizations, (2) business organizations, (3) state organizations, and (4) financial organizations. The categorization of network partners is in line with those designated by the literature (refer to Table 9, Section 3.4). Research organizations comprised domestic or international universities and research institutes. Commercial organizations were classified as domestic or international small and larger life science firms, including large pharmaceutical, biotechnology, and contract research or manufacturing firms, as well as non-life science firms. State organizations were classified as domestic or international government agencies, such as EU Framework programs and state innovation or funding agencies. The financial organizations were domestic or international public and private capital holders, including private investors, private equity and venture capital firms, banks, and pension funds.

Primary data collection and interviews

The interviews entailed speaking with key informants within the firms. The criterion for the key informant selection was each interviewee's involvement in their firm's management. In each case, they were either the founding or the assigned CEOs, and in some there were also additional informants from the management.

The interviews were semi-structured and in-depth. The interview guide utilized was based on insights gained from a review of previous literature and by collecting the contextual data for the study (see Appendix 2 for the interview guide). The guide included broad questions about the firms' histories, internationalizing processes, and present activities, as well as respondents' experiences of the conditions in the local and foreign networks to which they perceived themselves to be connected. When the network visualizations were shown to the respondents, specific emphasis was placed on the network ties of the focal firms.

These extensive questions created further opportunities for timely discussions around topics of specific interest. Open-ended, precise questions were also posed, such as: “What kinds of hurdles did you face while expanding your network internationally?” or “How did you manage to make yourself visible to different actors?”. Furthermore, when the respondents mentioned a topic relevant to the study, they were encouraged to continue with follow-up questions, such as “Did your research grant from that specific institution help your firm to be accepted by the actors with whom you’d like to cooperate?” or “Was it the kind of validation you needed to approach the customers you’d like to?”. Interviews lasted from one to three hours; all were recorded and transcribed.

2.6.3 Case analysis

In the study, a case replication method was utilized whereby each case served as a distinct experiment (Eisenhardt, 1989; Yin, 1994). What this means is that the data material for each case was compiled and sorted chronologically. Narrative case writings were initiated around the events coded from the secondary data together with the interview material, which provided a great foundation for consistent triangulation of the data. Table 7 summarizes the stories of the 18 cases studied. The case stories yielded insights about each of the case firms’ businesses and their international engagements, thereby providing contextual information for the analysis.

Individual case stories were used to conduct within-firm analysis. Material was later coded and labeled around the domain of organizational legitimation. I coded the data relating to “legitimation in networks” if it met one of the following conditions: (1) if any action or event was clearly intended by the firm as contributing to influencing the judgment of any prospective network partner(s); (2) if I considered any action or event as having contributed to influencing the judgment of any prospective network partner(s). I also compared the emergent theoretical constructs and frameworks with extant literature to refine the construct definitions. Once rough constructs and relationships had emerged, cross-case comparisons were made. In addition, procedures suggested by Miles and Huberman (1994) were addressed during analysis, such as tabular displays and graphs in order to analyze and

present the qualitative data (see Article 3 and 4 for more detailed case analysis descriptions).

Table 7. Case descriptions and condensed case stories

Case Name	Case Summaries
Company A	The innovation that the business idea was initiated upon came from the founder's academic work at a Swedish university. The company is developing a product for improving drug and vaccine delivery systems. The company has progressed with product development by participating in EU-funded projects. It has achieved positive results from clinical trials. The firm is currently at the evaluation phase of their product by a number of multinational corporations for out-licensing agreements.
Company B	The innovation that the business idea was initiated upon was patented from a US company that one of the founders used to work for. The company has two projects in the pipeline where they work in collaboration with a number of Swedish and international public and private organizations. They utilize grants through collaborations with Swedish universities for clinical trials of two projects, both of which are in clinical Phase II.
Company C	The innovation that the business idea was initiated upon came from one of the founder's renowned innovation and academic work at a Swedish university. The company received funding from two Swedish life science portfolio companies. They also got a grant from the governmental research organization in Sweden. The research agreement they had with a Japanese multinational company later turned into a licensing agreement. The company also currently works on one other drug project based on their technology platform, in close research collaboration with Swedish and international universities as well as research and manufacturing contract organizations.
Company D	The innovation that the business idea was initiated upon came from two founders' academic work at a Swedish university. The company developed their product through EU-funded projects until the proof of concept stage. The company made an option agreement with an international company for the preclinical and Phase I trials. They work with Swedish and international universities and research and manufacturing contract organizations.

Company E	The innovation that the business idea was initiated upon was patented from a US university. The company carried its product until clinical Phase III and signed a licensing agreement with a US-based multinational pharmaceutical corporation. However, the company reported that its European Phase III study did not show a statistically significant preservation; thus, it closed down further studies as well as parallel US studies. The company is currently working on combination therapies for the same target therapy, which are at Swedish Phase II stages in close research collaboration with Swedish universities and institutes, and international universities and research and manufacturing contract organizations.
Company F	The innovation that the business idea was initiated upon came from academic work at a Swedish university. The company was founded as a sister company of a small life science diagnostic firm with the aim of utilizing the same compounds for development of a drug project. Company F is currently at the late preclinical stage and is working with Swedish and international universities and research and manufacturing contract organizations.
Company G	The innovation that the business idea was initiated upon was patented by a Danish company. Preclinical studies have been completed for the first drug candidate and are currently at the stage of clinical trial. Company G is working mostly with international universities and research and manufacturing contract organizations.
Company H	The innovation that the business idea was initiated upon was a result of research collaboration between industry and academia in Sweden. The drug development for one of the target therapies is in Phase II clinical studies. Studies are being conducted in Thailand in collaboration with an international research group, mostly emanating from a university in Bangkok, Thailand and Oxford, UK. The company's other drug project is ready to enter Phase II clinical studies. Hence, the company has signed a co-development agreement with a drug development company in the UK. Company H also works with Swedish and international research and manufacturing contract organizations.
Company I	The innovation that the business idea was initiated upon was the founder's academic work at a Swedish university. The company was founded as a sister company of a small life science firm with the aim of utilizing the same technological platform for another target. It is involved in preclinical activities in order to take the project to the proof of concept stage, working mostly with international research and manufacturing contract organizations.
Company J	The business idea was initiated upon one of the co-founders' renowned innovations and academic work at a Swedish university. Before even starting the formal company, its first international sales deal was made with a multinational pharmaceutical corporation. The company developed its products, and sells and markets them, all around the world through direct export. Company J also has distributors in Australia, France, Japan, New Zealand, Singapore, South Korea, and Taiwan. Recently, the company signed a contract manufacturing agreement with a US-based firm.

Company K	The business idea was initiated upon a public research project that is collaboration between several Swedish universities. The project is led by one of the co-founders of Company K. The company started selling to foreign markets on day one through direct exports. It signed a distribution agreement for its products with a global industrial supplier. It also uses regional distributors. Lately, Company K has changed its strategy to concentrate more on direct sales.
Company L	The innovation that the business idea was initiated upon came from the founder's PhD studies at a Swedish university. Company L signed a global distributor agreement soon after its inception. Later, with growing sales volumes, the distribution agreement was replaced by strategies that engage the company to a larger extent in international business. The company has set up its own subsidiaries in Europe and the US, and also sells through regional distributor agreements.
Company M	Company M is developing a portfolio of drug projects based on its novel technology platform developed as a result of joint research efforts from two Swedish universities. The company signed a licensing agreement with a multinational life science firm from the start. It initiated close collaboration with universities locally and internationally. It has also been involved in a large EU project. Today, the company has several license and collaboration agreements with several mid- to large-sized multinational firms and works with Swedish and international research and manufacturing contract organizations.
Company N	The innovation that the business idea was initiated upon came from the founder's PhD studies at a Swedish university. The innovation was awarded a number of grants and prizes within Sweden and has received great international recognition. Technology development proceeded and the company's products and services were developed mostly through support from EU grants and by participating in research projects. The company initially signed licensing agreements with two multinational corporations for one of its technology platforms. The company now has customers for its services from more than 50 countries. It currently works on further technology developments and several product projects.
Company O	The innovation that the business idea was initiated upon came from the founder's PhD studies at a Swedish university. The company started almost from inception to expand to foreign markets, and sold its systems in UK, Germany, Switzerland, and the US. Soon after, Company O started a US subsidiary. It implemented a global distributor agreement; however, the agreement has been cancelled as the company decided to concentrate on direct sales instead. During that time it has been involved in four EU-funded projects.
Company P	Company P initiated its business idea based on the founders' experience in the industry. After it validated the technical features of its first product through one international customer, the company started to develop an international customer base, mostly within Europe. However, it operates in more than 30 countries around the world through direct export and distributors.

Company Q	Company Q initiated its business idea based on the founders' experience in the industry. International sales started directly from foundation, first to Norway and later to other European countries through sales agents and direct exports.
Company R	The business idea was initiated based on a scientist's academic work at a Swedish university. The business idea was based on utilizing new formulations of already validated molecules and targeting new therapies. The results of the clinical studies achieved positive results. The company currently holds a subsidiary in the US, and has sales in Europe, Africa, Asia, and Australia through international partners.

Chapter 3

Empirical Foundations

A typical life science firm, although depending on its role in the overall value system, often emerges from an R&D process from which one or more technologies are commercialized. Furthermore, specific to the life science industry, the process of taking a technological innovation from the laboratory to the market often requires a wide range of specialized knowledge and the involvement of several or many firms and organizations (Jones, Wheeler, & Dimitratos, 2011).

When it comes to the flow of a life science product from laboratory to market, we can include at least three stages (Mehta, 2008). Typically these would be: (1) the discovery and preclinical trials stage involving the development of a product concept, specifications and design, and animal testing; (2) human clinical trials; and (3) manufacturing, marketing, and sales. A firm might not execute all these stages itself; however, its own value chain might still be “embedded in a larger stream of activities within the value system of the industry” (Hine & Kapeleris, 2006: 184). This value system or network may extend across several organizations and countries, with key stages in the innovation process of any product being outsourced to global locations (Jones et al., 2011).

Small companies or start-ups, often referred as innovator firms, generally focus on the first stage in the value system; so, for example, drug discovery companies often focus on R&D so that they may, over time, ideally become fully integrated pharmaceutical companies – as in the case companies A, B, C, D, E, F, G, H, and I in this study. However in practice, it is

more common that cash-strapped small firms, if successful, tend to be acquired by large pharmaceutical and medical device companies after the pre-clinical studies stage, or enter into new collaborative ventures and alliances. On the other hand, innovator firms with “platform” technologies generally concentrate on a specialized part of the value system but extend their products or services horizontally across a range of product applications, companies, or industries (Jones et al., 2011). In this study, case companies, J, K, L, M, N, O, P, Q, and R represent this sort of business by providing diagnostics, consumables, and bio and medical technologies that serve different stages of the life science value chain.

Accordingly, life science is an industry best described as a complex amalgamation of interconnected sectors comprising a diverse range of knowledge-intensive and often highly specialized firms (Jones et al., 2011, p. 3).

3.1 The rules of the global play: Scratching the surface

Globalization is a widely recognized transformation process in our era in which the world is progressively becoming a network that is connected by visible ties of resources and products, as well as by invisible ties of ideas and norms. There is also evidence of what researchers call the “born global” effect, which describes the idea that more than half the population of entrepreneurs in developed countries, and around a third in developing countries, go into business with plans to attract at least some income from overseas (Bosma & Levie, 2010). Thus, a reciprocal relationship between globalization per se and business organizations exists, where organizations are to a large extent facilitators of globalization and on the other hand remarkable carriers of its effects (Parker, 1998). A few of the most important reflections of this process from a company perspective might be stated as the ability to move flexibly, to identify and exploit opportunities anywhere in the world, to source inputs and distribute products and services across borders, and to maintain a presence (usually as parts of alliances or networks) in a number of different countries (Nummela, 2004, p. 129).

In light of these enabling conditions, one might think that start-ups, particularly in technology-based industries, such as life science, considering the generally accepted universal nature and relative cultural insensitivity of technology, are natural candidates for global expansion. However, upon closer inspection, one might also realize that the same global conditions are full of hurdles that plague high-tech start-ups. A life science product and the organization developing it are often better off gaining global technological and market validity and acceptance – otherwise it is likely to gain none, even from its home market. As an example, a Turkish beer brand may have more success marketing in Turkey than a life science start-up would marketing a Turkish stem cell culture. The reason for this is that the stem cell purchasers in Turkey might find it far more difficult to justify their decision not to buy a high-technology product from a globally established technology source, such as GE Healthcare, for example, without demonstrating that the local start-up's technology has worked successfully in the US or Germany (examples adapted from K@W, 2009). Thus, the global competitive domain of the life science industry might put pressure on start-ups to effectively operate in major world markets, meaning a company cannot afford to remain local. Consequently, life science start-ups can be considered as being “born into a global market” (Jones, Vlachos, Wheeler, & Dimitratos, 2008) as the rules of the game might generally be set within an international, if not global, scope.

3.2 Life science industry: The present conditions

The global life science industry generated total revenues in excess of \$1.1 trillion in 2011, representing a compound annual growth rate of 6.7 percent between 2007 and 2011 (Deloitte, 2013). Following years of growth and favorable market trends, the global life sciences industry has lately been exposed to a number of critical challenges alongside potential opportunities (PWC, 2012). The opportunities that have fueled the industry's ongoing growth and favorability include the aging population, rising incidence of chronic diseases, opportunities in emerging markets, and technological advancements in areas such as biotechnology and the handling of “big data”. On the other hand, the major challenges the industry is facing comprise

expiration of patents, competition from generic products, price pressure in the market, generally heightened regulatory activity, and increasing development costs and decreasing R&D productivity (Deloitte, 2013). Another challenge impacting the industry involves the political debates in many countries about who should pay for healthcare and how bioscience and the development of drugs and treatments should be funded (Jones et al., 2011). The main conclusion from these debates is usually price cuts for life science products as a result of several governments' successive attempts to control general spending on health care (Deloitte, 2013). Accordingly, a number of trends have been distinguished in order to overcome these challenges and to protect profitability in the industry. One major trend has been influenced by product development strategies that focus on the emergence of new technologies, including genomics, proteomics, and recombinant DNA technologies; and consequently filling the drug development pipelines with projects developed by smaller drug development companies (SULS, 2014; Vinnova, 2014).

Today, even the largest companies have to collaborate with other organizations to develop effective new medicines or medical devices more economically. Moreover, they may have to step far outside the sector to find some of the partners they need to bring these products to market. Exploring new ways of collaborating with other companies and academia is thus another global trend in the industry in addition to the need for extensive intra-industry collaboration. There is no commonly accepted terminology to capture the range of ongoing experiments in how organizations in the life sciences access and use knowledge resources. However the term that is most familiar is "open" (OECD, 2012). There are also several examples of open innovation models, such as the Innovative Medicines Initiative (IMI), a joint undertaking between the EU and the pharmaceutical industry association EFPIA, whereby public and private funds co-finance the early, pre-commercial stages of drug development (OECD, 2012; SULS, 2014).

3.3 Life science industry: The global and local landscape

In geographical terms, the life science industry is scattered around the globe, albeit with strong research-based centers in a small number of countries. The US has the highest number of companies at 2000 firms, while the EU hosts 3000 firms in total (Ernst & Young, 2015). Furthermore, the rapid diffusion of technological advancements in countries outside Europe and North America, led by China, is causing a major rebalancing of the global research system in a process that has only just started and is certain to continue (Vinnova, 2014). As for revenues, the US again accounts for the largest share of the global market, representing 46 percent of revenues. The same is true for innovation, as North America continues to be the dominant contributor of life sciences Patent Cooperation Treaty applications, followed by Western Europe, with an increasing share from Asia and Latin America (NIH, National Science Board, 2012). Therefore, in the industry, North America is commonly referred to as the global “lead market” in terms of both size and sophistication. For most life science products, the primary foreign-country market typically denotes the US. For example, it is common practice in the industry to apply for patents for innovations in the US market first (Vinnova, 2003). However, this is not always the case. For instance, for a niche product targeted that is towards Europe, the lead market might refer to Germany or the UK.

Furthermore, life science companies are increasingly targeting emerging markets, such as China, India, and Brazil, to supplement sales in the US and Europe, and represent 20 percent of the global shares (Deloitte, 2013). As for research and science, the core knowledge base of the industry’s new ventures in particular is even more globally dispersed. A recent report by Vinnova (2013) on the global connectivity of research shows that while intra-regional cooperation is an important phenomenon in Europe, for Europe as a whole, internationally co-authored articles that include authors from outside Europe are twice as common as articles co-authored by European authors alone. Hence, the life science industry today can be described as a global networked arrangement consisting of large, well-

established multinational organizations in dominant positions in the industry globally, and an extremely large and varied range of biomedical, drug, diagnostic, device, and service companies that are involved in the various stages of research, development, technology, transfer, and commercialization (Jones et al., 2011). In addition to business organizations, the prevalent actors in the industry further consist of academia and public and private capital, as well as governments and regulators.

Sweden, despite the small size of its market, has a strong position on the global life science map due to its well-advanced science and technology fields and established institutions. Sweden was recently chosen as the innovation leader for the third time in a row among EU member states (EU, 2013). Sweden has a high ranking for participation in EU framework programs and ranks fifth in terms of funding received from IMI (Vinnova, 2014). However, although the indicators point to Swedish life sciences' strengths, such as the high rates of new company formation and the world-class research and knowledge-building structure, growth rates of Swedish firms have been identified as the lowest compared other leading countries in innovation. The market has been identified primarily by the insufficient and unsustainable stream of financing, especially for the later stages of firms (Eurobarometer, 2010), thus making the competition for funding very high. The other challenges worth mentioning compared to other players on the international market can be listed as less leadership in commercializing research and the fragmented nature of capital, research, and business communities (Eurobarometer, 2010). Most of the inventions in the Swedish market are oriented towards international markets. One sign of this is the rate of inventions in the field being specified to be generally protected for intellectual rights on the large US market (Vinnova, 2003).

Sweden, according to Vinnova's (2014) latest industry report, hosts 791 companies that are active in research and development, product development, consulting, or manufacturing. Sixty-four firms of this population are medium-sized companies with 50–249 employees, 178 are small companies with 10–49 employees, and 256 are micro firms with 1–9 employees. Stockholm, together with Uppsala and Södermanland, comprise 50 percent of employment in the industry (Vinnova, 2014). The area also accommodates three important universities as sources of life science basic research:

Karolinska Institute, the Royal Institute of Technology, and Stockholm University. The region also includes large national research agencies, as well as venture capital investment companies (SULS, 2014).

3.4 Studying the small life science firm's focal network

Being the drivers of innovation, small firms are important to the industry globally as independent innovators, as partners to other firms, and as targets for acquisitions. Central to the nature of the innovation and commercialization processes, life science firms, usually from day one, are connected with different actors at the local, regional, and global levels (Nummela & Nurminen, 2011). Thus, the pressure to generate innovations, and the attitude towards networking, are among the key features of the industry (Lim, Garnsey, & Greagory, 2006; Owen-Smith & Powell, 2001). Based on the previous literature and industrial reports reviewed, a number of actor categories are identified that hold prominent places in small life science firms' networks. Although all these actors have roles appointed by contracts, they are also usually highlighted for their role of signaling specific features of the small life science firms to the others. The actor groups and their network roles are summarized in Table 8.

Table 8. Actor groups in life science and their roles relating to small life science firms

Actor groups	Roles relating to the small life science firms
Research organizations (Academia)	This category embodies universities and non-profit research organizations in roles as customers and R&D collaborators. These actors are generally sources of research and innovation; however, at the same time, they provide validation in terms of the focal firms' technology (George, Zahra, & Wood, 2002; Perez & Sanchez, 2003; Stuart, Ozdemir, & Ding, 2007; Zucker, Darby, & Armstrong, 2002;).

Large multinational firms	Large multinational pharmaceutical and medical technology companies are in the roles of customers and strategic alliance partners through licensing and technology development agreements. The goal of larger firms to have licensing agreements with innovator firms is to diversify their pipelines with, for example, high-margin biologics, which are less exposed to competition compared to prescription drugs (Deloitte, 2013). Such companies have valuable resources that can help young firms to bring their core technology, product, and/or service to market, such as validation for its market value (Baum & Silverman, 2004; Coombs & Deeds, 2000; Deeds, DeCarolis, & Coombs, 2002; Higgins & Gulati, 2003; Pisano, 1991). Small life science firms have a special relation to Big Pharma and the local and global juxtaposition that characterizes their inter-relationships and competitive postures in the industry (Jones et al., 2011).
Other small life science firms	These are generally in customer and service provider roles. They might be firms that manufacture a complementary product, as well as providing contract research and manufacturing services and at the same time signaling the focal firm's market presence (Higgins & Gulati, 2003; Nummela & Nurminen, 2011).
Financiers (Public and private capital)	Investors in young innovative companies are generally represented by venture capitalists and business angels (Vinnova, 2014). They are important sources for life science companies as financiers.
State organizations	These organizations are in regulatory roles; however, at the same time they comprise a support role for life science firms. State organizations generally include national or regional institutional organizations, such as National Institutes of Health, Vinnova, or the EU. Their role is funding small life science firms in terms of grants. In addition, they are acknowledged for their role as enhancing legitimacy of the focal firm in terms of technology.

3.5 Empirical limitations

Life science is one notable representative of the growing number of technology-based industries, and is distinguished by the breakneck pace of technical advance necessary to develop their products (Powell, White, Koput, & Owen-Smith, 2005). Networks, on the other hand, have already been proven as a prominent means of organizing in this industry that entails the employment of a diversity of skills and resources (Powell et al., 1996). Thus, the globally dispersed center of excellence for the sector's knowledge base, as well as the global demand for products, makes the market for life science global and a suitable empirical basis for the purpose of

this study. However, the industry also has many idiosyncrasies that might create limitations for the study.

For instance, in information services, a company like Google might be exemplified as a firm that grew into a global company in a few years and replaced established competitors. However, in the life science industry, new companies pursue a path of evolving into specialized partners of established “big pharma”, rather than replacing them. The means to becoming an established big pharma player is extremely costly and sophisticated. Hence, the roles attributed to the different sizes of organizations, as well as business segments in the global life science value chain, are perceived to be more interconnected for this industry.

Furthermore, one idiosyncrasy is the high-level risk associated with the industry. Research programs are expensive to run and have a high failure rate (Coombs & Deeds, 2000; Nummela & Nurminen, 2011). Although life science start-ups in general have to provide much technical evidence and comply with numerous regulatory schemes that are specific to the industry, it is barely sufficient by itself to base all the business decisions. In most cases, there exist many different applications of the new start-ups’ innovations, and which ones the market will prefer cannot be predicted with any certainty. The projects are costly and an investor, a R&D collaborator, or a licensing partner does not know if a project will achieve its intended result, and cannot predict how potential customers will value and use these results. It is not possible, even in principle, to calculate the probability of success. Thus, these conditions make it difficult for the evaluators, specifically in the life science industry, to predict the future performance of firms (Vinnova, 2014). Furthermore, these firms need external support from the very early stages and thus should be evaluated when they can provide neither a formal proof of concept nor any previous performance records in general. Therefore, informal structures of evaluation such as networks might be highlighted more for the cases studied, compared to the average needs of any other industry.

Chapter 4

Theoretical Foundations

This chapter presents the theoretical foundations of the dissertation's principal arguments, which have their roots in institutional theory and organizational legitimacy literatures. The chapter subsequently presents an overview of internationalization theories. This broad theoretical layout provides an opportunity to interlink the findings of the study that is designed based on an institutional rationale later to the internationalization literature.

4.1 Organizational legitimacy

Organizational legitimacy has served as a broadly acknowledged theoretical apparatus in institutional analysis, and has led to a rich body of research that views legitimacy as key to understanding new venture emergence and growth. How legitimacy is defined conceptually in individual studies varies primarily around a number of central analytical choices (Deeppure & Suchman, 2008). These are perspectives on legitimacy, definition of the audience, and the organizational features that are subject to legitimacy. Therefore, the theory is presented first by elaborating on these variances. Eventually, a more unified view of legitimacy dimensions is displayed.

4.1.1 Dimensions of legitimation

Perspectives

One of the main dichotomies of legitimation has taken place between two perspectives, referred to as audience and actor-centered perspectives (see Suchman, 1995). The main assumptions about the extent of managerial control over the process underlie the fundamental diversity in the approaches. Studies that have identified legitimation by solely conforming to prevailing societal norms and categories are mostly recognized as falling into the former category (e.g., Scott, 1995). Thus, in this understanding, as managers of firms are embedded in social structures, their perceptions, decisions, and actions are also expected to be rendered by the belief systems surrounding them. These studies have generally focused on the macro level legitimating mechanisms, such as supraorganizational beliefs located in a market, country, industry, etc. Thus, legitimacy is achieved when an indicator of legitimacy is present at the macro level; for example, a high appearance in national media. Together, the macro-level views have generally assumed that legitimation operates “top-down”, and that the micro units that add up to a given macro unit are relatively homogenous (e.g., Carroll & Hannan, 1989). Accordingly, legitimation is considered to occur mostly as audience-centered, and does not take the role of the individual organizations or the role of the interactions in local situations into account.

Studies that have taken legitimation as a process involving influences by management’s purposeful practices in order to help organizations achieve their goals fall under the latter group in the duality of the dominant perspectives (e.g., Ashforth & Gibbs, 1990; Dowling & Pfeffer, 1975). These studies have generally taken a micro-level analytical perspective that views the micro units that add up to a given macro unit as relatively heterogeneous (e.g., Khaire, 2010; Zott & Huy, 2007). Hence, micro views focus more on explaining how individual organizations themselves can contribute to organizational legitimation by purposefully seeking legitimacy.

Audiences

In the legitimacy literature, the audience and the possible sources of legitimation are not restricted to any one set of gatekeepers. Hence, whether a

new venture is considered “legitimate” is a matter of the audiences that the researcher chooses to concentrate on. Audiences broadly refer to those “who have the capacity to mobilize and confront” the venture (Deepphouse & Suchman, 2008, p. 54). Many legitimacy researchers have treated the society at large or, more specifically, the institutional environment or organizational field in which the organization is operating, as the boundaries of the audience (e.g., DiMaggio & Powell, 1983; Meyer & Rowan, 1977). On the other hand, there are also more fine-grained descriptions of the audience. These include potential and actual resource-holders (investors, consumers, staff, etc.), other industry participants (e.g., Aldrich & Fiol, 1994), regulators and certification authorities (e.g., Sine, David, & Mitsuhashi, 2007), and the media (Pollock & Rindova, 2003).

Organizational features subject to legitimation

Features of firms that are subject to audiences’ evaluations vary widely in the literature. They include a firm’s structures and policies (e.g., Meyer & Rowan, 1977); the founder and the top management (e.g., Packalen, 2007); the type of industry or sector (e.g., Baum & Oliver, 1991); and the quality of the firm’s organizational relationships (Stuart, Hoang, & Hybels, 1999). However, for young, small firms, organizational relationships have been highlighted specifically as the prior accomplishments of these firms are rarely adequate to resolve others’ uncertainty about it, and the identities of actors in such firms’ networks are likely to significantly influence evaluators’ perceptions (Stuart et al., 1999). The idea advocated by these scholars is that a focal firm is likely to be perceived as legitimate by evaluators if it holds a relationship with legitimate organizations due to legitimacy spillovers of network partners’ attributes, such as membership in a network (Haack, Pfarrer, & Scherer, 2014; Rao, 1994). Previous studies have provided empirical support for this claim by highlighting the relationship between organizations with certain actors, and their enhanced resource access and survival, as indicators for the presence of legitimacy (Baum & Oliver, 1991).

Firms as subjects of legitimation in a relational context, and, through a broader lens, in a network setting, will be elaborated on further in the next chapter. However, when it comes to small life science firms, the subject of assessment is considered two-fold; that is, an organization’s scientific and

business attributes (Rao, Chandi, & Prabhu, 2008; Higgins & Gulati, 2003). Scientific attributes refer to firms conveying to their prospective network partners that they understand and can work with the latest scientific ideas in the field. Business attributes denote that they are expected to be capable of competitively operating in the market.

4.1.2 Legitimation: Multi-level and multi-stage

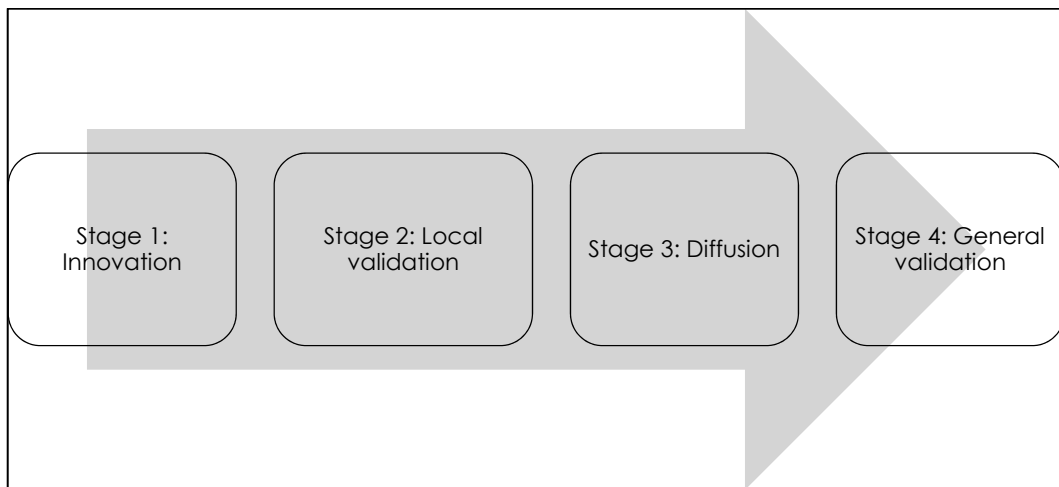
With growing interest among institutional theorists to explore the micro-foundations of institutions, recent studies have called for a multi-level conceptualization of institutional processes (Jepperson, 1991; Powell & Colyvas, 2008). From a multi-level perspective, the sources of cognitive legitimacy in a macro social environment are addressed as emanating from the prevalent collective cognitive frames. In this manner, the legitimacy sources in essence are not the individual actors per se, but are located in widely held supraorganizational beliefs about social reality and appropriateness (Ridgeway & Berger, 1986; Suchman, 1995). However, at the micro-level, the legitimacy judgment is mediated by the perceptions and the behaviors of individual actors. Hence, the focal actor and the audiences both test and redefine these prevailing supraorganizational institutions through ongoing interactions with other social actors (Baum & Oliver, 1991), and base their behaviors and decisions in specific local situations. Accordingly, legitimation, understood as the process of attaining legitimacy, simultaneously runs at micro-level interactions as a certain audience develops expectations about what a focal organization can or should do. Thus, legitimation of a focal firm moves along a process of individual and collective validations by audiences (Bitektine & Haack, 2015).

More recent developments in sociology have conceptualized cognitive frames not as a normative imperative that forces conformity to societal expectations, but as a flexible set of tools that can be actively and strategically created and deployed as actors strive to make sense of the world (e.g., Swidler, 1986). The focal organization is accordingly evaluated, where it also finds the chance to observe and make sense of the authorizations and endorsement mechanisms and thus to display its fit to these expectations in order to enhance its legitimacy process. Thanks to a growing number of empirical and conceptual studies that follow this understanding, we now

know a great deal about the practices that organizations generally employ with this purpose (e.g., Lounsbury & Glynn, 2001; Zimmerman & Zeitz, 2002; Zott & Huy, 2007). For example, among the cognitive legitimation practices highlighted by previous studies is the hiring of top managers and personnel with desirable education and credentials (Nagy, Pollack, Rutherford, & Lohrke, 2012), selecting network partners that will enhance legitimation by association (Zettining & Benson-Rea, 2008), and using oral and written presentations to create stories that help firms to generate identities that belong to present cognitive schemes (Creed, Scully, & Austin, 2002).

One notable presentation of a fine-grained definition of a subjective and a micro-account of the social construction of legitimation in the organizational institutional theory is the multi-stage legitimation model developed by Johnson, Dowd, and Ridgeway (2006). The model shows that a social object such as a new organization is eventually taken as legitimate by a collective group if it is in consonance with their generally shared norms, values, beliefs, and practices. Johnson et al. suggested four stages of legitimation: (1) innovation, (2) local validation, (3) diffusion, and (4) general validation. The innovation stage involves the emergence of a social object, such as a new organization that encounters a need for addressing legitimacy. The second stage involves validation of the organization by local social actors who justify and accept the fundamental features of it in accordance with the dominant prevailing institutions. Third, once local validation occurs, diffusion to new contexts arises through implied acceptance by various social actors who view it as valid. Fourth, a broader-level consensus occurs once the social object has been validated, diffused, and accepted in multiple situations. Thus, the model mainly shows a diffusion process that comprises both individual and collective levels of validation. Figure 2 displays the sequential stages of legitimation as a social process.

Figure 2. The organizational legitimation process



Adapted from Johnson et al. (2006)

4.2 Internationalization of small firms and networks

In the contemporary business literature, internationalization of small technology firms has been increasingly related to studies of firms labeled as “international new ventures” (INVs) (Oviatt & McDougall, 1994), “born-globals”, and “global start-ups” (Knight & Cavusgil 1996; Madsen & Servais, 1997), which have all begun to congregate under the emerging research stream “international entrepreneurship” (IE) (Zahra, 2005). Therefore, the presentation of internationalization theories is primarily conducted with the IE field at the center.

4.2.1 Internationalization theories and international entrepreneurship

There are a number of schools of thought about what constitutes internationalization. One of the most prominent entails theoretical explanations of a firm’s internationalizing process have comprised mainly economic approaches with a focus on transaction cost theory (Williamson, 1975; for a review, see Dunning, 2009). On the other hand, behavioral internationaliza-

tion process theories have shifted their focus from cost and risk calculations of internationalization, and advocated considering it as a gradual behavioral process where this time, knowledge, and learning is at the center (e.g., Bilkey & Tesar, 1977; Cavusgil, 1988; Johanson & Wiedersheim-Paul, 1975). Process models can be divided into two categories: the Uppsala model (e.g., Johanson & Vahlne, 1977) and those models often referred as innovation-related internationalization models (e.g., Bilkey & Tesar, 1977; Cavusgil, 1984; Reid, 1981). The common constituent of both models is addressed as the incremental nature of internationalization processes, first in terms of activities, and second in terms of resources (Ruzzier, Hisrich, & Antoncic, 2006). There is consensus about the great contributions of the models to current understanding of the drivers and patterns of internationalization, and they are widely used in both large- and small-firm contexts.

However, behavioral process models were also challenged in the mid-to-late 1980s by the results of empirical studies conducted in relation to high-technology start-ups. These studies revealed that these firms do not necessarily follow an incremental route (Oviatt & McDougall, 1994; Schweizer, Vahlne, & Johanson, 2010). While explaining the reasons for this variance, scholars increasingly brought up an additional driver that had not been sufficiently highlighted in former process models (Reid, 1983); that is, the prospect of a firm's international expansion occurring as the outcome of its strategic intentions. As a result, entrepreneurial and strategic management perspectives emerged in the internationalization paradigm that view internationalizing small firms mostly as start-ups that constantly endeavor to create enabling conditions for international venturing and growth (Crick & Jones, 2000; Oviatt & McDougall, 1994).

In this context, small life science firms have attracted the specific attention of internationalization and IE scholars (e.g., Brännback, Carsrud, & Renko, 2007; Gassmann & Keupp, 2007; Jones, Wheeler, & Dimitratos, 2011; Lindstrand, Melén, & Nordman, 2011; Nordman & Melén, 2008; Tolstoy & Agndal, 2010). Due to the particularities of the life science industry, many scholars have chosen to study the internationalization of small life science firms within the context of the industry's own characteristic conditions (Laurell, 2015). A body of studies that pointed out the key to understanding the overall growth path of life science firms in its industry

specific conditions is to be found embedded in a holistic view that comprises internationalization, innovation, and entrepreneurship perspectives (Jones, 1998, 1999; Jones et al., 2011; Phiri, Jones, & Wheeler, 2004). In this view, innovation and internationalization, as explained above, are considered to occur either instantaneously or with the latter in close succession to the former, although mostly in an inter-related manner (Onetti, Zuchella, Jones, & McDougall-Covin, 2012). Thus, entrepreneurship is linked to both innovation and internationalization by exploring and exploiting international opportunities, which leverage both local and international relationships (Schweizer et al., 2010). Leveraging relationships, on the other hand, refers to giving access to resources and new knowledge that enables further relationship development and improved positions in a network of relationships (Johanson & Vahlne, 2009; Jones et al., 2011; Tolstoy, 2010).

4.2.2 Network approach to internationalization

The network views on internationalization draw broadly on the theories of social exchange and resource dependency, and focus on firm behavior in the context of a network of interorganizational and interpersonal relationships (Axelsson & Easton, 1992). A business relationship refers to the interaction and resource exchange between the firm and other actors (Gadde & Mattsson, 1987). In this view, the focal network of a single firm consists of the firm's exchange relationships with different actors in the firm's environment, such as its customers, distributors, suppliers, competitors, and the government (Chetty & Blankenburg Holm, 2000). A dyadic business relationship and a firm's entire focal network are directly or indirectly connected with other relationships that have some influence on them, as part of a larger business network (or networks).

Networks, and the benefits they provide, have comprised the fundamentals of IE research as well (see review by Jones, Coviello, & Tang, 2011). This prominent network influence in IE studies started with two early papers by Coviello and Munro (1995, 1997). In these studies, networks were themselves addressed as the drivers of internationalization. Furthermore, Johanson and Vahlne (2009) revisited their Uppsala model of internationalization from 1977, adopting an industrial network perspective and describing internationalization as a multilateral network development

process in larger business network structures in which the firm is embedded.

Overall, one of the prominent roles of networks in small firm internationalization and IE studies is acknowledged as providing resources and that might compensate for small firms' inherent resource scarcity and make internationalization possible (Sharma & Blomstermo, 2003; Young, Dimitratos, & Dana, 2003; Melen & Rovira, 2008). Furthermore, networks provide structures for creating critical resources and capabilities with other actors that are hard to create alone (Mort and Weerawardena, 2006; Tolstoy & Agndal, 2010). Hence, the understanding is that different relationships provide different resources and capabilities. The main assumption in many network studies is that managers of these firms use resources and existing personal or social networks (Oviatt & McDougall, 1994). Furthermore, scholars have also increasingly started to highlight the dynamics of networks in relation to successful internationalization (Coviello, 2006; Lindstrand, 2011). However, IE literature does not seem to have approached networks from a legitimation perspective, except for a few studies. For example, Al-Laham and Souitaris (2008), in their study of biotechnology firms in Germany, found evidence that firms with more central positions in the national network, and allied with better connected partners, have a higher probability of forming international alliances as they signal legitimacy and trustworthiness, which encourages a favorable evaluation by potential foreign partners.

4.3 Summary of the theory

This chapter provided the study's theoretical foundations in the organizational legitimation and IE theories. Theory of organizational legitimation is discussed as a multi-level and multi-stage process model. Focal firms' networks of relationships were stressed to play a significant role for the micro-level legitimation process because theory points out network relationships as an organizational feature that is at first subject to legitimation for young firms. On the other hand, theory has provided relatively little knowledge about the role of focal firms' network relationships with different actors

and the implications of focal network dynamics on their legitimation; about which this dissertation aims to bring in new insights.

IE theory provided the study with a picture in which there is a degree of agency to international expansion of small firms. Thus, firms proactively seek opportunities and resources across borders for realizing their goals – such as, in this study, exploiting life science technologies in a global market. Networks also play a significant role for IE theoretical frame in that they provide resources that are not available in-house, as well as structures for generating new capabilities and resources that would not be possible otherwise. Consistent with this view, IE research has highlighted understanding of the network relationships with different types of actors and dynamics in the firm's focal networks as keys to successful international expansion. However, given the strong emphasis on networks in the current IE paradigm, the question of how firms establish new relationships and connect to desired networks seems not sufficiently addressed. This study assumes that by providing insights about firms' legitimation within international networks, this dissertation may contribute filling in this void.

Chapter 5

Analytical Framework

The main purpose of this study is to develop a deeper understanding of small life science firms' legitimation in international networks. The purpose originates from the assumption that a life science start-up realizes its international expansion in close relation to its legitimation in international networks. Consistent with this view, this chapter develops and presents an analytical framework in light of the theoretical foundations discussed in the previous chapter. The goal of the chapter is to consider the presented theory in the case of small life science firms, and to develop an analytical lens on small firm legitimation in international networks.

5.1 Legitimation of small life science firms

A life science start-up that is founded to exploit one or more technologies in a global market accordingly aims to become a legitimate global actor in international networks. In the legitimation model by Johnson, Dowd, and Ridgeway (2006), legitimation starts with the innovation of a social object and continues until general validation occurs once the social object has been validated, diffused, and accepted in multiple situations. Cognitive legitimacy stems from knowledge about the organization representing the more or less "taken-for-grantedness" according to the cognitive understandings that give meaning to social exchange in the market (Aldrich & Fiol, 1994; Greenwood, Oliver, Sahlin, & Suddaby, 2008, p. 4). Thus, global legitimation for a small life science firm is considered complete when the

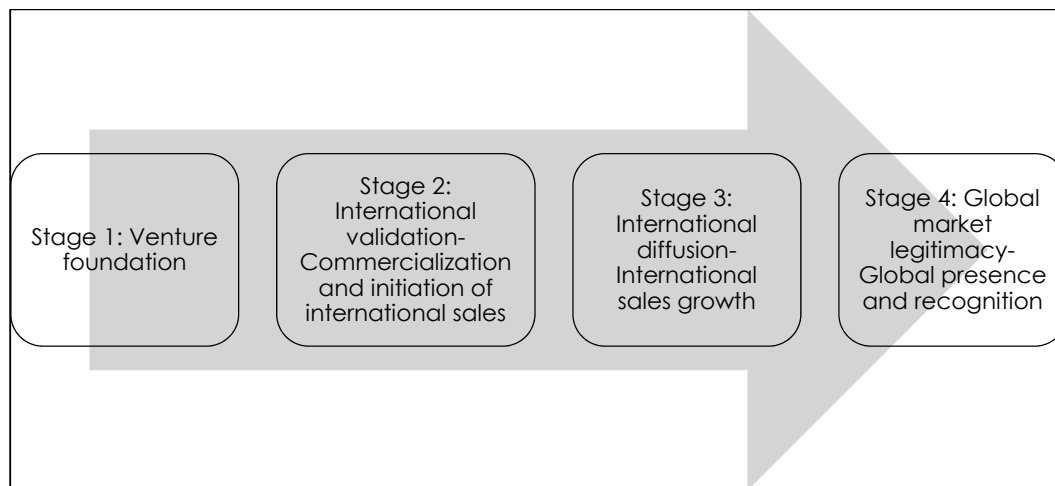
firm and its role are recognized and acknowledged globally. For example, previous literature has suggested that being traded on the NASDAQ exchange is one practical measure that can be a proxy for global presence and recognition of a life science company. Presumably, NASDAQ trading reflects a non-US technology company's ability to break through regional barriers and gain broad international recognition (K@V, 2009). Achieving this state of cognitive legitimacy is very difficult, and for some firms may not be possible or even an aim, depending on the firms' business models and strategies. In the life science industry, it is frequently the case that cash-strapped small firms, if successful, are acquired by global pharmaceutical and medical device companies after developing their technologies to a sufficiently attractive level (such as after conducting the first two clinical trial phases). However, even if global market legitimacy is not the intended or attainable end, for a life science start-up legitimation presumably starts with the venture foundation⁵ (social innovation in the model).

In the legitimation model, the following stage is "local validation", followed by diffusion during which the social object to be legitimated is spread in different contexts. For a life science venture, validation logically corresponds to commercialization of the firm's technologies and initiation of international sales of the company's products and services (Mehta, 2008; Jones, Wheeler, & Dimitratos, 2011). However, for a life science venture, the local validation stage is not local in terms of home market. Validation starts with the firm's immediate resource holders. However, in this respect, immediate does not necessarily refer to the spatial sense, but rather the sense of its relevance where the remaining parts of the environment, although not unimportant, may be set aside for a while (Thompson, 1967, p. 27). For a life science venture, the immediate audience may comprise customers, suppliers, competitors, or regulatory groups across countries or even continents. Thus, a firm needs to achieve validation internationally as well. Therefore, this study calls this legitimation stage "international validation" instead.

⁵ Although the legitimation for the technological innovation per se might start before the foundation of the firm, legitimation for the organization around the innovation is considered to start with the firm's foundation.

Once international validation takes place, such that the organization and its technology has been assessed and validated, it eventually moves to the next stage of legitimation – that is, the diffusion stage, where the firm realizes international sales growth. In this stage, the number of customers that the firm acquires or the markets that it has a presence in signifies its diffusion in different contexts as it experiences sales growth. Eventually, general validation of the organization may be possible, but only after its diffusion in a sufficient number of markets for broad recognition and international growth. The proposed overall legitimation model of life science firms is displayed in Figure 3.

Figure 3. Proposed global market legitimation model of small life science firms



Adapted from Johnson et al. (2006)

5.2 Legitimation in networks

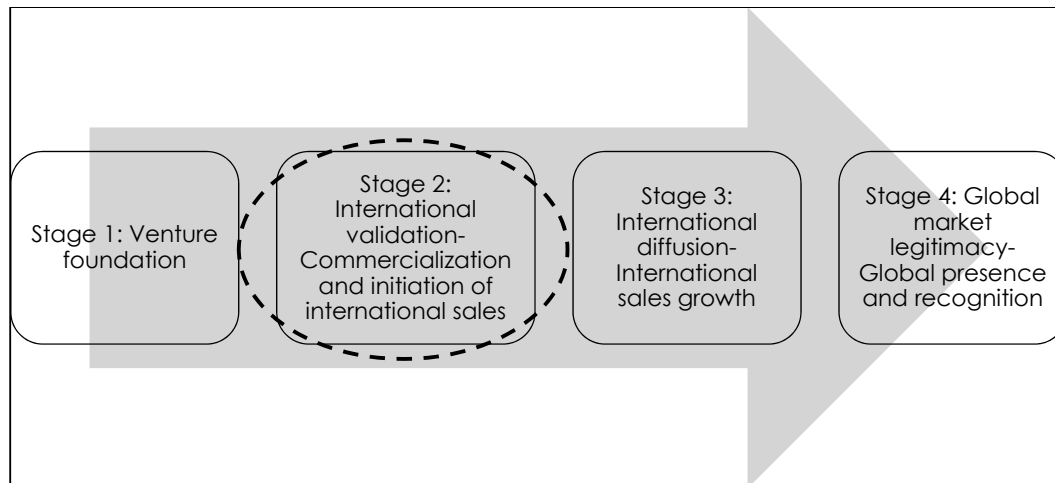
Global market legitimacy (Stage 4), as the ultimate objective of legitimation, is considered a collective judgment made by actors in a market at an aggregate level. The most prominent way of measuring whether a firm is recog-

nized globally in a network setting is to control its relation with the prominent (that is, central) actors, if not all actors in the network. On the other hand, knowledge about the focal firm may spread in many ways; for example, through market-based information such as statistics and reports (Van den Bulte & Lilien, 2001). Hence, the audience may or may not be in direct relation to the focal firm. Given that the organizational legitimation model by Johnson et al. (2006) is adopted in this study, for a more comprehensive conceptualization one can look at the innovation diffusion literature in which this model was founded (Rogers, 1995). This literature provides guidance about important factors and processes associated with diffusion, with much of the early work conducted within sociology (e.g., Coleman, Katz, & Menzel, 1966). Rogers (1995) proposed that especially in the early periods of diffusion, organizational characteristics have an influential effect on the adoption of an innovation. For example, characteristics of early adopters tend to influence the adoption rate of later adopters. The theoretical reasoning behind this argument is that social diffusion can arise from a variety of sources besides information sharing, such as social pressures (see social coercion in networks; McFarland, Bloodgood, & Payan, 2008; see also the legitimacy diffusion model of corporate entrepreneurship by Hornsby et al., 2013). In a complementary manner, Milanov and Fernhaber (2009) focused on existing relationships that a partner may have with other firms in establishing venture legitimacy. They determined that network centrality and network size of the initial partner are critical in the diffusion of a venture's network. Thus, in accordance with this view, the qualitative assessment of the firms' network relationships also gains extra importance, especially during the validation stage. This means that in the "international diffusion" stage, legitimation is suggested to continue in a more quantitative manner in networks where the number of customers, foreign markets, and international sales volume are the subject matter; in the "international validation stage", this mostly proceeds qualitatively (by qualitative, this study refers to the identity of the corresponding party with whom the firm has a relationship, rather than how many relationships it has).

In this study, none of the case firms have reached Stage 4 of their legitimation, but all have been through Stages 1 and 2, and some have moved forward to Stage 3 (cases that have products/services in the market and

have experienced international sales and growth). Accordingly, the focus of the study is mostly on Stage 2 as shown in Figure 4, where the firm is validated in international networks and realizes international diffusion.

Figure 4. The dissertation's focus during legitimation in international networks



Adapted from Johnson et al. (2006)

5.2.1 Legitimation within networks

A recent stream of research combining institutions and networks has already provided a promising and novel ground for understanding institutional processes that occur within networks by considering networks as a substantive dimension of economic and social milieus that regulate the formation and implications of relationships (Cattani, Ferriani, Negro, & Perretti, 2008; Higgins & Gulati, 2003; Owen-Smith & Powell, 2008). According to Owen-Smith and Powell (2008), first, a network is a platform and an institutional repository. Thus, networks enable social construction and institutionalization as shared norms and cognitive categories; additionally, stable role structures emerge and are sustained out of repeated interactions within network structures. Second, and most significant for this study, networks are essential to legitimation because they are considered both the

pipes through which resources circulate and the prisms that observers use to make sense of action and form their judgments. In this understanding, economic activities are embedded in a social sphere, where legitimation in this manner is both categorical and relational. It is categorical in that its prevailing rules, cognitive categories, and expectations determine the legitimate parties to a relationship and condition the formation and development of network relationships. On the other hand, it is also relational as the presence and absence of certain relationships render a clearer picture to observers and participants alike by allowing them to classify and order both the actors and their relationships into categories (such as legitimate versus not-legitimate, separate identities, etc.) (Owen-Smith & Powell, 2008).

In the theory, the main driver behind this relational understanding of legitimation is generally referred to as “legitimacy spill overs” (Suchman, 1995, p. 588), which emerge from the shared cognitive categories associated with relationships. Thus, the subject of legitimacy assessments does not comprise only the focal organization, but also the other organizations related to the focal organization. Firms receive legitimacy spillovers by being associated with actors that are already perceived as legitimate. Thus, a focal organization pursues legitimation in order to become legitimate and be able to develop relationships with external actors; once these relationships have been established, it creates legitimacy spillovers through them. Consequently, this analytical framework suggests that legitimation occurs in networks in an interdependent and dynamic manner.

In order to identify the cognitive categories prominent in international life science networks, the study turns to the rich body of industrial market network research (the foundation of network views dominant in internationalization literature was discussed previously, in Chapter 4).

5.2.2 Industrial market networks and legitimation of small life science firms

Network views describe industrial markets as non-hierarchical systems in which firms invest to strengthen and monitor their position in networks of a global industrial system (Johanson & Mattsson, 1988, 1992; Johanson & Vahlne, 1990; Sharma, 1992). This system perspective calls for macro structures of industrial networks that exist regardless of the focal firms’ direct

relationships to it. As firms internationalize, they develop and strengthen network positions in these structures (Johanson & Vahlne, 2009). Johanson and Mattsson (1988) suggested that these industrial international networks are to be partitioned in many ways (geographical areas, products, techniques, etc.). The authors used the term “nets” to identify specific analytical parts of this network (for example, product net, national net, etc.). In this view, one can assume the more internationally knitted the nets of a market such as life science are, the more global and internationally interdependent these nets become. Thus, different nets gain interdependent levels of importance when it comes to shared cognitive categories utilized for social construction of legitimation. Thus, they are essential in understanding the complexity of the legitimating audience; but are also important in helping culturally knowledgeable and skillful managers display the categories that their organizations belong to, which are otherwise hard to observe.

Hence, two dimensions of nets are identified as they are considered likely to provide sources of partitioning in cognitive categories in life science networks; these are the actor group and spatial dimensions. Life science actor group nets are often dispersed across borders, and overall these nets comprise international life science industrial networks. Thus, the spatial dimension and actor groups are only different dimensions of one international/global life science industrial network; however, they are considered significant for understanding the complexity of a life science firm’s social context.

Actor group nets

Successful start-ups in the life science industry are usually those that are capable of developing the skills of adapting to, managing, and maintaining multiple types of activities with a diverse set of actor groups throughout the processes of technology development, commercialization, and sales and growth (Melén & Rovira Nordman, 2009; Nummela, 2004). On the other hand, these actor groups can be regarded as constituting separate socio-cultural groups (Greenwood, Hinings, & Whetten, 2014; Lamin & Zaheer, 2012; Pontikes, 2012). Thus, the different norms, values, and expectations of each actor group are likely to shape the legitimacy spillovers to a focal firm by holding a relationship to an actor from a certain group. This study

outlines distinct actor group nets specific to the life science industry as follows: research organizations, business organizations – large: multinational corporations (mostly big pharma), business organizations – small and medium sized: life science SMEs, and state organizations (see Chapter 3).

Spatial nets

Despite the generally assumed universal nature and relative cultural insensitivity of technology, not every actor in a life science firm's focal network seems to be available globally (Renko, 2011), making it impractical to disregard the spatial partitioning of life science networks. Thus, an additional layer of complexity inherently accrues; that is, a collective audience that shares institutions bounded by national/regional borders. This dimension has been the most common, particularly in the international business (IB) field. Although the country-level analysis still distinctively demonstrates the institutional characteristics of the environment, the most relevant institutional context may be broader than a single country and in fact be associated with transnational institutions (Djelic & Quack, 2003). Thus, researchers are advised to be open to more micro or more macro levels of analysis (Kostova & Zaheer, 1999; Phillips et al., 2009). This advice is taken as binding for analyzing life science firms' legitimation. Although the number depends on the purpose of the research question this study limits the spatial dimension to home country, foreign country, regional, and international/global layers.

5.3 Limitations regarding the analytical framework

As discussed previously in the dissertation, the business processes of life science firms depend on the state of a number of different projects. Hence, a firm may be engaged in sales and marketing activities for one project, yet be busy developing the technology for another one. Therefore, legitimation may be analyzed for every project or product group that the firm is pursuing. In reality, it is possible that loops emerge in one single firm's legitimation when it introduces a new technology or product line. Furthermore, in

this case, one may even consider the possibility of adding an additional layer of legitimacy spillovers between the projects to the focal organization or the subsequent project. However, as my project's research question is not about one specific innovation, but rather focuses on the organization inter-linked with the innovation, legitimation is considered to proceed further in the framework. This is because knowledge about the organization, as the essence of cognitive legitimacy in the international focal-interest network, is considered to continue in a linear manner, thus limiting the comprehensiveness of the analytical framework.

The study concentrates on cognitive legitimation. However, although analytically distinct, in reality, legitimacy constructs are interrelated to some extent. For example, regulatory institutions force life science firms to comply with the clinical trial processes of developing life science products in order to enter the market. Hence, complying with clinical trial requirements stems from coercive pressures in the environment. However, the compliance status simultaneously provides a basis for the formation of cognitive legitimacy judgments based on the attributes of the firms associated with what a successful firm should look like (such as the category of firms that have complied with and passed Phase II clinical trials). Thus, the presence of regulative legitimacy may be perceived as comprising the sources of cognitive legitimacy for investors and technology-development partners.

The same applies with EU grants. The EU and its framework programs generally have strict guidelines for the type and number of partners a firm should hold in order to be eligible to apply. Hence, as applying and utilizing EU grants is observed as common practice for Swedish small life science firms, the EU rules comprise a source of prevailing cognitive institutions indicating the type of international partners a "standard" technology start-up holds. Consequently, the complexity produced by the strong interlink between the legitimacy constructs as exemplified above is the limitation brought by the analytical framework.

Chapter 6

Summary of the Articles and Discussion of Findings

The research purpose of the dissertation has been pursued through four individual articles. In this chapter, a brief summary of each article, along with its individual contributions to the dissertation, are portrayed. The findings are then discussed in the form of answers to each of the two principal research questions addressed by the dissertation.

6.1 Summary of the articles

The first article in the dissertation differs from the other three in terms of its focus and approach. Article 1 considers small and medium-sized firms from various industries, and the issues they face within their ongoing relationships; whereas the rest of the articles focus on firms from the life science industry, specifically at the earlier stages of their organizational and network developments. In Article 1, my co-authors and I develop arguments that a firm's perception of institutional impediments experienced in a key business relationship in a foreign market negatively affects the performance derived from that relationship. The article demonstrates institutional impediments as constraints on attaining relationship legitimation, and as manifesting in negative performance outcomes. The social exchange processes underlying our reasoning in this article were able to explain economic behavior regardless of the industry. Thus, the article's strong theoretical

stance puts our findings in a more general, and less industry-specific, context, and thereby entails life science firms. The findings suggest that firms' investments in their key relationships and connections to foreign market networks have positive performance implications, as they help firms develop towards mutual acknowledgements with their partners that their actions are suitable. Furthermore, the study displays empirically that institutional impediments materialize in international business networks, as these impediments are experienced, enacted, and also managed within the networks. In this respect, the article contributed greatly to the conceptual development of the dissertation's main research purpose and analytical framework. Furthermore, although in the article the institutional impediments are considered to emerge from the differences in institutional contexts among countries, the findings suggest that the degree of connection with institutional organizations (authorities, banks, and industry organizations) and business organizations (customers and suppliers) have distinctive implications for the focal relationship. This insight helped to develop the construct "actor group net", which is used to a significant extent in the other articles, and within the entire dissertation.

Article 2 is a conceptual study. It takes the institutional network conceptualization used in Article 1, and develops this further in the context of new venture legitimation. The paper examines the complexities in the conditions of internationalizing new ventures' legitimation and suggests that complexities particularly emerge because of the multi-layered nature of the audience; high uncertainties connected to the focal organization inherent in their small size, young age, and internationality; and relatively underestimated dynamic nature of the process. In order to address these complexities, the paper proposes an interactive and dynamic understanding of legitimation driven by multi-layered legitimacy spillovers across different actor categories and spatial dimensions of firms' legitimating audience. Thus, it contributes to the dissertation primarily via the development of the analytical framework and by providing answers to the question of how firms pursue legitimation within international networks.

Article 3 develops the legitimation view proposed by Article 2, and mainly contributes to the dissertation by answering the first research question. Thus, it examines legitimation of life science firms empirically in mul-

multiple case studies and shows how legitimacy spillovers from different actor groups contribute to focal firms' legitimation on scientific or business attributes. Accordingly, the article draws particular attention to the interdependence of validations achieved from different actor categories and the firms' quest for leveraging positive legitimacy spillovers over time.

Article 4 presents empirical findings from a multiple case study analysis of six successful small life science firms. Based on the findings, the article identifies three groups of practices that firms engage in to enhance legitimation in international markets: interacting with an international/global audience, utilizing symbolic behaviors, and enabling international legitimacy spillovers. The article further distinguishes firm-specific differences that influence the case firms' engagement in these practices, such as the focal firm's role in the industry's overall value chain and founding teams' scientific attributes. Therefore, Article 4 contributes to the dissertation by presenting answers to both the first and the second research questions. Table 9 presents a summary of each article's findings and their contributions to the dissertation.

Table 9. Summaries of each article's findings and its contribution to the dissertation

Article 1:	Managing institutional impediments through relationships and networks
Specific contributions in:	Findings:
Developing the dissertation's overall research purpose and analytical framework by empirically validating the implications of institutions and legitimation within international networks. Developing the constructs used in the subsequent articles.	<ul style="list-style-type: none"> • Perceived institutional impediments in a foreign market enacted in a business relationship have negative implications on relationship performance. • This negative effect can be turned into a positive effect in two ways: First, the firm can make relationship-specific investments that enable it to manage the institutional impediments, with positive relationship performance as an effect. Second, the firm can increase its dependency in institutional and business networks in the host country.

Article 2:	International new venture legitimation: A multi-layered framework
Specific contributions in:	Findings:
<p>Developing the dissertation's analytical framework by providing a thematic review of the extant international new venture legitimation literature.</p> <p>Providing answers to the first research question.</p>	<ul style="list-style-type: none"> • Based on a thematic literature review on INV legitimation, three distinct groups of complexities are identified that small firms face during their international legitimation. These are: (1) multi-layered audience, (2) high uncertainties connected to the organization's young age, small size, and internationality, and (3) dynamism in the legitimation process – that is, constantly changing conditions. • A multi-layered legitimation framework is proposed that is interactively driven by the focal firms' network development and the legitimacy spillovers from this network.
Article 3:	Legitimation network paths: Relational and dynamic understanding of young life science firms' legitimation
Specific contributions in:	Findings:
<p>Providing answers to the first and second research questions.</p>	<ul style="list-style-type: none"> • Young life science firms' network partners engage in organizational legitimation by providing (1) scientific and (2) business legitimacy spillovers. • The data revealed a shared understanding of legitimacy spillover interdependence across different actor groups. Different actor groups' involvement in firms' legitimation is shaped primarily by this prevalent perception about the hierarchy of actors providing legitimacy spillovers in the eyes of others. • Accordingly, the key opinion leaders are at the top of this perceived hierarchy, followed by universities, research institutes, and state organizations. Large business organizations and smaller firms take subsequent places. • Arrangement of different actor groups' involvement in an individual firms' legitimation (its legitimation network path) varies depending on firms' initial legitimacy spillovers from their founders and target audience. • Accordingly, firms that had KOLs among their founders enjoyed early scientific legitimacy spillovers and proceeded relatively smoothly down the prevalent hierarchy of actors throughout their market legitimation. On the other hand, network paths of firms that did not have KOLs among their founders seemed to deviate from this trend. One of the cases established a relatively higher number of early relationships with state organizations, whereas the other skipped the steps of building relationships with KOLs, universities, and research institutes during its legitimation shortly after receiving negative outcomes from its attempts. • The case firm that did not pursue the attainment of sci-

	<p>entific validation from these actors later found that the influential actors differed for its targeted niche market. Hence, the results suggest that firms' individual legitimation network paths also vary depending on the specifications of their target audience.</p>
Article 4:	Legitimacy-seeking practices during international venturing of small life science firms
Specific contributions in:	Findings:
<p>Providing answers to the first and second research questions.</p>	<ul style="list-style-type: none"> • Firms employed significant management efforts in a variety of international market legitimacy-seeking practices. These include: (1) interacting with an international/global audience (presenting at international scientific and industry conferences; utilizing internet tools; personal networking; publishing articles in international academic journals); (2) enabling international legitimacy spillovers (publishing articles in international academic journals; associating with international institutional actors; associating with universities with international reputations); (3) utilizing symbolic behaviors (looking as-if larger; looking as-if more professional). • Firms address a broad international community to seek legitimacy in the early stages of their organizational and network development. • The significance of each practice in terms of the extent of the management efforts employed varies according to firms' roles in the industry's overall value chain and their founding teams' scientific attributes. • Accordingly, firms that had no KOLs among their founders showed higher levels of engagement in enabling international legitimacy spillovers compared to those that had. Furthermore, firms that pursued fully integrated roles in the value chain, including R&D, clinical trials, manufacturing, marketing, and distribution, showed higher levels of engagement in utilizing internet tools when seeking legitimacy compared to those that pursued R&D and out-licensing projects. On the other hand, the firms in the latter group showed higher levels of engagement in personal networking.

6.2 Findings

The empirical findings show that the international network development patterns of the case firms were strongly associated with their overall organizational functions, which include R&D, production, marketing, sales, and distribution. A number of the case firms began to sell to multiple foreign markets right from their foundation, or shortly after (Cases J, K, L, M, N, O, P, Q, and R). In cases where revenue streams had not yet been established, their operations nevertheless involved cross-border activities in the form of R&D, product development collaborations, and partnerships with international associates (Cases A, B, C, D, E, F, G, H, I). Hence, the cases in the study confirm and illustrate that life science firms are born into a social context that contains an international element, and pursue legitimation in this context from their inception. The next sections discuss the findings from the articles in relation to the dissertation's two research questions.

How do small life science firms pursue legitimation in international networks?

First, the findings suggest that legitimacy is a condition for firms to relate to their environments and be able to initiate and develop relationships with external actors, rather than a resource that is acquired and possessed. Accordingly, whether a firm is perceived as being in a legitimate condition in a certain situation depends on aspects such as when that situation occurs, and who the audiences are. In other words, the primary audiences and the validation criteria may change depending on the firm's organizational and network development phase. Second, the findings provide empirical evidence to suggest that legitimation in networks may be viewed as a path, where the presence of a firm's previous validations (those with whom the firm has connected) influence the firms' likelihood of drawing the attention of, and acceptance by, its potential network partners at that time; in turn, this will affect its future validations. Moreover, the empirical findings provide insights that legitimation in networks arises both of its own accord and as a result of management's intentional efforts to contribute positively to it. Thus, legitimation of life science firms may be best understood by under-

standing the shared cognitive categories and their interdependencies that exist in network structures. These interdependencies relate to perceived legitimacy spillovers associated with the presence or absence of firms' relationships with certain individual actors, actor groups, or markets. At the same time, firms also seem to pursue legitimation intentionally by engaging in practices of influencing validations of external actors proactively through the activities of interaction, communication, and exchange, as well as choosing partners selectively in order to leverage legitimacy spillovers.

The cases highlight two main types of legitimacy spillovers: scientific and business. The data shows that certain actors were associated with providing scientific legitimacy spillovers perceived to validate the worthiness of focal firms' technologies. Academic KOLs, universities, and research institutes, as well as state organizations, were frequently referred to providing this type of spillover. Associations with these actors were considered to have a large impact on validations by both academic and industrial actors. On the other hand, business legitimacy spillovers signify that young life science firms are capable of fulfilling the expectations of a competent business partner (for example, handling quality control, logistics, and after-sales services and having the operational skills necessary to comply with alliance procedures). The case firms attributed certain business organizations as the sources of business legitimacy spillovers; these were generally referred to by the respondents as "reference customers". The data shows that these organizations were commonly large and established industrial actors (for instance, multinational pharmaceutical companies). These actors were considered to have an impact specifically on validations by industrial actors. Consequently, based on these findings, the conceptual construct *legitimation network path* was developed (Article 3). This refers to interdependencies of validations by different actor groups throughout a focal firm's legitimation. In this view, legitimation relies on the heterogeneity of actor groups in a network that provides the ground that each of them offers some information for others in dealing with uncertainty; for example, when a business has international ambitions, relationships with prominent universities can enhance the firm's validation in foreign markets in the eyes of customers. Similarly, having a respectable list of reference customers in an overseas market helps to remove the natural unwillingness of foreign

investors to risk money on a small entity headquartered in a remote country. Thus, a young life science firm's legitimation in networks is presumed to occur as different actor groups successively connect to the focal firm.

At the same time, the findings reveal that management puts effort into shaping their firm's individual legitimation network path. Moreover, the empirical findings show that firms' practices in order to convince their immediate audiences that their organizations are legitimate for engaging in exchanges are not limited to efforts to cause legitimacy spillovers. Rather, these practices entail (particularly at the earlier phases of firms' international validation, especially before they start a certain degree of international growth and form a number of relationships in respective networks) interacting with an international/global audience, and utilizing symbolic behaviors (Article 4). Thus, as they start to develop their networks further, firms find the possibility to rely on leveraging their current relationships for legitimacy spillovers.

How do firm-specific differences influence small life science firms' legitimation in international networks?

The study's empirical findings show that legitimation of small life science firms varies depending on firm-specific differences, because the organizational characteristics influence the legitimation conditions. The findings suggest two main groups of firms when it comes to difference in how they pursue legitimation. These are KOL and non-KOL firms. The KOL firms are those that have eminent scientists among their founders, and are suggested to diverge from firms that do not have these actors (non-KOL firms) in both their specific legitimacy-seeking practices and their legitimation network paths.

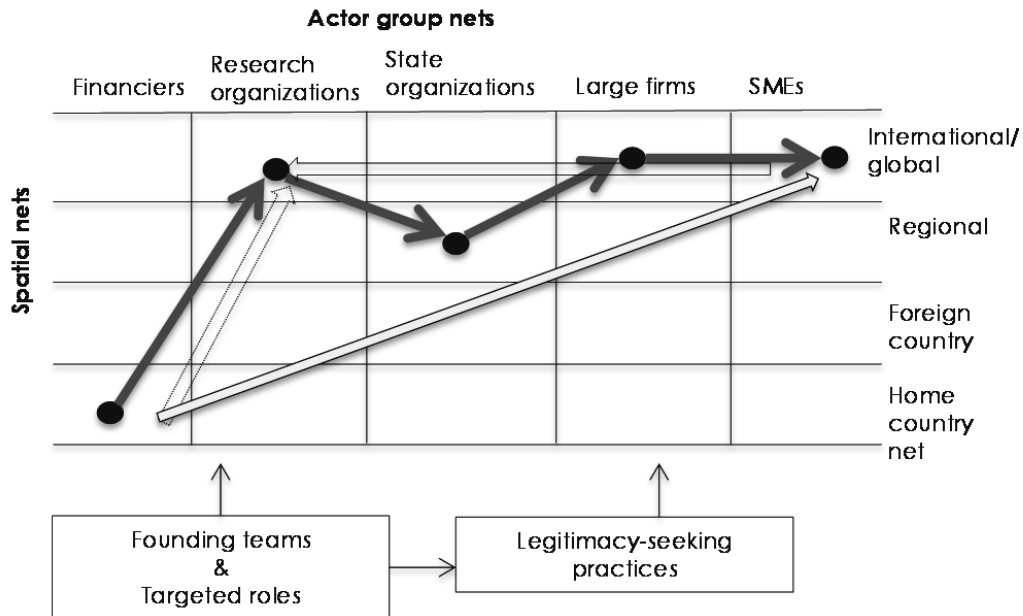
Non-KOL firms seem to show higher levels of engagement in enabling international legitimacy spillovers, compared to the KOLs (Article 4). On the other hand, these firms' legitimation network paths also appear to deviate from those of KOL firms that enjoyed early scientific legitimacy spillovers from their founders and proceeded relatively smoothly towards market legitimation (Article 3). On the other hand, as one of the non-KOL cases displayed, these firms may choose to compensate the lack of connection

with a KOL by presenting a relatively higher number of relationships with certain organizations (for example, rewards from industry associations, or research grants from state organizations). However, the case study of another non-KOL firm showed that the management dropped its efforts to build relationships with KOLs, universities and research institutes, and state organizations during its legitimation after a short period as it had received no outcomes from its efforts. Thus, it did not attempt to attain scientific validation from these actors like most of the other firms did; later on, it experienced that the influential actors for its targeted niche market actually differed from those of the well-known KOLs in the scientific field. Therefore, this case study suggested that firms' legitimation network paths are also likely to vary depending on their target audience.

Furthermore, the findings highlight another firm-specific difference related to their legitimation: their roles in the industry value chain. As advocated earlier in the dissertation, the ultimate goal of a life science start-up from a network view is to develop and grow the new venture, and at the same time establish positions in international networks. Thus, a life science firm's global position typically depends on which role it aims to take in the overall value system of the industry, which encompasses innovations relating to one or more technologies and includes different processes. The empirical findings suggest that firms that pursue fully integrated roles in the value chain, including R&D, clinical trials, manufacturing, marketing, and distribution show higher levels of engagement in utilizing internet tools when seeking legitimacy, compared to those that pursue R&D and out-licensing projects (Article 4). Thus, a firm's target role is closely connected to how its operations are organized and the practices are diversified; including the practices pertaining to how the firm seeks legitimacy.

Figure 5 displays an illustration of the findings. The aim of the figure is to suggest a visual portrayal of the multi-layered legitimacy spillovers and exemplify legitimation network paths, rather than displaying a comprehensive framework.

Figure 5. Illustration of the findings



The horizontal axis in Figure 5 outlines the broad actor diversity, while the vertical axis shows the geographical dispersion of the actors in the small life science firms' networks. It accordingly distinguishes two distinct dimensions of international networks: actor groups (the organization type of the network partner), and the spatial dimension (the location of the network partner). The partitioning in Figure 5 suggests that the network is divided into nets that represent actors both as sources of legitimacy spillovers (present network partners) and as the audiences that observe and validate the focal organization (prospective network partners). On the other hand, legitimation network paths vary depending on the features of the founding team and the targeted roles, as well as the firms' practices. Therefore, they are represented with small boxes in the figure.

The thick arrows illustrate two legitimation network paths from the two firm typologies suggested by the empirical cases (KOL and non-KOL firms). The dark thick arrow exemplifies a KOL firm that develops relationships with international universities and research institutes, provides scientific validation for the company, and then develops relationships with multinational firms and connects to a diverse base of the market, including

SMEs. The light thick arrow represents one specific non-KOL case firms' legitimation that was discussed earlier, as it represents an explicitly diverging path and thus provides a good visual example. In this case, the firm first attempts to connect to universities located in its home country net for validation; however, this turns out to require more effort than the management is ready to exert (marked in Figure 5 with a dashed arrow). Thus, the management puts most of its efforts into finding international customers, mostly through internet-based tools. After establishing a sufficient number of relationships with business actors in international markets, the firm eventually finds it easier to connect to universities.

The legitimation network paths in Figure 5 represent significantly simplified versions of the firms' networks in real life. They only outline the paths that are significant for firms' legitimation, and do not claim to represent all the present relationships. By significant for firms' legitimation, it is referred to cases for example in which, a non-KOL firm may have a grant from a state organization in real life, however the central part of its legitimation network path may still not flow through this relationship.

Chapter 7

Conclusions and Discussions

As individuals, most of us are aware that people with whom we spend time have indisputable influences on us. Even those who are less aware have most likely heard, at least once, teachings such as “man is known by the company he keeps” or “tell me who you are friends with and I will tell you who you are”. In social life, it is important to have the right friends. Moreover, based on the same argument, the presence or absence of social relationships that connect individuals provides a sufficient basis for drawing categories that make it easier for us to make sense of our daily lives (Berger & Luckmann, 1966). Accordingly, networks providing structures connecting actors is a social map that outsiders utilize to form judgments about a given actor’s prospects (Owen-Smith, Cotton-Nessler, & Buhr, 2015).

This dissertation advocates the argument that, like individuals, organizations act in a world of categories. Given the limited cognitive capacity of executives and the commonality of uncertainties surrounding business choices (Simon, 1947; Ocasio, 1997), organizations are considered likewise to rely on macro schemes when making micro decisions. Scholars have already addressed the fact that inter-organizational networks provide insights into the dynamics and implications of social stratification in markets (Podolny, 2001). This effect is considered particularly significant when the uncertainties in the context are high and the evaluations about network partners are accordingly difficult to assess (Sytych, Arbor, & Gulati, 2000),

such as in industries based on new technologies. In the cases of small life science firms studied in this PhD project, this effect significantly revealed itself during the focal firms' organizational development and international expansion.

The particular contributions of the study to the theory are identified in the followings sections. My aim for this dissertation is to stimulate further research on legitimation of small/new firms in international networks. Furthermore, by taking a context-sensitive and industry-specific approach, I aim to draw attention to the relevance and applicability of the study's findings for practitioners in management and policy making. The contributions presented in this part are not a collection of the conclusions of the separate articles, but aim at a clarification of the major conclusion of the whole.

7.1 Contributions to theory and avenues for future research

The findings of the dissertation essentially contribute to studies of entrepreneurial internationalization and of new venture legitimation. Therefore, the following sections present the specific contributions and future research opportunities under these headings.

Studies of entrepreneurial internationalization

International entrepreneurship defines internationalizing driven by an entrepreneurial process as derived from the relationship between the firm and the environment in which it operates (Wright & Ricks, 1994). Consequently, successful firms are suggested to be those that are able to recognize potential opportunities in their environment, where the networks, and the benefits they provide, are underscored to compensate for small firms' inherent resource scarcity (see Jones, Coviello, & Tang, 2011). Consistent with this view, this study contributes to the field by distinguishing international market legitimacy-seeking as an additional component of international entrepreneurship. Legitimacy-seeking discussions can offer answers to questions such as why some firms mobilize more resources and are able to

internationalize more successfully than others. Entrepreneurship scholars have long acknowledged legitimating activities as the first step in entrepreneurial organizing because obtaining legitimacy is a necessary condition for developing relationships, as well as obtaining and recombining resources (Delmar & Shane, 2004). Thus, this dissertation contributes to the IE field by providing empirical insights into how firms seek legitimacy in international networks, and how it varies due to firm-specific differences.

Networks, and the benefits they provide, have comprised the fundamentals of small-firm internationalization research, whereas their role as helping the firm to attain legitimacy in international markets has already been acknowledged by a number of studies (e.g., Suh & Lyn, 2007; Tolstoy & Agndal, 2010). However, despite the explicit call of prominent scholars for future research in this area (Coviello & Cox, 2006), there seem to have been few attempts to address the question of how they do it. Therefore, providing empirical cases of legitimacy spillovers from firms' network partners is a contribution to broadening understanding of networks' role during international expansion on this aspect. Furthermore, the dissertation provides a conceptual understanding that relates legitimation to industrial market networks and expands our understanding of the role of a firm's own network for legitimation in the context of the relevant network structures in international markets. However, these newly developed constructs and framework has not been empirically tested. Therefore, future empirical studies that test the theoretical arguments presented in the articles 3 and 4 are encouraged.

Furthermore, by conceptualizing legitimation network paths, the dissertation illustrates a recursive internationalization process between the firm and the networks. With this conceptualization, what is suggested is an alternative way of viewing internationalizing in networks, driven by firms' quest for legitimacy instead of merely by their international opportunity-seeking behavior. In this understanding, firms pursue legitimation as a condition of developing their networks; these networks help legitimation through legitimacy spillovers, thus enabling firms to develop their networks further, and so on. Consequently, given the multi-disciplinary nature of the IE research, adopting an organizational institutional lens on studying internationalization and networks in this context offers great possibilities for

stimulating future research interest in the topic and further nourishing the field.

In the dissertation, the firm-specific characteristics were tackled mostly as an objective factor influencing legitimation. Furthermore, the study mainly assumed firms as entities that are equally capable of seeking legitimacy, and did not take into account the variances in the degree of knowledge and capabilities. However, it is possible that firms that accommodate low levels of industry business knowledge may even be unaware of the well-accepted relational patterns in the network. Alternatively, managers may perceive uncertainty as being proportionally high with lack of experience. In order to steer their businesses in uncharted waters, they may perceive the institutional pressures higher for following the formulated relational behaviors and the partners. From the overall observations in the case studies, the extent to which we can make sense of an individual firm's specific context appears to be mostly related to the degree of knowledge regarding the international markets and the logics of actor groups from different areas, such as science and business. Accordingly, a perspective that involves these aspects brings future research opportunities for comprehensively including the differences between individual organizations to the general understanding of legitimation. Institutional knowledge is already a well-established construct in the international business field (Eriksson, Johanson, Majkgard, & Sharma, 1997). As the small firms' knowledge and skills are directly connected to those of the founders and the managers, the background, social capital, and professional experience of these persons gain further significance for indicating the degree of institutional knowledge in the firm and its legitimation.

Finally, the dissertation theoretically assumed legitimation as a collective social construction process; however, this was studied from the focal organizations' perspective. Hence, future studies that are designed to include investors, customers, and regulators' viewpoints, along with how these actors form their judgments about a company, and how much attention they give to the prospect company's present network relationships, are strongly recommended.

Studies of new venture legitimization

The dissertation contributes specifically to micro-level studies of new venture legitimization by presenting fine-grained empirical case studies of legitimacy spillovers and cross validations between actors. Extant research has confirmed that new ventures pursue legitimization by associating their organization with categories from domains that their audiences may be familiar with (e.g., Cornelissen & Clarke, 2010; Hargadon & Douglas, 2001; Navis & Glynn, 2010; Santos & Eisenhardt, 2009). However, knowledge about how they create associations with interdependent categories (spillovers) prevalent within the networks has remained limited. Furthermore, the dissertation portrays the complexities in the conditions for new venture legitimization in the case of life science firms, while at the same time it addresses two specific timely calls for future research (see review by Überbacher, 2014): more deeply examining new venture sub-types' legitimization, such as international new ventures, and highlighting the diversity among a venture's audiences.

One fruitful future route to take for developing the understanding of new venture legitimization in networks is to investigate the dynamics of the process at the focal organization or the individual-entrepreneur level. From the focal firm's perspective, the process is driven by managements' sense-making of their interactions with the other actors by combining new inputs with their present knowledge, and learning about, adapting, and enhancing the legitimization process (Weick, 1995). Learning then occurs through social interactions with other actors and interpreting the results of its own and equivalent others' attempts at network development in terms of endorsements and blockages (Johnson, Dowd, & Ridgeway, 2006). According to Cattani, Ferriani, Negro, and Perretti (2008), connectivity defines the threshold of a focal firm's acceptance as a legitimate actor in a network. On the other hand, once the connectivity has been achieved, it at the same time may enable the focal firm to verify its present knowledge and understanding of the legitimacy expectations of the evaluating parties. For example, if a firm attempts to initiate R&D relationships with top researchers in its field of interest, the manager(s) will intrinsically contact relevant universities and try to initiate contact and interaction. They will then ideally attempt to

make sense of and interpret the results of these interactions (for example, in terms of whether the interactions resulted in the aspired-for collaboration). Hence, if attempts at relationship formation continue mutually in the form of repeated interactions that indicate the degree of preference for the legitimate actor over others (Cattani et al., 2008), the firms' present understanding of the evaluating actors' expectations can be verified. Negative results of relationship formation attempts in this regard would lead to doubt regarding the present knowledge and ideally evoke a willingness to learn. Hence, future studies that aim to develop understanding of new venture legitimation in networks stands to gain a great deal from including organizational relational processes.

7.2 Implications for practitioners, policy makers, and society in general

The present study provides insights for the managers of internationalizing small firms in high-technology industries. In the aftermath of the global downturn of 2008–9, it has become commonplace to refer to small and medium-sized firms as the backbone of the global economy. However, it is also commonplace that many of these firms fail within a few years after their foundation. This failure may depend on many factors; however, management is one of the most critical by far. Thus, the question arises as to how founders and managers of a technology start-up can deliver growth while retaining future access to critical resources across borders. Hence, this dissertation aims to provide a framework that may help them to develop strategies to overcome hurdles emerging from the lack of legitimacy and restriction of access to further critical resources through networks.

The life science industry is an important segment, with economic and political significance for today's society. It contributes to health and wellbeing through innovative solutions that meet medical needs. In addition, biotechnological inventions support increased knowledge about the mechanisms behind the fundamental biological processes of human life. However, taking life science technologies to markets is a challenging task and generally requires large investments from day one. This dissertation

suggests that international validation is the most critical stage to signify the start-ups that achieve access to the partners and the resources necessary to convert these technologies into market values, and the ones that are seemingly cease to exist. By providing empirical and theoretical insights, the study aims to enhance the awareness of managers in public and private sectors that in order to survive and prosper in high-technology markets, it is imperative to pursue legitimation with an understanding of the complexities of a globally connected social sphere. The study aims to enhance awareness and knowledge that will help to minimize failures due to management hurdles through the long and difficult path of making useful life science technological advancements that benefit society.

Thus, for life science firms, legitimation is rarely limited to local markets. However, the availability of internationally high-ranked research institutes in the home country is nevertheless an advantage; this can be seen in the fact that the case firms most often emphasized the benefits of relationships with Karolinska Institute. Therefore, the local market is found to be most significant for accommodating these prominent organizations and the support role that the state organizations undertake (such as state innovation and state advisory and financing agencies). The organizations were identified by the case firms to provide early finances through grants and awards, but were also a significant source of validation for the worthiness of the case firms' technologies. Furthermore, industry associations are significant noteworthy actors in the local market in terms of legitimation, along with the fact that their positions and connections in the international market constitutes a bridging role between the life science firms in Sweden and the rest of the world. In this study, SwedenBio, Swedish life science industry organization, was mentioned many times by the case firms as a central actor. Finally, the dissertation provides specific managerial takeaways for internationalizing small life science firms; these are outlined below.

Firms should be wary of industry's prevalent legitimation network paths and choose the path that best suits their company

This study confirms the view that evaluation of life science organizations and products is determined not only by hard data and quantifications, but

also, to a large extent, by soft factors. Thus, a manager's role in this context is to gather suitable knowledge about the legitimacy interdependencies between the actors in a global market, and use this knowledge to communicate the qualitative validation of the company. Intentionally managing legitimation network paths requires the initiation of contacts and establishment and careful maintenance of network relationships with certain actors, which is an inherently challenging task due to the scarcity of managerial resources generally associated with young firms. In this respect, each company needs to develop a unique understanding of its needs and goals, where recognizing relationships with misleading legitimizing actors may be helpful in conserving scarce resources. For example, employing prominent scientists on a company's board may seem to be a good option for other companies' legitimation, but it may not suit one certain company's needs. Early partnering with well-known global distributors may again be a significant step in the legitimation paths of others; however, depending on the novelty of the technology, it can also hinder the sufficient qualitative validation of technology, which can primarily come from science-based organizations. Superficial validations may have negative implications for sustaining growth when instantaneous opportunities in the market disappear.

Firms should beware of the need for timely change in legitimation network paths

The mechanisms that drive legitimation in networks can be considered at the same time as working in the opposite direction, as a firm's networks can also reveal undesirable attributes of it. A firm that is highly embedded in academic networks may validate the firms' technological attribute in the foundation or commercialization stages. However, the same embeddedness, if not balanced after these stages with different actor categories, may also show the outside world that although the firms' technology has validity, the firm is lacking market insights and competitive skills. Neglect in adapting company's focal network due to its needs, besides putting instrumental burdens on the firm, such as not being able to access the knowledge and the resources that business actors can provide, may also discourage the prospective partners, such as mediators and distributors from engaging in

relationships, that the firm needs to connect with in order to expand internationally in a more accelerated way, and to grow.

Change is considered significant not only for providing timely legitimacy spillovers, but also for other legitimacy-seeking practices, such as interacting with an international audience. The findings of the dissertation suggest that how successful firms seek legitimacy varies depending on their targeted roles in the value chain. Therefore, any change in a firm's business model that affects its present role in the value chain may require changes in how it seeks legitimacy (for example, selection of tools to interact with the audience, such as scientific publications versus personal networking, or internet-based tools versus conferences).

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Appendix 1

INET Survey Questions– Internationalization in Business Networks

The survey consists of three parts. In Section A, we would like you to provide general information about your company. In Section B we would like you to choose and answer questions about a specific international business contact. In Section C we would like you to answer questions about the players related to the chosen international business contact.

A. GENERAL

How many patents does your company have? _____

How many new products/services have you launched in the past year? _____

How many new customers have you sold to in the past year? _____

How many new suppliers have you bought from in the past year? _____

In which year did you have your first foreign sale? _____

What percentage of the company's sales do the five largest customers account for: _____

What percentage of the company's purchases do the five largest suppliers account for:

	Not at all	Completely					
	1	2	3	4	5	6	7
We depend on our five largest suppliers for our product/service development	1	2	3	4	5	6	7
We depend on our five largest customers for our product/service development	1	2	3	4	5	6	7
Our customers depend on us for their product/service development	1	2	3	4	5	6	7
Our suppliers depend on us for their product/service development	1	2	3	4	5	6	7

We reach our customers abroad through (tick the options you use):

Direct export

Agent

Distributor

Wholly-owned subsidiary

Majority-owned subsidiary

50/50-owned subsidiary
 Minority-owned subsidiary
 Alliance/Business partner

What percentage of your sales is abroad _____ %

B. A SPECIFIC INTERNATIONAL BUSINESS CONTACT

Please choose an international business contact. The business contact must have resulted in actual business being done. Examples of business contacts could be:

Dealings with a distributor or another intermediary in another country
 Dealings with a customer in another country

Choose a business contact that is important to your company. Please answer the following questions about the business contact:

What type of product/service is the business contact connected with?

What is the service/product ratio of the business contact?

0-20% service 21-40% 41-60% 61-80% 81-100%

In which year was the business contact initiated?

Who initiated the communication?

Customer You Third party in host country Swedish third party Third party in another country

How or who is the business contact handled by?

Direct export
 Agent
 Distributor
 Wholly-owned subsidiary
 Majority-owned subsidiary
 50/50-owned subsidiary
 Minority-owned subsidiary
 Alliance/Business partner

What is the foreign country? _____

How long have you had operations in the country? _____ years

What percentage of your sales does this market account for? _____ %

Have you developed or established new business relations by meeting people at the customer company in your spare time?

		Yes	No
		Not at all	Completely
Has the business contact resulted in new:	-products	1 2 3 4 5 6 7	
	-techniques/technology	1 2 3 4 5 6 7	
	-procedures	1 2 3 4 5 6 7	
	-personnel	1 2 3 4 5 6 7	
How important is the business contact to your company as regards	-knowledge	1 2 3 4 5 6 7	
	-revenue	1 2 3 4 5 6 7	

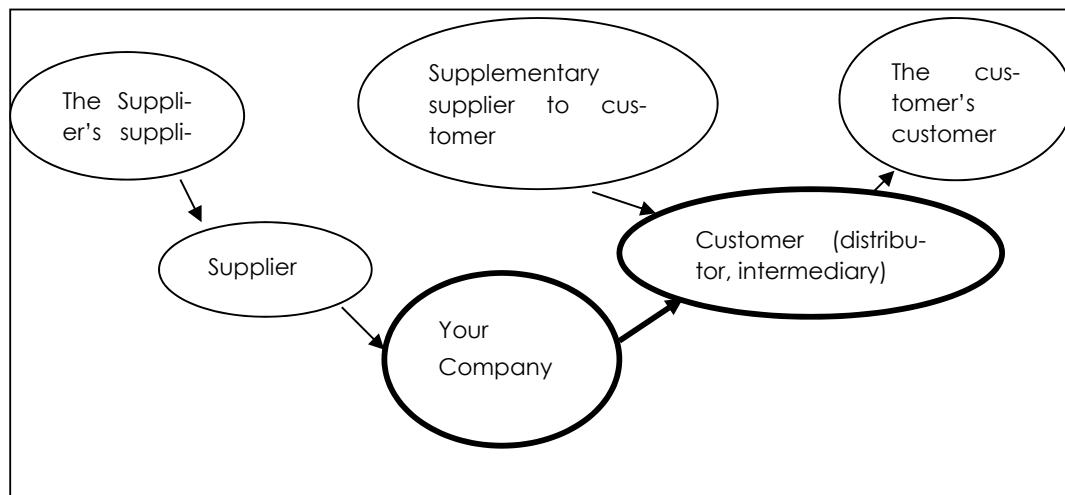
		Not at all	Completely
The following factors have been obstacles in the relationship with the business contact:	-language	1 2 3 4 5 6 7	
	-business culture	1 2 3 4 5 6 7	
	-legislation	1 2 3 4 5 6 7	
	-authorities	1 2 3 4 5 6 7	

		Not at all	Completely
The relationship with the business partner is characterized by:	-investments specific to this business partner	1 2 3 4 5 6 7	
	-frequent exchange of information	1 2 3 4 5 6 7	
	-the partner fulfilling its obligations to you	1 2 3 4 5 6 7	
	-mutual adaptations	1 2 3 4 5 6 7	
	-mutual investments	1 2 3 4 5 6 7	
	-innovative knowledge development	1 2 3 4 5 6 7	
	-innovative product development	1 2 3 4 5 6 7	
	-general exchange of knowledge	1 2 3 4 5 6 7	
The business partner is:	-joint problem-solving	1 2 3 4 5 6 7	
	-easy to replace	1 2 3 4 5 6 7	
	-important as a reference customer	1 2 3 4 5 6 7	
	-a source of knowledge	1 2 3 4 5 6 7	
	-a source of innovations	1 2 3 4 5 6 7	
	-a source of capital	1 2 3 4 5 6 7	

-phone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-Internet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-e-mail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-intranet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-video conferencing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

C. PLAYERS RELATED TO YOUR BUSINESS CONTACT IN THE BUSINESS NETWORK

Companies do not operate in isolation; instead they often have several related players, such as customers and suppliers, who they work with. A company and its related players can be said to be linked to each other in a business network. The diagram below shows an example of such a business network.



In this survey you are defined as the Company, the Supplier as your supplier of products/services and the Supplier's supplier as your supplier's supplier.

The customer can simply be a customer, a distributor or another intermediary. The customer's customer is this party's customer. The relationship between you and the customer is the business contact.

Supplementary supplier refers to a supplier that provides products/services that are essential for your customer to be able to use/refine your product/service.

We would now like you to answer the questions below bearing in mind the current players related to the chosen business contact.

We have divided these players into two categories: 1) players on the chosen business contact's market, i.e. local players 2) Swedish or international players from other markets than the chosen business contact's market.

(Later in the survey you will be asked about experiences of previous related players that have had an influence on the chosen business contact and if the business contact has led to new business relations.)

Current local players on the foreign market related to the business contact

If the question is not relevant to your company, please tick Not at all.

Local customer's customer		Not at all		Completely				
On the foreign market, how dependent is the chosen business contact on your most important local customer's customer	-product	1	2	3	4	5	6	7
	-research and development	1	2	3	4	5	6	7
	-willingness to collaborate	1	2	3	4	5	6	7
	-willingness to adapt	1	2	3	4	5	6	7
	-joint procedures	1	2	3	4	5	6	7
	-knowledge	1	2	3	4	5	6	7
	-modernity, original ideas, contribution to new business opportunities	1	2	3	4	5	6	7
	-social relations	1	2	3	4	5	6	7
How many times does your company have contact with this local customer's customer via:	Daily	A week		A month		A quarter		No contact
		1	Sev-eral	1	Sev-eral	1	Sev-eral	
-personal meetings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-phone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-Internet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-e-mail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-intranet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-video conferencing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Local customer's supplier of supplementary products and services		Not at all		Completely				
On the foreign market, how dependent is the chosen business contact on your customer's most important local supplier of supplementary products and ser-	-product	1	2	3	4	5	6	7
	-research and development	1	2	3	4	5	6	7
	-willingness to collaborate	1	2	3	4	5	6	7
	-willingness to adapt	1	2	3	4	5	6	7
	-joint procedures	1	2	3	4	5	6	7
	-knowledge	1	2	3	4	5	6	7

-personal meetings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-phone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-Internet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-e-mail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-intranet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-video conferencing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Supplier		Not at all				Completely		
To what extent is the chosen business contact dependent on your most important (Swedish or international) supplier's	-product	1	2	3	4	5	6	7
	-research and development	1	2	3	4	5	6	7
	-willingness to collaborate	1	2	3	4	5	6	7
	-willingness to adapt	1	2	3	4	5	6	7
	-joint procedures	1	2	3	4	5	6	7
	-knowledge	1	2	3	4	5	6	7
	-modernity, original ideas, contribution to new business opportunities	1	2	3	4	5	6	7
	-social relations	1	2	3	4	5	6	7
How many times does your company have contact with this supplier via:	Daily	A week		A month		A quarter		No contact
		1	Sev-eral	1	Sev-eral	1	Sev-eral	
-personal meetings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-phone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-Internet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-e-mail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-intranet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-video conferencing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Supplier's supplier		Not at all				Completely		
To what extent is the chosen business contact dependent on your most important (Swedish or international) supplier's supplier	-product	1	2	3	4	5	6	7
	-research and development	1	2	3	4	5	6	7
	-willingness to collaborate	1	2	3	4	5	6	7
	-willingness to adapt	1	2	3	4	5	6	7
	-joint procedures	1	2	3	4	5	6	7
	-knowledge	1	2	3	4	5	6	7

	-modernity, original ideas, contribution to new business opportunities				1 2 3 4 5 6 7						
	-social relations				1 2 3 4 5 6 7						
How many times does your company have contact with this supplier's supplier via:	Daily	A week		A month		A quarter		No contact			
		1	Sev-eral	1	Sev-eral	1	Sev-eral				
-personal meetings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
-phone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
-Internet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
-e-mail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
-intranet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
-video conferencing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			

Competitor				Not at all Completely							
To what extent is the chosen business contact dependent on your most important (Swedish or international) competitor's	-product				1 2 3 4 5 6 7						
	-pricing policy				1 2 3 4 5 6 7						
	-research and development				1 2 3 4 5 6 7						
	-modernity, original ideas, contribution to new business opportunities				1 2 3 4 5 6 7						
	-social relations				1 2 3 4 5 6 7						
How many times does your company have contact with this competitor via:	Daily	A week		A month		A quarter		No contact			
		1	Sev-eral	1	Sev-eral	1	Sev-eral				
-personal meetings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
-phone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
-Internet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
-e-mail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			

Consultant, authority, etc.				Not at all Completely							
To what extent is the chosen business contact dependent on your most important (Swedish or international)	-consultant				1 2 3 4 5 6 7						
	-authority				1 2 3 4 5 6 7						
	-bank				1 2 3 4 5 6 7						
	-industry organizations				1 2 3 4 5 6 7						

YOUR PREVIOUS EXPERIENCES OF PLAYERS FROM THE LOCAL AND OTHER MARKETS

In this section of the survey, we would like you to answer questions about your previous experiences of players on various markets (local, Swedish or international) which have had an influence on the chosen business contact. In other words, experiences that already existed in the company when you entered into the chosen business contact. This could, for example, relate to experiences of working with a particular type of player on a certain market which led you to decide to work with similar players this time too in the chosen business contact. They could also be experiences that have led you to work in a completely different way.

Your previous experiences of players on the business contact's local market:

		Not at all	Completely
To what extent is the chosen business contact dependent on your previous experiences of local customers'	-co-operation	1	2 3 4 5 6 7
	-adaptations	1	2 3 4 5 6 7
	-development of procedures	1	2 3 4 5 6 7
	-knowledge	1	2 3 4 5 6 7
	-modernity, original ideas, contribution to new business opportunities	1	2 3 4 5 6 7
To what extent is the chosen business contact dependent on your previous experiences of local customers' customers'	-co-operation	1	2 3 4 5 6 7
	-adaptations	1	2 3 4 5 6 7
	-development of procedures	1	2 3 4 5 6 7
	-knowledge	1	2 3 4 5 6 7
	-modernity, original ideas, contribution to new business opportunities	1	2 3 4 5 6 7
To what extent is the chosen business contact dependent on your previous experiences of local customers' suppliers of supplementary products and services'	-co-operation	1	2 3 4 5 6 7
	-adaptations	1	2 3 4 5 6 7
	-development of procedures	1	2 3 4 5 6 7
	-knowledge	1	2 3 4 5 6 7
	-modernity, original ideas, contribution to new business opportunities	1	2 3 4 5 6 7
To what extent is the chosen business contact dependent on your previous experiences of local suppliers'	-co-operation	1	2 3 4 5 6 7
	-adaptations	1	2 3 4 5 6 7
	-development of procedures	1	2 3 4 5 6 7
	-knowledge	1	2 3 4 5 6 7

	-modernity, original ideas, contribution to new business opportunities	1 2 3 4 5 6 7
To what extent is the chosen business contact dependent on your previous experiences of local suppliers' suppliers'	-co-operation	1 2 3 4 5 6 7
	-adaptations	1 2 3 4 5 6 7
	-development of procedures	1 2 3 4 5 6 7
	-knowledge	1 2 3 4 5 6 7
	-modernity, original ideas, contribution to new business opportunities	1 2 3 4 5 6 7

		Not at all	Completely
To what extent is the chosen business contact dependent on your previous experiences of local competitors'	-product	1 2 3 4 5 6 7	
	-pricing policy	1 2 3 4 5 6 7	
	-modernity, original ideas, contribution to new business opportunities	1 2 3 4 5 6 7	
To what extent is the chosen business contact dependent on your previous experiences of local	-consultants	1 2 3 4 5 6 7	
	-authorities	1 2 3 4 5 6 7	
	-banks	1 2 3 4 5 6 7	
	-industry organizations	1 2 3 4 5 6 7	

Your previous experiences of Swedish or international players:

With regard to previous experiences, what group of players is the chosen business contact most dependent on? Tick one option:

Your experiences of Swedish players

Your experiences of international players (excluding the chosen market)

Please answer the following questions bearing in mind the option chosen above.

		Not at all	Completely
To what extent is the chosen business contact dependent on your previous experiences of Swedish or international customers'	-co-operation	1 2 3 4 5 6 7	
	-adaptations	1 2 3 4 5 6 7	
	-development of procedures	1 2 3 4 5 6 7	
	-knowledge	1 2 3 4 5 6 7	
	-modernity, original ideas, contribution to new business opportunities	1 2 3 4 5 6 7	

To what extent is the chosen business contact dependent on your previous experiences of Swedish or international customers' customers'	-co-operation	1 2 3 4 5 6 7
	-adaptations	1 2 3 4 5 6 7
	-development of procedures	1 2 3 4 5 6 7
	-knowledge	1 2 3 4 5 6 7
	-modernity, original ideas, contribution to new business opportunities	1 2 3 4 5 6 7
To what extent is the chosen business contact dependent on your previous experiences of Swedish or international customers' suppliers of supplementary products and services'	-co-operation	1 2 3 4 5 6 7
	-adaptations	1 2 3 4 5 6 7
	-development of procedures	1 2 3 4 5 6 7
	-knowledge	1 2 3 4 5 6 7
	-modernity, original ideas, contribution to new business opportunities	1 2 3 4 5 6 7
To what extent is the chosen business contact dependent on your previous experiences of Swedish or international suppliers'	-co-operation	1 2 3 4 5 6 7
	-adaptations	1 2 3 4 5 6 7
	-development of procedures	1 2 3 4 5 6 7
	-knowledge	1 2 3 4 5 6 7
	-modernity, original ideas, contribution to new business opportunities	1 2 3 4 5 6 7

		Not at all	Completely
To what extent is the chosen business contact dependent on your previous experiences of Swedish or international suppliers' suppliers'	-co-operation	1 2 3 4 5 6 7	
	-adaptations	1 2 3 4 5 6 7	
	-development of procedures	1 2 3 4 5 6 7	
	-knowledge	1 2 3 4 5 6 7	
	-modernity, original ideas, contribution to new business opportunities	1 2 3 4 5 6 7	
To what extent is the chosen business contact dependent on your previous experiences of Swedish or international competitors'	-product	1 2 3 4 5 6 7	
	-pricing policy	1 2 3 4 5 6 7	
	-modernity, original ideas, contribution to new business opportunities	1 2 3 4 5 6 7	
	-consultants	1 2 3 4 5 6 7	
To what extent is the chosen business contact dependent on your previous experiences of	-authorities	1 2 3 4 5 6 7	
	-banks	1 2 3 4 5 6 7	

Swedish or international	-industry organizations	1	2	3	4	5	6	7
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NEW BUSINESS RELATIONS

Has the chosen business contact led to a business relation arising with

New international customers?

No Yes How many?.....

New local customers on the chosen market?

No Yes How many?.....

New international suppliers?

No Yes How many?.....

New local suppliers on the chosen market?

No Yes How many?.....

To what extent have you tried to create new business relations with the following in the business contact?

	Small	Large
-New international customers	1 2 3 4 5 6 7	
-New local customers on the chosen market	1 2 3 4 5 6 7	
-New international suppliers	1 2 3 4 5 6 7	
-New local suppliers on the chosen market	1 2 3 4 5 6 7	

Appendix 2

Interview guide

Interviewee background

Have you been with the firm since the start and if so, have your responsibilities changed since then or since you joined the firm?

What is your professional & educational background? How many years of industry experience?

What is your professional & educational background? How many years of industry experience?

Firm background

When was the firm founded and why?

What is the professional and educational background of the founders?

Can you tell us the organization of the firm now (How many employees, how do R&D, production, sales, marketing and distribution is organized in the company?)

Can you describe the characteristics of your product (Price sensitivity, local and global competitive advantage)?

How many patents do you hold? (Issued locally and abroad)?

How large are the firm's foreign sales today (% of total and foreign sales)?

Who are your customers (Domestic, foreign or international? Size? Few or many? New or old? Type of organization)?

How do you find/access to your customers?

Who are your competitors (Local, global, size? Do you have a number of major competitors or more general? How do you enhance your knowledge about your competitors? Does your firm have personal contact with other companies/ competitors) within your business)?

Who are your financiers (loan, VC, equity, sales etc.)?

Internationalization/ Business processes

What got your internationalization started?

When did you decide to expand internationally? Did the firm have specific market in mind even before internationalized? Why was this particular market targeted?

Where did you acquire the knowledge necessary for business development (regulations, patenting, supporting organizations etc.)?

	First foreign customer: Who, when and how? Which organizations/actors were specifically involved in the creation of relationships between your firm and your foreign customers? Were there any existing contacts or relationships between individuals in the firm's management and players in the market? Personal relationships, marketing efforts, initiation, first contact etc.
	How did the firm first establish itself in the foreign market (via licensing, distributor, exports, FDI, sales subsidiary, percentage of subsidiary etc.)?
	Have there been any institutional barriers to foreign markets that have had a negative impact on the firm?
	Did your firm benefit/ detriment any country of origin effects?
	How has your international operations developed? When did the firm enter the next foreign market, why and what was the establishment mode?
	What is the mode of the ongoing international business (Direct export, agent, distributor, subsidiary, alliance/business partner)?
	Which countries is your business involved now? In which countries are your three most important customers?
Legitimacy	
	What kind of business partners do you have (Customers, suppliers, manufacturing, marketing, distributors, licensees or agreement holders, competitors, financiers, individual actors, institutional organizations, collaborators in terms of R&D and clinical trial partners: pharmaceuticals, CROs, universities, clinics, research institutes, consultants, business labs, industry associations etc.)?
	Do you perceive your firm central/more connected to the industry locally or globally (higher number of relationships) compared to your counterparts and competitors?
	Do you think diversity of organizations in your firm's business network have effect on your business?
	Do you perceive holding any of your network ties bring you any specific advantage among your counterparts within the industry (legitimacy, reputation)? Which tie provides you the highest value in this sense?
	Is there anything that prevents you from attaining the network you want?
	Are there any events specific such as trade shows, conferences etc. or any specific ties with an organization or published paper with that you think that brings legitimacy to your business (Especially from the perspectives of customers, potential employees, financiers etc.)?
	Do you see/experience uniformity in the mindsets of life science firms when it comes to patterns of doing business (locally and globally)?
	What do you think are the most specific characteristics of a successful international life science firm should have?

Which are the institutional organizations that have the biggest influence on your business? To what extent do you have interaction with those organizations (Domestic, Foreign, International; FDA, research funding agencies, universities, business labs, patent office, industry associations, banks, etc.)?

How do you think market has changed in last 5/10 years (Rules, norms and dominant actors)? Adaptations to changes? How?

Appendix 3

Information about the articles

Article 1: Managing institutional impediments through relationships and networks

Authors: Angelika Lindstrand, Kent Eriksson, & Nurgül Özbek

Full paper admitted to and presented at the competitive sessions of European International Business Academy (EIBA) Conference, 2012, Brighton, UK & AIB Conference, 2013, Istanbul, Turkey

Article 2: International new venture legitimation: A multi-layered framework

Author: Nurgül Özbek

Submitted to "*Journal of Small Business and Enterprise Development*", in the first review round. Earlier version of the paper admitted to and presented at European Group of Organizational Studies (EGOS) Conference, 2015, Athens, Greece

Article 3: Legitimation network paths: Relational and dynamic understanding of young life science firms' legitimation

Author: Nurgül Özbek

Submitted to "*European Management Journal*", in the first review round.

Earlier version of the paper admitted to and presented at the 2nd International Entrepreneurship workshop, 2014, Edinburgh, UK

Article 4: Legitimacy-seeking practices during international venturing of small life science firms

Authors: Nurgül Özbek & Angelika Lindstrand

Earlier version of the paper admitted to and presented at the interactive session of Academy of International Business (AIB Conference), 2014, Vancouver, Canada

PART II: The Articles

Article I

Article 1

Managing Institutional Impediments through Relationships and Networks

ABSTRACT

Based on social exchange theory and the behavioral theory of the firm, we develop arguments for that a firm's perception of institutions affects the firm's international performance. More specifically, we argue that firm perception of institutional impediments in international business relationships have a negative effect on firm performance in those international business relationships. However, this negative effect can be turned into a positive effect in two ways. First, the firm can make relationship specific investments that make it possible for the firm to manage the institutional impediments, with positive relationship performance as an effect. Second, the firm can increase its dependency on the institutional network and thereby manage the institutional impediments, with positive relationship performance through increased business network dependency as result. To examine these effects we develop five hypotheses, which are tested on a sample of 251 internationalizing SMEs by using structural equation modeling and linear regression analysis. The results confirm our arguments, and show that relation specific investments have a mediating positive effect on performance. The results also show that the institutional network have an indirect mediating positive effect through the business network on firm international business relationship performance. Thus, firm perceived institutional impediments can be managed by investing in the business relation-

ship that the firm is engaged in and by institutional and business network dependency.

1 Introduction

Firms' international growth is linked to differences in institutional contexts among countries as these may create difficulties in international expansion (Globerman & Shapiro, 1999). Institutional contexts are complex matters as they not only incorporate laws and regulations but also cognitive factors, such as culture and business practice (North, 1990) and social structures (Scott, 1995; Fligstein, 1996). Firms' exposure to differing institutional contexts will increase uncertainties and risks and thereby enhance the difficulties of engaging in business transactions with counterparts on foreign markets (Kostova, 1999). Firms' perception of these differences is relevant when firms expand into foreign markets, for instance when they need to adapt to local regulations to close a transaction or make a cultural error at a business meeting. Differing institutional contexts become impediments for the outsider and scholars of international business theory have elaborated on the liability of being foreign (Petersen & Pedersen, 2002; Zaheer, 1995; Zaheer & Mosakowski, 1997). Differences in frameworks and practice between home- and foreign markets makes the firm perceive institutional impediments during internationalization (Hilmersson, 2009), which can have negative influence on firm performance (Kogut and Singh, 1988; Sousa & Bradley, 2006). If institutional impediments are inherent in conducting business on foreign markets, how can firms manage these impediments? One approach to answering this question is to study the actual context in which international business is made. Scholars of international marketing have depicted internationalization as the development of international business relationships (Johanson & Mattsson, 1988; Johanson & Vahlne, 1990). During internationalization, firms will need to manage these relationships under specific institutional conditions: which services and products are allowed to be included, which standards, tariffs and consumer laws are relevant, which business practices to adhere to and how all of this will affect the performance of the firm.

There is evidence of institutional conditions being connected to (Eriksson, Johanson, Majkgård & Sharma, 1997; Hadley & Wilson, 2003, Kostova & Zaheer, 1999) or even experienced in business relationships (Chetty, Eriksson & Lindbergh, 2006). Institutional impediments can cause firms to engage in activities that strengthen their business relationships (Beckman, Haunschild and Philips, 2004) such as making relationship specific investments that counter negative effects on performance (Jonsson and Lindbergh, 2010). Relational governance mechanisms have also been shown to aid firms' management of institutional distance effects in marketing channels (Yang, Su and Fam, 2012). Thus it seems as firms can manage negative performance outcomes of institutional impediments by using the dynamics inherent in business relationships, such as obtaining necessary resources through other organizations. Central to the dynamics of business relationships is that the exchange in the relationship creates dependence as adaptations and relationship specific investments are made (Cook and Emerson, 1978).

But a firm is not only engaged in one single international relationship, there are a number of relationships with customers, suppliers, regulatory organizations and other counterparts. A major instrument for firms trying to manage the negative effects of institutional impediments could be the connection to and thus dependency on the foreign network. Networks are vital for internationalization as they provide resources, coordinate interaction and affect firm performance on foreign markets (Blomstermo, Eriksson, Lindstrand and Sharma, 2004; Lai, Chang and Chen, 2010). However different parts of the network might provide different resources and as such the effect of dependency on them should be investigated separately.

Research has come far to involve relational factors, but the need to include networks as factors affecting the management of institutional impediments is imminent. Also, the decisions about development of relationships on foreign markets are at a strategic level for firms, and institutional factors play an imperative role in this process. Hence there is still a need for better understanding of the bridge between the macro institutional elements and their micro outcomes for firms by studying the relationship and network levels.

The aim of this paper is to examine the effect of perceived institutional impediments on firm international business relationship performance. We do so by investigating the direct effect of institutional impediments on international business relationship performance. In addition we study relationship specific investments and dependency on the connected network, as we argue that these will mediate the negative performance effects of institutional impediments. Two different types of networks are studied; the network of institutional actors and the business network. Five hypotheses are developed about the direct and indirect effects of institutional impediments on business relationship performance, and tested on a sample of 244 internationalizing small and medium sized enterprises with structural equation modeling (LISREL) and linear regression.

Our study contributes to the knowledge of institutional impediments during international expansion. Not only on the micro level, concerning outcomes for firms, but also on a bridging relational level as we investigate how firms can manage these institutional impediments by investing in the international business relationships. The main contribution lies in our network-level investigation of how firms can utilize the network as a whole, but also different compositions of the network, to manage negative effects of institutional impediments on the international relationship performance. In this way we capture a comprehensive picture of firm management of differences in institutional contexts during international expansion.

2 Theory and hypothesis

2.1 Institutional impediments and international business relationship performance

Firms expanding abroad have to deal with different kinds of institutional contexts. The institutions are what North (1990) defined as the constraints devised by people that shape human interaction. The definition of institutional context itself is challenging; because the term covers two different understandings: one as the regulatory framework, the other as cognitive influences (Greenwood, Oliver, Sahlin, & Suddaby, 2008). Regulatory issues are formalized into laws, rules, and regulations, making it easier for a for-

foreign firm to gain access to the information needed to understand the regulations (Kostova, 1999). Cognitive factors on the other hand are shared conceptions and frames in which meaning is understood (Kostova, 1997; Powell, 2007). Both regulatory and cognitive institutional factors can be considered in terms of how close, or distant they are. Researchers have conceptualized and measured institutional (Kostova, 1997; Kostova & Zaheer, 1999) and cultural distance (Hofstede, 1980; Kogut and Singh, 1988; Shenkar, 2001; Sousa & Bradley, 2006) both addressed as barriers to the internationalizing firms' performance on the foreign market. Another distance measurement is 'psychic' distance, which is defined as factors preventing the flow of information to and from a market (Johanson & Wiedersheim-Paul, 1975)

Both regulatory and cognitive institutions will need to be managed by the internationalizing firm, but as management make decisions based on its perception of its environment (Cyert and March, 1967), the firm's perception of the institutions and the distance between home and foreign institutions will influence their actions (Jansson, Johanson, & Ramström, 2007). The perceptions that the firm holds are the firm's enacted view of the environment, meaning that managements perceptions are the 'reality' on which they base their business decisions (Daft and Weick 1984; Weick, 1979). We label these firm specific perceptions of institutional barriers, as perceived institutional impediments.

Since internationalizing firms frequently exchange in international business relationships (Toyne 1989, Chetty and Blankenburg Holm, 2000), the firm's perception about institutions are formed in those relationships. In particular, the experiences that a firm makes in an international business relationship helps the firm form more accurate perceptions about the role of institutions in it (Chetty et al. 2006). The firm that gains experience of an international business relationship will gain knowledge about the importance of institutions as exchange in the relationship progresses. This kind of knowledge is experience based in the sense that it is relationship specific and that the importance of it cannot easily be foreseen before it is needed to do exchange in the relationship. Accordingly, as firms gain experience, firms perceive knowledge about institutions as more important (Chetty et al. 2006). Firms that gain experience also perceive that lacking

institutional knowledge is more of an obstacle for the development of business in the relationship (Eriksson et al. 2000). The firm thus perceives institutions as an impediment for the development of an international business relationship (Jonsson & Lindbergh, 2010).

Perceived institutional impediments are important because they lead to reduced performance in the relationship (Hutzschenreuter, forthcoming), and increases costs (Eriksson et al. 1997). This is true also for firms that are experienced, and have developed knowledge about handling institutions in the course of business development (Hutzschenreuter, forthcoming, Eriksson et al. 2000). Institutional impediments negative effect on performance have been established also in other studies. Orr and Scott (2008) investigated the perception of managers of 23 large global projects, and described how three pillars of institutions –cognitive, normative and regulative- are transformed into intercultural friction and cost for these projects. Hilmersson (2009) found that that heterogeneity of perceptions on institutional factors had an effect on the performance of the internationalizing firm. The results of the study conducted on a sample of 203 Swedish SMEs revealed that the perceptions of institutional factors have a significant negative effect on the performance. The empirical study of Li, Li, and Shi (2011) on US biopharmaceutical SMEs further showed that the socio-institutional disadvantages deriving from the dissimilarities of the home and host countries affected firm performance negatively.

The studies above define performance not primarily in accounting profits, but in growth in markets, product innovations and sales. This is relevant to this paper because we are interested in the outcome in terms of the performance in the international business relationship. Based on the above, we may hypothesize that firm perceived institutional impediments will have a negative effect on international business relationship performance. Consequently we put the following hypothesis forward:

Hypothesis 1: Firm perceived institutional impediments will have a negative effect on the international business relationship performance.

2.2 Institutional impediments, relation specific investments and the effects on business relationship performance

Business relationships have been shown to be frequently long lasting (Cunningham & Homse, 1986; Turnbull & Valla, 1986), involving a considerable degree of commitment and trust (Morgan & Hunt, 1994), co-ordination (Alter & Hage, 1993), integration of workflows and resources (Astley & Zajac, 1990; Thompson, 1967), and cooperation (Axelrod, 1984). Exchange in business relationships does not only have an economic dimension but also knowledge and value dimensions, as the relationships provide opportunity to access resources controlled by other firms and to mutually create value in a number of ways (Håkansson & Johanson, 1993).

During expansion, market commitment is the most important driver for continued development on a foreign market (Johanson & Vahlne, 1977). Development occurs as the internationalizing firm perceives international business opportunities and commits resources to realize those opportunities. Opportunities are perceived in the development of relationships, and consequently market commitments are most often made in the context of international business relationships (Johanson & Vahlne 1990). These market commitments are investments specific for a business relationship, and thus not easily transferred to other relationships (Subramani & Venkatraman, 2003; Williamson, 1985). In the course of a relationship, firms accumulate knowledge of their counterparts, make adaptations and commit resources (Anderson & Weitz, 1992), which is especially vital for an internationalizing firm as it can guide the firm through the foreign environment (Johanson & Vahlne, 1990, 2009; Lindstrand, 2003). Coordination and adaptation of activities and resources, such as changes to production, logistics as well as administrative activities require effort and consume resources, and are consequently investments in the international business relationship. These relationship specific investments will lead to a better match between the firms and a positive outcome for the international relationship (Beckman et al., 2004; Blankenburg Holm, Eriksson and Johanson 1999; Jonsson & Lindbergh, 2010). For instance, over time, as the parties learn more about each other's business and institutional contexts they are able to adapt to better match each other's needs (Hallén, Johanson, & Seyed Mohamed,

1991). Changes need to be done in accordance with different institutional contexts and as such they demand investments from the firm (Verwaal & Donkers, 2002). Such investments include costs connected product adaptations for local safety regulations, streamlining production processes, time allocated to meetings etc. So by investing in the relationship firms manage the perceived institutional impediments in the international business relationships. In other words, when a firm perceives institutional impediments in the business relationship it invests in the relationship in order to handle the requirements imposed by the institutional impediments (Jonsson & Lindbergh, 2010; Hutschenreuter, forthcoming).

The management of institutional impediments through investments is significant for the outcomes of these relationships. In an article from 2000, Chetty and Blankenburg Holm show that investments in coordination of resources had a positive effect on internationalizing SMEs performance. The same results have been demonstrated in other studies on other types of investments such as adaptations (Francis, Mukherji, & Mukherji, 2009) and cooperation (Haahti, Madupu, Yavas, & Babakus, 2005). Similar results are obtained in studies using transaction cost economics as a theoretical framework (Skarmaes et al. 2002). Also investments in relational governance, such as relationships with distributors, have been shown to positively affect firms' management of institutional distance effects in marketing channels (Yang et al., 2012). Thus we argue that at the same time the foreign firm experiences the institutional impediments in the relationship, it is also able to manage its negative effects on relationship performance through the relationship specific investments. This leads us to our next hypothesis:

Hypothesis 2: The negative effect of perceived institutional impediments on the international business relationship performance is mediated through relationship specific investments in the international business relationship.

2.3 Network dependency in internationalization

During international expansion firms not only have to deal with new environments and markets but also competition for scarce resources, whether it is sources of supply or customers' attention. Resource access is necessary to ensure endurance on the foreign market, and to be effective in obtaining resources firms choose to invest in exchange with the organizations in possession of them (Aldrich, 1976; Blau, 1964; Cook & Emerson, 1978; Emerson, 1962). The essentiality of a resource for performance and its prospective availability from various sources, is the motive behind firms' choice to become dependent on other organizations (Jacobs, 1974; Midlin & Aldrich, 1975). Thus the preference of developing relationships with other organizations on foreign markets, investing in and becoming dependent on them is directly linked to resource access (Johanson & Vahlne, 1990). As early as the mid-seventies, researchers argued that the depiction of resource dependence needed to move beyond pairs of organizations (relationships) and venture into organization sets (Jacobs, 1974) or network of organizations (Aldrich, 1979; Cook, 1977). The idea of network dependency has, since then, been used in numerous studies in relation to; network linkages (Skinner & Guiltian, 1986), business relationships (Anderson et al, 1994), interfirm coordination modes (Grandori, 1997), network emergence (Gulati & Gargioulo, 1999), manufacturing relations (Lomi & Patterson, 2006), mergers and acquisitions (Lin et al, 2009), but also in relation to internationalization (Johanson and Mattsson, 1987). Network dependency is still relevant today in our global economy with vast market, production and knowledge networks. The internationalizing firm depends on the network of firms and organizations as a channel for access to resources needed in international operations such as knowledge of the foreign market (Chen & Chen, 1998; Collinson & Houlden 2005; Luo 1997) and financial capital (Bell, 1995; Sharma & Blomstermo, 2003). The foreign network consists of different actors in the firm's environment; customers, distributors, suppliers, competitors, government organizations, trade offices, banks and other institutional actors. To understand firm behavior on foreign markets, it is essential to include all of these relationships on which a firm depends (Chetty & Blankenburg Holm, 2000; Johanson & Matsson, 1988).

Foreign networks are useful for firms as they provide resources to overcome constraints during internationalization (Eriksson & Chetty 2003). Networks provide knowledge and experiences that reduce uncertainties and risks (Achrol & Kotler, 1999; Gulati, 1999) such as institutional impediments (Sharma and Johanson 1987). Resources from networks affect international performance (Chen & Chen, 1998; Lai et al., 2010; Yli-Renko, Autio & Tontti, 2002), hence the utilization of networks during internationalization has been emphasized by previous literature (Agndal & Chetty, 2007; Coviello & Munro, 1997; Crick & Jones, 2000; Johnson, 2004; Jones, 2005; Oviatt & McDougall, 1994). The internationalizing firm has many reasons to connect to network partners on foreign markets, but the overlying reason is that without access to the foreign network and the resources within, the firm will always be an outsider with detrimental consequences for performance and survival (Johanson & Vahlne, 2009).

2.3.1 Distinction of networks

Resource dependence theorists have argued that distinction in dependency should be made as firms seek different resources from different sources (Mildin and Aldrich , 1975). Transposed to network dependency, recent research has revealed that a firm's network is composed of different organizations which provide different resources that can shape the firm performance (Lin, 2001; McDermott & CorreDoira, 2009). During internationalization certain sections of a firm's foreign network provide dissimilar but necessary resources, making the firm dependent on these parts of network individually (Johanson and Matsson 1988). Firms trying to manage the institutional impediments they perceive on foreign markets will primarily need knowledge and capital. Two types of knowledge are needed; institutional knowledge, seen as knowledge of institutional frameworks and institutional actors, and business knowledge seen as knowledge of how to engage in business activities with business counterparts (Eriksson et al, 1997). The capital needed can also be differentiated between capital that is derived from institutional actors such as banks and other loan institutes (loans, securities) and capital derived from business counterparts (payments, credits on payments) (Bell, 1995; Lindstrand & Lindbergh, 2010). Thus the foreign network on which a firm will be and is dependent can be

differentiated between an institutional network and a business network. This distinction between institutional and business networks, depending on which actors and resources are involved, have previously been used by studies focusing on one specific market (Halinen & Törnroos, 1998; Johansson, Ramirez-Pasillas and Karlsson, 2002).

2.4 Institutional network dependency

In the literature, institutional networks have been associated with policy and regulatory networks (Blom-Hansen, 1997; Carrol & Carson, 2003; Dahan et al, 2006). This entanglement is not unforeseen as they contain similar actors and resources (Keck & Sikkink, 1999.) On the other hand, the distinguishing feature of policy networks is their function of creating and implementing public policies (Dahan et al., 2006). These policy networks are significant on local, national, regional levels. Lately a transnational level, have been emphasized due to the integration of national economies and the increasing role of organizations such as the World Trade Organization (Carrol & Carson, 2003). The convergence on the transnational level have been disputed by scholars stressing the significance of national institutions and their effects on the national business systems, creating awareness of the bilateral relationships between a firm and a set of institutions (Whitley, 2001; Lane, 2001). On this local national level, previous literature highlights the role of institutional networks for a successful business management. However some focus on a more narrow network of political actors; government and policy agencies (Frynas, Mellahi and Pigman, 2006; Hadjikhani & Ghauri, 2001; Welch & Wilkinson, 2004) whereas we draw on the more comprehensive studies, with their inclusion of social institutions such as banks and financial institutions, universities, and trade associations (Lou, 2002; Luo, Hsu and Liu, 2008; Yiu, Lau and Bruton, 2007).

Earlier we discussed that perceived institutional impediments, stemming from interpretations of deviation in practice and frameworks between home- and foreign market, (Hilmersson & Sandberg, 2011; Jansson, Johansson, & Ramström, 2007), need to be managed as to avoid negative influence on firm performance (Johanson & Wiedersheim-Paul, 1975; Kogut and Singh, 1988; Shenkar, 2001; Sousa & Bradley, 2006). A major instru-

ment for firms is connection to and thus dependency on the network of institutional actors possessing institutional knowledge; knowledge of the regulatory as well as cognitive frameworks in which meaning is understood. The foreign institutional network may also retain other resources such as power over regulatory frameworks and certain funding. In a study of 131 MNEs in China, Luo (2001) shows that companies' relationships with governmental authorities such as political government, administrative agencies and related industrial departments, facilitated the management of institutional impediments by means of knowledge of business culture and market structure but also through financial synergies. In a following study Luo, Hsu and Liu (2008) demonstrated that firms are better able to handle the challenges posed by institutional impediments through invaluable market intelligence and support for their activities gained by networking with the foreign institutional network, thus ensuring their likelihood for survival and higher performance on the market. Following the market establishment of Motorola in China, Low and Johnston (2008) showed that the institutional network on a foreign market can furthermore be used to gain legitimacy by association and access to controlled industries and businesses (Low and Johnston, 2008). Yiu, Lau and Bruton's study (2007) with emphasis on emergent economies reached similar results.

In line with these studies we argue that firms have to respond to and manage perceived institutional impediment. The main source for resources needed is the network of institutional counterparts on which they are dependent (Cheng & Yu, 2008; Kostova, 1999). The firm interacts and chooses to become dependent on the foreign institutional network as a mean to link to financial markets, e.g. banks; to comply with rules and regulations, e.g. tax authorities and government agencies; besides gaining legitimacy through government and industrial organizations. In addition, the institutional network provides the knowledge about the institutional factors in that specific foreign country for the firm. Thus the negative effect of perceived institutional impediments will be managed through dependency on the local foreign institutional network:

Hypothesis 3a: The negative effect of perceived institutional impediments on international business relationship performance is mediated through local institutional network dependency.

2.5 Business network dependency

An imperative resource for foreign market operations is business knowledge: knowledge of how to conduct business with counterparts in these markets (Autio, Sapienza, and Almeida, 2000; Eriksson, Johanson, Majkgård and Sharma, 1997; Sharma and Blomstermo, 2003). As, foreign operations concerns exchange with business relationships connected into business networks (Coviello & Munro, 1995; Fletcher, 2008), business knowledge is obtained through interaction within the business network of customers, suppliers and competitors (Coviello and Munro, 1997; Jones, 2005; Lindstrand et al, 2009). These business networks and its inherent business knowledge are the primary vehicles for SMEs international expansion (Blomstermo, Eriksson, Lindstrand and Sharma, 2004; Yli-Renko, Autio and Tontti, 2002). Earlier we discussed that institutional constraints are mainly of interest between firms doing business with each other on foreign markets (Shenkar, 2001) and that that institutional impediments also are experienced and enacted in business relationships (Chetty et al., 2006). We argue that institutional impediments are, due to interconnectedness, inherent in the foreign business network. During internationalization firms will need to manage the institutional impediments they perceive: which business practices to adhere to, how to perform activities according to appropriate patterns of behavior, which services and products are allowed to be included, which standards are important in exchange with business network and how much adaptation of products and process is needed for the foreign market. A firm's choice to connect to a foreign business network makes the activities that firms perform and the resources it employ dependent on the network (Quintens, Pauwels & Matthyssens, 2006). Dependency gives access to otherwise sealed business knowledge which increase the possibility of gaining a more profound understanding of the foreign market (Johanson and Vahlne, 2009; Lindstrand, 2003). Firms learn through interactions in the business network where to find resources, where and how to commit

resources and with which firms they should depend (Lindstrand, 2003). Business knowledge reduces the risks and costs connected to the uncertainties inherent in institutional impediments (c.f. Eriksson et al, 1997). But the positive effects of business network dependency cannot be achieved without some commitment and adaptation to the network (Ahuja, 2000). To become an insider dependent activities and resources, products, production processes, technologies, distribution and knowledge flows need to be adapted and coordinated to bring about a better match between the firms and the foreign business network (Danese, Romano & Vinelli 2004; Hallén et al., 1991; Lorentz & Ghauri 2010). The extent of value creation rests on the level of dependency in the network (Blankenburg Holm et al., 1999; Lindstrand, Eriksson, & Sharma, 2009). Because of dependency, the network will influence strategic decisions and the firms' performances and business developments (Dyer & Singh, 1998; Håkansson & Snehota 1995). New business opportunities can be discovered which in turn can lead to extended international activities (Sharma and Johanson, 1987). Consequently business networks have been shown to affect the performance of the internationalizing firms positively (Blomstermo et al., 2004; Lai et al., 2010; Yli-Renko, Autio & Tontti, 2002). We suggest that an internationalizing firm's dependency on the local foreign business network will mediate the negative effects of institutional impediments on performance. Therefore we put forward the following hypothesis:

Hypothesis 3b: The negative effect of perceived institutional impediments on international business relationship performance is mediated through local business network dependency.

2.6 Institutional and business network dependency relation

Emerson (1962) stated that there exists a relationship between the dependencies of an organization. The dependency in one relationship is contingent on the dependency (or non-dependency) in another (Cook and Emerson 1978), but the direction of the relationship is associated to the essentiality of the resources supplied (Jacobs, 1974; Mindlin and Aldrich, 1975). In an early article by Benson (1975) it is proposed that dependencies in interor-

ganizational networks are linked to dependencies on the larger environment consisting of authorities, legislative bodies, bureaus, and publics. This idea has been developed by researchers focusing on interaction between different parts of an organizations network. The institutional network is seen as holding the key to the frameworks within which interaction and dependency in business networks is developed (Hadjikhani & Ghauri, 2001; Welch & Wilkinson, 2004), making resources from institutional networks more essential for understanding the foreign market. For instance Halinen & Törnroos (1998) defined institutional networks and business networks by taking into consideration the 'scale'. In short, the business network is conceptualized as 'micronet', of business counterparts, whereas a 'macronet' is the national and /or institutional network which has an influence on the micronet and its activities. The same approach was used by Jansson (2008) with his concept of 'institutional network approach to markets and marketing practices'. There he refers to a social structure and symbolic system of society affecting the marketing practices of a firm. From an internationalization perspective the resources provided by the institutional network is vital for the development of resources provided by the business network. Dependency on institutional networks may provide access to valuable framework information and capital, support to reinforce the firm's reputation, fewer bureaucratic delays in responding to customer needs and protection from external threats to a firm's credibility in the market place (Low and Johnston, 2008; Luo et al, 2008). The institutional knowledge gained through dependency on institutional actors will help a firm manage its conduct and develop dependencies necessary for access to business knowledge and financial resources. Dependency on the foreign institutional network provides access to resources, affects the firm's ability develop its activities with the foreign business network, in the end positively affect the outcomes of foreign market operations (Chetty et al, 2006; Eriksson et al, 1997; Low and Johnston, 2008; Luo et al, 2008). We argue that the performance effect of institutional network dependency will be mediated through business network dependency, as the institutional network provides the scarce resources of institutional understanding which the firm needs. Dependence on the institutional network enhances firm perception and understanding of the foreign institutional context, which will lead to greater possibility to

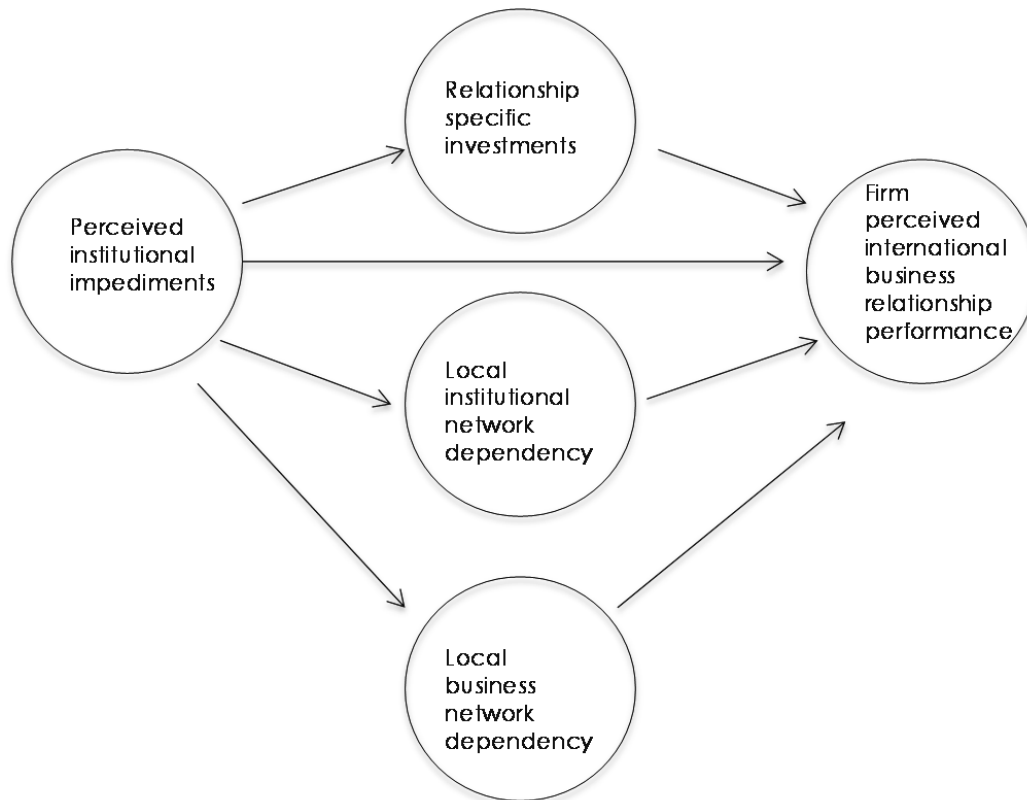
accommodate ones business to the local business network. A strengthening of the dependency of the business network will thereby be achieved, through further adaptations. Hence we propose our last hypothesis:

Hypothesis 3c: The effect of local institutional network dependency on international business relationship performance is mediated through local business network dependency

2.7 Summary model

Our discussion concerning the hypothesis can be summarized in a model (see figure 1). Our basic argument is that the institutional impediments, which a firm experience during internationalization, will have a negative effect on the performance of the international business relationship in which the firm is engaged (H1). However we argue that these negative effects can be managed by using the relationship (H2) and the network around it (H3a,b) . Making relation specific investments will mediate the effect of institutional impediments and thus turn a negative effect into a positive. We argue that a firm can also manage the negative effect on performance by being the dependent on different parts of the network. Firm network dependency is related to access of necessary resources, which in turn can mediate the negative impact of institutional impediments. A firm can be dependent on two types of nets, the institutional net and the business net, as they provide different types of resources. As dependency in one part of the network is contingent on the dependency on the other our last hypotheses (H3c) considered an effect of the local institutional network dependency on local business network dependency, as we argued that this will lead to a higher dependency on the business network.

Figure 1. The proposed causal model



3 Data and method

3.1 Data

The empirical analysis is based on the data drawn from a questionnaire based statistical survey conducted in Sweden 2004 and 2005. A random sample of firms with the selection criteria of 6-249 employees and 10 percent of turnover abroad is received from the Statistics Sweden Business Register. The firms belong to various industries. We had a final sample of 1666 firms after excluding the firms who did not meet the selection criteria from the original sample of 2000 firms. The sample contains 244 usable responses meaning that the overall response rate is 15 percent. The respondents were asked to select a business relationship and answer the ques-

tions keeping the chosen relationship in mind. The relationship was defined as dealings with a customer, distributor or intermediary in another country. The instructions for the selection of the business relationship given to the respondents were being located in a foreign market; and having resulted in an actual business carrying on. The questions in the questionnaire were measured on a Likert scale ranging from “strongly disagree” to “strongly agree”. Among the respondents, 68 % chose a relationship that had existed for three years or more and 73 % had had operations in the foreign country for more than three years. 138 firms had 6-49 employees and 117 firms had 50-249 employees.

In order to avoid common method bias, combined use of questionnaire data and objective data is found essential (Podsakoff and Organ, 1986). Therefore national databases are used to collect objective data on accounting (Affärsdata) and export figures (Statistics Sweden).

3.2 Empirical data analysis

The hypotheses are developed on theoretical assumptions and then tested using structural equation modeling (SEM). Control variables cannot easily be accounted for in SEM, so we make a complementary OLS regression. LISREL 8.71 is used as a structural equation modeling method. SEM provides the possibility to develop a model in order to study both direct and indirect relations between one or more independent variables and one or more dependent variables (Hair et al., 2010). LISREL analyzes both error covariances and regular correlations of these relations in the model (Jöreskog and Sörbom, 1993). LISREL structural model has two components which are: (1) the measurement model where it is possible to specify how constructs are represented by the observed variables; and (2) the structural model where it is possible to define the causal relations between the constructs (Jöreskog and Sörbom, 1993).

In the measurement model, validity is assessed in three dimensions: (1) nomological validity, meaning the validity of the entire model; (2) convergent validity, meaning the homogeneity of constructs in the model; and (3) discriminant validity, meaning the degree of separation between constructs. The measures of nomological validity are χ^2 and degrees of freedom,

which measure the distance between data and model, and an estimate of a non-significant distance, the p-value, which should be above 0.05 for significance at the 5% level (Jöreskog and Sörbom, 1993: 111-131). There is an ongoing debate on what measures to choose for assessment of nomological validity (Bollen and Long, 1993), but as Jöreskog and Sörbom (1993, pp.121, 122) point out, the other measures proposed are all functions of the chi-square. Three frequently mentioned measures are: (1) the GFI, which checks for sample size effects and should be above 0.90; (2) the RMSEA, which measures population discrepancy per degree of freedom and should be below 0.08; (3) the CFI, which checks for non-normal distributions and should exceed 0.90 (Murtha, Lenway, and Bagozzi, 1998; Bollen, 1989).

Convergent validity is confirmed if indicators load only on their constructs. Convergent validity is judged by factor loadings, t-values, and an R² value, which measures the strength of the linearity in the relation (Jöreskog and Sörbom, 1993: 121; Bagozzi, Yi, and Phillips, 1991: 434; Bollen, 1989: 190–4). Discriminant validity is assessed from the measurement model. Correlations between latent variables should be significant and should not be multidimensional. Significance is investigated by estimating the t-values of correlations. Unidimensionality is tested by forming an approximate confidence interval from error terms and correlation coefficients. An interval including 1 suggests unidimensionality and thus rejects discriminant validity (Jöreskog and Sörbom, 1993: 117; Bagozzi, Yi, and Phillips, 1991: 436; Bollen, 1989: 190–4).

In general, SEM models contain a parsimonious set of constructs and causal relations. This means that control variables usually are not included. In this study, we used ordinary OLS regression, using SPSS software to test for control variables.

3.3 Dependent, independent, and mediating variables

In this section the constructs used in the structural model are presented. The content validities of the constructs are ensured by relevant reference literature. In addition, control variables are discussed for the final confirmation of the model's results. Table 1 shows all the indicators of the con-

structs as well as their reliability measures. For a correlation matrix, see the Appendix.

3.3.1 Dependent variable

International business relationship performance: Reflecting the behavioral theory base of the internationalization process theory, this paper identifies the performance outcome of an international business relationship in terms of new knowledge and new perceived business opportunities (Johanson and Vahlne 2009).

It involves the measures such as the development of new products (RESNEW1) and new procedures (RESNEW3). The degree of new product development (RESNEW1) has been commonly used as an indicator of knowledge development (Cohen & Levinthal, 1990). Development of new procedures, on the other hand, implies the ability to learn from, and respond to the business environment (Nelson & Winter, 1982). Since international business relationships is the conduit through which the firm makes experiences and generates new knowledge (Eriksson and Chetty, 2003), the relationship's contribution to firm knowledge is used as an indicator of performance (IMPBR1).

While these performance indicators are not based on accounting data, they follow a tradition where relationship-level performance data is non-accounting data (O'Toole & Donaldson, 2002; Palmatier et al., 2007).

3.3.2 Independent variable

Perceived institutional impediments: The perception of institutional factors that have been an obstacle in the development of the relationship constitute the 'perceived institutional impediments' construct. Although institutions is a multidimensional concept (Scott, 1995), these dimensions have been perceived as one by managers (Chetty et al, 2006). Thus not only the formal institutional factors (Kostova, 1999) that affect the contractual and the legal side of relationships stemmed from legislation (OBSTBR3) and authorities (OBSTBR4); but also the informal institutional factors (Fligstein, 1996) such as the business culture that affects the non-contractual basis of business relationships (OBSTBR2) are taken as the indicators of the construct.

3.3.3 Mediating variables

Relationship specific investment: Adaptation is considered to be a central feature of working business relationships as they bring about initial fit between the need and capabilities of the parties (Hallen, Johanson, Seyed-Mohamed, 1991). Engagement and adaptation of partners in these relationships yields itself in the indicators showing whether the relationship partners consider the relationship as sustained and encompassing more than just the present exchange (Blankenburg et al., 1996). One way to distinguish this is to look at the characteristics of the relationship if it is characterized by relationship-specific investments (RELBR1), not only from the side of the one partner but mutually (RELBR5). Mutuality in business network relationships is found critical for promoting the creation of value (Blankenburg Holm, Eriksson, Johanson, 1999). Eventually, the third and the fourth indicators of the construct concern whether the investments have been made in the form of adaptations (RELINV2) and capital (RELINV3).

Local business net: There are many types of business network connections. Three important connections around the focal relationship have been identified and taken to represent the complexity of the entire host country business network. In accordance with the social exchange theory (Cook & Emerson, 1978; Emerson, 1972; 1981; Homans, 1958; Kelley & Thibaut, 1978), the indicators are about to what extent these business connections affect the focal relationship. This construct refers to how dependent the firm is on the adaptations of its partners' in the chosen foreign market. The identified partners are customer's customer (DEPLCC4) and customer's other supplier of complementary products/services (DEPSCP4) which affect the focal relationship indirectly; and the firm's own supplier in the host country (DEPLSU4) which affects the focal relationship directly.

Local institutional net: For the internationalizing firm, organizations in the host country associated with the customer that stand for issuing and controlling of the laws and regulations that they need to comply within a country, and also the regulations associated with contract making and payments in a business deal are the regulatory institutions. Authorities, lawyers, banks, and industry organizations are examples of individual actors that are usually associated with regulatory institutions. Three items are chosen to yield the firm's dependence on the institutional actors in the chosen foreign market.

These refer to the firm's relationship with the authorities (DEPLCA2), banks (DEPLCA3), and industrial organizations (DEPLCA4).

3.4 Validity of constructs in the SEM model

Convergent validity: The coefficients of the indicators are all above 0.45, and they load only on their designated constructs. All indicators in the model have higher t-values than required for significance at the 5%-level. The R² values are all 0.20 or above. Therefore all key statistics of the indicators show that the constructs are convergently valid. Table 1 shows the convergent validity of the constructs. For a correlation matrix, see appendix A.

Table 1. Construct analysis using LISREL

Factors and items	Abbreviation in Figure 2	Factor loading	t- value	R ² - value
<i>Firm perceived international business relationship performance</i>				
This business relationship has resulted in new:				
Products	RESNEW1	0.56		0.31
Procedures	RESNEW3	0.63	5.78	0.41
How important is the business contact to your company as regards to generating:				
Knowledge	IMPBR1	0.72	6.69	0.53
<i>Relationship specific investments</i>				
This relationship is characterized by investments that are specific to this relationship	RELBR1	0.63		0.40
This relationship is characterized by mutual investments	RELBR5	0.56	7.87	0.31
We have invested in this relationship through adaptations	RELINV2	0.76	8.89	0.57
We have invested in this relationship through capital	RELINV3	0.75	9.42	0.56
<i>Local business network</i>				
We depend on adaptations of the follow-				

ing partners in the host country:

Customer's customer	DEPLCC4	0.45		0.20
Customer's other supplier of complementary products/services	DEPSCP4	0.64	3.57	0.41
Our own supplier in the host country	DEPLSU4	0.52	3.24	0.27

Local institutional network

We depend on the following partners associated with the customer in the host country:

Authorities	DEPLCA2	0.78		0.62
Banks	DEPLCA3	0.83	10.66	0.68
Industry organizations	DEPLCA4	0.78	10.53	0.60

Perceived institutional impediments

The following factors have been obstacles in the international business relationship:

Business culture	OBSTBR2	0.52	8.94	0.27
Legislation	OBSTBR3	0.96	32.74	0.92
Authorities	OBSTBR4	0.93	26.02	0.87

Discriminant validity: It is the assessment for the separateness of constructs. The discriminant validity of the constructs is shown by that the highest correlation between constructs is 0.80, with a standard error of 0.06. There are no modifications in-between constructs. Thus the constructs are discriminantly validity.

Nomological validity: The model's χ^2 value is 109.64 with 96 d.f. and at a probability estimate of 0.16. Hence the model's fit statistics suggest a good overall fit with the data. More supporting values are Root Mean Square Error of Approximation (RMSEA)= 0.02; Comparative Fit Index (CFI)= 0.99; Goodness of Fit Index (GFI)= 0.91; and Normed Fit Index (NFI)= 0.95.

3.5 Control variables

The control variables are selected to provide support for that confounding factors are not prevalent in the analysis. The dependent variable should preferably not be affected by the control variables to exclude the event that the control variables may partially explain the results. While we cannot practically test for all potential control variables, we make a selection of some representative ones. Since research has documented conflicting effects of size on internationalization (Bonaccorsi 1992), we introduced size in terms of the number of employees as a control variable. The number of countries where the firm operates has been used as a proxy for knowledge (Davidson, 1980). The size of exports may be important to denote extent of international operations. We controlled for the share of sale to the host-country market where the international business relationship is being developed. The duration since the inception of the firm's internationalization is also important (Autio, Sapienza and Almeida 2000), and we therefore introduced a control variable for the duration of internationalization. We also controlled for the duration of the ongoing international business relationship (Chetty et al. 2006). We controlled for the duration of the firm's operations in the country of the ongoing international business relationship (Chetty et al. 2006). The mode of establishment is identified as being an important factor in internationalization (Davis, Desai and Francis 2000). The operational measure of mode of entry is whether the firm has established a subsidiary as it does business in the ongoing international business relationship. We controlled for the number of patents held by the firm as an indicator of research intensity of operations (Autio et al., 2000; Yli-Renko et al., 2002). Internationalization research on institutions has identified several dimensions of institutional differences. We identify regulatory, normative, and cultural distances as factors that have been found important in international business (Xu and Shenkar, 2002; Nelson et al., 2002; Berry et al., 2010)

As mentioned earlier, we used an OLS regression to test for the effect of control variables on the dependent variable. The regression model and correlations are presented in Appendix. Following Tabachnick and Fidell (1996, p. 86), we studied the correlations between independent variables to

ensure that these did not exceed 0.70, which would indicate multicollinearity. Correlations range from 0.00 to 0.56. With the use of a $p < 0.001$ criterion for Mahalanobis distance, no outliers among the cases were found (Tabachnick and Fidell, 1996). The normal probability plot is a straight diagonal line, which indicates that the analysis does not deviate from normality. The values in the scatterplot are centered along the 0 point and therefore do not violate the assumption of a mean equal to zero. Finally, the Durbin–Watson statistic is 2.010, which is close to 2, indicating that residuals are uncorrelated, which is an assumption of linear regression. The highest variance inflation factor being 2.184 for the number of years in the country of the ongoing international business relationship.

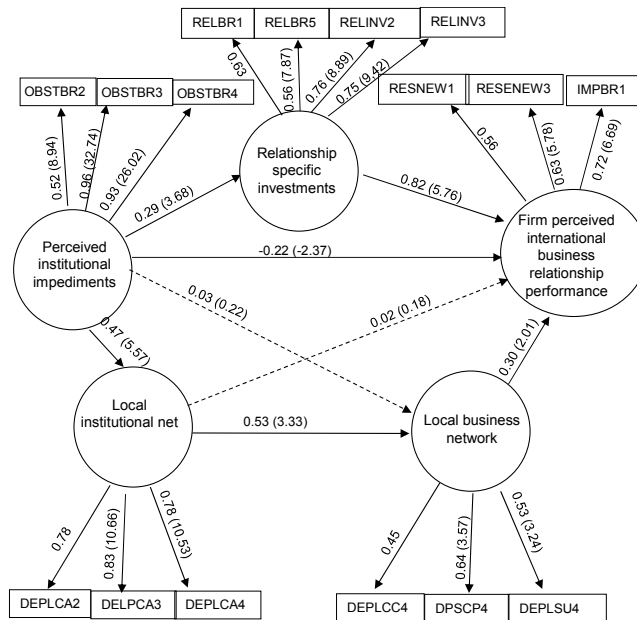
None of the control variables have relationship to the dependent variable in model 4, which is the final model in the OLS regression. Regulatory distance, mode of establishment, and the duration controls have a significant effect in models 1 through 3, and their correlations to the dependent variable is also significant at the 5%-level. These results suggest that we have reason to assume that the prediction of our dependent variable is explained by our independent variables, and not by control variables.

In a separate OLS model, not presented here, we tested interaction effects by taking the independent variable times the dependent variable. Such test gave the result that both relationship specific investment*perceived institutional impediment and business network* perceived institutional impediment are significant mediating variables. The results provide some support for the hypothesized causal structure, but OLS regression is limited in how much it can be used for causal effect studies.

4 Results

The results are presented in a structural equation model in Figure 2, and all hypotheses are tested in the model. There is a causal arrow going from perceived institutional impediments to international business relationship performance. This causal arrow depicts a test of Hypothesis 1, which is that institutional impediments will have a negative effect on the international business relationship performance. The results support the hypothesis, since the coefficient of the causal effect is -0.22, with a t-value of -2.37.

Figure 2. The causal effect from perceived institutional impediments to firm perceived international business relationship performance, mediated by relationship specific investment, local institutional network, and local business network



Model Statistics: Satorra-Bentler Scaled $\chi^2 = 109.64$, d.f.=96 P-value=0.16. RMSEA=0.02, GFI=0.91, NFI=0.95, CFI=0.99

Hypothesis 2 is that the effect of perceived institutional impediments on the international business relationship performance is mediated through relationship specific investments in the international business relationship. Hypothesis 2 is supported by that there is a causal effect from perceived institutional impediment to relationship specific investments (coefficient is 0.29, t-value is 3.68), and an effect from relationship specific investment to international business relationship performance (coefficient is 0.82, t-value is 5.76). An estimate of the mediated effect is obtained by multiplying the coefficients, and this yields a coefficient of 0.24.

Hypothesis 3a, 3b, and 3c are depicted in the bottom half of the structural model in Figure 2. Hypothesis 3a is that the effect of perceived institutional impediments on international business relationship performance is mediated by the dependency on the local institutional network dependency. Hypothesis 3b is that the effect of perceived institutional impediments on international business relationship performance is mediated by local busi-

ness network dependency. Hypothesis 3c is that higher dependency on the local institutional network dependency leads to higher local business network dependency. Hypothesis 3a, 3b, and 3c are supported together in the three causal arrows that go from perceived institutional impediments to local institutional network (0.47, 5.57), from local institutional network to local business network (0.53, 3.33), and from local business network to international business relationship performance (0.30, 2.01). The support for hypothesis 3a, 3b, and 3c is thus the effect of institutional impediments on international business relationship performance is mediated first by local institutional network, and then by local business network.

Local institutional network has to lead to local business network for hypotheses 3a, 3b, and 3c to be supported. Neither local institutional network (0.02, 0.18), nor local business network (0.03, 0.22) mediate the effect of institutional impediments on international business relationship performance without there being an effect from local institutional network to local business network.

5 Conclusions and implications for future research

The aim of this study was to investigate the effect of perceived institutional impediments on firm international business relationship performance. We hypothesized that the direct effect would be negative. But we also hypothesized that firms could generate positive international business relationship performance indirectly, in two ways. The one way is to make relationship specific investments in order to take account of the institutional impediments, and thereby increase performance. The other way is to increase the firm's dependency on institutional and business networks, in order to first obtain ties to and resources from the relevant institutional actors, and then through dependency develop business in the business network. The hypotheses were supported by the results from data analysis. We elaborate on the results below.

The results in this paper show that institutional impediments are barriers for internationalizing firms, as institutional impediments have a negative effect on firm international business relationship performance. But, the results in this paper also show that the negative effects of institutional imped-

iments on performance can be managed, and even turned into positive results through some mediating factors. One mediating factor is an increase in relationship specific investments. If the firm increases the relationship specific investments, then the negative effects of institutional impediments on performance can be managed. We argued that institutional impediments are experienced and enacted in the business relationships a firm has on a foreign market. Thus the impediments experienced will also be managed in the relationships. If a firm perceives that differences in institutions and behavior in the relationship are impediments for a beneficial performance, it will invest resources as to handle the situation to affect the outcome. For example, a firm might not understand that communication with a customer on the foreign market should be handled by top management, as it is common that key account managers handle this type of communication on their domestic market. To affect the outcome of the relationship, the firms employees spends time talking to people on different levels in the customer company to discover how to communicate. They realize the difference and then decide to adapt to local customs, improving the outcome of the relationship.

The other performance enhancing mediation occurs when the firm's dependency on the institutional and business network increases. If the perceived institutional impediments result in that the firm's dependency on the institutional network increases, then this, in turn, increases the dependency on the business network. The dependency on the institutional network is a pre-condition for dependency on the business network, which is a pre-condition for firm perceived international business relationship performance. A firm that perceives that business culture and frameworks regulating business with in their type of industry is difficult to comprehend will turn to the regulatory body to have these frameworks explained. Maybe it is a financing matter and the regulations state that an international bank's local branch must be used to ensure security for deals. In order to get information as well as financing the firms becomes dependent on the regulatory body and the bank, the institutional network. The more impediments the firm perceives the more dependent it becomes. This dependency is in turn a prerequisite for engaging in exchange with business counterparts on the foreign market. Without the dependency on the bank and the regulatory

institutions, no exchange can be done and no dependency be developed. Thus the more a firm is dependent on the institutional network the more it becomes dependent on the business network which will mediate the negative effect of institutional impediments on relationship performance. This is because it is the business activities that generate effects on performance. Value creation on foreign markets is made in the network with business partners through adaptations and development of products, processes and technologies. We hypothesized that dependency institutional network and dependency on business network respectively would mediate the negative effect of institutional impediments. This was not confirmed in our results. Our results only point to that the long chain of causal effects need to work together, unbroken. It is not possible to omit one step in the connected chain and obtain positive firm international business relationship performance.

This study has identified that institutional impediments can be leveraged through relationship specific investments and increased dependency on the institutional and business network, as we argued in the beginning. For the internationalizing firm, managing to overcome institutional impediments is an important strategic success factor. It provides the firm with a firm specific advantage to overcome the liability of foreignness (Buckley and Casson, 1976; Hymer, 1976). Also, in recent developments of the internationalization process model, Johanson and Vahlne (2009) have emphasized the importance of networks, and even argue that there is a 'liability of outsider-ship' as far as networks are concerned. Our results show that both the firm's own specific advantages and their network position can help turn institutional impediments into positive performance in firm international business relationships. This is in line with previous research that has shown that strategy to become insiders in an institutional context is a path to increase international performance (Jonsson and Lindbergh, 2010; Oliver 1996; Xu and Shenkar, 2002; Yang et al., 2012).

The common understanding of networks is that they help firms deal with the risks and challenges of foreign markets (Chen, 2003; Chetty and Campbell-Hunt, 2004; Johansson and Vahlne, 2003; Oviatt and McDougall, 1994). We provide evidence for that networks benefit an internationalizing firm that perceives institutional impediments.

We also argue and show that institutional networks and business networks are distinct. Interestingly, our study is based on managers' perception, and based on our results they seem able to distinguish business from institutional networks. However, we should be aware that the causal chain we observe is especially suited for situations when dependency increases. There may be other important factors for internationalization, such as knowledge, where the causality may not be the same as in this model. Future research could analyze knowledge in networks, and also the link between knowledge and dependency. The reason for suggesting this avenue for future research is that the internationalization process model identifies that market knowledge leads to market commitments, which, we may add, create dependency. We expect that our distinction between institutional networks and business networks are valid also when it comes to other factors relating to internationalization, but it needs to be verified.

The research reported in this paper is far from conclusive. Rather, it opens up for many more research areas. For instance, this study of manager's perception of institutional impediments does not reflect the multidimensional nature of institutions. Rather the opposite. Managers seem to perceive regulatory and cultural institutional factors as part of the same construct. Further research could corroborate this finding. We may speculate that more experienced managers, and more experienced firms, can differentiate better between institutional factors. Further research in this area could provide a stronger link between perceived institutions and more objective measures of institutions and institutional differences.

Another area in need of future research, now that this paper has found that institutions can be seen as part of the firm's network, is to bridge the gap to more macro-level research on institutions, often using theory developed in economics. According to Owen-Smith and Powell (2008), institutions are not to be perceived too apart from networks. Networks are carriers of institutional effects, such as institutional context; hence any effort to understand institutional processes must take networks into account. Consequently, institutional impediments materialize in the international business network as these impediments are experienced, enacted and managed within the networks. Network research can make an important contribution here, but more research is needed.

This paper finds that relationship specific investments, on the one hand, and institutional and business network, on the other, have important moderating effects. In real business life, and as the introductory case shows, business in the relationship is difficult to separate from business in the network. While the respondents to the questionnaire apparently perceive relationship, institutional and business net as analytically distinct, there is a need to further elaborate their interdependencies. For instance, is there a mutual reciprocal dependence between relationship and network? Better empirical material, both quantitative and qualitative could be of great assistance.

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Correlation Matrix

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1.International business relationship performance	1,000	,029	,321	,463	,399	,378	,042	,006	,003	,216	,006	,016	,201	,007	,000	,000	,151
2.Number of employees	,115*	1,000	,002	,005	,001	,000	,171	,000	,000	,002	,282	,190	,175	,011	,008	,000	,108
3.Number of countries	,028	,165*	1,000	,348	,000	,331	,377	,341	,000	,012	,090	,129	,005	,500	,200	,140	,334
4.Size of exports	,006	,152*	,023	1,000	,216	,376	,127	,494	,127	,304	,478	,208	,312	,150	,452	,203	,182
5.Share of sale abroad	,016	,184*	,217*	,047	1,000	,182	,202	,024	,004	,147	,448	,424	,002	,060	,083	,058	,006
6.Duration of internationalization	,019	,292*	-,026	,019	,054	1,000	,000	,000	,115	,366	,191	,276	,334	,030	,158	,336	,478
7.Duration of customer relationship	,107*	,058	-,019	,070	,051	,295*	1,000	,000	,140	,227	,080	,012	,051	,078	,318	,096	,170
8.Duration in host country	,155*	,202*	-,025	,001	,120	,518*	,545*	1,000	,462	,133	,202	,000	,010	,123	,313	,029	,006
9.Mode of establishment	-,168*	-,220*	-,225*	-,069	-,156*	-,073	-,065	,006	1,000	,000	,475	,001	,425	,140	,106	,000	,062
10.Number of patents	,050	,169*	,135*	,032	,064	,021	,047	,070	-,289*	1,000	,413	,114	,101	,244	,002	,001	,139
11.Regulatory distance	-,158*	-,035	,082	,003	-,008	-,055	-,088	-,053	,004	,014	1,000	,000	,000	,101	,429	,050	,456
12.Normative distance	-,134*	-,054	,069	,051	-,012	-,038	-,141*	-,308*	,190*	-,077	,331*	1,000	,000	,095	,270	,150	,013
13.Cultural distance	-,053	,057	,157*	,031	,177*	,027	-,102	-,147*	-,012	,081	,241*	,360*	1,000	,055	,487	,094	,344
14.Local institutional net	,151*	,141*	,000	-,064	,096	,118	,088	,073	-,066	,044	-,081	-,084	-,102	1,000	,000	,001	,000
15.Local business net	,253*	,148*	-,052	-,008	,086	,064	,030	,031	-,077	,186*	,011	,039	,002	,297*	1,000	,000	,002
16.Relationship specific investments	,556*	,223*	,065	-,051	,095	,026	,080	,117*	-,223*	,194*	-,103	-,065	,082	,187*	,256*	1,000	,000
17. Institutional impediment	,063	,074	,026	-,055	,151*	-,003	,058	-,153*	-,092	,068	-,007	,137*	-,025	,360*	,181*	,207*	1,000
Means	12,17	50,68	,70	5,71	51,05	2,96	1,98	2,22	1,88	7,52	,49	,61	,04	6,35	7,43	13,57	6,92
Standard deviation	4,41	52,44	1,86	1,89	32,67	,94	,83	1,03	,32	30,59	1,18	,46	,02	4,10	3,96	5,42	3,90

Article II

Article 2

International new venture legitimation: A multi-layered framework

ABSTRACT

Purpose – This paper aims to expand the present understanding of organisational legitimation in international management to the paradigm of international new ventures (INVs).

Design/methodology/approach – The relevant INV literature was reviewed around the conditions within three fundamental analytical elements of legitimation suggested by institutional theory: audience, organisation, and process. The review findings were reflected on with regards to the complexities of INV legitimation that call for further investigation.

Findings – A multi-layered legitimation framework is proposed that is interactively driven by the focal firms' network development and the legitimacy spillovers from this network.

Research limitations/implications – The newly developed framework has not been empirically tested.

Originality/value – The proposed framework addresses a knowledge gap about how INVs may utilise complexities in environment during their legitimation.

Keywords – International new ventures, international entrepreneurship, legitimacy, legitimation

Paper type – Conceptual paper

Introduction

When you build a company like this, you are building a ladder. I think it is a good way of visualising that you have different steps you work on. In each step, you build the confidence in the actors that you need for taking you to the next step.

(Personal interview, Dec., 2014, Sweden, Founding CEO of a life science venture)

The quote describes a founder's management vision while steering his venture to the degree of organisational development and growth that it has reached in international markets. This young firm's history is of a start-up founded in Sweden, which expanded to more than 20 countries in five continents within the company's first six years, and currently has international sales in more than 40 countries.

Managers who aspire to drive their emerging businesses successfully across borders have long recognised the critical role of achieving their resource-holding audiences' endorsement and support (e.g., see Eurofound Born Global report, 2012). The introductory quote is a typical expression of this awareness. In social sciences, the measure of an organisation's general recognition and acceptance is commonly referred to its organisational legitimacy, and this topic has provoked a vast body of research interest across disciplines (for a comprehensive review, see Bitektine, 2011). Internationalisation studies are no exception in this sense.

A body of international management research has adopted an organisational institutional view particularly while studying internationalising business organisations, and has regarded attaining legitimacy as key to accessing and operating successfully in foreign markets (Kostova and Zaheer, 1999; Zaheer and Mosakowski, 1997). The main theoretical reasoning underlying this argument suggests that when firms enter a new foreign market, they face constraints due to the differences between the institutional environments in the home country and the host country that prevent them from or delay them in adapting to the local institutions and achieving legitimacy

(Peng, 2002). Within this understanding, institutions (in the host country environment) have been commonly perceived as a constraining factor during market entry and transfer of practices, whereas legitimacy has been often considered to be attained by complying with the host country institutional pressures with conformity (Zaheer, 1995). Although legitimisation studies in international management have been applied mostly on multinational corporations (MNCs), this argument, rooted in institutional theory, is binding for all organisations in the face of a new institutional environment (Suchman, 1995). However, this paper argues that in the context of INVs, it falls short of providing a complete understanding of how these firms attain legitimacy.

The term INV has been increasingly used in the contemporary business literature in order to distinguish business organisations that engage in international business activities right at, or close to, inception, and pursue achieving competitive positions in a globalising world (see Coviello, 2015); one example is the Swedish firm mentioned above in the introductory quote. Globalisation is a transformational process in our era where the world is progressively becoming a network that is connected by visible ties of resources, products, and the like, as well as invisible ties of ideas and norms (Parker, 1998). A few of the most important reflections of this process from a new venture's perspective are the ability to move flexibly, to identify and exploit opportunities anywhere in the world, the ability to source inputs, and the ability to establish a presence (usually as parts of alliances or parts of networks) in a number of different countries (Knight and Cavusgil, 1996; Nummela, 2004; Sharma and Blomstermo, 2003). Hence, this paper argues that the framework of how we understand INV legitimisation in this context can no longer be limited to entering a certain foreign market and adapting or responding to the expectations of the key actors in that market, but also needs to tackle the complexities in INVs' international environments more comprehensively. Moreover, as illustrated by the introductory quote, attaining legitimacy in the eyes of international actors for most INVs cannot be perceived only through the framework of a growth option, but also understood as part of the overall survival and organisational development of an entrepreneurial new venture. Therefore, a viable framework needs to provide insights on how an INV, inherently a young

and small firm, can manage these complexities during its quest for legitimacy. Consequently, this study aims to expand the present understanding of organisational legitimation in international management to the paradigm of INVs.

Institutional theory scholars have noted that one significant way of understanding internationalising firms' legitimation is methodologically defining the conditions of achieving it (Kostova et al., 2008; Marano and Kostova, 2015). Following the same view, the present paper first reviews the conditions and complexities of legitimation for INVs by conducting a thematic review of the extant literature concerned with legitimacy and legitimation in INV context; this process eventually guides the development of a conceptual framework.

Although INV legitimation research is at a relatively embryonic stage and is far from reaching a saturation point (Turcan, 2013), how INVs attain legitimacy has already inspired a remarkably extensive body of published work in recent years. Thus, extant literature has provided notable direction for this study. According to Oviatt and McDougall's (1994) renowned definition, an INV is described as 'a business organisation that, from inception, seeks to derive significant competitive advantage from the use of resources and the sale of outputs in multiple countries'. While there is much variation of size and scope among different INV types, in the selection the articles to be reviewed here, INVs' commitment to create value across borders and status as young firms were taken as the most distinguishing factors of INVs (see Coviello et al., 2011).

Literature review

By following previous comprehensive review articles in relating subjects (e.g., Jones et al., 2011; Keupp and Gassman, 2009; Überbacher, 2014), the author selected search terms according to two criteria: time period and keywords. The searches included 'legitima*' and the following three keywords: 'international new venture*' (16 hits), 'born global*' (13 hits), 'international entrepreneur*' (37 hits). The results are further controlled with the addition of terms such as 'global start-up*', 'early international*' and 'accelerated international*', which yielded one additional study, by Bangara et al.

(2012). Search was conducted using two search engines: ABI Inform/Proquest and Business Source Premier/EBSCO. Books, book chapters, reports, and conference papers were excluded from the search due to variability in peer review processes and the fact that journal articles are acknowledged to be validated sources of knowledge (Podsakoff et al., 2005). All published and accessible journal articles that met the selection criteria were included. Thus, the journals were not restricted with the highest impact in their fields in order to include ideas at an early stage of development (Tranfield et al., 2003). The year 1994 was chosen as the starting point, because this was the year in which Oviatt and McDougall's (1994) renowned article was published, which has since been considered a key trigger for the development of the INV studies and IE field (Autio, 2005). In all, the articles searched covered the time period of 1994–2015.

The search focused on the articles' coverage of legitimacy issues in their main contents; therefore, the author searched their titles, abstracts, and keywords as the most informative parts of each study's topic, followed by an examination of the references of the selected articles in order to avoid overlooking any relevant studies. Hence, the entire review comprised 23 articles total. Table 1 below provides the details of the publication dates and journals of the articles included.

Table 1 Information about the included articles in the review

Journal	Publication date	Number of articles	Total number of articles
Administrative Sciences	2013	1	1
Baltic Journal of Management	2011	1	1
Entrepreneurship Theory and Practice	2010	1	1
European Journal of Marketing	2012	1	1
European Management	2008	1	1

Journal	2012	1	2
International Entrepreneur- ship and Management Journal	2013	1	
International Journal of Entrepreneurial Venturing	2011	1	1
International Journal of Entrepreneurship and Small Business	2012	1	1
Journal of Business Ventur- ing	2013	1	1
Journal of Developmental Entrepreneurship	2008	1	1
Journal of International Business Studies	2015	1	1
Journal of International Entrepreneurship	2011	1	4
	2012	1	
	2014	2	
Journal of Management and Strategy	2015	1	1
Journal of Marketing Re- search	2014	1	1
	2015	1	1
Journal of Small Business & Entrepreneurship			
Journal of Small Business Management	2011	1	1
Journal of World Business	2007	1	2
	2012	1	
Technology Innovation Management Review	2012	1	1
		Total	23

The primary analysis portrayed the current state of the INV legitimacy research. Only four of the reviewed articles applied quantitative methods to the search for answers to their INV legitimacy-related research questions. Fifteen of the 19 empirical papers employed qualitative methods and case studies, while, the remaining four are conceptual papers. The dominance of conceptual and qualitative papers in this total is an indication that the legitimacy subject is still at the exploratory stage in the INV context. Moreover, the earliest publication date of the resulting articles was 2007, which is also a confirmation of the recently developing research interest in the subject.

The results showed that legitimacy studies were not specific to any industry type, although technology-based industries dominated. Ten articles studied INVs in technology-based industries such as electronics, life science, and software. Four studies focused on firms from diverse industries and two centred on non-technology firms in industries such as furniture and textiles. In nine articles, manufacturing firms were the sources of the empirical data; in four other articles, data was sourced from service firms. Geographically speaking, the empirical data came from various countries. However, one point that was emphasised specifically in the articles in their empirical focus was INVs from emerging countries. Bangara et al. (2012) stated that the reason why legitimacy issues are more important for these firms compared to those from more mature markets is their extra need to avoid a 'third world' image while internationalising.

The literature review aims to identify the conditions of INV legitimation and direct the development of a conceptual INV legitimation framework. In order to achieve this, the review began with a careful reading of the 23 studies. Subsequently, recent reviews on organisational legitimacy and legitimation (Deephouse and Suchman, 2008; Kostova and Zaheer, 1999; Suchman, 1995; Überbacher, 2014) were consulted. Each article was coded according to three analytical elements that all of the above reviews mention as key when designating legitimation conditions. These are: (1) the legitimating audience, (2) the focal organisation, and (3) the legitimation process. In this way, the author was able to systematically go through each element and identify the distinctive conditions, as well as complexities that call for further investigation under these elements.

Conditions of INV legitimization

The audience

Legitimizing audiences are observers of a firm who determine whether the firm's organisational activities are legitimate within a given institutional context, and who bestow social acceptance by supplying resources to legitimated firms so that they can sustain their operations in a competitive environment (Suchman, 1995). In the majority of the reviewed articles, the legitimating audience consisted of the resource-holding actors in the INVs' immediate environment that evaluate the focal firm's legitimacy in a micro sense. In other words, a certain external actor, when interacting with the focal firm in a given micro-level situation, develops expectations about what a focal organisation can or should do. Hence, if the focal organisation is able to meet these expectations, then it is regarded as legitimate and perceived as more worthy, meaningful, predictable, and trustworthy (Suchman, 1995). This was apparent among the common measures of legitimacy presence across the reviewed articles, which included the following: degree of growth in terms of increase in international sales intensity (Wood et al., 2011); international sales volume (Sullivan Mort et al., 2012) and the number of international alliances (Bjørnåli et al., 2012); access to venture capital financing (Homburg et al., 2014); and completion of successful foreign market entry or global expansion (Simba and Ndlovu, 2014). Therefore, legitimacy was observable mostly at the micro level in the external actors' voluntary engagement with the focal firm.

This perspective was prevalent in the review, with the exception of two articles: one by Nasra and Dacin (2010) and one by McGaughey (2007), where the legitimating audience included the audience at a macro level than the immediate resource-holding actor(s). The audience on the macro level refers to legitimacy sources that, in essence, might be rooted in supra-organisational beliefs about social reality and appropriateness, which are widely held at a societal level or at least held by powerful actors such as regulators and the media (Johnson et al., 2006). Nasra and Dacin (2010), by employing a qualitative historical event sequencing technique, sought to understand the rise of Dubai as a context for international entrepreneur-

ship. Although the directly legitimated actor here was the United Arab Emirates states rather than the indirectly legitimated individual INV organisations, the audience was considered the macro-level society of a transnational market.

The remainder of the articles focused on various specific audience groups that can support or reject firms in a micro sense. Eight of the articles referred to resource-holding actors in international/global markets in general, without explicitly specifying which group(s) (Bettioli et al., 2012; Hornsby et al., 2013; Ivanova and Castellano, 2011; Turcan, 2011 2012, 2013; Turcan and Joho, 2014; Zettinig and Benson-Rea, 2008). Five articles specified these actors as customers (Bangara et al., 2012; Bailetti, 2012; Bjørnåli and Aspelund, 2012; Simba and Ndlovu, 2014; Sullivan Mort et al., 2011), while another specified them broadly as venture capitalists in international/global markets (Homburg et al., 2014). Hence, no market specification was made in any of these papers. On the other hand, five of them specified the customers in certain foreign market(s) (Andersen and Rask, 2014; Chinta et al., 2015; Dahles, 2008; Mainela and Puhakka, 2011; Wood et al., 2011).

Eventually, when considering the legitimating audience in the context of INVs, complexity emerges primarily from the diversity of the markets, highlighted as the most relevant element of complexity for internationalising firms by previous international management legitimacy literature (Kostova and Roth, 2002). However, the review findings brought an additional dimension of diversity for INVs; namely, the audience groups (such as business organisations, investors, and regulators). These groups were not explicitly defined by market boundaries in most of the studies, whereas the international aspect was almost taken for granted. Therefore, the current understanding of INV legitimation could be developed further by addressing the audience complexity in terms of the diversity of both the markets and the actor groups.

The focal organisation

Organisational characteristics of INVs concerning legitimation emphasised in the reviewed articles were that they were new, small, and international

firms; and therefore, at the beginning of their legitimation, these firms mostly face difficulties generally associated with the liabilities of smallness (Freeman et al., 1983), newness (Stinchcombe, 1965), and foreignness (Zaheer, 1995).

Liability of smallness relates to small size and insufficient resource base of INVs. Liability of newness, on the other hand, relates to INVs being assumed unable to draw on a stable set of roles, relationships, and the presence of previous organisational performance records, which is generally not an issue for more established firms. Finally, liability of foreignness is suggested to stem from a combination of factors – a lack of knowledge about foreign markets and the host country's lack of knowledge about an INV, or exclusions from advantages that are generally offered to domestic firms. The exceptions to these organisational characteristics were provided by two articles. The first argued how the effects of the liabilities of newness and foreignness might actually bring legitimacy advantages to an INV if managers know how to deal with them; and the second explained how legitimation strategies through external partners might also cause challenges of captivity. In their conceptual work, Chinta et al. (2015) suggested that liability of newness wipes the slate clean, where foreignness can also be seen as an asset that helps the firms to outperform the domestic firms (for example, due to the higher status of the origin country or the chance of avoiding being labelled as overprotected by the local government). Wood et al. (2011) showed empirical evidence from INVs founded in China, India, Mexico, and South Africa supporting their main hypothesis that firms that deliberately internationalise early and with a clear strategic commitment acquire legitimacy more easily than serendipitous early internationalisers, by making a virtue of their liability of newness to overcome their liability of foreignness.

When it comes to the specific features of a focal INV as the subject of legitimation evaluations, the review showed that ventures' organisational members (such as the founding team and the managers) and their organisational relationships with external actors were two features that the majority of the articles chose as their focus (10 of 23 articles). This attention specifically on these two features may relate to the INVs' short track records at the beginning of their legitimation, due to their youth and small sizes.

Zettinig and Benson-Rea (2008) underlined this point by arguing that trust is mostly built on organisational history. For an INV, track records of partnering organisations and organisational members may therefore become a substitute for organisational history at the beginning of their lifecycles.

Another organisational characteristic highlighted was the governance of the firm. For example, McGaughey (2007) presented the effect of the ownership structure of an INV on the legitimation process. In this respect, portfolio entrepreneurship features were shown to have positive influences when an individual firm in the portfolio endeavours to gain regulative, normative, and cognitive legitimacy in a given foreign market.

Finally, a different perspective was put forth by Tan et al. (2013) and Oehme and Bort (2015), who focused on the network structural characteristics of legitimate INVs, such as network positions in an industrial and national cluster. Both of the articles showed that the network positions (central vs. peripheral positions) influenced how INVs achieved legitimacy (by mimicking vs. deviating behaviours). The remaining three articles specifically focused on cognitive legitimation strategies in which entrepreneurs are considered skilful actors – and cognitive frames are not only a normative imperative that forces conformity to societal expectations, but also a flexible set of tools that entrepreneurs can actively and strategically create and employ. Dahles (2008) showed that the managers of 55 INVs from Singapore pooled their entrepreneurial repertoires of home-country effects when creating meaning and legitimacy for their ventures in China. Bettiol et al. (2012) showed that entrepreneurs in the multiple non-technology INV cases were engaged in the construction of interpretive frameworks in order to make their novel ideas and logic accessible to consumers and stakeholders. Andersen and Rask (2014) brought up the interplay between the storytelling efforts of an INV, creation of business model legitimacy, and differing institutional contexts.

To sum up, the complexities of legitimation for INVs seem to emerge from their innate foreignness as the most frequently cited disadvantage to internationalising firms' legitimation by the existing international management literature; however, complexities also result from their small size and young age. Legitimacy of the focal INV appears to rely also on the partnering organisations' legitimacy rather than on the focal firms' features alone.

Therefore, our current understanding of INV legitimation could be developed further by addressing each of these constraints and a more inclusive view of the organisational relationships as the subject of legitimacy assessments.

The legitimation process

In the legitimacy literature, three main legitimacy mechanisms are identified, depending on the pressures behind the legitimacy evaluations: regulative (its alignment with rules and laws), normative (its alignment with dominant norms and values), and cognitive (its alignment with prevailing ideas and beliefs) (DiMaggio and Powell, 1983; Scott, 1995). Among these, the regulative dimension was emphasised least among the reviewed articles, while the normative and cognitive dimensions were the main focus. The reason behind such dominance may be related to the generally explicit nature of regulations and their straightforward nature. Hence, different legitimacy types did not seem to comprise a major source of complexity for INVs, in contrast with the complexities of larger multinational firms' legitimation (see Kostova and Zaheer, 1999).

On the other hand, for INVs the complexity seems to emerge from the generally assumed but not explicitly addressed dynamism in the process. Seven articles viewed the legitimation process as an instant matter, legitimate INVs being those that hold some expected attributes. Hence, the legitimating audience chooses some characteristics over the others when evaluating the focal firms' legitimacy. In this view, the actors in the environment that the INV operates hold shared frames and norms, and INVs that are in compliance with these frames and norms are the legitimate ones.

Sixteen articles focused on how INVs aim to gain legitimacy in ways that are longitudinal, contending that legitimation comes about through a process where both individual and collective actors render legitimacy judgments and interact with each other (Bitektine and Haack, 2015; Johnson et al., 2006; Zelditch, 2011). However, the majority of the articles, with the exception of two, did not emphasise the dynamic and interactive aspect to a large extent. These two articles, by Zettinig and Benson-Rea (2008) and Hornsby et al. (2013), are conceptual articles. This is not surprising, since

providing valid measurements and obtaining longitudinal data are major challenges in empirical inquiries given the complexity of conceptualising the factors and the conditions of legitimation as a holistic, longitudinal, and dynamic process. Zettinig and Benson-Rea (2008) suggested an ecosystem view combining the factors that facilitate the existence of INVs. These factors then influence and are also influenced by the nature and emergence of networks that INVs form and become part of. Over time, such ecosystems develop and come to affect INVs. Hornsby et al. (2013), despite their perspective taken predominantly from the legitimacy-seeking focal organisation, suggested a dynamic model of INV legitimation that also encompasses the surrounding actors' roles in the process. In this view, legitimacy of a focal firm as a social object is diffused in networks, where organisations move through different levels of legitimacy resulting in differing brokering behaviours for network building. Although this paper concentrates particularly on corporate entrepreneurs rather than INVs in general, the model is viable for purposes of generalisation. In this way, both articles presented a picture of INV legitimation going through stages in which the first one primarily comprises organisational members' track records in place of an organisational history to attract partners initially. Over time, the affiliation, cooperation, and interaction with these partners help INVs acquire legitimacy until the organisation as the social object is diffused among the actors prevalent in a given country/regional market, or more broadly in an international/global market.

For these reasons, our current understanding of INV legitimation could be developed further by explicitly addressing the dynamism in the process. Detailed information about the particularities of the reviewed articles is presented in the Appendix.

Proposed INV legitimation framework

INV research addresses INVs mostly as entrepreneurial start-ups that constantly endeavour to facilitate conditions for international venturing and growth and overcome their internal resource constraints by utilising their social and business networks (e.g., Crick and Jones, 2000). In this view, in order to survive and successfully operate in international markets, INVs

need to utilise the opportunities presented by the complexities in their environments. The first condition of complexity for INV legitimation was identified as the high degree of diversity and interrelatedness in the legitimating audience. The second condition was the disadvantages due to INVs' foreignness, smallness, and newness. Finally, the complexities emerge from the dynamism in the process. In order to address both the complexity and interrelatedness of the audience in an INV's environment during legitimation, the study turns to the rich body of industrial market network research – the foundation of the network approaches dominant in internationalisation literature – and proposes a networked view of the legitimating audience.

Under the proposed model, the study specifically points to formation of cognitive legitimacy. Cognitive legitimacy is generally suggested as the most relevant type of legitimacy for new organisations (Aldrich and Fiol, 1994; Deephouse and Suchman, 2008). Its significance in the INV context has been confirmed by its dominance as a focal topic of the reviewed articles. The primary source of challenges for INVs when it comes to assuring their legitimacy in the eyes of their external audiences may be characterised as emerging from the high uncertainty factor surrounding them. Cognitive legitimacy is related to the general knowledge and understanding about an organisation itself and the products and services it offers (Aldrich and Fiol, 1994).

Networked audience

Network views have described industrial markets as non-hierarchical systems where firms invest to strengthen and monitor their position in networks of a global industrial system. Johanson and Mattsson (1988) suggested that these industrial international networks can be partitioned in many ways (for example, geographical areas, products, techniques etc.). The authors used the term 'nets' for identifying specific analytical parts of this network (including product net, national net, etc.). By following this view, the paper proposes that INVs' audience, when it comes to the divergences in the shared cognitive categories during the social construction of their legitimation, may be scattered in nets mainly on two dimensions – spatial and actor groups.

The review suggested that the legitimating audiences that INVs concentrate on primarily are their most immediate resource-holders; that is, the part of an organisation's environment which earlier organisational studies called the 'task environment'. According to this view, task environment comprises the social sphere that is 'relevant or potentially relevant to goal setting and goal attainment' (Thompson, 1967: 27). In this respect, immediate does not necessarily indicate immediate in the spatial sense, but in the sense of its relevance where the remaining parts of the environment, although not being unimportant, may be set aside for a while. For an INV, the task environment, for instance, might comprise customers, suppliers, competitors, and regulatory groups across countries or even continents. On the other hand, these most relevant actor groups may actually each hold different beliefs and expectations – accordingly, with different bases for judging an organisation's legitimacy. For example, investors, consumers, business, and state organisations, and the like can each be regarded as constituting separate socio-cultural groups whose individual members screen and scrutinise organisations in very different ways (Lamin and Zaheer, 2012; Pontikes, 2012). For an INV to become legitimate in the eyes of these different actors, its managers must be able to understand different expectations and logics prevalent in these groups and develop appropriate organisational legitimating strategies. Consequently, actor group categories constitute a significant analytical element in inquiries relating to how INVs attain legitimacy.

However, the spatial dimension cannot be disregarded, since with the act of internationalisation, an additional layer of complexity inherently accrues; namely, a collective audience that shares institutions bounded by national/regional borders. Globalisation embodies the incorporation of people, organisations, technologies, markets, and nation-states. On the other hand, diverse environments imply increased diversity of actors evolving on all layers of the environment: local, national, and international (Scott and Meyer, 1991). Djelic and Quack (2003) suggested that globalisation does not necessitate eroding national borders; however, it requires an understanding of institutional processes of economic activities that go beyond the boundaries of pre-defined fields, but entail cross-level studies of legitimation that occurs also 'in the spaces between nations'. Although country-

level analysis still demonstrates the distinctive institutional characteristics of the environment, the most relevant institutional context may be broader than a single country and may in fact be associated with a supranational region and transnational institutions (Djelic and Quack, 2003). Therefore, researchers are advised to be open to more micro – or more macro – levels of analysis (Kostova and Zaheer, 1999; Phillips et al., 2009). This advice is seen as binding for INVs in this paper. Accordingly, in the proposed model, the audience is considered to vary within and across layers of the spatial dimension.

Organizational relationships

The review showed that firms' network relationships are one of the primary organisational features that are in the focus of legitimacy evaluations. In addition to INV research, organisational relationships lie at the centre of network approaches to internationalisation as well; during the internationalisation process, a firm becomes well-established in one or more networks (Johanson and Vahlne, 2009). Therefore, in an understanding of legitimation that puts organisational relationships as the primary subject of evaluations, legitimation becomes interdependent on external actors and firms' network development rather than a process that occurs in isolation.

Interactive and dynamic legitimation process

In the legitimacy literature, the main driver behind this relational or interdependent understanding of legitimacy is generally referred to as 'legitimacy spillovers'; that is, a focal firm is likely to be perceived as legitimate by being associated with already established parties (Haack et al., 2014; Kostova and Zaheer, 1999; Rao, 1994). Legitimacy spillovers can happen horizontally when an organisation perceives legitimacy spillovers from other organisations in the same industry, country, cluster, etc. The reviewed articles showed many examples of horizontal spillovers, which were observed mostly from the INV's country of origin. On the other hand, legitimacy spillovers can also happen vertically. In the context of internationalising firms, it was again Kostova and Zaheer (1999) who first brought up legiti-

macy transfers that span different organisations and levels of analysis. In the case of INVs, vertical legitimacy spillovers occurred, for example, from the level of organisational members to the organisation, from the markets that they operate to the organisation, and also from different organisational forms, such as from the state organisation to the focal INV.

Consequently, in the model it is proposed that through legitimacy spillovers, the firm becomes legitimate and eligible to develop relationships with external actors – and through these relationships, it receives legitimacy spillovers. First, diversity leads to uncertainty and complexity, since organisations interact with new actor groups. Second, as INVs operate in many markets diverse actor groups imply increased diversity of audience evolving on different layers of institutional contexts: domestic, foreign country, regional, and international/global markets. Hence, legitimacy spillovers occur both horizontally and vertically across layers and actor groups of the audience.

The following section provides several examples illustrating INV legitimation taking place through spillovers as proposed.

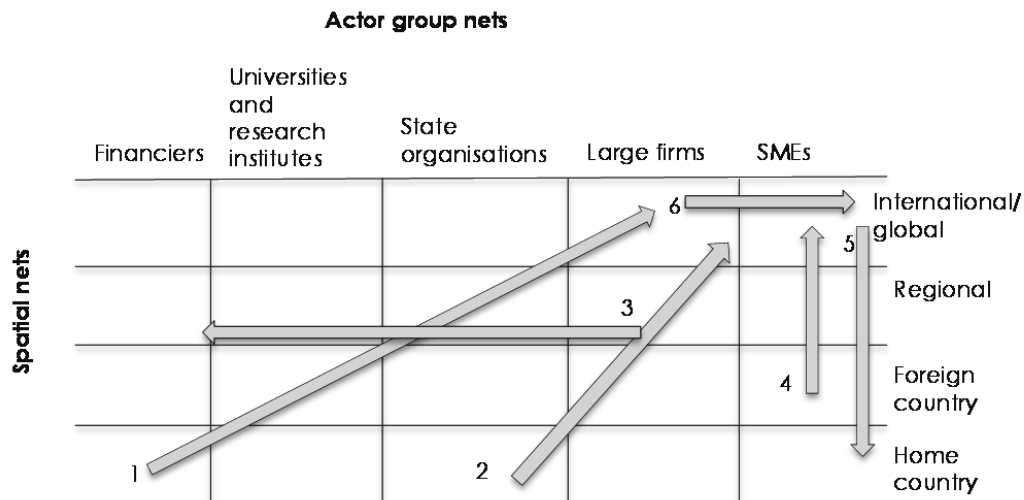
Illustration of the framework

Technology INVs are considered to serve specifically as a viable illustration for further theoretical elaborations. The reason is the generally assumed universal nature and relative cultural insensitivity of technology. Therefore, technology start-ups are commonly perceived as natural candidates for global expansion. Globalisation characterises the scientific base of the modern science technologies, patent rights travel across borders without much constraint, and the buyers of technology products are generally spread all over the world. On the other hand, even within extremely technology-intensive industries such as life science, where inventions and products are widely acknowledged as truly global, not every actor category seems to be situated globally (Renko, 2011). Technology INVs thereby comprise a suitable example to illustrate the multi-layered structure of the audience, in contrast to the dominant view of a uniform global business.

Figure 1 below illustrates the complexity of the legitimating audience. In the figure, the arrows represent possible legitimacy spillovers across ac-

tor groups and spatial locations of the focal firm's present and prospect network partners. Although the number depends on the purpose of the research question, the legitimating audience actor groups are limited in the figure to financiers, universities and research institutes, state organisations, large firms (business organisations with more than 250 employees), and SMEs (business organisations with 250 and less employees); while the spatial dimension is limited to home country, foreign country, regional, and international/global. The legitimacy spillovers in the figure are described below, next to the corresponding arrow numbers.

Figure 1 Proposed analytical framework of INV legitimization



- Arrow 1 – Financiers-home country net to large firms-global net: One of the primary legitimating audience groups of INVs is financiers; therefore, financiers, providers of risk capital, comprise one of these actor group domains/nets. Previous studies found significant geographical differences present among financiers that invest in technological inventions (Sorenson and Stuart, 2001), and are very much bound to national – or at the broadest, regional – levels. However, this national actor might exert its influence on an international level. For example, when a new business has international

ambitions, presenting relationships with reputable investors from its home country might show the prospective international partners that the company is capable of ensuring the execution of the activities expected from their side and is suitable to engage in a partnership.

- Arrow 2 – State organisations-home country net to large firms-global net: The other actor group bounded to national and regional levels is state organisations. Utilising funds from support schemes provided by state organisations is common among technology ventures in order to take their innovations to international markets, and these are generally found to be centralised at the national and regional levels (as in state innovation support agencies and European Union framework programs). These programs, following national and regional economic development agendas, generally have strict guidelines for the attributes and the nation-states of the partners that an applicant organisation should have in order to be eligible. For instance, having received grant funding from EU support programs might prove a focal firm's legitimacy on a regional level; at the same time, this funding might lead to legitimacy spillovers in the eyes of a global corporation that it aspires to approach for product development collaborations and extension of the firm's legitimacy on a global level.
- Arrow 3 – Large firms-foreign country net to financiers-foreign country net: A further example would be the cases where a small technology INV avoids confronting the challenges of competing in a given foreign country, but still would like to achieve legitimacy in the eyes of relatively higher number of investors in that market. For technology INVs, presenting a list of suppliers from the U.S. may help overcome the natural unwillingness of American investors to risk their money on a small entity headquartered in a remote country. In this case, one may consider the legitimacy spillover deriving from where these supplier organisations are located; the legitimacy transfers at the same spatial level, but across actor groups.

- **Arrow 4 – SMEs-foreign country net to SMEs-global net:** As a few review articles suggested, having a presence in leading markets provides a legitimating effect highlighting the spatial dimension of legitimacy spillovers. By seeking market presence in leading country markets of its industry, INVs attain the opportunity to demonstrate that they effectively compete and collaborate in a challenging international environment to a global audience. The selection of lead markets depends on the industry (Dimitratos et al., 2010). For instance, in the software industry, the lead international countries for a market-seeking smaller firm may be the Triad zone countries (Europe, Japan, and North America), and operating in these markets is likely to help confer legitimacy in the eyes of customers globally. In this case, vertical spillover occurs from the market to the organisation.
- **Arrow 5 – SMEs-global net to SMEs-home country net:** Finally, simultaneously, a technology INV is likely to start slanting its legitimisation strategies more towards customers on an international/global level. Furthermore, for technology ventures – especially from countries that have small home markets – it is not uncommon that market validation in one's home country comes only after gaining a global market validation (K@W, 2009). The reason might be that the purchasers in the home country might find it far more difficult to justify their decision not to buy a high-technology product from a globally established technology source. Therefore, customers in the home market might become a significant audience for technology INVs only later in the process of international venturing.
- **Arrow 6 – Large firms-global net to SMEs-global net:** In a technology market, large and established firms such as the global suppliers of technology products may also create global legitimacy spillovers in the eyes of customers. These companies may be multinational corporations with global recognition for decades, far more than any single INV can achieve by itself in a relatively short period of time.

Thus, global suppliers can create legitimacy spillovers across actor groups at the same spatial level.

According to Oviatt and McDougall (1994), within groups of INVs, different typologies prevail. Depending on the scope of their international operations and the number of foreign markets they operate, the authors identified four groups: export start-ups, geographically focused start-ups, multinational traders, and global start-ups. Figure 1 displays the case of a global start-up that serves a high number of foreign markets and coordinates many international activities. In case of any international business strategy changes, an INV needs to be prepared to shift the complexity level of the organisation's audience and the legitimisation strategies accordingly.

Conclusions

The paper was interested in better understanding how INVs attain legitimisation. This study was aimed at (1) examining the complexities in the conditions of INV legitimisation comprehensively by reviewing the extant literature, and (2) creating a conceptual framework for developing our present understanding further. Scholars consider internationalising firms are particularly challenged when attaining legitimacy due to the unique institutional complexities originating from operating in differing institutional environments. For INVs, additional complexities emerge due to their smallness and newness in nature and inherent dependence on a diversity of resource-holding actor groups. Eventually, after reflection on the complexities revealed by in-depth reviews of 23 articles, a multi-layered framework is presented. However, it is worth noting that covering the complexities proposed by the analytical framework may be quite challenging in practice; any additional layer in analysis with a set of actor groups and spatial boundaries may pose problems of measurement and data-gathering. At the same time, by addressing the question of which actor groups are best targeted by INVs' legitimacy efforts, the proposed framework may serve a comprehensive outline enabling any given study to position its contributions accordingly.

The arguments in the paper are based primarily on a strategic perspective on legitimation that assumes the extent of INVs' managerial control over the legitimation process is high. Therefore, in line with the entrepreneurial internationalising stream of INV research, the suggestion was that INVs can actively engage in entrepreneurial behaviour, identifying and discovering opportunities that emerge within their institutional environments. At the same time, it is recognised that INV managers are embedded in the societal structures, and their perceptions, decisions, and actions are expected to be rendered by the belief systems surrounding them. Future investigation of INVs' embeddedness in different nets, how this embeddedness influences the INVs' legitimating strategies, and internationalising behaviours in general is a favourable research avenue.

International management studies have often argued that when entering a new national market, constraints emerge when pursuing legitimation due to institutional distances (Zaheer and Mosakowski, 1997). Hence, the greater the institutional distance between the home country institutions and the ones in the host country, the greater the constraints one can expect. Considering a multi-layered audience embedded in a scattered institutional context from the very beginning essentially leads to a more scattered view of institutional distance scale. For example, an INV founded in one country with no previous organisational records or present network relationships is likely to face varying degrees of constraints while pursuing legitimation, whether dealing with customers, alliances with state organisations, or convincing investors in a given foreign country. The institutional environment may vary across business groups in the same host country, and so accordingly might the institutional distance.

Finally, in IE research, theoretical richness is viewed as a sign of being informed with perspectives from other disciplines and is hence encouraged (Coviello, 2015). Examining new ventures' international development and growth through an organisational institutional lens therefore comprises a very worthwhile research angle. IE scholars have explicitly called for future research studies that assess the impact of institutional context on opportunity recognition and enactment (see review by Jones et al., 2011). Furthermore, future empirical studies that present insights into different legitimation patterns of INVs are strongly advocated.

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Appendix

The analysis of the reviewed articles

Article	Approach & Data	Industry & Country	Audience	Legitimation output	Organizational feature	Legitimation constraints	Legitimizing mechanism(s)	Process
McGaughey (2007)	Qualitative; interviews, observations	Electronics, manufacturing, from Tasmania	Macro: country level society in Tasmania and South East Asia	INV formation, survival, and growth	Ownership as portfolio entrepreneurship	Liability of newness, institutional differences	Cognitive	Longitudinal
Dahles (2008)	Qualitative; interviews	Diverse, manufacturing and service, from Singapore	Micro: customers in China	Successfully setting up a business venture in a foreign country	Country of origin	Legitimacy legacy	Cognitive	Longitudinal
Zetting, and Benson-Rea (2008)	Conceptual	Diverse	Micro: stakeholders globally	Long-run INV survival and growth	Organizational members and relationships	Liability of newness	Cognitive and normative	Longitudinal
Nasra and Dacin (2010)	Qualitative; archives	Diverse, manufacturing and service, from Dubai	Macro: transnational markets	Increased export	Home country	National regulations	Cognitive, normative, regulative	Longitudinal
Wood <i>et al.</i> (2011)	Quantitative; survey	Diverse, manufacturing and service, from China, India, Mexico and South Africa	Micro: customers in foreign country(s)	International sales intensity	Organizational actions	Liability of newness, origin	Cognitive and normative	Instant
Ivanova and Castellano (2011)	Conceptual	Diverse, transition economies	Micro: stakeholders globally	Enhanced resource access	Organizational relations and actions	Liability of newness, origin	Cognitive	Longitudinal

Turcan (2011)	Qualitative: interviews	Software, manufacturing, from Scotland	Micro: stakeholders globally	Successful internationalization and survival	Organizational relations and actions	Liability of newness, smallness	Cognitive and normative	Longitudinal				
Sullivan Mort <i>et al.</i> (2012)	Qualitative: interviews	Diverse, manufacturing, from Australia	Micro: customers globally	Increased international sales	Organizational actions	Liability of newness, smallness	Cognitive and normative	Longitudinal				
Turcan (2012)	Qualitative: interviews	Software, manufacturing, from Scotland	Micro: stakeholders globally	Successful internationalization and survival	Organizational relations and actions	Liability of newness, smallness	Cognitive and normative	Longitudinal				
Bettiol <i>et al.</i> (2012)	Qualitative: interviews	Furniture, music instrument and textile, manufacturing, from Italy	Micro: stakeholders globally	Enhanced resource access	Entrepreneurial narratives	Liability of newness	Cognitive	Longitudinal				
Bjørnåli and Aspelund (2012)	Quantitative: survey	Technology, manufacturing and service, from Norway	Micro: customers globally	Increased international sales and international alliances	Organizational members	Liability of newness, foreignness	Cognitive and normative	Instant				
Bailette (2012)	Qualitative: interviews	Technology, service, from 12 countries	Micro: customers globally	Successfully expanding globally	Organizational members and relationships	Liability of newness, foreignness	Cognitive and normative	Instant				
Turcan (2013)	Qualitative: interviews	Software, manufacturing, from Scotland	Micro: stakeholders globally	Successful internationalization and survival	Organizational actions	Liability of newness, smallness	Cognitive and normative	Longitudinal				
Hornsby <i>et al.</i> (2013)	Conceptual	Diverse	Micro: stakeholders globally	Increased international sales and number of markets	Organizational members and relationships	Liability of newness, foreignness	Cognitive	Longitudinal				
Tan <i>et al.</i> (2013)	Qualitative and quantitative: network data	Nontechnology, furniture, manufacturing, from Southwestern China	Micro: network cluster	Survival	Organizational actions	Network positions	Cognitive	Instant				

Andersen and Risk (2014)	Qualitative: interviews, secondary data	Electronics, service, from Denmark	Micro: customers in Denmark, Israel, Canada, and Australia	Enhanced resource access	Entrepreneurial narratives	Change in institutional context	Cognitive	Longitudinal
Homburg <i>et al.</i> (2014)	Quantitative: secondary data	Technology, diverse, manufacturing and service, from US	Micro: venture capitalists globally	Access to VS money	Organizational members	Liability newness	Cognitive	Instant
Turcan and Juho (2014)	Qualitative: interviews	Software, manufacturing, from Scotland	Micro: stakeholders globally	Successful internationalization and survival	Organizational actions	Liability newness, smallness	Cognitive and normative	Longitudinal
Chinta <i>et al.</i> (2015)	Conceptual	Diverse	Micro: customers globally	Successful internationalization and survival	Organizational actions, age, home country	Liability newness, smallness, foreignness	Cognitive and normative	Instant
Oehme, and Bort (2015)	Quantitative: secondary data	Biotechnology, manufacturing, from Germany	Micro: network cluster	Learning by imitation	Organizational actions	Network positions	Cognitive and normative	Instant
Simba and Ndlovu (2014)	Qualitative: interviews	Biotechnology, manufacturing and service, from UK	Micro: customers globally	Perceived stakeholder benefits	Organizational relationships	Liability newness, smallness	Cognitive and normative	Longitudinal
Mainela and Puhakka (2011)	Qualitative: interviews	Software, service, from Finland	Micro: customers in US	Venture emergence, and internationalization	Organizational members, relationships	Liability newness, smallness	Cognitive and normative	Longitudinal
Bangara <i>et al.</i> (2012)	Qualitative: interviews	Diverse, service, from India	Micro: customers globally	Enhanced resource access, successful entries western markets	Organizational members, relationships	Liabilities newness, foreignness, origin	Normative	Longitudinal

Article III

Article 3

Legitimation Network Paths: Relational and dynamic understanding of young life science firms' legitimation

ABSTRACT

This paper highlights a perspective that views legitimation of small and young business organizations as intertwined with the changes in their networks over time. By employing a multiple case study design that investigates Swedish life science firms, this paper provides insights about the diverse actor groups' involvement in young firms' legitimation both as audiences and as sources of legitimacy spillovers once they participate in exchanges. By applying in-depth analysis to four cases, the study makes the following contributions to new venture legitimation literature: first, it displays how legitimation is related to legitimacy spillover dynamics among a portfolio of actor groups; second, it presents organization-specific insights into case legitimation network paths, and thereby provides two propositions.

Keywords: Legitimation, legitimacy spillovers, life science, networks, young/new ventures

1 Introduction

Legitimation of small and young firms has been of particular interest to management scholars. The attention on the topic generally stems from the view that such firms need resources from external actors to a greater extent compared to their larger counterparts. On the other hand, showing clear proof or reference points of their worthiness to be given access to these resources at the beginning of their legitimation is viewed as inherently problematic (Aldrich & Fiol, 1994; Zimmerman & Zeitz, 2002). According to organizational institutional scholars, a seemingly achievable way to enhance legitimation – namely, to positively influence organizational legitimacy formation in the eyes of its audiences – is via network relationships. The point of departure in these studies was offered by Mark Suchman (1995: 588) who argued that being associated with already legitimate entities in the environment enhances legitimation. The theoretical underpinning behind this argument may be found in a relational understanding of legitimation, where the legitimacy evaluations cannot be directed solely at the focal firm. In this view, an organization subject to evaluations is likely to be perceived by its audiences in a relational context, and will receive legitimacy spillovers through its network relationships (Kostova & Zaheer, 1999; Rao, 1994; Zettinig & Benson-Rea, 2008). Previous studies have empirically supported this claim by highlighting the link between organizational relationships with certain actors and improved resource access and survival rates as an indicator of the presence of positive legitimacy spillovers (Baum & Oliver, 1991; Higgins & Gulati, 2003). Thus, this paper aims to take this conceptualization one step further and applies the concept of legitimacy spillovers as the main driver of young firm legitimation, which takes place as an interplay between the focal firm and the actors in its present and future network.

When it comes to new and small firms, the significant role that the qualities of their network relationships play in organizational legitimation is covered well in the literature (see extensive review by Überbacher, 2014). On the other hand, when contrasted with the extensive recognition of complex and heterogeneous actor groups surrounding organizations (e.g., Scherer et al., 2013), scholarly attention placed on the dynamics of legitimation through legitimacy spillovers across a portfolio of actor groups re-

mains surprisingly limited (e.g., Haack et al., 2014). Thus, this paper aims to contribute to the new venture legitimation literature in this respect.

To elaborate, a business organization's present and potential network partners may belong to separate actor groups (state organizations, academia, business organizations, etc.). Accordingly, they can be regarded as constituting separate norms, values, and expectations (Lamin & Zaheer, 2012; Pontikes, 2012). This variety generally leads individual members of these groups to screen and scrutinize focal organizations on different aspects and in different ways, and accordingly create legitimacy spillovers on firms' different attributes. By employing a qualitative multiple case study design to investigate small and young Swedish life science firms, this paper applies the concept of legitimacy spillovers as the main driver of organizational legitimation, and addresses the following research questions in this context: (1) How do relationships with different actor groups provide different legitimacy spillovers? (2) How does the arrangement of spillovers across actor groups affect legitimation? (3) How does the effect of spillover arrangements differ between firms?

These questions are anticipated to be highly relevant for firms in industries such as life science,⁶ in which the majority of new firms include startups founded on the basis of one or more technologies with potential for exploitation and where the process of taking a technological innovation from the laboratory to market often requires a wide range of specialized knowledge and involvement of a number of different organizations (Jones et al., 2011). Thus, comprehending legitimacy spillovers and legitimation in the context of a diverse set of actors is essential to expand the understanding of young firms' legitimation in the life science domain.

In the case of life science firms where possible long lead-times to product development and to commencement of any economic exchange and revenue stream is common practice, it becomes problematic to limit the market legitimation of these firms to only a given number of early years in the firms' life cycle. Thus, the study focuses on firms that are older than a given number of years in their life cycles, and thus diverges from the defini-

⁶ Life science is "an industry best described as a complex amalgamation of interconnected sectors comprising a diverse range of knowledge-intensive and often highly specialized firms" (Jones, Wheeler, & Dimitratos, 2011: 3).

tion of a “new venture”⁷ used frequently in the entrepreneurship and management literatures (Zimmerman & Zeitz, 2002). Therefore, to avoid confusion, the term “young firm legitimation” is used throughout the paper, instead of the more commonly used term “new venture legitimation”.

The paper is structured as follows: First, by drawing from organizational legitimacy and new venture legitimation literatures, the theoretical assumptions underlying market legitimation of young firms are presented. Subsequently, the method is discussed, followed by a presentation of the empirical results and discussion of the findings in relation to the extant literature. The paper ends with conclusions that include the study’s limitations and further research suggestions.

2 Relational legitimation

2.1 Cognitive legitimacy and market legitimation of young life science firms

Legitimacy refers to the degree to which beholders perceive an organization as being congruent with social norms and standards (Haack et al., 2014; Suchman, 1995; Tost, 2011). This study concentrates on the formation of cognitive legitimacy (for other types of legitimacy identified depending on the pressures behind the legitimacy evaluations, see, Scott’s (1995) three pillars of legitimacy) that is achieved when the organization is in consonance with the widespread beliefs about what constitutes “standard” or “normal” organizational behaviour in a given setting (Bitektine, 2011; Meyer & Rowan, 1977). It is generally suggested as the primary relevant type of legitimacy for new organizations (Aldrich & Fiol, 1994; Deephouse & Suchman, 2008).

Legitimacy ultimately exists in the eyes of the beholder and is subjectively created (Ashforth & Gibbs, 1990). In accordance with this socially constructed and context-dependent outlook, contemporary perspectives on

⁷ New ventures are commonly accepted to comprise independent start-ups in their first five years of existence (e.g., Zimmerman & Zeitz, 2002; Überbacher, 2012). These five years can encompass phases such as venture creation, market entry, and early growth and development.

legitimation view it as a collective process of validation throughout the emergence and existence of a social object, such as a new organization and its audiences (e.g., Cattani et al., 2008; Johnson et al., 2006). Thus, legitimation of a young firm becomes observable in external actors' actions and is derived from their engagement in voluntary resource exchanges with the focal firm (Elsbach & Sutton, 1992; Terreberry, 1968; Tornikoski & Newbert, 2007). This study focuses on market legitimation of young life science firms. Therefore, although market legitimation depends on consensus among the aggregate actors of a specific market about what features or activities of a firm are acceptable (DiMaggio & Powell, 1983), in a micro sense it also refers to reaching a condition in which a new firm finds comprehensibility and acceptance among the actors of a market in order to exist, to be able to engage in exchanges, and to grow (Dacin et al., 2007).

Studies that have concentrated specifically on legitimation of life science firms have suggested two relevant categories from which cognitive legitimacy expectations stem: scientific and business attributes. Scientific attributes refer to firms being on the cutting edge. Firms in high-technology industries convey to their audiences and prospective network partners that they understand and can work with the latest scientific ideas in the field (Rao et al., 2008). Business attributes, on the other hand, denote that young firms are capable of marketing and delivering new products competitively (Higgings & Gulati, 2003). Hence, market legitimation of life science firms mainly proceeds on an axis of these two attributes (Ireland & Hine, 2007).

2.2 Legitimacy spillovers and legitimation network paths

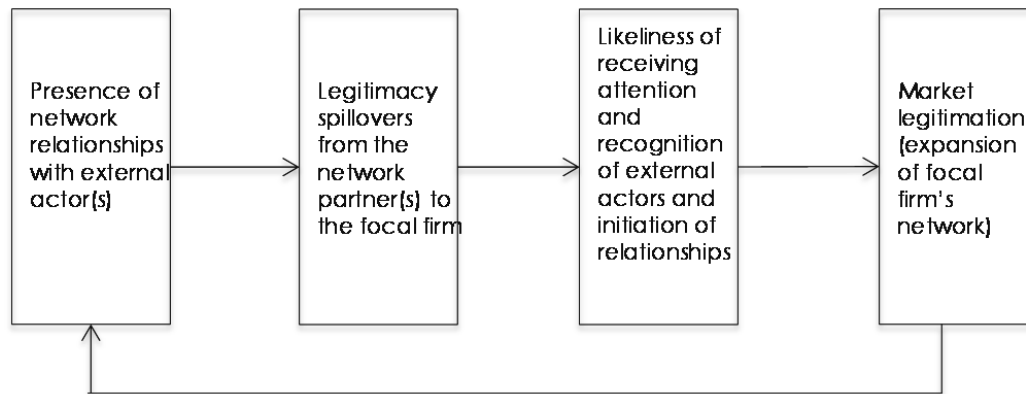
Features of business organizations that are subject to legitimation assessments vary widely in the literature. They include firm structure and policy (e.g., Meyer & Rowan, 1977); founder and top management (e.g., Packalen, 2007); type of industry or sector (e.g., Baum & Oliver, 1991); and quality of organizational relationships. In this study, focal firms' organizational relationships are assumed to be the most prominent subject of their legitimation evaluations. Because the prior accomplishments of small and young firms are rarely adequate to resolve others' uncertainty, the identities of actors in such firms' networks are likely to significantly influence evaluators'

perceptions (Podolny, 2001; Stuart et al., 1999). In accordance with this view, the presence of an actor in the focal firm's network represents a form of achieved validation and provides legitimacy spillovers from the categorical qualities of that specific network partner on attributes about which a focal firm otherwise cannot easily present information. Particularly in life science, where it is rarely possible to find the full range of resources required to exploit business opportunities under one roof (Powell et al., 1996), firms' present network relationships with different actor groups are indicative of firms' available network resources and capabilities of future resource combinations (e.g., Tolstoy & Agndal, 2010).

However, a dilemma inherently arises in the overall compatibility of the relational legitimation reasoning as displayed above. On one hand, theory has pointed out network relationships of young firms as indicating the presence of legitimacy and comprising legitimation as a model of diffusion (e.g., Johnson et al., 2006). On the other, network relationships have been identified as enhancing legitimation by generating legitimacy spillovers (Kostova & Zaheer, 1999). In recognizing this dilemma, this paper aims to bring about the dynamic aspect of legitimation that takes place over time and across diverse actor groups. Thus, in this paper, a young life science firm's legitimation is presumed to occur as different actor groups successively connect to the focal firm, and it is referred to as that specific firm's legitimation network path. Legitimation is a collective process and is not assumed to be the possession of any of the parties. However, for the sake of the paper's analytical clarity, the study takes the focal firm's perspective.

Figure 1 illustrates the theoretical underpinning of the relational legitimation mechanism.

Figure 1. Relational market legitimization mechanism



3 Method

This study takes an inductive-qualitative approach and utilizes findings from semi-structured interviews, field notes, and secondary sources such as newsletters, news articles, and annual reports, as well as interviews with industry experts, industry associations, and state research and funding institutions. As a strategy, I adopted a case study design based on the method's suitability for the research questions of interest, and also because it provides a basis for qualitative techniques, which is preferable when one is researching complex constructs that would be difficult to quantify and understand using other methods (Eisenhardt, 1989; Gerring, 2004). This approach enabled me to develop a comprehensive understanding of the process and enhance the strength of qualitative methods to provide deep, realistic insights into a relatively small number of cases.

3.1 Setting

The study is based on young firms that operate in the life science industry. A typical life science firm emerges from a research and development process from which one or more technologies are commercialized (Jones et al., 2011). Life science is known to be multidisciplinary in its knowledge base; however, it is also a multi-institutional field due to the diversity of the prevalent actor groups (Powell, 1998). Being challenged by this factor, success-

ful start-ups in the life science industry are usually those that can show they are capable of developing the skills to adapt to, manage, and maintain multiple types of activities with a diverse set of actor groups throughout technology development, commercialization, and sales and growth (Nummela, 2004). Although the common features underlying a new life science firm's passage into the initial survival stage, as well as their ability to gather critical resources (such as providing novel technology, holding necessary intellectual property arrangements, having technical and managerial expertise and a sound business plan) are given more weight in the literature, challenges to market legitimation generally remain after the foundation and organizational emergence in the market (Vinnova, 2014).

3.2 Case selection and data collection

In case study research, the strategy used to select case companies carries a crucial significance for the findings and validity of the research, yet it heavily depends on the motivation of the study. Theoretical sampling is one strategy used to select cases, whereby the choice of cases is based on the study's contribution to theory development. This strategy is proposed when the motivation is to explore new grounds for developing original concepts, rather than testing existing constructs.

The cases for this study are all from Sweden. Despite its small size, Sweden has a strong position in the global life science market, thus making it a valid context from which to choose life science companies for this study. Firms originating within a limited geographical area were chosen in order to minimize sample variation due to environmental factors. The cases are all from the Stockholm region, which is the largest life science region in Sweden (Vinnova, 2014). Life science is a segmented industry. Following previous studies, the current study concentrates on segments with a health focus, excluding firms in environmental-, industrial-, and food-related areas. The reasoning for this is that health-focused segments have significant differences to other segments, but similarities to each other (Powell et al., 1996). Eventually, I narrowed the primary sample to 13 young life science firms. I used data from this primary sample for the purpose of identifying the commonly perceived categories of legitimacy spillovers from different

actor groups. The sample of 13 cases provided sufficiently rich empirical data. All cases were labeled with letters to preserve confidentiality. Table 1 presents information about the companies and the respondents.

Table 1 Case companies and respondents

No	Case name	Business segments	seg-	Regist. Date	No. of employees (2013)	No. of respondents	Respondents' position(s) in the firm
1	A	Therapeutics		2010	1	1	Founding CEO ⁸
2	B	Therapeutics		2010	2	1	CEO
3	C	Therapeutics		2008	9	2	CEO; Founding CSO ⁹
4	D	Therapeutics		2006	5	1	CEO
5	E	Therapeutics		2000	28	1	Co-founder and CEO
6	F	Therapeutics		2002	1	1	CEO
7	G	Therapeutics		2004	3	1	CEO
8	H	Therapeutics		2006	29	1	Founding CEO
9	I	Biotech-production		2008	12	1	Co-founder and CEO
10	J	Biotech-production		2005	23	1	Co-founder and CEO
11	K	Biotech tools & supplies		2004	19	2	CEO; CSO
12	L	Biotech tools & supplies		2005	20	1	Founding CEO
13	N	Diagnostics		2006	11	1	Co-founder and CEO

During the same time period in which the interviews with the case companies was conducted, 10 respondents from six non-business actors in the Stockholm life science region were interviewed to help provide contextual data for the cases and to triangulate the study's findings for the identified legitimacy spillovers from the actor groups. The non-business actors include various organizations: industrial associations, university innovation and technology transfer offices, and state innovation and start-up support agencies. Inspecting the state organizations' or industrial associations' websites, as well as utilizing information from the conducted interviews led to

⁸ Chief Executive Officer

⁹ Chief Scientific Officer

the selection of these specific actors. Table 2 provides a list of the non-business actors and respondents interviewed.

Table 2 Non-business actors and respondents

No.	Organization type	No. of respondents	Interviewees' position(s) in the organizations
1	Cluster organization	2	CEO; Project manager
2	University technology transfer office	1	Director
3	Technology transfer/ Incubator	2	CEO; Chairman
4	State innovation agency	1	Senior advisor
5	Industrial association	2	CEO; Director of Research
6	State advisory and financing agency	2	Senior Advisors
7	Venture capital/Investor *	1	Partner, industry expert (due to previous roles as CEO of a number of small and large life science firms; current roles as general partner in a Nordic venture capital firm, board member in a number of life science firms)

* At the time of the interview, the "industry expert" respondent was in the role of an assigned external CEO of a Swedish life science company that is not part of this study.

Based on the initial analysis, I identified cases using a finer similarity criterion so that further analysis could be conducted to examine, and eventually empirically illustrate, the legitimation dynamics. Therefore, from the firms, I selected a smaller sample of cases that were most illustrative for the study. More specifically, I chose firms that presented growth as a proxy for representing sufficient engagement with the other actors in the market, and that had successfully reached later periods in their legitimation. Growth in this context could be determined using a number of measures, such as raised capital, number of employees, profitability, etc. However, for the purpose

of this study, growth refers to revenue increase from sales because this type of growth has been found to be particularly significant for young firms (Zimmerman & Zeitz, 2002). While there is no ideal number of cases, Eisenhardt (1989) suggested between four and 10 cases to reach a balance between keeping the complexity of real social life and enabling the researcher to cope with the complexity. Finally, the study included further analysis of four of the 13 cases to adequately demonstrate the individual legitimation network paths. Each of these four case companies were founded based on exploiting a recognized market opportunity related to a specific life science technology. Table 3 provides information about the four in-depth cases.

Table 3 Four in-depth case studies

No.	1	2	3	4
Case Name	Company I	Company J	Company L	Company N
Registration date	2008	2006	2005	2006
Technology	Stem cell matrix	Biomarker discovery platform	Electron microscopy and image analysis	DNA analytical procedures
Profile – Founding CEO	Molecular scientist, PhD degree from a Swedish university, four years of life science industry experience	Biologist, PhD degree from a Swedish university, eight years of life science industry experience	Molecular scientists, PhD degree upcoming from a Swedish university, no previous industry experience	Molecular scientist, licentiate degree from a Swedish university, seven years of life science industry experience
Profile – Other co-founder(s)	Researcher with many international publications in the specific area	Researcher with many international publications in the specific area	None	Three co-founders, two with scientific degree background, one with business background; all have industry experience from the same company, as does the

Target customer group	Universities, research institutes, large and small life science firms	Universities, research institutes	Hospitals, large life science firms	CEO. Hospitals, genetic clinic labs
Revenues in x1000 SEK (2013)	6,276	45,584	5,685	16,290

Yin (1994) suggested using multiple sources of evidence to reinforce construct validity in qualitative research, which enhances the need for triangulation in order to utilize data from multiple sources. For the present research, the study achieved triangulation through the richness of the data sources.

3.2.1 Data collection from primary sources

The primary data sources comprise interviews with key informants within the firms and field notes from onsite observations, as well as case companies' presentations at regional venture events during the 2013–2014 period. In qualitative studies, construct validity is a central issue. The criterion for the key informant selection is the interviewee's involvement in the firm's management. In the cases, key informants were either the assigned CEOs or founding CEOs of the firms. In some cases information from additional informants from the management team was elicited. This criterion increases the reliability of the data extracted from the interviews. As the cases are all small firms, the CEOs of the companies held adequate knowledge about their company's strategies and actions relating to all the core functions.

Major parts of the interview data were collected in collaboration with a broader research project. The interviews were conducted by two researchers, and were semi-structured and in-depth. In order to enhance external validity, an interview guide was utilized. The guide included specific questions relating to firms' legitimation in addition to more general questions regarding the respondents' and the firms' histories, and current operations in line with the explorative aim of the broader research project. These extensive questions created opportunities for timely discussions for the author around the specific legitimacy questions. Hence, I posed open-ended precise questions during the interviews, such as "How did you manage to be recognized by different actors?" Furthermore, when the respondents

mentioned a topic relevant to this study, I encouraged them to continue by asking follow-up questions, such as “Did your research grant from that specific institution help your firm become accepted by the actors with whom you wanted to cooperate?” or “Was it the kind of validation you needed to approach the customers you wanted to?” During the interviews, the individual networks of the firms were generally brought into focus. Overall, the interviews, which were audiotaped and later transcribed, lasted from two to three hours. I also utilized email correspondence with respondents to confirm and clarify answers when needed.

3.2.2 Data collection from secondary sources

Secondary sources include information from the companies’ websites, as well as from yearly company reports, news articles, and press releases retrieved from archival databases. A variety of secondary sources were utilized to complement each other in order to gain a more complete picture of each company’s case story.

3.3. Data analysis

In line with the research design, I analyzed the material in two steps by applying a case-replication method (Eisenhardt, 1989). The first step entailed identifying the legitimacy spillover categories of the actor groups yielded by the data collected from the primary sample. Hence, I reviewed the interview material and outlined the specific legitimacy spillovers that the respondents noted related to specific actors. These actors were not only recognized for legitimacy spillovers, but were at the same time acknowledged to serve their contractual network partner roles. For example, an actor’s network partner role, as specified in the contract, might have been buying products and services for the focal firm under certain conditions. However, the same actor was considered as providing legitimacy spillovers if the case firm mentioned the presence of a contract with that specific actor as validation in the eyes of others that helped them receive further contracts. Once the distinct categories from the actor groups were identified, cross-case comparisons were made to uncover any inconsistencies. Eventually, verification was undertaken by triangulating the results with the extant

literature and with interview material from the non-business actors. Although the non-business actors did not directly pinpoint all the legitimacy spillover categories relating to each actor group I identified during the case analysis, they did provide many supporting quotes for the present categorization, and no disparity was recorded.

In the second step, I conducted in-depth analyses (both within-case and cross-case) of the four chosen cases in order to contrast findings from individual cases and also supplement and substantiate each case. To examine the legitimation dynamics of the four chosen case firms, individual case writings were compiled and then arranged to make a timeline of events for each case history, as suggested by Miles and Huberman (1994). Case timelines were then divided into operationalization (that is, from foundation until the first market network relationship was established) and growth (during the commencement of further relationships).

4 Results and discussion

The empirical findings are presented together with a discussion of the relevant results. When presenting quotes from the interviews relating the findings, the private institution and interviewee names are displayed anonymously in order to preserve respondent confidentiality.

4.1 Types of legitimacy spillovers associated with different actor groups in the cases

The actor groups identified during the data analysis in this paper were gathered into four prominent categories: (1) research organizations and universities; (2) large life science firms that include large pharmaceutical, biotechnology, and contract research or manufacturing firms; (3) other small- and medium-sized life science firms that include pharmaceutical, biotechnology, and contract research and manufacturing firms with fewer than 250 employees; and (4) local and international institutional/state organizations that include supporting agencies (such as the European Union (EU), which organizes framework programs (e.g., FP7 and Horizon 2020) as well as state innovation, state advisory, and financing agencies). The attributes

of legitimacy spillovers suggested by the findings were in line with previous literature that pointed out two in particular: scientific and market attributes.

4.1.1 Scientific legitimacy spillovers

The data indicated that the case firms frequently referred to academic key opinion leaders (KOLs) – namely, specific individuals located at research institutes and universities – as validating their technology's worthiness. KOLs, either as customers or research collaborators, are perceived to provide legitimacy spillovers on the firm's scientific attributes and enhance the focal firms' legitimation in the eyes of industrial actors and other academics.

Universities and academic-based research institutes were generally acknowledged to be significant sources of scientific legitimacy spillovers by the cases. A focal firm's association with this actor group was likely to indicate that the firm's technological platform was preferred and used by scientists. As the purchases made by these actors generally result in publications in academic journals (such as research papers on application development, or conclusions and recommendations about the focal firm's technology), publications were considered to play a key role. In addition to relationships with universities and research institutes, being associated with local or regional state support organizations in the form of receiving grants and awards was also considered to show that the company's technology had been scrutinized by a legitimate actor and found worthy of support.

4.1.2 Business legitimacy spillovers

The sources revealed by the data were external actors who were considered to validate the business capabilities and skills of the case firms. More specifically, the sources signified that young firms are capable of fulfilling the expectations of a competent business partner (such as handling quality control, logistics, and after-sales services and having the operational skills necessary to comply with alliance procedures). The case firms attributed this type of legitimacy spillover to certain business organizations. They were generally named by the respondents as "reference customers." In the data, these organizations were commonly large and established industrial actors

(such as multinational pharmaceutical companies), and were considered to have a specific impact on industrial actors.

Consequently, the findings showed that legitimacy spillovers from different actor groups were important for enhancing the case firms' legitimation as they were perceived to provide legitimacy spillovers on firms' different attributes and influence each other due to the generally accepted qualifications accredited to each actor group –namely, academic KOLs, universities, research institutes, and state organizations as sources of scientific knowledge providing scientific legitimacy spillovers, and multinational firms as sources of business knowledge providing business legitimacy spillovers.

Legitimacy spillovers arise from the widely accepted interdependence of social objects (Haack et al., 2014). The type and pertinent audience of legitimacy spillovers associated with different actor groups might thus vary as they are contingent on the prevailing shared cognitive systems of a given socio-cultural domain, which are frequently referred to as “institutional logics” (e.g., Thornton et al., 2012). In accordance with this view, a highly cited study by Higgins and Gulati (2003) showed that being associated with different actor groups in the life science industry has a positive relationship with its legitimation on a variety of aspects. More specifically, the results showing that each category of actor groups in a young small firm's network may lead to legitimacy spillovers on different attributes associated with the group they belong to is inconsistent with the previous literature.

Table 4 shows the results of the analysis displayed in a format that matches each actor group with the legitimacy spillovers with which it is associated in the data.

Table 4 Legitimacy spillovers from actor groups

	Network partner roles	Legitimacy spillovers	Audience actor groups	Exemplary quotes – Case firms	Verification quotes – External actors
Academic KOLs	Customers	Scientific attributes	Universities and research institutes, large and small life science firms	<p>CEO, Case L: "I mean scientific validation is knowledge and facts. So if you have a Nobel prize winner who says it is good, then it is easier to sell. Because everybody thinks it is good."</p> <p>CEO, Case F: "But you know with a new technology product like this, it takes more. It is not an easy sell. So we've had our own consultants that have been you know in contact with key opinion leaders, [which] validates the technology."</p> <p>Founding CEO, Case H: "And there was a global key opinion leader in Sweden. So early on we made connections and asked them if they'd like to participate and help us to design clinical trials. And we decided to [conduct] quite a large clinical trial early on and [had] these key people helping to design the trial and then bringing in dermatologists all around."</p> <p>"The key opinion leaders that we had enabled us to say, for example, we're working with Prof. X, who is one of the top ten guys globally."</p>	Senior adviser, State Advisory and Financing Agency: "In the med-tech and bio-tech business, it is a crucial element I would say especially at the beginning ... If you have KOLs in your network, it will certainly help you. If you don't have it, you have a long road ahead."
	Research collaborators, clinical trials	Scientific attributes			

Universities and research institutes	Network partner roles Customers (as reflected in publications)	Legitimacy spillovers Scientific attributes	Audience actor groups Other universities and research institutes, large and small life science firms	Exemplary quotes – Case firms CEO, Case J: “As soon as one publishes something that is one thing. We actually see what these guys are doing. So if you are going to implement something new then you need to focus on the academic side who have an influence on the market.” Because researchers believe in other researchers. They don't believe what the sales person says.”	Verification quotes – External actors Industry expert: “These guys are looking to go to implement something new then you need to focus on the academic side who have an influence on the market.”
			<p>CSO, Case K: “At the same time, this type of business is not really selling vacuum cleaners. So if you contact a hundred companies then we would not get more deals done. What we really need to show is data from our programs ... that is [a] much more important factor in terms of selling projects.”</p> <p>CEO, Case I: “but we need to get some kind of a breakthrough now like we have with these cells, like proof from X Institute.”</p> <p>CEO, Case C “If you can get the scientist interested in your business, they are [going to] champion you. That's where we started, with the scientists.”</p>		

	Network partner roles	Legitimacy spillovers	Audience actor groups	Exemplary quotes – Case firms	Verification quotes – External actors
Large life science firms (reference customers)	Customers, strategic alliance partners, research collaborators	Business attributes	Other large and small life science firms	<p>CEO, Case N: “But until now it has been more important to get the right large customers than to get as many as possible.”</p> <p>CEO, Case L: “We have now one big customer and that was the gold. That was the first to get it, because that means they do it and you can get others to do it.... This can be some services sometimes because it takes a long time to build up the trust and to sign up to big customers. What you should do is ... spend a lot of money on sales without profits.”</p> <p>CEO, Case J: “Some deals are worth more symbolically than to the bottom line. I am pursuing a deal like that at the moment.”</p> <p>“You need to be shown [to be] in good company. Better to make a lower-value deal with an A-player than a financial deal with C-player. This is one of the reasons we have not sold our products to strange clinics in South Africa or Thailand: even though they would give us cash, we do not want to be associated with them.”</p>	<p>Industry expert: “If you can show early commercial sales of well [as] reputable industrial users out there in the world then you will get a big bunch of followers. Because this is what business is about.”</p>

	Network partner roles	Legitimacy spillovers	Audience actor groups	Exemplary quotes – Case firms	Verification quotes – External actors
State organizations	Delivering grants and awards	Scientific attributes	Universities and research institutes, large and small life science firms	<p>CEO, Case C: "But if you can bring in, like we did, the EU, and we got EU funding, that helps, that helps to validate the company ... that opened a door for us. Because now we can say that we have been coordinators of an EU project."</p> <p>CSO, Case K: "but now we have half of it through grants. And then it is worthwhile doing it, because along with that we also get academic interest. So it is type of scientific validation. We have been scrutinized by the EU whatever it is worth."</p> <p>CEO, Case L: "The government agencies, they have been very important from the start. They have [provided] funding, validation."</p> <p>CEO, Case H: "Getting funding from the State Innovation Agency and State Funding Agency means that this is more interesting than other things that they looked at and it is definitely important in the beginning."</p>	<p>Senior advisor, State Innovation Agency: "These firms need external support from the very early stages and our grants are sort of a validation for them."</p>

4.2 Arrangement of spillovers across actor groups

The data revealed a hierarchical pattern between the case firms' perceptions of the legitimacy spillover audiences. Academic KOLs commonly appear at the top of this ladder and have a broad audience, including both academic and industrial actors. Moreover, academic-based research institutes and universities in general were highlighted to have an impact on other academics, as well as a particularly strong impact on industrial actors. The founding CEO of Company I articulated this phenomenon in the following quote:

Actually, industry asks for more publications than academia does. Industry definitely needs articles. They want academics to do some of the base work before they kind of want to do anything.

This tendency might be due to the level of scientific knowledge driving the life science field and the general recognition of academic sources as the authority of scientific knowledge (Vinnova, 2012). Additionally, universities and academic researchers are perceived to work according to principles of non-profit scientific logic (Merton, 1973; Polanyi, 2000). Thus, these actors are inherently perceived as being trustworthy sources of knowledge for both academic and industrial actors. It is no surprise that the role of universities and academics as legitimizers in technology-driven markets surrounded by a high level of uncertainty are already widely accepted (Vinnova, 2014: 32). The founding CEO of Company I mentioned the degree of this impact that he experienced when observing the company's other co-founder, who holds a KOL identity, interacting with their prospective customers:

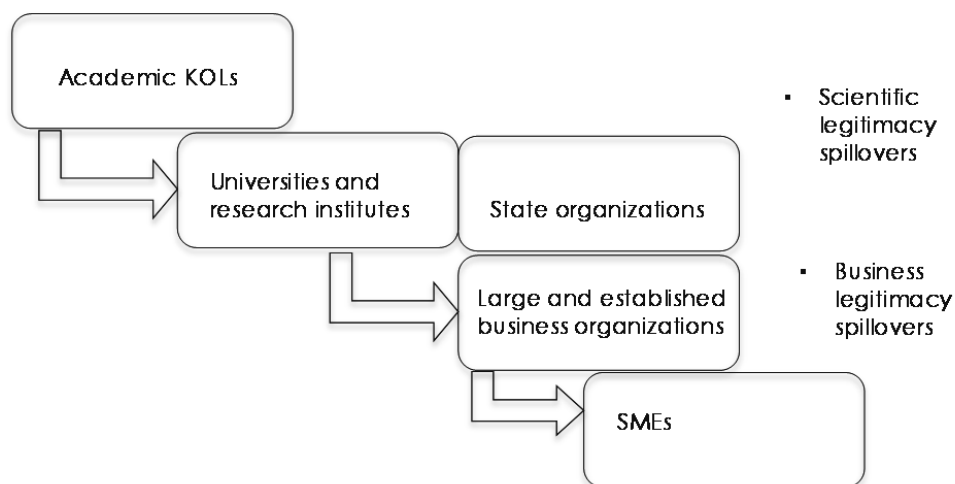
But he is a scientist, and he is more trustworthy than me. I am a salesperson. I am trying to sell our products. Even though he does say that he works for us – I mean he is one of the founders – he is still a professor. If he had very good publications in the back, then people trust him. Scientists believe in science.

A similar pattern also seems to exist among the audiences of spillovers from industrial actors. Large and established firms appear to hold broader

audiences comprised of business organizations of various sizes. Almost all cases stated the significance of reference customers as a requisite for their growth, mostly referring to large multinational pharmaceutical firms due to their dominant share in the global life science market. The reason for such companies' impact might also originate from the evaluative capabilities of large and resourceful organizations, which are generally perceived to be stronger than smaller organizations are (Stuart et al., 1999).

Consequently, the data revealed that the case firms noted a shared understanding of legitimacy spillover arrangement across different actor groups, which enhances overall legitimation. Figure 2 illustrates the hierarchical arrangement of actors providing legitimacy spillovers revealed by the data.

Figure 2 Perceived hierarchy of actors providing legitimacy spillovers



4.3 Insights into individual legitimation network paths

The findings ultimately confirmed that life science firms showed efforts to provide validation of their scientific and market attributes via their legitimation network paths. All of the cases provided anecdotal evidence that the interviewees perceived the presence of legitimation at a higher degree, proportional to the number of relationships the companies hold with the re-

spective actor groups. Hence, the interviewees often provided narratives such as having “enough reference customers” or “enough publications” when detailing their legitimation. This notion is exemplified in a quote from the founding CEO of Company I: “Now there are enough articles from customers, so now industrial actors [have] started listening to us.” According to the firm, it was impossible to approach industrial actors at conferences before their technology and product had appeared in a number of academic publications in highly ranked journals resulting from their relationships with universities. Furthermore, cross-case analysis revealed that individual case legitimation network paths were influenced by contingencies originating from firm-specific features, such as the extent of initial legitimacy spillovers provided by their founders and their target audience. This is no surprise, as founder attributes are important organizational features at the onset of a new firm’s legitimation when organizational relationships are scarce. Across the cases, having an academic KOL among the founders seemed to be the primary driver of initial variance that influenced the following steps of the path followed. In the smaller sample, Companies I and J counted academic KOLs among their founders. Companies L and N, on the other hand, did not have academic KOLs, so they are referred to as “non-KOL firms” (see Table 3).

The findings showed that KOL firms demonstrated these individuals as having provided initial scientific legitimacy spillovers. For instance, Company J mentioned that presenting their research collaborations with the public project that their co-founder KOL was leading on their website was an effective way of initiating legitimacy spillovers. After doing so, the company was approached by a global multinational company that wanted to distribute the case firm’s products. As another example, Company I initiated scientific legitimacy spillovers in the form of sales to universities and research institutes that were observable in the number of academic publications.

Thus, in both of these cases, after presenting sufficient scientific legitimacy spillovers, the companies continued down their legitimation path with business legitimacy spillovers as market exchanges became more accessible to these firms. Established industrial actors then approached the case firms and became themselves a source of business legitimacy. Overall, both case

firms grew rapidly in a very short time and managed to enhance their legitimation. The founding CEO of Company J expressed her perception of the enhanced legitimation process explicitly in this quote:

So, being in a situation that actually very well-known global companies contact us and say we would like to talk to you about distributing your products is a very fortunate situation. Then of course, they know what we are selling, and of course, they know X Project and Professor X, and that is it.

On the other hand, legitimation network paths of non-KOL companies seemed slightly more divergent than those of the KOL firms. In the case of Company L, although the founder was not a KOL himself and the company did not have any KOLs on the founder team, the firm's core technology was initially approved as high quality by the university at which the founder was still studying at the time of the firm's founding. His research institution even paid the company's first patent expenses. Moreover, he was awarded a number of research grants and industry prizes. At the same time, the firm was granted funding from EU programs several times. In fact, secondary data showed that, among all the case firms, Company L had been involved in the highest number of EU framework programs. Company L also engaged in a number of collaborations with local state organizations, and the CEO expressed that these actors provided substantial scientific legitimacy spillovers at the beginning. Later on, the company also displayed business legitimacy spillovers from its network by first receiving licensing agreements with two multinational corporations for the products it had developed through research collaborations, and then by providing (initially) free-of-charge sales to large pharmaceutical companies. Thus, Company L enhanced its legitimation and managed to grow. The founding CEO of the Company L described the company's legitimation process as follows:

You have to go through that. First, you need them to validate your technology . . . To build a company in life sciences actually [means] building technology. So, first, I went to all these actors to validate what we have. And all the other ones, we have lost a lot of money providing services to them on a small scale to show who we are, to educate them about our technology and what we can do. And some of them we know that they will not be our customers, but we

know that they have contact with others . . . Yes, that's part of the game, so to speak.

Thus, the first proposition of the paper is as follows:

Proposition 1: Firms' legitimation network paths vary depending on the extent of initial legitimacy spillovers from the founders.

On the other side, the data revealed a different picture for the other non-KOL firm, Company N, as this case's initial legitimation was divergent from the rest of the cases in the smaller sample. The founders obtained their initial technological resources from their previous industrial experience, and the company had no strong ties to any academic KOLs, universities, or research institutes in the field. After foundation, Company N tried to follow the common legitimation path in order to make a strong impression on the market and take a similar academic route to the others; that is, initiating contact and collaborations with universities and research institutes. However, the company was unable to initiate any relationship with these actors. Hence, it eventually directly contacted the distributors and laboratories that were prospective customers. Later on, it figured out that for the company's specific technological area, the KOLs were actually not the same actors in academia and the market. Hence, it decided to stop expending managerial effort into initiating relationships with academia and focused instead on the business legitimacy spillovers from a few influential customers. This approach ended up working well for the company; it managed to increase its customer base and succeeded in achieving continuous sales growth. The founding CEO of Case N openly described the experiences of approaching different actor groups for the purpose of legitimizing:

That was something we were focusing a lot on in the beginning. I meant to use the academic route to connect to academic leaders and publish studies. . . . [However, we found] that it was very difficult. They wanted to hang out with the big companies, and that was the feeling. We tried to find out which people were doing the work that the others are listening to. It turned out very frequently that it was not the same as the academic opinion leaders are different people than the ones [who are] influential to customers.

Thus, the second proposition is:

Proposition 2: Firms' legitimation network paths vary depending on the specifications of the target audience.

Table 5 presents summaries of the case analysis with a focus on the companies' market legitimation and the effect of perceived legitimacy spillovers from their network partners.

Table 5. Summaries of in-depth case analysis

Case Name	Company I	Company J	Company L	Company N
Market operationalization (commercialization and initial sales)	<p>The initial customers were from the co-founder KOL's scientific network. The firm's initial legitimization and sales took place through the co-founder KOLs; he ensured the initial customers' attention and acceptance, and initiated deals from his scientific presentations at conferences. Hence, the company acquired customers from academia and, meanwhile, the CEO began engaging in activities such as participating in and exhibiting at conferences that specialized in the technological area, and contacting potential distributors. He faced challenges in approaching industrial customers.</p>	<p>The initial customers were from the co-founder KOL's scientific network. The firm's initial legitimization and sales took place through the co-founder KOL and the scientific project he was leading. The CEO formed a link from the research project to the company, which greatly influenced the firm's ability to ensure its customers' attention and acceptance.</p>	<p>The company did not have a KOL among its founders. The initial legitimization occurred through the number of grants and awards that the founding CEO received. The company was granted money from the Swedish state research institute and funding institute for participating in a number of EU projects. These network partners provided a sufficient degree of scientific legitimization in the market. Afterwards, the company made licensing/marketing and distribution agreements with two multinational corporations originating in the US and Japan for the new technology product.</p>	<p>The company did not have a KOL among its founders. It initially tried approaching academic KOLs and research institutes to initiate research collaborations for scientific legitimacy spillovers. However, it did not succeed. It soon realized that the KOLs in academia and in clinical research labs were not the same. The company thus focused on finding and acquiring customers in the market that influenced others to initiate market-based legitimacy spillovers. It then achieved initial sales.</p>
Audience actor groups	Universities, research institutes, large and small life science firms (prospective customers)	Universities, research institutes (prospective customers)	Large life science firms (prospective customers, licensees, and investors)	Hospitals and genetic clinic labs (prospective customers)
Sources of scientific legitimacy spillovers	Universities and research institutes (as initial customers); state organizations (grants)	Research partnership with the public research project	State organizations (grants)	None
Sources of business legitimacy spillovers	None	None	None	None

Case Name	Company I	Company J	Company L	Company N
Market growth (increase in sales volume)	<p>The company's initial sales to academic customers started to turn into published articles in scientific journals. Afterwards, with the effect of the legitimacy spillovers from its academic customers, the company found it much easier to connect with industrial customers as well. The number of publications provided scientific legitimacy was sufficient. The firm also perceived its customer base and number of distributors as a sign of a higher degree of market legitimization.</p>	<p>After presenting a notable customer base from 30 countries, the company was approached by a global distributor and signed a global distributor agreement with this company. Through this path, it constantly enhanced its legitimization, increased its sales, and its products acquired a global reach.</p>	<p>The company started small-scale sales of the service. It initially started contacting large clients and offering free-of-charge services. These large industrial actors provided sufficient market-based legitimacy spillovers. The company increased its customer base for the service over 50 countries as a sign of a higher degree of market legitimization.</p>	<p>The company acquired a number of large hospitals and clinic labs as its customers. This resulted in new contacts and initiations of sales from more customers. Meanwhile, it increased its sales, expanded its customer base, and started an international subsidiary as a sign of a higher degree of market legitimization.</p>
Audience actor groups	Universities, research institutes, large and small life science firms (prospective customers)	Universities, research institutes (prospective customers)	Investors, large life science firms (prospective customers)	Hospitals and genetic clinic labs (prospective customers)
Sources of scientific legitimacy spillovers	KOL, universities and research institutes (present customers)	Universities and research institutes (present customers)	Universities and research institutes (present research collaborators); state organizations (grants)	Research institute (customers and resulting white papers)
Sources of business legitimacy spillovers	Present customers	Present customers	Large corporations (licensors of the product and customers of the service) Present customers	Large labs (customers) Present customers

5 Conclusions

This study addressed the research questions of how different actor groups are involved in organizational legitimation, and how their involvement changes over time and varies across firms. The in-depth case analysis further suggests that firm legitimation network paths are shaped primarily by the shared perception about the hierarchy of legitimacy spillovers. The arrangement of legitimacy spillovers then varies based on the firms' initial legitimacy spillovers from their founders and the target audience.

5.1 Implications for research and practice

This paper responds to a recent call in the new venture legitimation literature that advises scholars to go beyond a simplistic assumption of a homogeneous audience by directly studying how different actor groups influence the legitimation of firms (Überbacher, 2014). It also contributes a relational understanding of enhancing legitimation by yielding a perspective of legitimation as a process that takes place in a dynamic and interdependent manner across multiple actor groups, and providing propositions that can be subject to subsequent research. This perspective is relatively novel in understanding new venture legitimation. The study by Lamberti and Lettieri (2011) adopted a similar view in examining legitimation of two organizations in a converging industry setting, and illustrated that the companies pursued particular cross-legitimation strategies. Given the centrality of network relationships for young firms, new venture legitimation literature is likely to benefit by engaging further in this conversation.

Legitimation might be enhanced through networks both of its own accord and as the result of management's intentional efforts to develop relationships with actors they perceive as contributing positively to legitimation. Thus, intentionally managing legitimation network paths requires initiating contact and establishing and maintaining network ties with certain actors, which is an inherently challenging task due to the scarcity of resources generally available to young firms (Hallen & Eisenhardt 2012). Accordingly, distinguishing legitimacy spillovers from different actors

might help managers to better understand the relational dynamics of their organizations' legitimation and conserve these scarce managerial resources.

5.2 Limitations and avenues for further research

This study is inevitably constrained by several limitations. First, the legitimacy spillovers were limited to only positive instances, and what the respondents perceived these to be. However, a focal firm's relationship with a network partner might provide positive spillovers in the eyes of one actor and negative spillovers in the eyes of others. Hence, the possibilities are only limited to the number of actors within the entire network and the extent of their perceptions. However, symbolic meaning, such as that attributed to legitimacy spillovers, is bound to commonly shared beliefs and has to be subjectively interpreted as such by actors who are familiar with the norms of a given social milieu (Zott & Huy 2007). Therefore, the perceptions of these firms were considered to reflect the logics prevailing in life science industry networks.

The study is also limited to examining only successful companies' legitimation paths, and provides corresponding elements of theory. However, in order to develop a stronger theory, further studies are needed to replicate the paths of both successful and unsuccessful firms and control for the influence of their legitimation network paths on their legitimation and survival. Therefore, further qualitative inquiries are encouraged within the same industry context in order to provide insights regarding the conditions under which different legitimation network paths are most effective in terms of outputs. In this manner, quantitative methods are also likely to offer promising results about the phenomenon and its implications by testing the theory on a large set of longitudinal network data.

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Article IV

Article 4

Legitimacy-seeking practices during international venturing of small life science firms

ABSTRACT

Life science firms face constraints when seeking the attention and support of prospective exchange partners for a product or service of an unknown and untested company. The literature broadly suggests that attaining legitimacy is a successful way to tackle these challenges. However, the literature provides little in-depth knowledge about the specific practices that these firms employ in their pursuit of attaining legitimacy internationally. We investigated legitimacy-seeking practices in case studies of six small Swedish life science firms and identified three groups of practices: interacting with an international audience, enabling international legitimacy spillovers, and utilizing symbolic behaviors. We display insights from our data into the firm-specific factors that influence the cases' level of engagement in these practices and present three corresponding propositions.

Key words:

Legitimacy-seeking practices, new venture legitimacy, international entrepreneurship, life science

1 Introduction

There is almost a consensus in the contemporary business literature that success in life science innovations is connected not just to achieving a valuable technological advancement, but also to how skillful the company's management is at commercializing and ultimately exploiting this technology in world markets (e.g. Brännback et al., 2007; Jones et al., 2011a; Lindstrand et al., 2011). On the other hand, although the path to international markets for a life science firm appears essential,¹⁰ it is often not straightforward. Successful international venturing for these firms usually requires a set of managerial skills that can overcome the challenges that restrict their access to the pertinent actors and markets (Tolstoy and Agndal, 2010). One challenge that previous studies have particularly highlighted is the lack of motivation among external actors to engage in exchanges with the focal firm (e.g., Kuratko and Brown, 2010; Morse et al., 2007). For example, the 2012 European Union (EU) report on internationalizing technology new ventures identified one of the most common obstacles that these firms face when seeking their prospect exchange partners' attention and support (see Eurofound Born Globals report, 2012: 43).

Organizational theorists have long identified these difficulties and have mostly associated them with the liabilities of newness (Stinchcombe, 1965) and smallness (Freeman et al., 1983). In other words, if the actors in a market do not know the processes and the outcomes of a technology and the organization around it, and the focal organization cannot demonstrate sufficient resources and records of accomplishment, it becomes difficult to convince them that their organizations are eligible for resource exchange. In line with the same view, a number of highly cited studies suggest that successful managers concentrate on framing the uncertainty around their ventures in such a way that it becomes possible to deal with these liabilities. Many of them have highlighted efforts to seek legitimacy as a successful way to tackle this challenge (e.g., Aldrich and Fiol 1994; Lounsbury and

¹⁰ Life science is “a complex amalgamation of interconnected sectors comprising a diverse range of knowledge-intensive and often highly specialized companies” (Jones et al., 2011a: 3). Life science firms are generally founded on the basis of one or more technologies that have the potential for exploitation (such as new technology platforms and applications of biotechnology).

Glynn 2001). Empirical studies have provided valuable insights, particularly in the entrepreneurship context, about how firms that are engaged in legitimacy-seeking practices were more likely to access resources and make their ventures operational than those that did not (e.g., Tornikoski and Newbert, 2007; Zott and Huy, 2007). The main argument in these studies originates from one of the principal assumptions of institutional theory: once an organization has been conferred with legitimacy, external actors perceive it as being more predictable and more trustworthy (Suchman, 1995). Correspondingly, a number of international entrepreneurship (IE) scholars have suggested that ventures that internationalize successfully, either from inception or early in their life cycles, not only pursue development of their business with international customers and partners, but also seek legitimacy in international markets (e.g., Bangara et al., 2012; Ivanova and Castellano, 2011; Sullivan Mort et al., 2012). However, the extant literature appears to provide limited in-depth understanding of the specific practices that these firms engage in to follow this purpose. Thus, by providing empirical insights in this context, we aim to contribute to the understanding of successful international venturing of life science firms. The broader goal of this paper is to widen our outlook on entrepreneurial internationalizing of firms with legitimacy-seeking, mostly as an essential component of enhancing access to international actors and exploiting international opportunities (Ardichvili et al., 2003; Schweizer et al., 2010).

Eventually, although the challenge of attaining legitimacy is considered to be generic for all life science firms, we acknowledge that not all the firms are identical. Accordingly, we pose the following research questions:

- (1) What are the legitimacy-seeking practices of small life science firms during international venturing?
- (2) How do firm-specific differences influence the firms' legitimacy-seeking practices?

The remainder of this paper is structured as follows. The following section provides the theoretical underpinnings regarding the study's inquiries by drawing on new venture legitimacy and international entrepreneurship liter-

atures. We then present the method, followed by the analysis and the findings. Based on our multiple case studies, we outline a list of legitimacy-seeking practices into which life science firms have allocated significant management efforts. Furthermore, our data suggests that the significance of each practice, in terms of the extent of the management efforts employed, varies depending on the role that the firms take in the overall industry value chain, as well as their founding teams' scientific attributes. Finally, the paper ends with a discussions and conclusions section that includes the study's limitations and further research suggestions.

2 Theoretical outline

2.1 Legitimacy and legitimacy-seeking

For the purposes of this study, it is important to distinguish between legitimacy and legitimacy-seeking. Legitimacy is a social judgment about the acceptability, desirability, and appropriateness of an organization by its external audiences (Suchman, 1995). An organization is perceived as legitimate in a local situation if it is found to be in consonance with the socially constructed system of norms, beliefs, and definitions that are accepted and shared by a group of actors (Zelditch, 2001). In accordance with this socially constructed perspective of legitimacy, organizations that are subject to legitimacy evaluations are assumed to be able to influence this process by engaging in activities of interaction, communication, and exchange with each of these actors (e.g., Ridgeway and Correll, 2006; Suchman, 1995). Hence, what we mean by legitimacy-seeking is not the actual formation of the legitimacy judgment, but firms' actual attempts to influence its formation.

In legitimacy studies, the analytical clarity generally relies on an explicit definition of the audience(s) and the legitimacy type(s) studied (Deephouse and Suchman, 2008). In this paper, we take a perspective that assesses the legitimating audiences of new ventures as their potential resource-holders (e.g. Aldrich and Fiol, 1994); in our case, these audiences are comprised of potential international buyers and partners of the focal firm. This perspective on the audience is considered to be the most relevant in regard to life

science ventures as being able to ensure that the attention, recognition, and acceptance of the most immediate resource-holders is critical for their existence. At the same time, in this understanding the presence of legitimacy becomes observable to the focal firms and the others at the micro level in external actors' actions, and is derived from their engagements in voluntary resource exchanges with the focal firm (Terreberry, 1968).

Frequently studied legitimacy types that firms seek to attain, depending on the pressures behind the legitimacy evaluations, are regulative legitimacy (organizations' alignment with rules and laws), normative legitimacy (organizations' alignment with norms and values), and cognitive legitimacy (organizations' alignment with dominant ideas and beliefs) (DiMaggio and Powell, 1983; Scott, 1995). In this paper, we consider cognitive legitimacy to be the most applicable type for our purpose. We address legitimacy issues relevant to life science firms' international venturing that emerge mainly from the high uncertainty factor surrounding them, and cognitive legitimacy is generally related to the knowledge about an organization and the products and services it offers (Aldrich and Fiol, 1994: 648). In most basic sense, for a young firm, what is pursued as cognitive legitimacy is explained as "providing what is needed or desired and will be successful in the business domain in which it purports to operate" (Zimmerman and Zeitz, 2002).

2.2 Legitimacy-seeking practices

A dilemma for a startup inherently stems from the situation in which new and small firms need to seek legitimacy when it is relatively more difficult to attain; that is, principally at those times when their resources and management teams are relatively poor, and the firms' performance records, as well as those of their technologies, are the shortest. Thanks to the recent and steadily growing body of new venture legitimacy research that grounds its arguments mostly in impression management literature (e.g., Arndt and Bigelow, 2000; Elsbach and Sutton; 1992), we now have a considerable amount of knowledge about the practices that new ventures mobilize, in a more calculated manner, under these disadvantaged conditions in their attempts to seek legitimacy (e.g., see review by Überbacher, 2014). Our review of the extant literature is in line with Tornikoski and Newbert's

(2007), which identified at least three groups of practices that entrepreneurial firms employ; namely: Networking, symbolic behaviors, and resource combinations.

The authors related networking with new venture legitimacy-seeking practices to a large extent referring to firms' interaction with their external audiences; so that they may increase their opportunities to convince such parties that their organizations are legitimate. The second group of legitimacy-seeking practices is identified as symbolic behaviors and improvisations (e.g., Zott and Huy, 2007). These are described as creating the impression on external audiences that the focal firm is legitimated by presenting behaviors generally referred as "acting-as-if" in order to present focal firms' identicalness to firms that are generally accepted as successful, mimicking actions that have achieved a taken-for-granted status (Gartner et al., 1992; Lovvorn and Chen, 2013). Eventually, the last group of legitimacy-seeking practices is presenting resource combinations; this refers to one of the basic functions of entrepreneurial firms, which is combining resources (Schumpeter, 1934; Delmar and Shane, 2004). Thus, by presenting resource combinations, focal firms provide their audience with evidence of whether or not they are capable of doing what they are organized to do (Tornikoski and Newbert, 2007).

2.2.1 Legitimacy-seeking practices during international venturing

An extensive body of research has pointed out that internationalization is generally crucial for life science firms (Gassmann and Keupp, 2007; Jones et al., 2011b). The rationale behind this argument is elucidated in many cases by the broad international presence of their potential customers and partners, apart from the internationally dispersed nature of the innovation and commercialization activities of life science technologies (Onetti et al., 2012). Thus, life science firms' international venturing is broadly built on advancement of the firm's technological capabilities through exchanges and collaborations with mostly international actors and transfer of these technologies to international markets. Entrepreneurship is then linked to both innovation and internationalization by creating enabling conditions to explore and exploit international opportunities for these exchanges (Schweizer et al., 2010). Thus, in a way, if a life science firm fails to become

a legitimate resource exchange actor in the eyes of an international audience, it may put its company at risk of lack of attention or outright rejection by its technology development collaborators, and customers, at the same time as hindering its overall development and growth. Accordingly, we identify life science firms' legitimacy-seeking practices during international venturing by outlining the firms' actions that aim to convince international prospect customers and licensing partners that their technologies and organizations are legitimate for engaging in exchanges, and enabling exploiting further international opportunities.

2.2.2 Firm-specific differences

Legitimacy ultimately exists in the eyes of the beholders (Ashfort and Gibbs, 1990), although legitimacy-seeking as an organizational practice might be shaped by firm-level factors. However, our search of the new venture and international entrepreneurship literatures revealed only one study that demonstrated firm-specific differences related to the degree to which they engage in legitimacy-seeking behaviors. The one study was by Perry et al. (2011) and focused on the individual-level differences of entrepreneurs in the United States. Based on their survey data, the authors demonstrated that an entrepreneur's level of belief in control, intention for growth, and experience is positively related to his or her level of engagement in legitimacy-seeking behaviors.

3 Method

3.1 Research approach

This paper has adopted a qualitative approach that utilizes findings from semi-structured interviews, field notes, and secondary sources. A case-study design was selected based on its suitability for the research questions, and also because it provides a grounds for qualitative research methods, which is preferable when particularly researching complex constructs that would be difficult to quantify and understand using other means (Eisenhardt, 1989; Gerring, 2004). The present study does not aim to provide generalized answers, but rather to generate theoretical elements. The case unit is a

firm's legitimacy-seeking practices and its influences for initiating voluntary exchanges with international actors.

3.2 Study design

Six small life science companies were selected based on a theoretical sampling strategy. Hence, the choice of cases is based on their contribution to theory development (Yin, 2003). This strategy is considered suitable when the motivation is to explore new grounds for developing original concepts, rather than testing existing constructs (Eisenhardt, 1989). Hence, the cases are selected based on a similarity criterion so that it predicts similar results and helps the researcher to strengthen the findings (Yin, 2003). All of the cases are from the Stockholm region of Sweden, which is the largest life science region in the country (Vinnova, 2014). Table 1 presents information about the case companies and the respondents. All of the cases are referred to with letters to preserve confidentiality.

A finer similarity criterion is also employed for identifying the case firms. IE studies increasingly show that new firms, specifically new technology firms, see the world as an international marketplace from the beginning, and formulate their strategies accordingly (see Gabrielsson and Kirpalani, 2012; Jones and Coviello 2005; Luostarinen and Gabrielsson 2006). Hence, their international orientation is likely to influence their perceptions of legitimacy requirements and thereby their legitimating practices. Therefore, we chose our cases from those that, from their inception, held an identically strong international/global orientation for their businesses (refer to Table 1). Second, all of the selected case firms are considered to present international market legitimacy to some degree. Therefore, the indications of being able to initiate relationships with international customers and licensing partners, and displaying a growth trend in international sales, are considered representative of the ability of case firms to achieve international market legitimacy. Hence, this provided the research design with the ability to recognize legitimacy in retrospect (Tornikoski and Newbert, 2007; Zimmerman and Zeitz, 2002). In this manner, cases are all retrospective case studies in which all data was collected after the fact. The events and

activities under study have already occurred, and the outcomes of these events and activities are known (Street and Ward, 2010).

A typical life science start-up might be founded at various stages of processes from which one or more technologies are commercialized, where the firm does not need to perform all the stages itself (Hine and Kapeleris, 2006). Hence, it might engage in product development, sales, and marketing by itself, or it might team up with other actors through licensing agreements. The presence of international sales and licensing agreements is suggested to show that case firms either managed to exploit their technologies in international markets or mostly granted the means to develop their products so that they are ready to be introduced to the market. Industry-specific success indicators such as completing clinical validation phases of their products are also taken into account, apart from merely looking at the figures of turnover (see Kiviluoto et al.'s (2009) review of entrepreneurial growth and performance in life science business by Kiviluoto et al.). While there is no ideal number of cases, Eisenhardt (1989) suggested that between four and 10 would achieve a balance between retaining the complexity that is closer to real social life and also detaining the researchers' ability to cope with the complexity. The study ultimately involved analysis of six cases. At the time of the study, Cases A, B, C, and F held international sales and Case E had international licensing agreements. Case D had demonstrated proof-of-concept in phase I/II clinical trials and was chosen as an eligible prospect licensing partner by 10 multinational corporations in the vaccination field. The founders of all the case firms were still in the organizations and held managing roles such as CEO (chief executive officer) or CSO (chief science officer). With the exception of Case C, the founders were all also the inventors of the innovations that they wished to introduce to the markets. In Case C, the founders used a technology that was already in the market when they started; however, they do serve niche markets by tailoring the technology.

Table 1: Information about the case companies and the respondents

Case	Reg. Date	No. of employees (2013)	Technology	Turnover (1,000SEK 2013)	Market Orientation	Current state of international venturing	Information inventors, founders, and management	No. of respondent(s)	Informant/s' position/s in the firm
A	2006	23	Biomarker discovery platform	45,584	International/CEO: "To me, it is an international market. It is a global market; I don't see the possibility to start in Sweden because it is such a small market."	Upward international sales trend via direct export and international distributors in Europe; the Far East, North and Central America.	Inventor: co-founders, professor. CEO: co-founder, PhD, 8 years of international industry experience in big pharma.	1	Founding CEO
B	2008	12	Stem cell matrix	6,718	International/CEO: "We, from the beginning decided that we want to be global. This will be a global standard. We never had the plan to stick to local. The idea was to go global."	Upward international sales trend via direct export, international distributors in Europe, the Far East, the South Pacific, and a subsidiary in the United States.	Inventor: co-founder, professor. CEO: Co-founder, PhD, 4 years of international industry experience in a life science SME.	1	Founding CEO
C	2006	11	DNA analytical procedures	16,414	International/CEO: "Yes. These are niche products. Many countries are not big markets; we need many countries to generate the volume really."	Upward international sales trend via direct export, international distributors in Europe and the Far East, and a subsidiary in Italy.	All founders from industry. CEO: co-founder, PhD, 7 years of life science industry experience in big pharma.	1	Founding CEO
D	2008	9	Drug delivery systems	4,887	International/CSO: "It is a global world. There is no such thing to contact only Swedish offices."	Completed Phase I/II Clinical studies; chosen as eligible prospect partners by 10 multinational firms for new product development.	Inventor: founder, professor. CEO: Assigned, 15 years of life science industry experience in big pharma.	2	Founding CSO; Assigned CEO

E	2003	28	Protein aggregation/misfolding	58,752	International/CEO: "So from the start, you need to think about getting it to the market, being a drug, and selling it on the international market".	Completed Phase II clinical studies. They receive royalty payments from the licensee, a multinational pharmaceutical corporation that originated in Japan. Develops new out-licensing projects.	Inventor: co-founder, professor, CEO: co-founder, PhD, 13 years of international industry experience in big pharma.	1	Founding CEO
F	2005	19	Electron microscopy images, biopharmaceuticals	5,685	International/CSO: "In this business, European companies are dealing with US companies, and Japanese companies; it is a true global market."	Develops micro-imaging and drug development projects. Upward international service sales trend, in Europe and North America.	Inventor: founder and the CEO, PhD student, no industry experience.	1	Founding CEO

ENTERING A GLOBAL PLAY THROUGH NETWORK PATHS

Construct validity has been pointed out as a central issue in qualitative studies (Mitchell, 1985). Yin (2003) suggested using multiple sources of evidence to reinforce construct validity in qualitative methods. This enhances the need to utilize triangulation in order to blend data from multiple sources (Eisenhardt, 1989). In the present study, triangulation was achieved by the richness of the sources of data; data were derived from primary sources, but verified by secondary data. Secondary data were extracted from sources such as company websites and news articles and press releases published in the business media about the case firms. Primary data sources comprise interviews conducted during the 14-month period between 2013 and 2014 with the key informants within the firms. The criterion for the key informant selection is the interviewee's involvement in the firm's management (refer to Table 1 for the list of informants). This criterion increases the reliability of the data extracted from the interviews. As the cases are all small firms. Company CEOs are considered to hold detailed knowledge about the organizations' strategies and actions relating to all of its core functions.

The interviews were semi-structured and in-depth and were conducted by two researchers. In order to enhance external validity, an interview guide was utilized, based on a previous literature review. In line with the explorative aim of the study, the guide included broad questions about the respondent, the history of the firm, and its present activities. These extensive questions created opportunities for timely discussions around topics of specific interest. Precise open-ended precise questions were also posed, such as "What kind of hurdles did you face when reaching and accessing your customers?" or "How did you manage to be visible to different actors?" Furthermore, when the respondents mentioned a topic relevant to the study, they were encouraged to continue with follow-up questions such as "Did it help your firm to gain credibility in the market?" or "Is it the kind of validation you needed to access the customers you wanted to?" Interviews lasted between two and three hours and all were audio-taped and transcribed.

The analysis was carried out in three steps. First, individual case writings were compiled from both secondary and primary data and sorted in order to create a time line of the events in the case histories, as suggested

by Miles and Huberman (1994) and Corbin and Strauss (2008). These events represent core activities of the companies' early life cycles, both with a local and international scope, such as foundation of the firm, change of staff, starting or completing a R&D project, granting patents, etc.

The second step comprised identifying the international market legitimacy practices emphasized by each case firm. For this purpose, the interview material from the firms was analyzed in order to outline the legitimacy-seeking practices. Thus, data was coded based on whether any action or event was clearly yielded by the firm or considered by the researcher to influence the judgment of any international prospect customer(s) or licensing partner(s) about initiating a relationship with the focal firm. The identified practices were then categorized according to the three groups demarcated from the literature. A number of reviewing rounds for controlling were made if all the actions were identified and compared, in order to distinguish those ones that conflict with others and make final considerations and reviews for consistency.

The third step involves comparing the practices across cases. Cross-case comparisons were made by utilizing tabular displays between each firm and also between groups of firms.

4 Setting: Six small Swedish life science firms

According to the qualitative approach, the delineating context is an important aspect of the analysis because it diminishes the chances of distorting the intent (Corbin and Strauss, 2008). Context emerges out of sets of conditions that range from the micro to macro. Sweden, with a legitimacy perspective in the international picture, is the macro context for the cases. The cases developed for each life science company are the micro context of their legitimacy-seeking practices.

The life science industry presents well-established research-based centers in a small number of countries, even though the business is scattered around the globe (OECD, 2006), where those countries or locations become intrinsically associated with advanced science and technology firms (for example, hot spots for growing technology-markets such as Silicon Valley are suggested to have legitimacy advantages deriving from the fea-

tures attributed to this geographical location). All of the chosen cases are from the Stockholm region of Sweden, and therefore represent no variation in the extent of this advantageous position across the sample. However, as the focus of the paper is to seek international market legitimacy, the inherent locational qualities of the case firms in the international arena are considered notable.

4.1 Life science in Sweden

Despite its small market size, Sweden has taken a strong stance on the global life science map due to its advanced degree of science and technology, as well as established institutions. Sweden has been chosen as the innovation leader for the third time in a row among the member states of EU (EU Scoreboard, 2013), and has a high ranking in participating in the EU framework programs, and has ranked fifth in terms of funding received from IMI (Vinnova, 2014). Furthermore, approximately 15–20 new life science companies were formed in Sweden each year over the last decade, which is similar to life science regions such as Boston (Stockholm Business Region Report, 2014). Sweden's position as home to the inventor Alfred Nobel and the Nobel Prizes, as well as academic institutions with worldwide reputations, have influenced the perception of "being Swedish" in the eyes of an international audience. All of the cases perceived and explicitly mentioned it as an intrinsic attribute that enhances firms' international market legitimacy, as exemplified in the following quote of the CEO of Case A:

We want to be Swedish because it gives credibility. People know about Karolinska Institute. They know about Swedish life science, both pharmaceuticals and biotech. It is well known. And it is well known for good research and high quality, and also trustable people. And of course Karolinska Institute won the Nobel Prize. It is known worldwide.

4.2 Case companies

Below, we display below case firms' international venturing stories as the micro context of their legitimacy-seeking practices. In the international ven-

turing timeline of each case, we present the initial commencement of international marketing/sales activities or licensing agreements as an important landmark. At the same time, the start of the revenue stream indicates that there is at least a ready product/service developed and accepted in the market. The phase between the company's foundation and this point is generally when the firm is involved in activities of commercialization (Coviello, 2006; Kazanjian, 1988). Hence, for case firms, market growth became possible only after this point was crossed, when the companies increased their sales volume and the number of licensing agreements.

4.2.1 Case Company A

The company's core technology was based on the findings of a public research project in Sweden, collaboration between three universities. The firm was founded to become involved in R&D, manufacturing, sales and distribution of consumable products that targeted researchers via direct sales and international distributors. The initial international sales emerged from the direct contacts from the potential international buyers directly to the research project, which meant that commercialization was achieved quickly. After the initial sales, the company utilized e-advertising and web listings to a large extent in order to become visible to customers all around the world. The company presented a link to the public project on its website, and this had a substantial positive influence on its international sales. With the help of its online presence and association with the scientific project, the company increased its international sales and reached international market growth. Within 15 months after its foundation, the company had direct export sales to customers from 30 countries, who contacted the company via listing websites. The company had subsequently been contacted by a global distributor and signed a global distribution agreement with this company, which led to an increase in its international sales.

4.2.2 Case Company B

The company's initial commercial idea was based on the inventor/co-founder's previous research at a Swedish university. Hence, the firm was founded in order to become involved in the R&D, manufacturing, sales, and distribution of consumable products that targeted researchers via direct

sales and distributors. The company made its first sales to a US corporation that had contacted the inventor/co-founder directly after becoming familiar with his research; thus, the commercialization was achieved. The CEO started engaging in activities such as participating and exhibiting in conferences specialized in the technological area, and contacting potential international distributors and customers. Through these channels, the firm acquired many early customers. After having publications in international scientific journals, the firm's international sales and market growth increased significantly. Within the same year, the company started direct exports to 90 international customers, and made a deal with distributors in Japan, China, and the UK.

4.2.3 Case Company C

The company's four co-founders initiated the product idea as soon as they recognized a niche opportunity in the market while working in the industry in a multinational diagnostics firm in Sweden. Consequently, the company was founded in order to engage in R&D, manufacturing, sales, and distribution of consumable products that targeted academic and commercial laboratories via direct sales and distributors. The company realized its initial sales to a laboratory in Italy that the founders knew via their former business experience and become commercialized. They tried to generate associations with universities and develop collaborations in order to achieve legitimacy spillovers from these actors. They started contacting potential international customers and distributors. They marketed the company through Google advertising and the company's website. The company's online presence helped it attract potential customers and distributors, which led to a substantial increase in international sales. As a strategy, the company approached influential international customers and pursued acquiring them as a form of validation in the market. The company quickly expanded its international scope through distributors and direct export to 36 countries.

4.2.4 Case Company D

The company's core technology came from the inventor/co-founder's research at a Swedish University. The company was founded in order to out-license projects based on developing new products with licensees. It won a

grant from the EU Framework program and completed this research project successfully. At the same time, the company continued its clinical studies and received positive results from Phase I/II. The management presented their work at specialized international conferences and engaged in personal networking. They initiated contacts with multinational corporations and foundations and have been identified as a possible collaboration partner by 10 large multinational companies in their specific field of operation, and will soon complete commercialization.

4.2.5 Case Company E

The company's core technology comes from the research of the inventor/co-founder at a Swedish university. The company was founded in order to out-license projects based on developing new products with licensees. The results from the pre-clinical studies were positive, which led the company to approach international prospect companies that might be interested in the therapeutic area. The company made a product development agreement with a Japanese origin multinational corporation. In order to assure their international visibility, they attend scientific conferences and participate in academic publications. They expanded their product development agreement to a licensing agreement. The company has completed the first two clinical validation phases of this project and received royalty payments, and proceeded substantially throughout commercialization. At the same time, it has initiated new projects with the same technology and started looking for new licensing partners.

4.2.6 Case Company F

The company's core technology is derived from the inventor/founder's PhD project at a Swedish university. The company collaborated with several state institutions in Sweden, received several international awards and grants, and was involved in and successfully completed a number of EU projects as well. Soon thereafter, the company reached a licensing/marketing and distribution agreement with two multinational corporations from US and Japan for the new technology product. The company also started offering its sales service to a number of international customers, approached influential international customers and pursued the acquisi-

tion of them as a form of validation in the market. The company increased its customer base for the service over 50 companies from Europe, Asia, North America, and the Middle East and achieved international market growth. It also developed a drug discovery project. The company initiates personal contacts with large pharmaceutical companies as future licensing prospects for this project.

5 Results and discussions

Our cross-case analysis yields two major findings. First, the results revealed what specific legitimacy-seeking practices were commonly engaged. Further analysis suggested that case firms' level of engagement in these practices vary depending on the founders' team attributes and the firms' roles in the industry's overall value chain.

5.1 International market legitimacy-seeking practices of life science ventures

From the literature, three groups of legitimacy-seeking practices were identified. The data indicated that all three groups – networking, presenting resource combinations, and symbolic behaviors – were relevant for small life science firms during international venturing. Below, we outline the specific practices suggested by our data under each group and we discuss our findings for refining the descriptions of these groups in the case of life science ventures. For the sake of clarity and readability, only selective quotes in the text are used, with several other exemplary quotes presented in Appendix.

5.1.1 Networking – Interacting with an international audience

The data conveyed that case firms were involved in a group of activities in order to interact with an international audience. These include: presenting at international scientific and industry conferences; utilizing internet tools extensively (for example, optimizing web search tools, subscribing to listing websites, utilizing mass emails); participating in publications in international academic journals; and personal networking.

The data showed that presenting at international conferences and meeting events might signify being visible to an international community; that is, its members around a common field of interest and practice are spread over a broad geographical area (for example, stem cell cultivation for Case B, prenatal diagnostics for Case C, specific orphan disease for Case E), and encompass a diversity of actor categories such as academia, industry, and policymakers. The CEO of Case firm D mentioned that the company decided to focus its efforts on participating in scientific conferences attended by a limited number of people from a specific field. He also related their achievement to initiate a few relationships with significant actors to being visible in these conferences, such as their relationship with a globally known foundation. Case D's CEO described these efforts as follows: "We have been presenting some data at the conferences, smaller conferences. It has been our strategy to go to those with 100–150 people. But the right people! So they have seen us there."

The CEO of Case B mentioned that they have even come across customers who started buying and testing their technology only after feeling comfortable seeing them at a couple of events and conferences. He said:

We just talked with a customer who had met us at a conference two years ago and then talked with us. They thought the product was interesting but they didn't want to try it because it was such new technology. But then he said that, after seeing us in different places, it now feels more comfortable buying and now he will become a customer. So I think visibility actually worked. So now we are kind of an established player, at least more than we were established before.

The use of internet tools by the case firms is another featured activity for interacting with an international audience. For example, Case firm D used web search tools extensively in its early years and even referred to being visible on internet as one of its strong competitive advantages at the beginning over the others. Case firm B has been using mass emails to reach all the actors related to a specific research field around the world and informing them about the company's technology and firm. The CEO mentioned that accessing actors by email provided great outcomes for appearing more established in the eyes of their international prospect customers.

The data also revealed that case firms perceived their appearance on academic publications as a way of interacting with an international audience and existing in the scientific community; consequently, they put extra effort into participating in publications.

The last group of practices identified in the data is personal networking. Founders and managers of the firms stated that they were personally engaged in activities that interacted with people in order to create and maintain international contacts. The CEO Case B also exemplified the common strong belief in implications of personal networking in the following quote:

I contacted him and said why don't we meet once when I come there ... I was never a friend of his in the first place, but you know, if he's there then why not? So I think this kind of networking is important. You never know, you talk with people ...

A number of international entrepreneurship studies also argued for the centrality of interaction and networking practices of international venturing firms in their success, in line with the emphasis of their entrepreneurial qualities. For example, Mort and Weerawardena (2006) examined six cases and their findings demonstrated the critical role played by international networking capability building activities in the rapid internationalization of firms. Hence, interacting with an international audience with whom they are seeking to achieve legitimacy is recognized as a distinct group of practice.

5.1.2 Presenting resource combinations – Enabling international legitimacy spillovers

The data showed that case firms emphasized engaging in presenting relationships with external actors, specifically those that are considered legitimate internationally. The data provided convincing evidence that case firms consider being associated with specific universities through their research collaborations as proof of their available technological resources and capabilities. On the other hand, these universities do not necessarily need to be foreign to a focal firm in order to have an international impact. The case firms emphasized that it was important for the university to be well-known internationally, generally based on the institution's ranking among medical

universities around the world. Thus, firms' association with a highly ranked university presents the focal firm's qualities for resource combinations, as the relationship shows both the firm's eligibility and the ability of resource combinations available through these relationships.

In the same manner, engaging in relationships with international institutional organizations was also a distinguished legitimacy-seeking practice. Both the CEO and the CSO of Case Company D had emphasized the door-opener role of taking part in EU-funded projects, together with various other internationally active actors. Furthermore, Case company C's association with a large national laboratory in the UK was considered to have an impact on initiating exchange with actors, both in the UK and elsewhere. Another common practice was participation in publications in international academic journals, as case firms perceived that their technology became associated with the latest scientific developments of the field through these publications.

Consequently, engaging in relationships with internationally legitimate external actors was noted to provide legitimacy spillovers from these actors (for example, from the internationally highly ranked universities, internationally established institutional organizations, and international scientific journals) to a focal firm. The role of legitimacy spillovers from firms' relationships with external actors has already been acknowledged in the IE field, particularly as compensating life science ventures' inherent shortcomings (Coombs and Deeds, 2000; Gassman and Keupp, 2007; Nummela and Nurminen, 2011; Tolstoy and Agndal, 2010). Therefore, we distinguish it as a distinct group of legitimacy-seeking practices.

5.1.3 Utilizing symbolic behaviors

Most of the cases stressed the importance of looking more established than they were when approaching prospect customers and partners. For example, they aimed to create an impression of a large firm size or adopting practices that would be perceived as professional. The CEO of Case Company B mentioned that they had made efforts to look larger than they were in the very early days of the firm, as explained below:

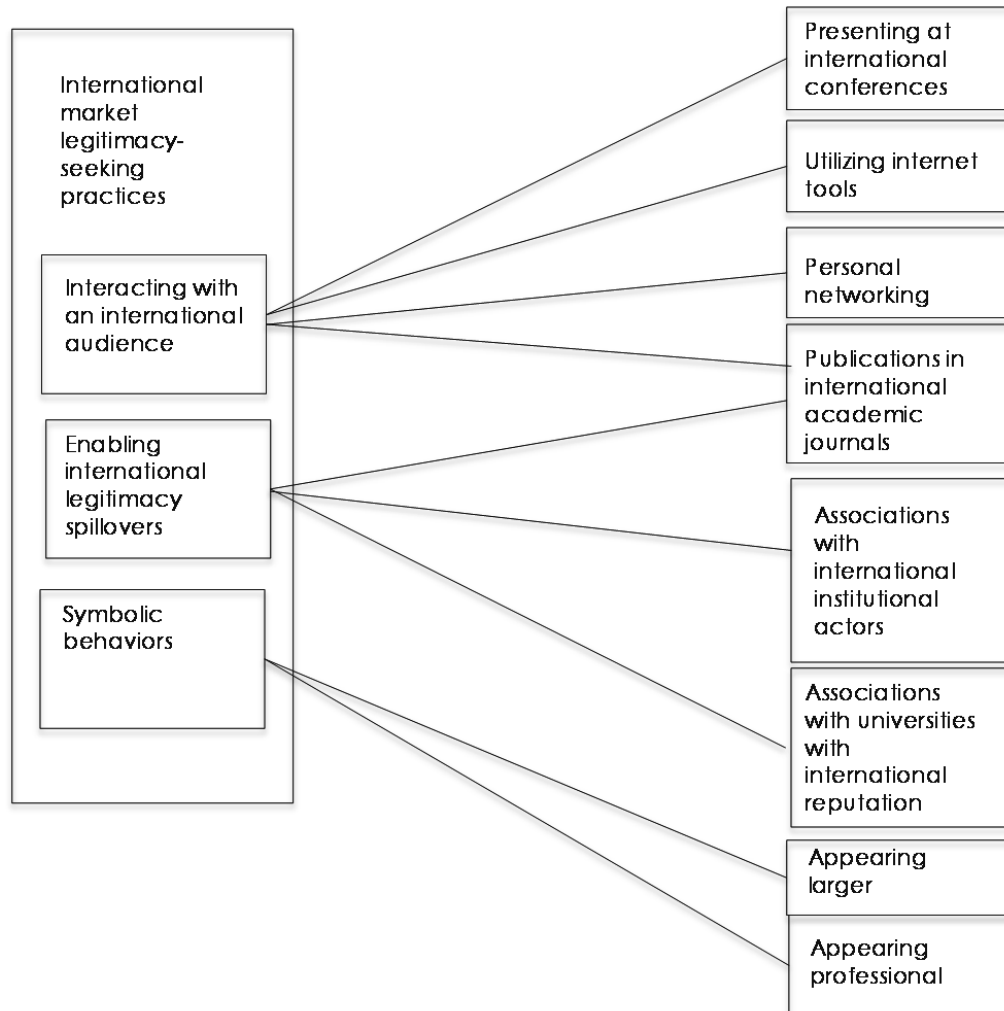
In the beginning we always had this thing that we should look bigger than we are because we were really small. In Sweden, I get one '08' number [Stockholm area code], so if I call from my mobile phone it showed an 08 number and it looked like we had an office number ... And that was also for image ... So we look bigger.

The CEO of Case Company C also mentioned that the company had engaged in activities of a professional approach when responding to the needs of the customers they talked to:

We are trying to start really from the idea stage ... now to get the customer into the process really from the beginning ... Well, that's also a bit of 'theater'. We give them something that this work is very valuable but we don't use it.

A number of studies have presented symbolic behaviors as related to international venturing. Mainela and Puhakka (2011) provided empirical case studies illustrating how firms act as if they are more established than they are. Turcan (2011) and Turcan and Juho (2014) also presented qualitative data showing that managers of technology ventures might say what the authors called 'legitimacy lies' as a part of their international venturing strategy. Hence, we acknowledge symbolic behaviors as a distinct group of international market legitimacy-seeking practices. Figure 1 illustrates these findings.

Figure 1: International market legitimacy-seeking practices of life science ventures



Our findings show that case firms generally engaged in various practices in order to seek legitimacy in the eyes of a broad international community. We consider this general observation worth elaborating on because it diverges from the broadly acknowledged view of legitimacy issues during international venturing as originating from the differences between the prevalent cognitive frames and beliefs of the focal firms' home country and those in the host country (e.g., Kostova and Zaheer, 1999). In our data, it appeared that most firms did not consider their targeted legitimating audience to be limited by national borders. For example, the CEO of Case B defined its

immediate audience as stem cell researchers all over the world. In Case D, it was global pharmaceutical firms that are interested in the therapeutics of Alzheimer's disease. This could mean that managers of life science firms are likely to encounter the need to appear legitimate to a broader audience across borders as they often cannot afford to concentrate solely on key actors in a domestic market or selected foreign market(s), especially in the early stages.

5.2 Firm-specific differences

5.2.1 Founding teams' scientific attributes

All of the case firms except firms C and F presented similar attributes relating to their founding teams. The technologies of Case firms A, B, D, and E are all founded based on technologies developed by eminent scientists who were also among the founders. Case C did not have the inventor(s)/scientist(s) connected to their technology in the company. Their business was built on the development of an existing technology in the industry. The case exemplified that, specifically due to this factor, management initially made special efforts to enable international legitimacy spillovers by pursuing research collaborations with universities.

In Case F, the company was established on the founder's PhD studies, and he was still a PhD student when he founded the company. He expressed this challenge as follows: "If you are a senior professor, that helps. For me, I can solve some problems and I can show that and then they respect me because I don't have the title of 'doctor'." Hence, Case firm F appears to put distinct efforts into enabling international legitimacy spillovers from their relationship with institutional organizations. From the secondary data, it is observed that Case F has taken part in the most EU-funded projects.

Hence, the attributes of the founding teams have an influence on how life science firms seek international market legitimacy. Our findings suggest that the presence of eminent scientists – key opinion leaders (KOL) – in the founder team is likely to generate variance in the level of engagement by the firms in different legitimacy-seeking practices. Thus, we refer to ven-

tures founded on inventions by eminent scientists as ‘KOL firms’ and refer to firms not founded by these individuals as “non-KOL firms”. Thus, variance in this attribute in the organization is likely to generate variance in the level of engagement by the firms in different legitimacy-seeking practices. Hence, we present our first proposition as follows.

Proposition 1: Non-KOL firms are likely to show higher levels of engagement in enabling international legitimacy spillovers than KOL firms.

5.2.2 Firm’s role in the industry’s overall value chain

The data also revealed differences between two groups, particularly in terms of how they interact with an international audience. Case firms A, B, and C appear to utilize internet tools more extensively than the firms in the corresponding group. The reason for this distinction seems to emanate from the roles these firms follow in the industry value chain, either as providing their products in the markets and engaging in marketing and sales activities themselves (R&D, manufacturing, distribution) or partnering up with other organizations while commercializing their technologies (R&D and out-licensing). This variation might well occur due to the higher number of customers that the firms in the first group were trying to acquire compared to the limited number of out-licensees; and also because the internet provides a convenient platform for achieving this. Characterized as costless and timeless, utilizing the Internet has long been identified as a way to enhance the potential of firms to enter and develop international markets (Mostafa et al., 2004).

On the other hand, the firms in the second group seem to place greater emphasis on personal networking, particularly with large pharmaceutical corporations (big pharma). This might be due to the business agenda that these firms were following, which was mostly focused on drug discovery and delivery projects that generally require far more resources than any individual venture. Therefore, these firms needed to appear legitimate in order to engage in relationships specifically with researchers from academia and large pharmaceutical corporations. This is mostly because teaming up

with these actors generally denotes being able to carry on firms' R&D activities through research collaborations, or technology development alliances (Coombs and Deeds, 2000).

The influence of firms' roles on the significance of legitimacy-seeking practices is demonstrated particularly in Case firm F. The company followed an agenda whereby it expanded its initial role by starting to sell its services to international customers at the same time as it was developing new projects to out-license. Hence, while effectively utilizing internet tools and presenting at conferences, the company also engaged in personal networking with prospective big pharma out-licensees for its drug development project. The CEO of Case firm F explicitly highlighted the managerial effort employed on this practice when describing his relationship with big pharma as follows: "And I have to run to them all the time, but I'm doing that because I know the game. It is my job, so I'm there all the time. Hello! Me again, updating them on my latest results."

Consequently, firms' roles, which are either to fully integrate in the value chain, including R&D, clinical trials, manufacturing, marketing and distribution, or out-licensing projects for collaborative product development (Mehta, 2008), appear to have an influence on the specific legitimacy-seeking practices that are significant for interacting with an international audience.

Accordingly, we posit the two following propositions.

Proposition 2a: Fully integrated ventures are likely to show higher levels of engagement in utilizing internet tools when seeking legitimacy.

Proposition 2b: Out-licensing ventures are likely to show higher levels of engagement in personal networking when seeking legitimacy.

Table 2 presents findings regarding the cross-case analysis.

Table 2: Cross-case comparisons, the variance of firms' engagement level in legitimacy-seeking practices

Founder Team Scientific Attributes/ Company role	Fully integrated ventures	Out-licensing ventures
KOL ventures	Relatively high efforts to utilize internet tools	Relatively high efforts to engage in personal networking
Non-KOL ventures	Relatively high efforts to enable international legitimacy spillovers.	

6 Conclusions

As our theoretical starting point we put forward the following argument: Seeking international market legitimacy is a key managerial undertaking for successfully developing and exploiting technologies, as attaining it makes it more likely for small and new firms to engage in exchanges with external actors. For life science ventures, attaining legitimacy internationally is often the key to become a legitimate market actor at all. The findings confirm our initial presumption that life science ventures proactively seek legitimacy in the eyes of a broad set of international prospect customers and partners, where the founding team attributes and the targeted role in the industry's overall value chain seem to influence the level of engagement in these practices by firms.

6.1 Contributions

Regarding to our empirical contribution, the study provided an outline of the specific practices that small life science firms engage in. These results are in line with the findings of various studies that have highlighted the significance of firms' web-based strategies, exhibiting at premier trade shows,

and partnering to attain legitimacy and international development and growth (Bailetti; 2012; Bangara et al., 2012; Ivanova and Castellano, 2011; Mainela and Puhakka, 2011; Sullivan Mort et al., 2012). The study has also provided the empirical case contexts for these practices, illustrating how they facilitated exchanges with international actors and thus enabled their international venturing. Eventually, the study showed the variance of significance between several practices based on the firms' role in the industry's overall value chain, as well as the founding team attributes. We then presented three propositions for empirical testing of subsequent research.

In this paper, we approach international venturing of life science firms from an institutional perspective. Our theoretical contributions mostly comprise the definition of international market legitimacy-seeking practices, and conceptualizing it as an essential component of entrepreneurial internationalizing. By doing this, we hope to stimulate future international entrepreneurship studies that might further investigate how technology small firms attain legitimacy internationally.

6.2 Limitations and future research avenues

The article has certain limitations. First, limitations arose based on our choice of cases. In this paper, we studied case firms chosen from among those perceived as successful. In order to move the results of this study further, future studies are encouraged to examine both successful and unsuccessful firms and investigate the impacts of their legitimacy-seeking practices. Thereby, we hope that future studies might test the identified practices in this article on a more diverse sample.

Furthermore, our study focuses on seeking legitimacy in the eyes of one specific audience group during its inquiries; namely, international customers and licensing partners. Although we recognize that a life science firm's other immediate audiences, such as investors, are highly relevant, customers and licensing partners comprise an indisputable immediate resource-holding audience group during a firm's international venturing. However, we recommend future research examining the variances in legitimacy-seeking practices in the eyes of different actor groups in order to provide further insights.

We did not explicitly limit the case firms under a specific age. This choice is feasible for life science firms in which possible long-lead times to product development and to commencement of any economic exchange make it problematic to restrict the firm age under a given number of years. However, we focused on the case firms' early years of existence and growth. Thus, we suggest that in-depth longitudinal case studies investigating the changes in the geographical scope and the organizational type of the audience that firms address (such as international, foreign country or region-specific) have great interest in terms of understanding legitimacy-seeking in the context of international entrepreneurship.

Constraints that might stem from the case firms' cognitive frames are also beyond the scope of this study. Previous studies have shown that the cognitive frames in which life science firms are embedded influence the perceptions and behaviors of the management (Melen and Nordman, 2009; Lindstrand et al., 2011). We believe that further comprehensive case studies incorporating the cognitive dimensions of founder and management teams (such as members' educational background, international business and industry experience and social networks they are embedded in), and how their present cognitive frames affect these teams' perceptions of legitimacy expectations and how they proactively seek confirming to these expectations, will offer valuable insights when studying seeking international market legitimacy. Accordingly, by viewing entrepreneurs as culturally skilled operators, future IE research can generate a span of international entrepreneurial capabilities distinguished by firms' level of legitimacy-seeking skills depending on these cognitive dimensions.

The study confirmed that firms employed symbolic behaviors in order to appear larger and more professional. Although not evidenced explicitly in our data, previous studies have highlighted firms that sought to appear more international; for example, web-based strategies of small firms to appear as though they are global firms (Sullivan Mort et al., 2012). Therefore, we encourage future studies to make further inquiries into international aspect of small firms' symbolic behaviors.

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Appendix

List of international market legitimacy-seeking practices revealed by the cases and exemplary quotes

LEGITIMACY-SEEKING PRACTICES		
I- Interacting with an international audience	Practices engaged	Exemplary Quotes
	Presenting at international scientific and industry conferences	<p>CSO of Case firm D: "We give a lot of presentations on international meetings. We do at least time to time so people tend to know us in the chemistry field".</p> <p>CEO of Case firm A: "Especially attending conferences, having exhibitions at conferences. What we see, first of all you have to be seen. Again if you want to be seen then you are present".</p> <p>CEO of Case firm E: "This disease international meeting together with 5000 people.. In that sense, we participate scientifically in the marketplace. We have to be visible".</p>
	Utilizing internet tools extensively: Google ads, mass emails & listing sites	<p>CEO of Case firm A: "We did not do much marketing but we had some ads out. But the good thing here is that people find you on the web also around the world. And we did list our products on what we call listing sites".</p> <p>CEO of Case firm B: "And customers say that they recognize us. .. Even if they didn't read the newsletter, they do see the logo before they delete it. So they do recognize us.</p> <p>CSO of Case firm D: "Database which is managed by EU. So we put a small advertise there saying that we are available for research collaborators".</p>
	Participating in publications in international academic journals	<p>CEO Case firm A: "As soon as one publishes something that is one thing. Publications are absolutely the best marketing tool we have. Because researchers believe to other researchers. They don't believe what the sales person says"</p> <p>CEO Case firm E: "Publications we participate; so our name is on the scientific papers".</p>
	Personal networking	<p>CEO of Case firm F: "That's just more.. not with any specific intend or that I think I am gonna do business with them. It is just I am in Shanghai. I am not sit in the hotel room, not me. If I have a free time I'm gonna find someone to meet. That could be anyone, I mean, government or politicians or whatever or embassy. Just that it is good. It is good because it is several trips then you can meet people again. That's something I have learned a little bit more. .. Yes, networking".</p> <p>CEO of Case firm D: " We try to establish our relationship early on with them. We try to keep them updated, here is the press release that we started clinical trial, you know".</p>

2 – Enabling international legitimacy spillovers	Practices engaged	Exemplary Quotes
	<p>Associations with universities with international reputation</p> <p>Associations with international institutional actors</p> <p>Participating in publications in international academic journals</p>	<p>CEO Case firm C: “Karolinska, I think being connected to Karolinska is always good. .. one of our founders is active in Karolinska. So we have been trying to use that a little bit”.</p> <p>CEO Case firm D: “If you can bring in, like we did with the EU, and we got EU funding, that helps, that helps to validate the company”.</p> <p>CEO Case firm D: “If we now could be successful in our conversation with this Foundation, they would take in interest and fund some of our programs or invite us to join a collaboration that would help tremendously”.</p> <p>CEO Case firm B: “Actually articles are really good... These are something that really spread and generates sales”.</p> <p>CEO of Case firm D: “And it is that manuscript that article is very useful when you communicate with new contacts. You can just send a copy of that and they will get a good understanding of ... the work and they have been published in the peer-review journals”</p>
3- Utilizing symbolic behaviors	Practices engaged	Exemplary Quotes
	<p>Appearing larger than they are</p> <p>Appearing professional</p>	<p>CEO Case firm B: “We just thought that we need brochures that look good. In the beginning we always have this thing that we should look bigger than we are because we were really small. In Sweden, I get one 08-number like a Stockholm number. So if I call from my mobile phone it shows an 08-number. So it looks like we had an office number. Now actually our mobile phones, we do have a number and I have number 1, then it is 2,3,4 and so on. And that was also for imaging. It costs 150 SEK per month but I thought really it is good at the beginning. So we look bigger”.</p> <p>CEO of Case firm D: “In the beginning we were very generous saying well, we’ll do this for free. And then we started charging for the work we are doing here. It is a small contribution to the company. Nothing huge. But it is kind of a signal. This is worth something”.</p> <p>CEO Case firm F: “So first I went all these for validating what we have, develop what we want to develop together with them. So that they can feel that they are, I mean, how to say it, it is easier to sell them if they feel they contributed and participated in the development themselves”.</p>