New Ventures as Suppliers to Established Firms

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Abstract

While the vast majority of the supplier selection and development literature has focused on relationships between mature, established firms, significantly less attention has been paid to relationships between established firms and new, entrepreneurial ventures. The distinction between established firms and new ventures is relevant because new ventures differ from mature organizations in many important aspects. Consequently, these differences have significant implications for supply chain relationships. From the perspective of an established buying firm, the formation and maintenance of supply chain relationships with new ventures typically involve more uncertainty and more efforts than those with established suppliers. At the same time, new ventures are often flexible, dynamic, and innovative, making them particularly attractive suppliers.

The present doctoral dissertation addresses this important topic and, using an interdisciplinary lens, investigates the question of how established buying firms manage the relationship with young, innovative, and entrepreneurial suppliers to achieve desired relationship outcomes. By doing so, this dissertation constitutes an important step in researching and understanding relationships between established buying firms and their new venture suppliers. The dissertation takes a threelfold approach and investigates several aspects within the buyer-supplier management process from the buying firms’ perspective. The dissertation offers several unique insights.

Firstly, it gives an insight into how buying firms perceive new ventures in supplier selection-decision making (perceived new venture legitimacy and new venture-specific experience). Secondly, it focuses on buying firms’ supplier selection strategy and development (strategic and operational postures) and their effect on new venture-specific relationship outcomes. Thirdly, it deals with the question to what extent buying
firms’ overall capacity to effectively leverage the innovative potential of new ventures (new venture-partnering capability) has taken shape.
Zusammenfassung


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Chapter I Introduction

“All of these major corporations, at some point, have a need for new, innovative products and services because they can’t develop them all in-house. They look to start-ups for the next great things they want to add to their product offerings.”

Vice President Business Development at the start-up *eXpresso* (Meece, 2009)

1 Motivation and purpose

In the recent years, scholars have highlighted research opportunities at the intersection between supply chain management and entrepreneurship, essentially promoting that the two domains have tremendous potential to advance each other in theory and practice (Ireland & Webb, 2007; Kickul, Griffiths, Jayaram, & Wagner, 2011). One key theme identified to deserve more research attention are supply chain relationships involving established firms and new ventures (Kickul et al., 2011). Specifically, Kickul et al. (2011) advocate scholars to investigate *how established firms can identify, integrate, and leverage the capabilities of young, innovative, and entrepreneurial suppliers.*

On a global perspective, barriers to founding a business such as regulations, obtaining funding, and access to customers have decreased. Thus, it has become easier to start a business and more new firms come into existence (Intuit, 2010). In Switzerland, over ten thousand firms were founded annually throughout the years 2010, 2011, and 2012 across all industry sectors combined (BFS, 2014). For incumbent firms
each of these newly created firms represents a potential supplier for products and technology.

Indeed, new ventures are often seen as a major source for product and market innovation (Reynolds, 1987). The Intuit Future of Small Business Report (Intuit, 2009, p. 4) highlights that new, “[s]mall businesses share a number of characteristics that enable their ability to innovate and provide competitive advantage relative to large corporations.” Among important characteristics are entrepreneurs’ personal passion and their organizational agility. For new ventures, the development of new products is necessary to gain early cash flows, external visibility and legitimacy, early market share, to increase the likelihood of survival (Schoonhoven, Eisenhardt, & Lyman, 1990). Overall, the capability to innovate is a critical variable for new venture performance (Chrisman, Bauerschmidt, & Hofer, 1998). For other firms such as established buying firms, new ventures’ innovativeness makes them attractive exchange partners and potential suppliers of new products and technology. In his study of 325 biotechnology start-ups that had entered 973 strategic alliances with established pharmaceutical companies, Rothaermel (2002) found a positive link between a start-up’s new product development and its attractiveness as alliance partner. Leveraging the capabilities of new ventures via a buyer-supplier relationship is a viable alternative to vertical integration, because mergers and acquisitions may impair innovativeness (Hitt, Hoskisson, Ireland, & Harrison, 1991), or conditions conducive to a takeover may not be present (Graebner & Eisenhardt, 2004).

While most of the supply chain literature has been limited to relationships between established buying firms, little has been done to specifically examine relationships between established firms as buyers and new ventures as (predominantly
innovative) suppliers. The purpose of this dissertation is to address this gap by offering novel perspectives into how buying firms manage relationships with new ventures in the supply chain management context.

Sanders and Wagner (2011) note that the increased complexities in researching supply chain management topics can be addressed by the use of interdisciplinary and multi-method approaches. Thus, in order to accomplish the challenging task of investigating buyer-supplier relationships between established firms and new ventures, literatures from the domains of supply chain management and entrepreneurship are leveraged and combined with multiple theories, frameworks, and constructs from the management and social sciences.

2 Supply chain management

The effective management of supply chains has gained increasing importance over the past decades because the number of firms participating in value generation has been continuously rising and buying firms and suppliers have become increasingly dependent on each other. Christopher (2011, p. 13) states that the supply chain “is the network of organisations that are involved, through upstream and downstream linkages, in the different processes and activities that produce value in the form of products and services in the hands of the ultimate consumer.” Hence, the management of these processes, activities and associated flows of information, financial flows, and flows of physical materials holds enormous potential to secure competitive advantage and improve organizational performance. Mentzer et al. (2001, p. 18) define supply chain management as “the systemic, strategic coordination of the traditional business functions within a particular firm and across businesses within the supply chain, for the
purposes of improving the long-term performance of the individual firms and the supply chain as a whole.” From the perspective of an individual firm that is embedded in a network of organizations and dependent on external exchange partners, a key to improved organizational performance is the firm’s ability to set up differentiated relationships with suppliers (Dyer & Singh, 1998; Wagner & Johnson, 2004). Consequently, scholars have identified the management of buyer-supplier relationships as an integral part of supply chain management (Chen & Paulraj, 2004; Li, Ragu-Nathan, Ragu-Nathan, & Rao, 2006; Min & Mentzer, 2004).

From the buying firm’s perspective, successful buyer-supplier relationship management begins with the identification of capable suppliers. Hence, the supplier selection decision is one of the most important decisions that a buying firm makes (Hoetker, 2005; Narasimhan, 1983). Once a capable supplier has been selected and evaluated across multiple criteria (Ho, Xu, & Dey, 2010), the management of buyer-supplier relationships particularly incorporates (but is not limited to) strategies and practices that leverage the capabilities of the supplier through establishing a long-term relationship and cooperation with that supplier (Chen & Paulraj, 2004; Li et al., 2006; Min & Mentzer, 2004). At the most operational level, the buying firm can advance supplier capabilities through supplier development which is defined as “any effort of a buying firm with its supplier(s) to increase performance and/or capabilities of the supplier and meet the buying firm’s […] needs” (Krause & Ellram, 1997, p. 21).

In summary, the management of buyer-supplier relationships is an essential part of supply chain management. As such, considering the buying firm as primary unit of analysis, the management of buyer-supplier relationships delineates the selection,
evaluation, and development of suppliers to access new sources of supply and/or to secure existing supply sources.

3 Entrepreneurship and new ventures

Entrepreneurship is concerned with understanding why, when, and how opportunities for the creation of goods and services arise and how those opportunities are exploited on individual level (e.g. the entrepreneur) and/or on firm level (e.g. new venture, established firm) (Shane & Venkataraman, 2000). Thus, entrepreneurship is an umbrella term for all kinds of entrepreneurial endeavors. One such endeavor is concerned with the founding of new firms (Gartner, 1985), and subsequently the young firm’s activities, initiatives, and strategies to construct and access markets (Santos & Eisenhardt, 2009; Tornikoski & Newbert, 2007). The literature has used several terms to refer to newly created firms, for example, new venture (Zahra, Ireland, & Hitt, 2000), nascent firm (Sebastiao & Golicic, 2008), emerging firm (Patel, 2011), or simply start-up (Rothaermel, 2002). Due to their recent coming-into-existence, new ventures differ substantially from established firms across several dimensions as shown in Table 1.
<table>
<thead>
<tr>
<th>Dimension</th>
<th>New venture</th>
<th>Established firm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size / Age</td>
<td>Small, young; Exposed to liabilities of newness (Aldrich &amp; Auster, 1986; Stinchcombe, 1965)</td>
<td>Variation in size: Small (Established SME) – Large; Less exposed to liabilities of newness (Hannan &amp; Freeman, 1984; Stinchcombe, 1965)</td>
</tr>
<tr>
<td>Growth stage</td>
<td>Start-up stage, early growth, later-growth (Cooper, 1981); Infancy, early growth, late growth (Chen, Zou, &amp; Wang, 2009)</td>
<td>Mature, slow growth</td>
</tr>
<tr>
<td>Resources</td>
<td>Incipient resources (Cooper, 1981; Hitt, Ireland, Camp, &amp; Sexton, 2001; Terjesen, Pantel, &amp; Covin, 2011); Small firms are subject to resource poverty (Welsh &amp; White, 1981)</td>
<td>Many (Typically, more than new ventures have)</td>
</tr>
<tr>
<td>Organizational structure</td>
<td>Short chain of command, informal methods (Cooper, 1981); Little formalization (Aldrich &amp; Ruef, 2006); Individual roles ambiguous / yet to be assigned (Sine, Mitsuhashi, &amp; Kirsch, 2006).</td>
<td>Bureaucratic (Aldrich &amp; Auster, 1986)</td>
</tr>
<tr>
<td>Routines</td>
<td>Lack productive routines necessary for transforming resources into products and services (Nelson &amp; Winter, 1982; Schumpeter, 1934)</td>
<td>Routines exist</td>
</tr>
<tr>
<td>Legitimacy</td>
<td>Has yet to be gained, e.g. no track record (Zimmerman &amp; Zeitiz, 2002)</td>
<td>Has been gained over time (DiMaggio &amp; Powell, 1983)</td>
</tr>
</tbody>
</table>

Ireland et al. (2003) note that particularly small companies and new ventures have historically been relatively skilled in identifying and exploiting entrepreneurial opportunities. New ventures are the vehicle through which entrepreneurs develop and market their product ideas. By founding and organizing a firm, entrepreneurs often assemble, coordinate, and orchestrate the resources needed to exploit market opportunities and introduce new products into the market (Alvarez & Barney, 2004; Peteraf & Barney, 2003). In particular, a new venture’s innovativeness stems from a strong emphasis on R&D, concentration of the venture’s resources on developing new products, and introducing a variety of its new product lines (Li & Atuahene-Gima,
As new ventures are exposed to high uncertainty and survival/success rates are low (Knaup, 2005), research focusing on the individual entrepreneur has investigated the motives and founder identities of individuals to initially become entrepreneurs (Fauchart & Gruber, 2011), as well as how entrepreneurs organize their firms (Alvarez & Barney, 2005). By the nature of their recent coming-into-existence, new ventures usually have incipient activities and resources (Burton & Beckman, 2007; Rindova & Kotha, 2006), and little power to influence other firms (Ozcan & Eisenhardt, 2009). Therefore, on firm-level, research has for instance focused on how entrepreneurial firms obtain resources, e.g. from investors (Hallen & Eisenhardt, 2012), and how entrepreneurial firms shape their organizational boundaries to increase influence on other firms and markets (Santos & Eisenhardt, 2009).

New ventures’ initial starting conditions pose not only a challenge on new ventures themselves, but also on other (established) firms that are to partner with new ventures because there is high uncertainty revolving new ventures’ true performance potential (Singh, Tucker, & House, 1986). From a supply chain perspective, supply chain integration has been identified as a key factor for growth and survival (Song, Podoynitsyna, van der Bij, & Halman, 2008). For established buying firms, on the one hand, the engagement into supply chain relationships with new ventures offers great opportunities to leverage new, entrepreneurial sources of supply. Yet, on the other hand, the buying firm faces great challenges in their supplier selection, evaluation, and development in order to effectively access and sustain the entrepreneurial activities of new ventures.
4 Research gap

Research with a pure entrepreneurship focus as well as supply chain research incorporating an entrepreneurship lens predominantly focuses on the new venture as unit of analysis (i.e., new ventures’ strategies, actions, and so forth), but has paid less attention to established firm as central unit of analysis in established firm-new venture relationships. As stated below, the pertinent supply chain management literature is therefore scarce of research that addresses how established firms specifically manage relationships with new ventures.

In general, supply chain scholars have produced extensive empirical studies on supplier selection and evaluation (for a review, see for example, Ho et al., 2010) as well as on supplier development (for a review, see for example, Stucky & Durst, 2013). Given that suppliers are an important source of innovation (von Hippel, 1988), firms have become increasingly aware of the need to tap into the innovativeness of suppliers (Azadegan & Dooley, 2010; Wagner & Bode, 2014). Accordingly, building on the supply chain literature, scholars have devoted much effort into researching how buying firms can identify relevant innovations at their suppliers (Dyer & Singh, 1998; Schiele, 2006; Wagner & Johnson, 2004), use a variety of supplier integration and development initiatives to stimulate and leverage supplier innovations (Perols, Zimmerman, & Kortmann, 2013; Petersen, Handfield, & Ragatz, 2005), and integrate, leverage, and utilize these innovations in their own new product development (Koufteros, Vonderembse, & Jayaram, 2005; Song & Di Benedetto, 2008). The supply chain literature has made distinctions with respect to the nature of the supplier in terms of new suppliers versus existing suppliers (i.e., whether or not the supplier has previously been part of the buying firm’s supply base), as well as considered company size and
differences across industries. However, no studies have yet specifically studied how buying firms manage supply chain relationships with new ventures.

Entrepreneurship literature addressing new ventures’ interfirm relationships (and directly/indirectly broaching supply chain relationships) has shown that such relationships are key for new venture performance and survival, because new ventures can gain legitimacy and access resources through ties with established and potent exchange partners (Stuart, Hoang, & Hybels, 1999). New ventures create and demarcate the market for “their” product by establishing exchange relationships with incumbent firms (Santos & Eisenhardt, 2009). It has been suggested that it is most advantageous for new venture firms when they partner with responsive and collaborative firms (Larson, 1991, 1992; Ozcan & Eisenhardt, 2009). Interfirm relationships in the form of supply chain relationships, defined as those relationships in which the new venture is either buyer or supplier to other firms, are one of the most important success factors for new ventures (Song et al., 2008). Such relationships can provide the new venture with market legitimacy (Hills & Sarin, 2003), suggesting that new ventures seek out supply chain partners that possess the market credibility, expertise, and willingness to experiment that is required to survive and persist in dynamic environments and emerging markets (Golicic & Sebastiao, 2011; Sebastiao & Golicic, 2008). For example, through collaboration with established suppliers, new ventures can build an efficient, low cost supply chain, and thus efficiently market their products (Golicic & Sebastiao, 2011; Song & Di Benedetto, 2008). New ventures therefore have a clear motive and incentive to engage in buyer-supplier relationships with established firms.

In addition, entrepreneurship literature has shown that buying firms can also benefit greatly from supply chain relationships with new ventures in that new ventures
stimulate future business growth and technology and product innovation (Larson, 1991). Having said that, forming interfirm linkages and partnerships involving new venture firm takes time and effort (Lorenzoni & Ornati, 1988). Relating to this point, Larson (1991) stresses the importance of reciprocity, integration, and continuous improvement efforts in the evolution of partnerships between entrepreneurial and established firms.

In summary, first, buying firms can access and leverage (new, innovative) sources of supply through effective and efficient supply chain management, i.e. selection, evaluation, and development of capable suppliers; second, new ventures can be valuable innovative suppliers and depend on external resources inputs which buying firms can provide; third and finally both the entrepreneurship and supply chain literature are scarce of contributions that add to the understanding of the role of established firms in the established firm-new venture dyad. Taking these points into consideration and leaning on Kickul et al. (2011), this dissertation’s guiding research question is: how do established buying firms manage the relationship with young, innovative, and entrepreneurial suppliers? The following section explains what is done to investigate this question.

5 Research design

Given the unique characteristics of new ventures and the scarcity of research related to how buying firms manage supply chain relationships with new ventures, this dissertation aims at shedding light on this issue from different angles. In this dissertation, each of the three papers represents an independent, stand-alone piece of research that offers novel perspectives on the proposed topic. In all papers, the primary unit of analysis is the buying firm. The empirical investigations surround explaining
how buying firms manage supply chain relationships with new ventures by studying buying firms’ perception, supplier selection-decision making, supplier evaluation, and supplier development with respect to new ventures.

The increased complexity of supply chain management research calls for the use of interdisciplinary and multi-method approach (Sanders & Wagner, 2011). In the dissertation papers, literatures from supply chain management as well as entrepreneurship are integrated to derive the specific research gap and question(s) as well as to provide the necessary theoretical framing. Moreover, additional theories, frameworks, and concepts are leveraged to develop and support the proposed research models. More specifically, the first paper (chapter II) draws upon signaling theory, the organizational learning perspective, and the legitimacy concept within institutional theory to investigate how buying firms perceive new ventures as legitimate exchange partners as well as how previous experiences shape these perceptions. The second paper (chapter III), leverages the concept of competitive priorities within the operations management literature as well as literature on supplier development to explain how buying firms influence new venture-specific relationship outcomes. The third paper (chapter IV) draws on literature from organizational capabilities, supplier evaluation and development as well as relationship-marketing to propose a priori constructs that help mapping the buying firms’ specific course of action when collaborating with new ventures.

To arrive at a more comprehensive view and understanding of a phenomenon, researchers are urged to employ multiple methods (i.e. data sources and corresponding analysis methods) to investigate that phenomenon (Boyer & Swink, 2008). This dissertation uses two sources of data. Appropriate data collection methods and
assessments have been used to ensure and verify the quality of the data to warrant confidence in the validity of the research findings.

In the first and second paper, a large-scale hypotheses testing approach using survey-based data is followed. Through surveys, data can be directly collected from the individual responsible for the particular unit of interest (i.e. buying firms). Surveys allow assessing “latent” variables and perceptual measures that represent organizational norms, functions, and behaviors that are not reported in secondary data sources (Boyer & Swink, 2008). In the third paper, an exploratory, qualitative research approach using case-based, open-ended interviews is followed. This approach allows the in-depth investigation of a contemporary phenomenon and focus on specific dynamics and settings within companies (Barratt, Choi, & Li, 2011; Eisenhardt, 1989). From the epistemological standpoint, the first and second paper uses existing theory/theoretical concepts to predict relationships among proposed variables. The analyses and results inform about whether these particular variables have an impact on the outcome of interest (dependent variable) and how strong the impact is. The third paper uses existing theory/theoretical concepts to formulate a priori constructs to gain basic understanding about potential relationships among variables (Eisenhardt, 1989). However, the final constructs and variables completely emerge from the data, such that theory is built rather than tested (Eisenhardt & Graebner, 2007).

In combination, the use of different theories, frameworks, concepts, and methodological approaches complement each other and deliver comprehensive and unique insights into the relationships between buying firms and new ventures, as well as offer interesting theoretical and managerial contributions to the supply chain management and entrepreneurship literature.
6 Summary of the papers

In the following section, the three papers that constitute the core of this dissertation are summarized. These extended abstracts present the papers in terms of their specific research gap and questions, theoretical underpinning, methodologies, and research contributions. An overview appears in Table 2.

6.1 New kids on the block: Selecting new ventures as suppliers

The first paper focuses on supplier selection and investigates how buying firms perceive new ventures in their supplier selection decision making process. Supplier selection decision making is the process in which the buying firm determines if a firm qualifies as a possible supplier, followed by the buying firm’s actual yes-or-no decision whether the firm under consideration will enter the buying firm’s supplier base. Essentially, when making such selection decisions the buying firms seeks to minimize the uncertainty associated with new suppliers, while new ventures attempt to maximize their efforts in being perceived as appropriate, desirable, and capable. Typically, a selection process based on means-end rationality would lead to the exclusion of new ventures when at least one established firm with a proven track record of meeting the buying firm’s selection criteria is a viable alternative (Zimmerman & Zeitz, 2002).

The literature addresses supplier selection in light of multiple selection criteria and a variety of contexts (e.g., Ho et al., 2010; Rosenblatt, Herer, & Heftner, 1998; Sarkis & Talluri, 2002), but no specific work has deliberately investigated scenarios in which the buying firm is to potentially select new ventures. Thus, the literature does not explain how a buying firm would perceive (and select) a potential supplier in circumstances where validity cues are either associated with high uncertainty or are entirely absent as it is the case of new ventures.
Drawing on signaling theory (Spence, 1973), the legitimacy concept with in institutional theory (Suchman, 1995), and organizational learning (Levitt & March, 1988), the paper develops and tests a proposed model of supplier selection involving new ventures. The paper argues that the buying firm bases its selection decision on the new venture’s quality signals, which the buying firm receives in the form of behaviors, actions, and characteristics. The paper conceptualizes these signals as *perceived new venture legitimacy*. Moreover, the paper argues that a buying firm’s prior purchases from new ventures, termed *new venture-specific experience*, produce different perceptions of the new venture’s legitimacy. The paper explores two research questions. First, what is the relationship between *perceived new venture legitimacy* and the probability of being selected as a supplier? Second, how is this probability of selection affected by the buying firm’s *new venture-specific experience*?

The results, obtained from a logistic regression analysis of 150 individual supplier selection decisions of buying firms, suggest that perceived new venture legitimacy increases the probability that a new venture will be selected as supplier. However, as predicted by the theory, the results suggest two conditions that frame this positive effect: The effect comes with diminishing marginal returns and, in addition, is attenuated by the buying firm’s prior experience with new ventures. Overall, the study’s contribution lies in a detailed empirical analysis of the important “new venture legitimacy”-construct and its role in the initiation of exchange relationships between buying firms and new ventures.
6.2 The effects of buying firms’ strategic and operational postures on relationship outcomes with new ventures

The second paper focuses on the buying firms’ selection and development of suppliers. Given the pivotal role of the buying firm in creating value with its suppliers (Vonderembse & Tracey, 1999; Watts, Kim, & Hahn, 1992) the phenomenon of interest in this study revolves around how buying firms influence relationship outcomes with new ventures. Thereby the study’s focus is on organizational characteristics that buying firms can directly influence: their strategic and operational postures to selecting and developing new ventures as suppliers.

Literature from competitive priorities in purchasing and supply chain management (Krause, Pagell, & Curkovic, 2001; Ward, McCreery, Ritzman, & Sharma, 1998) and from supplier development (Das, Narasimhan, & Talluri, 2006; Krause, Scannell, & Calantone, 2000; Monczka, Trent, & Callahan, 1993; Wagner, 2010a) provide the theoretical and conceptual background. Competitive priorities capture buying firms’ strategic postures as this concept refers to the firm’s emphasis on developing specific key capabilities to enhance its competitive position (Boyer & Lewis, 2002; McKone-Sweet & Lee, 2009; Sanders & Premus, 2002). Extending this concept to the firm’s purchasing function (González-Benito, 2007; Krause et al., 2001), the purchasing function’s competitive priorities are the strategic business objectives and goals of a firm’s buying organization (Kroes & Ghosh, 2010). Buying firms’ supplier development relates to the operational postures. In the study, supplier development is used in the sense of the buying firm’s external supplier development (i.e. directed at the supplier) measures and practices to develop, advance, and further supplier capabilities.

Specifically, the study develops and—based on cross-sectional survey data of 136 buying firms—tests a model that addresses the following two research questions. First,
how do firms’ *supplier selection orientation*, more specifically *cost orientation* and *innovation orientation in supplier selection*, influence new venture-specific relationship outcomes? Second, how do firms’ *new venture supplier development*, in particular *indirect* and *direct development*, influence new venture-specific relationships outcomes?

From the strategic perspective of the established buying firm, the results show that firms pursuing a strategy of selecting innovative suppliers do in fact realize innovations with new ventures. The results from the relationships between the firm’s cost orientation in supplier selection and new venture-specific outcomes suggest that a low-cost approach does not significantly lower the firm’s tendency to buy from new venture suppliers; but this approach interferes with the realization of innovative outcomes. Second, from the operational perspective of the established firm, strong opposing effects of direct and indirect new venture development on new venture-specific relationship outcomes were observed. Third, from an integrated strategic and operational perspective of the established firm, the results suggest that a buying firm should align its strategic supplier selection and operational supplier development with respect to new ventures when contracting them as suppliers.

The study extends the literature on buyer-supplier relationships in that it closely examines the buyer side in relationships between established firms as buyers and new ventures as suppliers. From the buying firm’s viewpoint, the study relates to the important question of how buying firms create valuable outcomes with and, thus benefit, from new, entrepreneurial ventures. Vice versa from an entrepreneurship viewpoint, the study addresses how new ventures can benefit from engaging in relationship with established buying firms.
6.3 **New venture-partnering capability: An empirical investigation into how buying firms effectively leverage the capabilities of innovative new ventures**

The third paper focuses on buying firms’ capacity to leverage the capabilities of new ventures. From a supply chain perspective, the paper focuses on supplier evaluation and development as well as takes context factors and antecedents into account. The paper uses an exploratory, qualitative approach that is underpinned by literatures from organizational supply chain capabilities (McKone-Sweet & Lee, 2009; Wu, Melnyk, & Flynn, 2010), supplier assessment and development (e.g., Das et al., 2006; Monczka, Petersen, Handfield, & Ragatz, 1998; Ragatz, Handfield, & Scannell, 1997), and relationship marketing (e.g., Palmatier, Dant, Grewal, & Evan, 2006; Wilson, 1995).

The study is based on the analysis of 10 buyer-supplier relationships between established firms (as buyers) and new ventures (as suppliers) and investigates how buying firms manage their relationships with new ventures at a micro level.

The study offers a set of propositions on how firms partner effectively with new ventures when they evaluate, develop, and communicate with new ventures as well as how firms govern the relationship with new ventures. At the core of the analysis stands the conceptualization of the buying firm’s *new venture-partnering capability* (NVPC). NVPC is proposed to be a differentiated organizational capability and delineates a buying firm’s capacity to appropriately account for new ventures’ specifics and characteristics, and accordingly, gear the firm’s supplier management processes and deployment of resources towards new ventures. The conceptualization of NVPC identifies ways of deploying resources with individual positive effects on forming a healthy and stable partnership. Moreover, the conceptualization points to the importance that individual measures complement and amplify each other.
The theoretical conceptualization of NVPC and the proposed effect on effective new venture-partnering augments the literature on the operations and supply chain literature that has used the organizational capabilities perspective to study supply chain strategies and capabilities (McKone-Sweet & Lee, 2009) or taxonomies of operational capabilities (Wu et al., 2010). Overall, this study adds to the comprehension of buying firm’s organizational supply chain capabilities which focus on the upstream-side of a firm’s supply chain and how these capabilities relate to the firm’s management of young, entrepreneurial suppliers.
Table 2: Overview of dissertation papers.

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<th>Paper 1 (Chapter II)</th>
<th>Paper 2 (Chapter III)</th>
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<td><strong>Title</strong></td>
<td>New kids on the block: Selecting new ventures as suppliers</td>
<td>The effects of buying firms’ strategic and operational postures on relationship outcomes with new ventures</td>
<td>New venture-partnering capability: An empirical investigation into how buying firms effectively leverage the capabilities of innovative new ventures</td>
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<tr>
<td><strong>Supply chain management focus</strong></td>
<td>Supplier selection</td>
<td>Supplier selection, supplier development</td>
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<td><strong>Core of investigation</strong></td>
<td>Buying firms’ perception of new ventures as capable exchange partners in supplier selection decision making</td>
<td>Buying firm’s cost-innovation orientation in purchasing and supplier development practices and their influence on value creation with new ventures</td>
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<tr>
<td><strong>Theoretical foundation</strong></td>
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<td>Organizational supply chain capabilities; supplier evaluation and development; relationship marketing</td>
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<tr>
<td><strong>Methodological approach</strong></td>
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<td>Quantitative, hypotheses-testing</td>
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<tr>
<td><strong>Data</strong></td>
<td>Self-administered survey, n = 150</td>
<td>Self-administered survey, n = 136</td>
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<td><strong>Epistemological stage</strong></td>
<td>Existing theory and concepts are used to conceptualize new constructs and predict relationships among variables; theory testing</td>
<td>Existing theory and concepts are used to leverage existing scales and predict relationship among variables; theory testing</td>
<td>Existing theory and concepts are used to formulate a priori constructs; new variables and constructs emerge from data; theory development</td>
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<td><strong>Major contributions</strong></td>
<td>Theoretical: Differentiated impact of perceived new venture legitimacy, and related new venture-specific experience</td>
<td>Theoretical: Highlighting which and how buying firms’ strategic and operational postures impact new venture-specific outcomes</td>
<td>Theoretical: Synthesis of findings into theoretical framework with the conceptualization of buying firm’s new venture-partnering capability at its core</td>
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<td>Empirical: Development of scales for testing of proposed constructs</td>
<td>Practical: Buying firms need to align their supplier selection and development more stringently to accommodate for new venture supplier</td>
<td>Practical: Institutionalize and systematically manage new venture-partnering process</td>
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<td></td>
<td>Practical: Selection goes beyond formal evaluation. Buying firms’ should adjust “supplier evaluation catalogue”</td>
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7 Conclusion

This dissertation constitutes a further step in researching and understanding relationships between established buying firms and their new venture suppliers. To answer the guiding research question *how do established buying firms manage the relationship with young, innovative, and entrepreneurial suppliers?*, the dissertation took a threefold approach and investigated several aspects within the buyer-supplier management process from the buying firm’s perspective. The dissertation offers several unique insights into how buying firms perceive new ventures in supplier selection-decision making (perceived new venture legitimacy and new venture-specific experience), buying firms’ supplier selection strategy and development (strategic and operational postures) and their effect on new venture-specific relationship outcomes, and buying firms’ overall capacity to effectively leverage the innovative potential of new ventures (new venture-partnering capability). While innovative new ventures are valued and appreciated as suppliers, buying firms differ significantly in their management of new ventures. Along with the increasing need to integrate innovative suppliers into the supply chain, most buying firms are still to evolve toward a more systematic approach of managing new ventures. This dissertation contributes to the current academic discussion in the field of operations and supply chain management and entrepreneurship and holds relevant implications for practitioners.
Chapter II  New kids on the block: Selecting new ventures as suppliers

1 Introduction

Acquiring customers is essential for a new venture’s performance, growth, and survival (Larson, 1991; Reuber & Fischer, 2005; Song et al., 2008; Venkataraman & Van de Ven, 1998; Yli-Renko, Sapienza, & Hay, 2001). Likewise, identifying, selecting, and contracting with capable suppliers is an important factor in the success of established firms (Krishnan & Ulrich, 2001; Narasimhan, 1983). New ventures have a special appeal as suppliers for established firms, because new ventures are often more flexible, dynamic, and innovative than established suppliers (Kickul et al., 2011; Rothaermel, 2002). Yet, from the perspective of external stakeholders – such as established firms and their supplier selection – there is a considerable amount of uncertainty revolving around new ventures’ true capabilities and performance potential (Singh et al., 1986).

Unlike established firms, new ventures suffer from “liabilities of newness” (Stinchcombe, 1965). Despite new ventures’ attractiveness, the lack of a track record, limited resources, and information asymmetries with respect to the true performance potential make the selection of new ventures as suppliers a risky undertaking for buying firms (Wathne, Biong, & Heide, 2001; Wathne & Heide, 2000). In interviews, conducted in a pilot study for this research, a purchasing manager from a European sensor manufacturer expressed the problem as follows:
“New ventures bring new ideas to the market and they are innovative. That’s why they are important to us as suppliers. However, we are always looking for the best supplier there is. We need partners who get the job done. Honestly, when selecting a new venture, the uncertainty factor is much, much higher because they don’t have many references. We ask ourselves: Are they really up to it?”

Buying firms may tap into the innovativeness of new ventures through vertical integration, but acquisitions can also impair innovativeness (Hitt et al., 1991), or conditions conducive to a takeover may not be present (Graebner, Eisenhardt, & Roundy, 2010). Alternatively, firms may utilize the potential embedded in a new venture by engaging in a buyer-supplier relationship with the new venture (Dyer & Singh, 1998). However, the literature does not explain how a buying firm would perceive a potential supplier in circumstances where validity cues are either associated with high uncertainty or are entirely absent.

To address this issue and to develop a model of supplier selection involving new ventures, this study adopts an integrated perspective of signaling theory (Spence, 1973), the organizational learning perspective (e.g., Levitt & March, 1988), and the legitimacy concept within institutional theory (Meyer & Rowan, 1977). The study considers two parties: An established buying firm that evaluates and selects suppliers in order to obtain necessary inputs and a new venture which is a potential supplier that has been in business for less than six years and was founded by one or more independent entrepreneurs. Supplier selection decision making is the process in which the buying firm determines if a firm (e.g., a new venture) qualifies as a possible supplier, followed by the buying firm’s actual yes-or-no decision whether the firm under consideration will enter the buying firm’s supplier base. Essentially, when making such selection decisions the buying firms seeks to minimize the uncertainty associated with new suppliers, while
new ventures attempt to maximize their efforts in being perceived as appropriate, desirable, and capable. The study argues that the buying firm bases its selection decision on the new venture’s quality signals, which the buying firm receives in the form of behaviors, actions, and characteristics. The study conceptualizes these signals as *perceived new venture legitimacy*. Moreover, the study argues that a buying firm’s prior purchases from new ventures, termed *new venture-specific experience*, produce different perceptions of the new venture’s legitimacy.

Based on a data set of 150 selection decisions gathered from a large-scale cross-sectional survey, this study explores two research questions: What is the relationship between *perceived new venture legitimacy* and the probability of being selected as a supplier? How is this probability of selection affected by the buying firm’s *new venture-specific experience*? Recent articles have highlighted research opportunities at the interface between entrepreneurship and operations management/supply chain management (Ireland & Webb, 2007; Kickul et al., 2011). The study responds to these calls and the results offer insights into the exchange relationships between established firms and new ventures, a topic which continues to attract interest in the literature (Hoskisson, Covin, Volberda, & Johnson, 2011; Ireland & Webb, 2007; Kickul et al., 2011). The study does this by first examining if and how relationships between established firms (as buyers) and new ventures (as suppliers) are formed. Second, the study’s theoretical conceptualization of perceived new venture legitimacy and new venture-specific experience contributes to a growing body of the legitimacy of new ventures and the factors that influence it (Nagy, Pollack, Rutherford, & Lohrke, 2012; Tornikoski & Newbert, 2007; Zimmerman & Zeitz, 2002).
2 Theoretical background and hypotheses

2.1 Supplier selection in established firms

Given the importance of a capable supplier base (Krishnan & Ulrich, 2001; Narasimhan, 1983), firms have a strong incentive to select the right suppliers and examine potential suppliers with great care. Identifying, selecting, and contracting with suppliers is costly, because relevant supplier information has to be gathered, interpreted, and synthesized for decision making. The information needed to arrive at a judgment of suppliers’ capabilities are either gathered by the buying firm itself or made available by a potential supplier during a series of interactions between the two parties. Usually, the selection of a supplier is a controlled process, because buying firms have organizational routines in place that ensure reliability and validity of the evaluation and selection. Moreover, because the power differential is often in favor of the buying firm, it controls when and how the evaluation is conducted. Hence, the firms’ judgment of the supplier’s capabilities will be formed only after careful evaluation of the information at hand. In addition, the term decision implies that firms may choose between at least two prospective suppliers. Otherwise, there is nothing to decide or select (i.e., a sole sourcing setting).

The literature addresses supplier selection, in light of multiple selection criteria (e.g., Ho et al., 2010; Narasimhan, 1983; Rosenblatt et al., 1998; Sarkis & Talluri, 2002), in the presence of different bundling scenarios (Rosenthal, Zydiak, & Chaudry, 1995), in specific industries (Choi & Hartley, 1996), with respect to product configuration (Kim & Wagner, 2012), and product life cycle (Narasimhan, Talluri, & Mahapatra, 2006), and with attention to relationship attributes such as suppliers’ customer orientation and customer-supplier similarity (Wagner, 2010b). However, most
of the research has been limited to established suppliers. There is a lack of studies that have empirically investigated supplier selection decisions involving new ventures. It seems likely that buying firms – at least those that have never purchased manufactured goods from a new venture – evaluate new ventures against the same performance criteria as established suppliers. For example, Ho et al. (2010) found that the two primary selection criteria are quality (e.g., “ISO quality system installed,” “quality data and reporting”) and delivery (e.g., “compliance with due date”) performance. Assuming risk aversion, a supplier selection decision making process that is based strictly on such means-end rationality would lead to the exclusion of new ventures when at least one established firm with a proven track record of meeting these criteria is a viable alternative.

However, previous studies have documented that economic transactions between firms also involve more subtle factors that go beyond purely technical aspects such as cost, quality, and delivery. One such factor, for example, is interpersonal relationships (Ulaga & Eggert, 2006; Wathne et al., 2001). Wilson (1995) suggested that trust and social bonds are important when firms form buyer-supplier relationships. Specifically, as highlighted in the introduction, buying firms might find it difficult to evaluate the performance potential of new ventures because, in most cases, trusted signals of performance quality are missing. In order to compensate for this ambiguity in their decision making, the study argues that buying firms form a judgment about new venture’s legitimacy, as perceived during the supplier selection decision making process, which becomes the basis for their selection decision. To conceptualize this construct, the study uses a theoretical lens that combines signaling theory and
institutional theory which contends that firms signal legitimacy in order to acquire the resources for their survival (Certo, 2003).

2.2 Perceived new venture legitimacy: a signaling theory approach

Signaling theory is concerned with the behavior of two interacting parties, typically a signal sender and a receiver, in situations of information asymmetry (Spence, 1973). Connelly et al. (2011, p. 42) explained that “[b]ecause some information is private, information asymmetries arise between those who hold that information and those who could potentially make better decisions if they had it.” A broad type of information is about underlying \textit{quality} and the associated information asymmetry is important when one other party is not fully aware of the characteristics, that is, the unobservable ability to conform to some requirements, needs, or demands, of the other party (Connelly et al., 2011). In the most basic signaling setting, the signal sender (e.g., a supplier) possesses certain qualities and sends a corresponding signal to the receiver (e.g., a buying firm). The receiver observes and interprets the signal and, based on this interpretation, constructs its beliefs about the quality of the sender (Connelly et al., 2011).

Signaling theory has been widely used to investigate the outcomes of decision making processes. Specifically, in entrepreneurship research, studies have examined, for example, the signaling value of top management heterogeneity on potential investor decisions’ (Zimmerman, 2008), the effect of top management teams’ composition on the decisions of potential investors (Higgins & Gulati, 2006), and firm characteristics listed in prospectuses on investment bankers’ initial stock price decisions (Daily, Certo, & Dalton, 2005). When being involved in a supplier selection decision making process, new ventures are also likely to send signals because their underlying quality is not
directly observable and buying firms’ might wonder if new ventures are able to meet their specific requirements. If the selection of a supplier is seen as an investment, for example, if the buying firm offers technical and financial assistance to the supplier (Das et al., 2006), and the return is a profitable buyer-supplier relationship, then the new venture’s legitimacy signals the buying firm that the new venture is properly constituted and is likely to perform well as a supplier (Zimmerman & Zeitz, 2002).

Consistent with this argument derived from signaling theory, the study theorizes the important role of perceived new venture legitimacy in the supplier selection decision making process. Based on the widely adopted definition of organizational legitimacy proposed by Suchman (1995, p.574) perceived new venture legitimacy can be defined as buying firm’s perception of the new venture’s actions and attributes as appropriate, desirable, and capable such that the new venture is considered a serious candidate for selection. Institutional theory suggests that organizational legitimacy is of paramount importance for the performance and survival of firms (Meyer & Rowan, 1977). Scholars have extended the concept to new ventures in that legitimacy is a critical ingredient for a new venture to be considered as viable exchange partner by other firms (Starr & MacMillian, 1990; Tornikoski & Newbert, 2007; Zimmerman & Zeitz, 2002) because, from the perspective of established firms, “[new ventures’] legitimacy provides a basis for decision-making that is different from means-end rationality” (Zimmerman & Zeitz, 2002, p. 416). For example, the study of IPOs of biotechnology ventures by Deeds et al. (2004) suggests that investors assess venture quality not only on the basis of traditional performance metrics, but also on the venture’s legitimacy.

Different typologies of legitimacy (Scott, 2008; Suchman, 1995; Zimmerman & Zeitz, 2002) and strategies for managing legitimacy have been proposed in the
literature. The pertinent entrepreneurship literature suggests that new ventures may compensate for the liabilities of newness by actively managing or passively exhibiting organizational legitimacy (Delmar & Shane, 2004; Tornikoski & Newbert, 2007; Zimmerman & Zeitz, 2002; Zott & Huy, 2007). Essentially, legitimacy is a perception held by an organization’s external audience (Tornikoski & Newbert, 2007). Economic exchange is suggested as an antecedent of legitimacy (Terreberry, 1968), but economic exchange between two firms does not necessarily provide evidence for the legitimacy of either party (Dowling & Pfeffer, 1975). In this study, legitimacy is viewed as a premise for economic exchange (i.e., legitimacy as the cause of selection). Similar to Tornikoski and Newbert (2007, p. 316), the study focuses on pragmatic legitimacy which can be inferred by the willingness of new ventures’ most immediate audiences (e.g., buying firms) to engage in voluntary resource exchanges with new ventures (Elsbach & Sutton, 1995; Suchman, 1995).

Figure 1: A research model of the impact of perceived new venture legitimacy on the probability of selection.
The research model, shown in Figure 1, assumes that the buying firm’s legitimacy judgment reaches beyond conventional supplier evaluation repertoires and formal criteria employed in selection processes as depicted in Figure 2. Within the selection process, a buying firm’s legitimacy judgment about a new venture involves but is not limited to assessing the supplier on several operational criteria such as quality, delivery, flexibility, and price. Legitimacy judgments also exceed the scope of the traditional supplier’s assessment repertoire. A buying firm’s observations may include, for example, symbolic actions by the entrepreneur intended to signal the potency of her or his young venture, thus contributing to its legitimacy (Pfeffer, 1981; Zott & Huy, 2007). The legitimacy judgment may take into account observations and information that the buying firm has collected during the evaluation process, which are then combined and translated into a judgment of legitimacy reflecting the new venture’s appropriateness, desirability, and capability. In the following, the four major “subjects of legitimation,” (or dimensions of legitimation) described as “those social entities, structures, actions, and ideas whose acceptability is being assessed” (Deephouse & Suchman, 2008, p. 54) are presented and it is suggested that the buying firm’s judgment formation occurs along these four dimensions which are relevant in their supplier selection decision making:

![Figure 2: Simplified anatomy of supplier selection decision making involving a new venture.](image-url)
new venture’s legitimacy at the levels of the market, the firm, the individual, and the environment.

**Market-level legitimacy.** Market-level legitimacy refers to the extent to which new ventures are firmly embedded in the market. When coming into existence, new ventures lack a track record of accomplishments and ties to customers and suppliers. Over time, however, new ventures develop legitimacy at the market-level by successfully operating in their market domain, for example, by attracting suppliers and launching their first products (Song, Song, & Di Benedetto, 2011; Song & Di Benedetto, 2008). In addition, scholars have claimed that only certain actors can confer legitimacy by acts of approval (e.g., Deephouse, 1996; Galaskiewicz, 1985). From a buying firm’s perspective such actors are likely to be other established firms.

**Firm-level legitimacy.** Firm-level legitimacy is the extent to which new ventures possess organizational maturity in terms of developed competencies. Prerequisites of successful venturing are in-house competences and capabilities to meet customer demands. In the course of their development, new ventures can gather legitimacy at the firm-level by acquiring the manufacturing competencies necessary to operate and by adopting the regulations and standards created by credentialing associations or other firms new ventures would like to do business with. For example, General Electric Aviation requires that the employees of suppliers pass security checks to ensure security of GE’s facilities (General Electric, 2013).

**Individual-level legitimacy.** Individual-level legitimacy refers to the extent to which new ventures are socially desirable on the interpersonal level. As mentioned above, interpersonal relationships have been identified as key to developing a buyer-supplier relationship (Wathne et al., 2001; Wilson, 1995). Research in relationship
marketing, for example, has found that professionalism (Pilling & Eroglu, 1994), likeability (Jones, Moore, Stanaland, & Wyatt, 1998), and credibility (Doney & Cannon, 1997) contribute to the personal relationships that ensure the stability of buyer-supplier relationships (Seabright, Levinthal, & Fichman, 1992). Buying firms will therefore assess actions and behaviors on the interpersonal level, for instance, in meetings and supplier visits. Representatives from the new venture will act in a manner that conveys credibility and professionalism (Clarke, 2011; Zott & Huy, 2007) in order to be perceived as appropriate and proper and thus earn legitimacy at the individual level.

Environmental-level legitimacy. Finally, environmental-level legitimacy refers to the extent to which new ventures are endorsed by their external environment. Prior research suggested that new ventures can increase their legitimacy through endorsements such as positive press coverage (Shane & Foo, 1999). Likewise, research on firm clusters suggests that younger firms benefit from agglomeration in that their innovative capabilities are enhanced (McCann & Folta, 2011) and thus new ventures can gain legitimacy by locating themselves in geographic “hot spots” of innovative firms (Pouder & St. John, 1996; Zimmerman & Zeitz, 2002).

In sum, new ventures with higher levels of market-, firm-, individual-, and environmental-level legitimacy are more likely to be associated with better overall performance. Eventually, the four lower-level dimensions of legitimacy are aggregated to a higher-level legitimacy construct (Deephouse & Suchman, 2008) and, subsequently, the buying firm forms its legitimacy judgment and uses it to come to determine whether or not a new venture is sufficiently appropriate, desirable, and capable to be selected as a supplier. Formally,
**Hypothesis 1a:** There is a positive relationship between new venture legitimacy (as perceived by the buying firm) and probability of selection.

Prior research argued that new ventures need to cross a certain “legitimacy threshold” in order to gain access to essential resources and evolve as an organization (Navis & Glynn, 2010; Zimmerman & Zeitz, 2002). Once new ventures have passed the threshold, they may face less difficulty in extending their legitimacy further (Überbacher, 2014). However, to what extent would an external actor, such as a buying firm, appreciate additional (above the threshold) accounts of legitimacy? The legitimacy threshold implies that new ventures have to possess a minimum account of legitimacy in order to be considered legitimate business partners, but higher accounts of legitimacy may not necessarily be more beneficial, contradicting a “more is always better” assumption. For example, the results of Cohen and Dean (2005) support this notion in that they found a diminishing effect of top management team (TMT) legitimacy (measured in prior TMT experience, prior industry experience, age of TMT member, and education of TMT member) on new venture performance in initial public offerings.

This leads to surmise that, in the context of supplier selection decision making, the buying firm requires that the new ventures possess a minimum amount of legitimacy (combined at the market, firm, individual, and environmental level) from which the buying firm can infer with good conscience that the supplier is reliable and capable. However, beyond the buying firm’s judgment whether the new venture is legitimate or not, a stronger perception of the new venture’s legitimacy will not translate into an increased selection probability. Therefore, a diminishing effect in the relationship is expected and predicted by Hypothesis 1a. Formally:
Hypothesis 1b: The positive effect of new venture legitimacy (as perceived by the buying firm) on the probability of selection diminishes as the total account of perceived new venture legitimacy increases from a lower to a higher level.

2.3 New venture-specific experience and its moderating effect on perceived new venture legitimacy

Organizational perceptions of environmental constituents and events are based on relevant prior experiences (Bode, Wagner, Petersen, & Ellram, 2011). Thus, in the interpretation process and based on prior experience, the signal receiver will likely calibrate and weight the received information which may amplify or attenuate the strength of the initial signal (Connelly et al., 2011). To explain how buying firms calibrate their interpretation of the new ventures’ legitimacy, the study uses the organizational learning perspective (e.g., Levitt & March, 1988) and focuses on the learning experiences that firms have collected in previous exchanges with new ventures. Hoang and Rothaermel (2005, p. 333) argued that “organizational learning occurs in an iterative manner when firms engage repeatedly in an activity, draw inferences from the related experiences, and store and retrieve the inferred learning for future engagements in the activity.”

The study conceptualizes the distinct experience from repeated exchanges with new ventures in buyer-supplier relationships as new venture-specific experience. The content of new venture-specific experience encompasses the depth and breadth of prior involvement in buyer-supplier-relationships with new ventures (before the selection decision). Because new ventures are different from large and small established firms, and although there is variation across the new venture population per se, this body of experience exclusively covers experience with this specific type of firm. Hence, new venture-specific experience can be distinguished from experience from repeated
interactions in exchange relationships across a diverse set of partners (general partner experience) and experience from repeated interactions in relationships with the same partner (partner-specific experience) (Hoang & Rothaermel, 2005).

On a macro-level, legitimacy is a generalized perception or assumption (Suchman, 1995), but, at the same time, legitimacy is always attributed to the organization by its constituents (Perrow, 1970). On a micro-level, legitimacy is constructed by the very exchange partner observing the organization that is subject to evaluation (Tost, 2011). While it is unlikely that two supplier selection decisions involving new ventures occur in the same way, previously gathered knowledge about new ventures will likely affect the buying firm’s perception of new venture’s actions and attribution in the selection process.

When there is no relevant experience with purchasing from new ventures, there are no established guidelines for making the purchasing decision and the buying firm is faced with a “judgmental new task” (Bunn, 1993, p. 49). In this case, the buying firm relies on the unfiltered perception of the new venture’s legitimacy. However, if present, new venture-specific experience will act as an information filter that suppresses irrelevant and enhances relevant information (Sinkula, 1994). In the selection process, buying firms decide if the new venture’s legitimacy signals are reliable, both in terms of signal fit and signal appropriateness (Connelly et al., 2011). Having accumulated new venture-specific experience, buying firms have learned to judge how well legitimacy signals sent by new ventures are correlated with their ability to perform well as suppliers. As a result, if new venture-specific experience is present, the buying firm’s selection process is likely to be adapted to new venture-specific actions and attributes
and, hence, the buying firm will likely be capable of assessing the true performance potential of new ventures.

Theoretically, the more new venture-specific experience is present, the stronger the buying firm will value signals of quality. For example, if the buying firm had previously selected a new venture that signaled legitimacy through an exchange-relationship with another firm in the market, the buying firm is able judge whether such signals are truly correlated with good supplier performance. Hence, building on the conceptualization of new venture legitimacy as a signal of quality, the buying firm’s repeated exchange with new ventures will amplify the magnitude of the perceived new venture legitimacy.

However, to the contrary, new ventures might use strategic signals that are correlated with a positive performance perception by the buying firm (Teece, Pisano, & Shuen, 1997). To increase the odds of being selected during the selection process, the new venture is likely to attempt to compensate for capabilities that they have not yet acquired (Clarke, 2011; Zott & Huy, 2007). New ventures attain legitimacy through tactical management of personal behaviors and organizational characteristics (Nagy et al., 2012). Hence, for example, if a new venture had previously signaled legitimacy by being able to comply with certain industry manufacturing standards, but the venture was not capable of living up these standards, the buying firm will not take this particular signal as sign of quality anymore. Thus, instead of valuing new venture legitimacy as a signal of quality, the new venture’s signals are attenuated by the buying firm’s prior experience with new ventures.

In summary, it is possible that, on the one hand, experienced buying firms value new ventures’ actions and attributes as an overall signal of quality stronger than
inexperienced firms, or on the other hand, experienced buying firm value them less or even have become rather skeptic. Thus, two opposing hypotheses are offered:

**Hypothesis 2a:** The positive relationship between new venture legitimacy (as perceived by the buying firm) and the probability of selection is stronger when the buying firm has much new venture-specific experience than it is when the established buying firm has little new venture-specific experience (*positive moderation*).

**Hypothesis 2b:** The positive relationship between new venture legitimacy (as perceived by the buying firm) and the probability of selection is stronger when the buying firm has little new venture-specific experience than it is when the established buying firm has much new venture-specific experience (*negative moderation*).

### 3 Methods

#### 3.1 Data and procedure

To empirically test the hypotheses, a survey of 1,385 firms in Switzerland, Austria, and Germany is conducted. Each case in the sample refers to a specific situation in which an established (incumbent) firm chose a supplier from between at least two firms, one of which was a new venture. The data were collected in two rounds (“Round 1”: November 2011 – February 2012, \(N = 1035\); “Round 2”: August – December 2012, \(N = 350\)) by means of a self-administered internet-based survey. Contact addresses were obtained from a commercial business data provider. Respondents were selected on basis of job function and firm size (the criterion was more than 50 employees). The survey targeted senior managers in purchasing and supply chain management who are likely to participate in the selection of suppliers.

Considerable attention was paid to the design of the survey instrument, especially the ease of use, burden on respondents, and maintaining their interest until the survey
was completed. The survey instrument provided only general information about the study’s objectives, but no specific information about the actual relationships under investigation. The survey offered anonymity (of the respondent and his/her firm) and confidentiality to reduce social desirability bias in the responses. In addition, following (Doty & Glick, 1998), the survey instrument emphasized the concreteness of the construct by anchoring responses in a particular situation. Respondents were asked to base their answers on the last selection decision that included a new venture regardless of whether the new venture was eventually selected or not. A definition of the term *new venture* consistent with the definition used in this paper was provided to ensure that all respondents had a common understanding. For new venture age, six years were chosen as cutoff, in congruence with the literature (e.g., Zahra et al., 2000). The selection decisions included a wide range of products for which a supplier (a firm offering a self-developed product, not a distributor) was sought, for example, tailor-made extrusion profiles, sensors for the use in instrumentation devices, development and implementation of software, re-engineering of a drive propulsion system, and mechanical components.

In exchange for their participation, respondents were offered a summary of the results and the opportunity to win an electronic device. For each round of mailing (“Round 1” and “Round 2”) an initial invitation and three follow-up e-mails were sent. In Round 1, 113 and, in Round 2, 37 complete and meaningful responses were received, equaling to a total of 150 usable responses. In each round the response rate was above 10%. The aggregated effective response rate is 10.8%. Recent surveys of procurement and supply chain management professionals have reported similar results (e.g., Bode et al., 2011; Gibson, Mentzer, & Cook, 2005).
The data collection yielded a heterogeneous sample covering a broad range of manufacturing industry sectors and firm sizes revealed no indication of systematic bias. The largest branches of industry represented in the sample are industrial machinery (20.6%), electronics, optics, and medical devices (14.0%), and automotive (12.0%). Respondents’ firms’ annual sales volume in 2012 ranged from less than US$ 1 million up to US$ 56,676 million \( (M = \text{US$} 1,195 \text{ million}, \ SD = \text{US$} 5,600 \text{ million}) \), and firms’ number of employees ranged from less than 100 to 400,000 \( (M = 8,149, \ SD = 40,019) \). Most of the respondents were senior managers in purchasing and supply chain management. They had been in their current position for an average of 9.48 years \( (SD = 6.89) \) and with their firms for 14.97 years \( (SD = 9.53) \). In addition, respondents indicated that they had work experience in supply chain management and associated tasks for an average of 17.18 years \( (SD = 8.85) \). In summary, respondents were knowledgeable about supplier decision making. An overview of the sample composition appears in Table 3.
Table 3: Overview of sample composition (Paper 1).

<table>
<thead>
<tr>
<th>Industry sector</th>
<th>F</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial machinery</td>
<td>31</td>
<td>20.6%</td>
</tr>
<tr>
<td>Electronics, optics, medical devices</td>
<td>21</td>
<td>14.0%</td>
</tr>
<tr>
<td>Automotive</td>
<td>18</td>
<td>12.0%</td>
</tr>
<tr>
<td>Consumer goods</td>
<td>13</td>
<td>8.6%</td>
</tr>
<tr>
<td>Services</td>
<td>11</td>
<td>7.3%</td>
</tr>
<tr>
<td>Chemicals, plastic, rubber</td>
<td>11</td>
<td>7.3%</td>
</tr>
<tr>
<td>Paper and packaging</td>
<td>8</td>
<td>5.3%</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>8</td>
<td>5.3%</td>
</tr>
<tr>
<td>Engineering, construction</td>
<td>6</td>
<td>4.0%</td>
</tr>
<tr>
<td>Pharmaceuticals, health care</td>
<td>5</td>
<td>3.3%</td>
</tr>
<tr>
<td>Other</td>
<td>18</td>
<td>12.0%</td>
</tr>
</tbody>
</table>

Number of employees (in 2012)

<table>
<thead>
<tr>
<th>Number of employees (in 2012)</th>
<th>F</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 100</td>
<td>24</td>
<td>16.0%</td>
</tr>
<tr>
<td>100 – 249</td>
<td>38</td>
<td>25.3%</td>
</tr>
<tr>
<td>250 – 499</td>
<td>32</td>
<td>21.3%</td>
</tr>
<tr>
<td>500 – 999</td>
<td>7</td>
<td>4.7%</td>
</tr>
<tr>
<td>1,000– 4,999</td>
<td>22</td>
<td>14.7%</td>
</tr>
<tr>
<td>5,000– 9,999</td>
<td>2</td>
<td>1.3%</td>
</tr>
<tr>
<td>10,000 or more</td>
<td>12</td>
<td>8.0%</td>
</tr>
<tr>
<td>n/a</td>
<td>13</td>
<td>8.7%</td>
</tr>
</tbody>
</table>

Annual revenues (in USD) (in 2012)

<table>
<thead>
<tr>
<th>Annual revenues (in USD) (in 2012)</th>
<th>F</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 50 million</td>
<td>51</td>
<td>34.0%</td>
</tr>
<tr>
<td>50 million – under 100 million</td>
<td>43</td>
<td>28.7%</td>
</tr>
<tr>
<td>100 million – under 250 million</td>
<td>14</td>
<td>9.3%</td>
</tr>
<tr>
<td>250 million – under 500 million</td>
<td>10</td>
<td>6.6%</td>
</tr>
<tr>
<td>500 million – under 1 billion</td>
<td>3</td>
<td>2.0%</td>
</tr>
<tr>
<td>1 billion – under 10 billion</td>
<td>12</td>
<td>8.0%</td>
</tr>
<tr>
<td>10 billion or more</td>
<td>4</td>
<td>2.7%</td>
</tr>
<tr>
<td>n/a</td>
<td>13</td>
<td>8.7%</td>
</tr>
</tbody>
</table>

Titles of informants

<table>
<thead>
<tr>
<th>Titles of informants</th>
<th>F</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>President; CEO</td>
<td>16</td>
<td>10.7%</td>
</tr>
<tr>
<td>Senior Vice President, CxO</td>
<td>18</td>
<td>12.0%</td>
</tr>
<tr>
<td>Vice President</td>
<td>43</td>
<td>28.7%</td>
</tr>
<tr>
<td>Director</td>
<td>46</td>
<td>30.7%</td>
</tr>
<tr>
<td>Manager</td>
<td>10</td>
<td>6.6%</td>
</tr>
<tr>
<td>Other</td>
<td>17</td>
<td>11.3%</td>
</tr>
</tbody>
</table>

Key responsibility of informants

<table>
<thead>
<tr>
<th>Key responsibility of informants</th>
<th>F</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procurement; Purchasing; Sourcing</td>
<td>64</td>
<td>42.7%</td>
</tr>
<tr>
<td>Supply chain management</td>
<td>28</td>
<td>18.7%</td>
</tr>
<tr>
<td>General management</td>
<td>22</td>
<td>14.7%</td>
</tr>
<tr>
<td>Logistics</td>
<td>10</td>
<td>6.6%</td>
</tr>
<tr>
<td>Production</td>
<td>8</td>
<td>5.3%</td>
</tr>
<tr>
<td>Other</td>
<td>18</td>
<td>12.0%</td>
</tr>
</tbody>
</table>

*The informants provided Euro (EUR) or Swiss franc values (CHF) which were converted into US-$ (USD) values (1 EUR = 1.309 USD; 1 CHF = 1.039 USD as of December 2012).
The ability of the respondents to recall the selection decision (recency effect) was a potential threat to the validity of the data. For this reason, the survey instrument asked for the exact date (year and month) of the selection decision. The reported selection decisions were distributed as follows by year: 2003-2009: 30 (20%), 2010: 32 (21%), 2011: 69 (46%), 2012: 19 (13%). Using these dates, the sample was divided into four groups and performed a multivariate analysis of variance (MANOVA) using the 20 measurement items from the main effect and the moderator variable to identify differences among these groups. No significant differences were found at the multivariate level (Wilks’ $\lambda = 0.47$, $p = 0.06$), and only one out of the 20 measurement items was significantly different at the univariate level ($p < 0.05$). Further, when analyzing groups with respect to firm sales, firm age, and number of employees, no statistical differences were detected at the univariate level ($p < 0.05$).

In order to assess whether nonresponse bias was present in the sample, a staggered approach was used for each data set (data from “Round 1” and “Round 2”) and across both data sets. First, differences between early and late respondents were inspected. No statistically significant differences ($p < 0.05$) among the responses from early versus late respondents for all items were found when assessing data sets individually. In addition, 50 randomly selected nonresponding firms drawn from each initial sample on annual sales, employees, and firm age (in 2010) were compared. No statistically significant differences between the groups were found ($p < 0.05$). In addition, both data sets were compared with each other on annual sales, employees, and firm age. Again, no statistically significant differences were found ($p < 0.05$).
3.2 Survey instrument and measures

Multi-stage scale development techniques for the reflective (DeVellis, 2003) and formative scales (Diamantopoulos & Winklhofer, 2001; Jarvis, MacKenzie, & Podsakoff, 2003; Petter, Straub, & Rai, 2007) were followed. This process included preliminary qualitative interviews with purchasing and supply chain managers and scholars, an extensive review of the literature on purchasing, supplier selection, and legitimacy, as well as a small pretest study. Inter-construct correlations are shown in Table 2. Except for the control variable product priority, which was measured on a seven-point semantic differential, seven-point rating scales (Likert-type) were used.

Table 4: Correlations of model variables (Paper 1).

<table>
<thead>
<tr>
<th>Variables</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Total number of suppliers involved</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2) New venture age</td>
<td>0.07</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3) Competitive intensity</td>
<td>0.12</td>
<td>0.07</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(4) Product priority</td>
<td>0.15</td>
<td>0.10</td>
<td>0.08</td>
<td>0.15</td>
<td>0.10</td>
<td>1</td>
</tr>
<tr>
<td>(5) Perceived new venture legitimacy</td>
<td>0.06</td>
<td>0.24</td>
<td>0.15</td>
<td>0.22</td>
<td>0.24</td>
<td>1</td>
</tr>
<tr>
<td>(6) New venture-specific experience</td>
<td>0.18</td>
<td>0.10</td>
<td>0.12</td>
<td>0.27</td>
<td>0.12</td>
<td>0.14</td>
</tr>
</tbody>
</table>

Mean (M) 3.40 2.77 4.64 4.56 4.14 3.61
Standard deviation (SD) 1.66 1.37 1.13 1.34 0.80 1.47

Note. Pearson product-moment correlation coefficients are shown. \( n = 150 \).
† \( p < 0.10 \), * \( p < 0.05 \), ** \( p < 0.01 \), *** \( p < 0.001 \) (two-tailed) (equals |r| > 0.13, 0.18, 0.21, and 0.27 respectively).

Dependent variable. At the end of the supplier selection decision making process, the buying firm decides whether or not to select the new venture under consideration as supplier. Thus, the outcome is binary with either “Yes” if the new venture was selected or “No” if the new venture was not selected. In our sample, the decision was “Yes” for 121 decisions (81%) and “No” for 29 decisions (19%). It was assessed whether differences in firm characteristics could be related to the outcome of the selection decision but found no statistical differences with respect to firm sales, firm age, and number of employees at the univariate level (\( p < 0.05 \)).
Independent variables. As delineated above, perceived new venture legitimacy captures the extent to which the new venture is perceived as capable, desirable, and appropriate along four distinct dimensions: market-, firm-, individual-, and environment-level. These dimensions are the sources of perceived new venture legitimacy rather than being the consequences; in other words, new ventures possess greater legitimacy because they possess higher legitimacy at the market-, firm-, individual-, and environmental-level. This suggests a formative measurement model (Diamantopoulos & Winklhofer, 2001). The individual dimensions of legitimacy qualify for a common reflective measurement approach. Hence, it was specified a reflective first-order, formative second-order measurement model (Jarvis et al., 2003). The measure of market-level legitimacy ($M = 4.03$, $SD = 1.33$; $\alpha = 0.80$) assesses the extent to which the venture has been able to present an early track record and gain an established firm as customer and supplier. Firm-level legitimacy ($M = 4.79$, $SD = 1.25$; $\alpha = 0.84$) was measured as the extent to which the new venture complies with industry standards and possesses the technological and administrative capability and capacity required to carry out the procurement mandate. The measure for individual-level legitimacy ($M = 5.23$, $SD = 1.07$; $\alpha = 0.85$) captures the extent to which the new venture has openly communicated, maintained transparency and addressed social expectations when doing business. Environmental-level legitimacy ($M = 2.52$, $SD = 1.25$; $\alpha = 0.82$) was measured as the extent to which the new venture has been recognized (endorsed) by media, external awards, its region of origin, and its industry.

New venture-specific experience ($M = 3.61$, $SD = 1.47$; $\alpha = 0.89$) reflects the intensity of the firm’s past experience in buying from and collaborating with new
ventures. The corresponding measure captures the breadth and depth of experience and is measured on a newly developed four-item scale.

**Control variables.** Several control variables were used in order to eliminate undesirable sources of variance in the hypothesis testing procedure. It was controlled for the total number of suppliers involved ($M = 3.40, SD = 1.66$; greater than zero, in all cases) in the selection decision – measured by asking the respondents to report the number of alternative suppliers which were considered in the final stage of evaluation – because a firm’s perception of the new venture may depend upon the number of alternatives considered. New venture age ($M = 2.77, SD = 1.37$) was included as a control variable, because age was the primary criterion to distinguish new ventures from more mature and established firms. Further, it was controlled for product priority ($M = 4.56, SD = 1.34; \alpha = 0.86$), because the formation of the legitimacy judgment and, subsequently, the outcome of the selection decision might be affected by the priority of the purchased item, thus influencing care and intensity of supplier selection decision making process. The corresponding four-item measure was adopted from (Cannon & Perreault, 1999). In addition to these situation-specific variables, competitive intensity ($M = 4.64, SD = 1.13; \alpha = 0.82$) – the extent to which the firm perceives its competition to be intense – was included as a control, because it may affect firms’ propensity to prefer established firms to new ventures in order to reduce uncertainty. This construct was measured with a four-item scale adopted from (Jaworski & Kohli, 1993), asking respondents to elaborate on the intensity of rivalry among firms in their industry.
3.3 Measurement assessment

Prior to measure assessment, the univariate distributions for outliers and for both skewness and kurtosis (absolute values of skewness below 2.00 and kurtosis below 7.00) were examined. No obvious and critical issues were detected through visual inspection.

Reflective Measurement. Covariance-based confirmatory factor analysis (CFA) was used to assess the reflective scales’ psychometric properties. To this end, all reflective latent variables were included in a single multifactorial CFA model. Given some indications for the presence of multivariate non-normality, maximum-likelihood estimation with robust standard errors was applied using the MLR estimator in the package Lavaan in R (Rosseel, 2012). The measurement model revealed an acceptable fit to the data (Hair, Black, Babin, & Anderson, 2009): $\chi^2/df = 1.49$ [$\chi^2_{(329)} = 489.05$ ($p < 0.001$), CFI = 0.92, TLI = 0.91, SRMR = 0.05, RMSEA = 0.06 with 90%-CI = (0.05, 0.07))\(^1\). The CFA results also indicated acceptable psychometric properties for all scrutinized constructs, indicating that the reflective items capture the underlying the latent variables well and implying a satisfactory level of convergent validity and internal consistency. Without exception, each item loaded on its hypothesized factor with a large and significant loading (all $\lambda$ significant at $p < 0.001$). Composite reliabilities and average variances extracted exceeded the cutoffs of 0.70 (Nunnally & Bernstein, 1994) and 0.50 (Bagozzi & Yi, 1988; Fornell & Larcker, 1981). Discriminant validity was assessed on the basis of the criterion suggested by (Fornell & Larcker, 1981): Each construct extracted variance that is larger than the highest variance it shares with other

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\(^1\) Using the robust maximum likelihood estimator, the $\chi^2$-value incorporates a scaling correction based on the degree of multivariate nonnormality. CFI is the comparative fit index; TLI, the Tucker-Lewis Index; SRMR, the standardized root-mean-square residual; RMSEA, the root-mean square error of approximation; CI, confidence interval.
constructs, thus discriminant validity is supported. Translations of the final measurement items and associated indicators appear in Table 5.

Table 5: Measures and assessment indicators (Paper 1).

<table>
<thead>
<tr>
<th>Construct</th>
<th>Coefficient</th>
<th>Alpha</th>
<th>Composite reliability</th>
<th>( \lambda )</th>
<th>( t )-value</th>
<th>s.e.</th>
<th>( R^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Market-level legitimacy</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAL1 … was able to provide comprehensible, documented, and relevant proof of successful market action.</td>
<td>0.74 ( ^{b} )</td>
<td>( ^{b} )</td>
<td>0.55</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAL2 … has been active in the market for a considerable period of time.</td>
<td>0.76</td>
<td>9.57</td>
<td>0.11</td>
<td>0.57</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAL3 … had an established firm as customer.</td>
<td>0.71</td>
<td>7.13</td>
<td>0.17</td>
<td>0.51</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAL4 … had an established firm as supplier.</td>
<td>0.65</td>
<td>6.60</td>
<td>0.15</td>
<td>0.42</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Firm-level legitimacy</strong></td>
<td>0.84</td>
<td>0.84</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Individual-level legitimacy</strong></td>
<td>0.85</td>
<td>0.81</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Environmental-level legitimacy</strong></td>
<td>0.82</td>
<td>0.86</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>New Venture-specific experience</strong></td>
<td>0.89</td>
<td>0.90</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Product priority</strong></td>
<td>0.86</td>
<td>0.87</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Competitive intensity</strong> (Jaworski and Kohli, 1993)</td>
<td>0.82</td>
<td>0.82</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. All constructs were measured on seven-point scales (Likert-type or semantic differential). \( \lambda \) refers to standardized factor loading and s.e. refers to standard error (asymptotically robust estimate). \( t \)-values are from the unstandardized solution. All factor loadings are significant at \( p < 0.001 \) (two-tailed). \( ^{b} \)Factor loading was fixed at 1.0 for identification purposes.

Having established the validity and reliability of the reflective scales, scale averages were used as latent variable scores for the final estimation.
**Formative measurement.** Prior to constructing the formative index for new venture legitimacy, ordinary least squares (OLS) regressions were run to check for redundant items and multicollinearity issues (Petter et al., 2007). All variance inflation factors were low (< 1.20) and the bivariate correlations between the four legitimacy dimensions were within an acceptable range (|r| < 0.60) (Diamantopoulos & Siguaw, 2006). Given these result, the formative index was created as the unweighted linear sum of the four legitimacy dimensions (market, firm, individual, and environmental).

**Common Method Variance.** Common method variance has been argued to be a less serious concern in testing models with interaction effects (Siemsen, Roth, & Oliveira, 2010). Still, due to the self-reported nature of the data, it is acknowledged the potential threat of common method variance to the validity of the results. For this reason, several procedural measures were implemented to minimize the introduction of common method variance into the data. In addition and in order to gauge to what extent this issue poses a possible problem, the base CFA model was compared with an extended CFA model including a single latent method factor that is uncorrelated with all other latent variables and that loads equally on all manifest variables (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). To compare the two models, a $\chi^2$-difference test was applied which revealed a nonsignificant $\chi^2$-difference ($\Delta\chi^2 = 0.25, p = 0.61$), suggesting that common method variance is unlikely to introduce a substantial bias in the models.

### 4 Analysis and results

Given that the dependent variable $Y$ is binary in nature (i.e., “Was the new venture selected as supplier?” Yes := 1; No := 0), the hypotheses were tested using binary logit
regression. Here, the conditional mean of $Y$ given the set of independent variables $X$ is modeled with the logistic distribution (in the following, the same notation as in Wiersema and Bowen (2009) is used):\(^2\)

$$E[Y|X] = P(Y=1|X) = \frac{e^{\mathbf{V}\mathbf{\beta}'}}{1+e^{\mathbf{V}\mathbf{\beta}'}} = \Pi(\mathbf{V}\mathbf{\beta}') \iff \ln \left( \frac{P(Y=1|X)}{1-P(Y=1|X)} \right) = \text{logit}(Y) = \mathbf{V}\mathbf{\beta}'$$  \hspace{1cm} (1)

All independent variables were mean-centered and interaction terms were created by multiplying standardized variables scores. Then, the following models were estimated in hierarchical order using maximum likelihood estimation: \(^3\)

Model 1:

$$P(Y=1|\text{NUM, AGE, PRI, CPI}) = \frac{e^{\beta_0 + \beta_1 \text{NUM} + \beta_2 \text{AGE} + \beta_3 \text{PRI} + \beta_4 \text{CPI}}}{1 + e^{\beta_0 + \beta_1 \text{NUM} + \beta_2 \text{AGE} + \beta_3 \text{PRI} + \beta_4 \text{CPI}}}$$  \hspace{1cm} (2)

Model 2:

$$P(Y=1|\text{NUM, AGE, PRI, CPI, NVL}) = \frac{e^{\beta_0 + \beta_1 \text{NUM} + \beta_2 \text{AGE} + \beta_3 \text{PRI} + \beta_4 \text{CPI} + \beta_5 \text{NVL}}}{1 + e^{\beta_0 + \beta_1 \text{NUM} + \beta_2 \text{AGE} + \beta_3 \text{PRI} + \beta_4 \text{CPI} + \beta_5 \text{NVL}}}$$  \hspace{1cm} (3)

Model 3:

$$P(Y=1|\text{NUM, AGE, PRI, CPI, NVL, EXP}) = \frac{e^{\beta_0 + \beta_1 \text{NUM} + \beta_2 \text{AGE} + \beta_3 \text{PRI} + \beta_4 \text{CPI} + \beta_5 \text{NVL} + \beta_6 \text{EXP}}}{1 + e^{\beta_0 + \beta_1 \text{NUM} + \beta_2 \text{AGE} + \beta_3 \text{PRI} + \beta_4 \text{CPI} + \beta_5 \text{NVL} + \beta_6 \text{EXP}}}$$  \hspace{1cm} (4)

Model 4:

$$P(Y=1|\text{NUM, AGE, PRI, CPI, NVL, NVL \times EXP}) = \frac{e^{\beta_0 + \beta_1 \text{NUM} + \beta_2 \text{AGE} + \beta_3 \text{PRI} + \beta_4 \text{CPI} + \beta_5 \text{NVL} + \beta_6 \text{NVL} \times \text{EXP}}}{1 + e^{\beta_0 + \beta_1 \text{NUM} + \beta_2 \text{AGE} + \beta_3 \text{PRI} + \beta_4 \text{CPI} + \beta_5 \text{NVL} + \beta_6 \text{NVL} \times \text{EXP}}}$$  \hspace{1cm} (5)

Control variables were entered as a block in model 1, followed by the main effect variable in model 2, the moderator variable in model 3, and the interaction term in model 4. For each model, influence diagnostics were scrutinized and it was verified that the assumptions underlying logit regression were met (Hosmer & Lemeshow, 2000). No indications for problematic levels of multicollinearity were found: Zero-order

\(^2\) $P(Y=1|X)$ denotes the probability that the dependent variable takes the value “1” given the set of explanatory variables $X$. $V$ is the row vector of independent variables including the intercept, and $\mathbf{\beta}'$ is the row vector of the corresponding coefficients.

\(^3\) The variable identifiers are: NUM := total number of suppliers involved, AGE := new venture age, PRI := product priority, CPI := competitive intensity, NVL := perceived new venture legitimacy, EXP := new venture-specific experience.
correlations were relatively small (maximum: 0.27; Table 2) and both the variance inflation factors (maximum: 1.16) and the condition numbers (maximum: 6.23) were substantially below the commonly suggested thresholds for all models (Cohen, Cohen, West, & Aiken, 2003). The results appear in Table 6 and show that both the hypothesized main effect (model 2) and interaction effect (model 4) are significant \((p < 0.05)\).

Table 6: Results of regression analysis (Paper 1).

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 1 Controls</th>
<th>Model 2 Main effect</th>
<th>Model 3 Moderator</th>
<th>Model 4 Interaction effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant ([\beta_0])</td>
<td>1.62 ***</td>
<td>1.73 ***</td>
<td>1.88 ***</td>
<td>2.04 ***</td>
</tr>
<tr>
<td>Total number of suppliers involved ([\beta_1])</td>
<td>(-0.51 ^*)</td>
<td>(-0.56 ^*)</td>
<td>(-0.71 ^*)</td>
<td>(-0.75 ^{**})</td>
</tr>
<tr>
<td>New venture age ([\beta_2])</td>
<td>(-0.40 ^†)</td>
<td>(-0.59 ^*)</td>
<td>(-0.45 ^†)</td>
<td>(-0.48 ^†)</td>
</tr>
<tr>
<td>Competitive intensity ([\beta_3])</td>
<td>0.52 ^*</td>
<td>0.45 ^*</td>
<td>0.51 ^*</td>
<td>0.56 ^*</td>
</tr>
<tr>
<td>Product priority ([\beta_4])</td>
<td>(-0.18)</td>
<td>(-0.29)</td>
<td>(-0.45 ^†)</td>
<td>(-0.51 ^†)</td>
</tr>
<tr>
<td>Perceived new venture legitimacy ([\beta_5])</td>
<td>0.65 ^*</td>
<td>0.52 ^*</td>
<td>0.21</td>
<td></td>
</tr>
<tr>
<td>New venture specific-experience ([\beta_6])</td>
<td>0.82 ^**</td>
<td>0.84 ^**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived new venture legitimacy × New venture specific-experience ([\beta_7])</td>
<td>(-0.55 ^*)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Log Likelihood \(-65.15\) \(-61.56\) \(-56.81\) \(-54.60\)
Chi-Square (\(\chi^2\)) \(17.00 ^{**}\) \(24.19 ^{***}\) \(33.68 ^{***}\) \(38.11 ^{***}\)
Improvement over base (\(\Delta \chi^2\)) \(7.19 ^{**}\) \(9.49 ^{**}\) \(4.43 ^*\)
McFadden’s Pseudo \(R^2\) \(0.12\) \(0.16\) \(0.23\) \(0.26\)
\(\Delta\)McFadden’s Pseudo \(R^2\) \(0.04\) \(0.07\) \(0.03\)
Efron’s Pseudo \(R^2\) \(0.13\) \(0.19\) \(0.27\) \(0.29\)
\(\Delta\)Efron’s Pseudo \(R^2\) \(0.06\) \(0.08\) \(0.02\)

Note. Logistic regression (logit) was used (all models were estimated using the logit command in STATA 12.0). Dependent variable is the buying firm’s selection decision. Standardized regression estimates are shown (standard errors in parentheses). \(n = 150\).

For direct substantive interpretations, the intrinsic non-linearity of limited dependent variable (LDV) models requires an analysis of marginal effects. The
marginal effect of a variable is the partial derivative of the model equation with respect to this variable. The hypotheses were analyzed using a recent stream of literature on the estimation of LDV models (Ai & Norton, 2003; Bowen, 2012; Bowen & Wiersema, 2004; Hoetker, 2007; Wiersema & Bowen, 2009).

**Analysis of main effect.** Model 2 captures the impact of perceived new venture legitimacy on the probability of selection. The marginal effect of perceived new venture legitimacy is obtained by differentiating equation 3 with respect to perceived new venture legitimacy:

\[
\frac{\partial P(Y = 1|NUM, AGE, PRI, CPI, NVL)}{\partial NVL} = \frac{\partial \Pi(\textbf{V}\beta)}{\partial NVL} = \frac{e^{\beta_5 + \beta_1 \text{NUM} + \beta_2 \text{AGE} + \beta_3 \text{PRI} + \beta_4 \text{CPI} + \beta_5 \text{NVL}}}{(1 + e^{\beta_1 \text{NUM} + \beta_2 \text{AGE} + \beta_3 \text{PRI} + \beta_4 \text{CPI} + \beta_5 \text{NVL}})^2} \beta_5 = \pi(\textbf{V}\beta) \beta_5
\] (6)

From equation (6), it follows that the sign of the variable perceived new venture legitimacy can be directly inferred from the regression estimates in the LDV model because \(\pi(\textbf{V}\beta)\) is always positive and has the same sign as the model coefficient (\(\beta_5 = 0.65\)). It can be concluded that perceived new venture legitimacy is positively associated with the probability of selection.

In order to test Hypothesis 1a and to assess the effect size and significance of perceived new venture legitimacy, the main effect’s marginal effect was examined over all values of the model variables (Wiersema & Bowen, 2009). Holding all model variables at their mean values, the estimated main effect’s marginal effect is 0.08 and significant \((p < 0.05)\). To test Hypothesis 1b, the analysis followed Hoetker (2007) and the marginal effect of perceived new venture legitimacy was computed at the theoretically interesting low (one standard deviation below mean) and high values (one

\[d\Pi(\textbf{V}\beta) = \pi(\textbf{V}\beta) = \Pi(\textbf{V}\beta)(1-\Pi(\textbf{V}\beta))\); \(\pi(\textbf{V}\beta)\) is the pdf of the logistic distribution whose values are, by definition, always positive.\]
standard deviation above mean). It was found that the marginal effect of perceived new venture legitimacy at the low level ($M - 1SD$) to be 0.12 and significant ($p < 0.05$), and at the high level ($M + 1SD$) to be 0.05 and significant ($p < 0.001$) while holding all other variables in the model at mean values. In summary, these results provide empirical support for Hypotheses 1a and 1b and suggest that new venture legitimacy has a positive (and significant) but diminishing effect on the probability of being selected as a supplier. The results from the main effect’s marginal effects analysis are shown in Table 7.

### Table 7: Marginal effect analysis of the main effect and of the moderator effect (Paper 1).

<table>
<thead>
<tr>
<th>Main Effect at different values of the moderator</th>
<th>Low</th>
<th>Mean</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Low</strong></td>
<td>0.12 *</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.06)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Perceived new venture legitimacy</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Low</strong></td>
<td>0.08 *</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.03)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mean</strong></td>
<td>0.05 ***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.01)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>High</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.13 **</td>
<td>0.02</td>
<td>−0.02</td>
</tr>
<tr>
<td></td>
<td>(0.05)</td>
<td>(0.03)</td>
<td>(0.02)</td>
</tr>
</tbody>
</table>

**Note.** Estimates of the marginal effects are shown (standard errors in parentheses). The main effect of perceived new venture legitimacy was computed using equation 6; the main effect in the interaction model was computed using equation 7 (Wiersema and Bowen, 2009). Values were set at $M - 1SD$ (low), $M$ (mean), and $M + 1SD$ (high). All other model variables were fixed at their mean values. $n = 150$.

† $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ (two-tailed).

**Analysis of moderator effect.** Model 4 captures the interaction effect of new venture-specific experience. The marginal effect of new venture-specific experience on perceived new venture legitimacy is obtained by differentiating equation for model 4 (equation 5) with respect to perceived new venture legitimacy (equation 7) and then with respect to new venture-specific experience (equation 8)\(^5\):

\(^5\) Equation 7 is the “true interaction effect” (Ai and Norton, 2003).
Chapter II  New kids on the block

Given equation (8), sign and significance of the moderation effect cannot directly be inferred from the regression estimate (Hoetker, 2007). In order to test the moderation hypotheses, sign and significance of the value of new venture-specific experience’s marginal effect on perceived new venture legitimacy should be examined over all sample values of the model variables (Wiersema & Bowen, 2009). Holding all variables in the interaction model (model 4) at mean values, the estimate for the interaction variable’s marginal effect was –0.07 and significant \( (p < 0.01) \). Then the impact of different levels of the moderator variable on the marginal effect of the main effect variable in the interaction model (Wiersema & Bowen, 2009) were calculated. More specifically, when holding perceived new venture legitimacy and all other model variables at mean values, perceived new venture legitimacy is 0.14 and significant \( (p < 0.01) \) when the moderator is at a low level. When new venture-specific experience takes medium or high values, perceived new venture legitimacy becomes insignificantly different from zero. The marginal effects of the moderator effect are also shown in Table 4.

In addition to the previous analysis, a more detailed analysis of the moderator effect as suggested by Bowen (2012) was performed. Analyzing only the total interaction effect (“true interaction effect”) may not correctly identify sign and significance of the moderating effect, because the total effect is confounded by two
other effects: A **structural** effect and a **secondary** effect. Essentially, the effect of interest is the secondary effect which was estimated to be $-0.06$ and significant ($p < 0.05$). Table 8 shows the results of the analysis of the total, structural, and secondary effect. In summary, these results support Hypothesis 2b and reject Hypothesis 2a.

**Table 8: Marginal effect analysis of the moderator effect: Total, structural, and secondary effect (Paper 1).**

<table>
<thead>
<tr>
<th>Marginal effect of moderator effect</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total effect (model includes interaction variable)</td>
<td>$-0.07^{**}$</td>
</tr>
<tr>
<td>(model excludes interaction variable)</td>
<td>(0.03)</td>
</tr>
<tr>
<td>Structural effect</td>
<td>$-0.01$</td>
</tr>
<tr>
<td>(model excludes interaction variable)</td>
<td>(0.02)</td>
</tr>
<tr>
<td>Secondary effect (model excludes interaction variable)</td>
<td>$-0.06^{*}$</td>
</tr>
<tr>
<td>(model excludes interaction variable)</td>
<td>(0.03)</td>
</tr>
</tbody>
</table>

**Note.** Estimates of the marginal effect of the moderator effect are shown (standard errors in parentheses). The decomposition approach and analysis of different moderator effects is based on Bowen (2012). The “total effect” corresponds to what Ai and Norton (2003) call “true interaction effect.” All model variables were fixed at their mean values. $n = 150$.

† $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ (two-tailed).

5 Discussion

The core of the study’s contribution lies in providing insights into the mechanisms that shape firms’ perceptions of new ventures and how these perceptions affect the success of new ventures in their attempts to become suppliers of established buying firms. The study was driven by the growing research interest in interfirm relationships between established firms and new ventures (Hoskisson et al., 2011; Ireland & Webb, 2007; Kickul et al., 2011) as well as the continuing efforts to investigate new venture legitimacy and its influencing factors (Nagy et al., 2012; Tornikoski & Newbert, 2007;  

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6 The **structural** effect originates from the non-linearity of the LDV model; the **secondary** effect originates from the inclusion of the interaction variable in the model (Bowen, 2012, p. 861). More specifically, the **secondary** effect is defined as “the difference between two moderating effects: that arising in the model that includes the interaction variable and that arising in the model excluding the interaction variable” (Bowen, 2012, p. 862).
Zimmerman & Zeitz, 2002). Several important scholarly and managerial implications can be deduced from the results.

5.1 Theoretical implications

The main question this study sought to answer was how buying firms perceive and examine new ventures (i.e., firms that have not been in business for many years) as potential suppliers in supplier selection decision making. To this end, an integrated perspective of signaling theory, the organizational learning literature, and the legitimacy concept within institutional theory was used to conceptualize perceived new venture legitimacy as a signal of the new venture’s appropriateness, desirability, and capability received by the buying firm. In congruence with Zimmerman and Zeitz (2002), the study followed the notion that new venture legitimacy is not binary in nature (either legitimate or not) but a continuous, multi-dimensional construct (Deephouse & Suchman, 2008). Accordingly, “perceived new venture legitimacy” was defined and specified as a formative second-order construct along four dimensions: Legitimacy at the market, firm, individual, and environmental level. The results suggest that the proposed construct is meaningful and thus may be relevant for use in subsequent studies.

The results also support the hypothesized effects. Hypothesis 1a predicted that decision makers in buying firms rely on their legitimacy judgment when faced with the task to evaluate new ventures as potential suppliers. While it was found that perceived new venture legitimacy increases the probability of selection “on average,” the results also show a substantial variation of the size of this direct effect’s marginal effect when computed at different values (Table 4). In line with Hypothesis 1b, this analysis
suggests that the additional (marginal) return derived from legitimacy is greater when
the base level of legitimacy is low than it is when the base level is high. This implies
that a certain level, or amount, of legitimacy is necessary in order to attract resources
and exchange partners; however, after having reached a certain level of legitimacy the
marginal contribution of even “more” legitimacy might become smaller. This finding is
consistent with Cohen and Dean (2005) who found a diminishing impact of top
management team legitimacy on investor venture valuation. Zimmerman and Zeitz
(2002, p. 427) also conjectured that there should be a legitimacy threshold “below
which the new venture struggles for existence and probably will perish and above which
the new ventures can achieve further gains in legitimacy and resources.” While this
refers to a generalized notion of legitimacy, in the study the analysis refers to a form of
legitimacy judgment that could be best labeled a “purposive” or “within-context”
legitimacy judgment, since it serves the specific interest of the buying firm in choosing
the best supplier available. Hence, within the context of selecting the right supplier, the
legitimacy judgment is purposive in that the buying firm credits the threshold account of
legitimacy, but discounts any additional legitimacy. From the perspective of new
ventures, this diminishing effect of perceived legitimacy suggests that “just a little bit is
all you need” rather than a simple “more is better”.

Beyond the positive relationship between perceived new venture legitimacy and
probability of selection, the results supported the prediction that the legitimacy
judgment is moderated by the buying firm’s new venture-specific experience which the
buying firm has accumulated with respect to purchasing from new ventures. In the
estimated interaction model, perceived new venture legitimacy (as main effect) keeps a
positive and significant effect only when buying firms’ new venture-specific experience
is low; otherwise perceived new venture legitimacy is rendered insignificant. In line with Hypothesis 2b, the interaction effect itself is found to be negative and significant. This suggests that legitimacy serves as basis of decision making when cues about the venture’s validity are absent (Tost, 2011). Without prior experience, firms rely on known signals (such as references), but with increasing and repeated experience in selecting and allying with new ventures, firms may have learned about new ventures. Then, when relevant experience is present, the results show that buying firms are likely to have developed a way to assess, interpret, and draw conclusions about ventures’ actions and attributes in order to determine their performance potential. This result adds insights into how new ventures’ legitimacy signals are perceived and calibrated by an external audience. Through the study’s conceptualization of new venture-specific experience, the study offers a distinct mechanism by which the perception of the legitimacy of an entity is possibly conditioned (Tost, 2011). These mechanisms are necessary in order to understand the dynamics, and much more, the effectiveness of legitimacy signals.

From an organizational learning perspective, the research contributes to the theoretical conceptualization of different kinds of interfirm relationship experiences (Hoang & Rothaermel, 2005, 2010) which enable firms to enhance their partner selection processes, and subsequently, gain more from their exchange partners’ capabilities (Dyer & Singh, 1998). In a broader context, new venture-specific experience can be viewed as partner type-specific experience. The type of partnering firm, either being a less or very well established firm, refers to groups of organizations that share similar attributes from which information about the particular firm can be inferred and interpreted.
5.2 Managerial implications

The results have implications for both new ventures and established buying firms. New ventures can apply the research findings in order to prepare themselves to acquire the legitimacy that they need to navigate through selection processes. Specifically, entrepreneurs who want to gain established firms as customers should be aware that it is likely not sufficient simply to do a good job in the formal evaluation process. New venture legitimacy judgments reach beyond the formal evaluation process. Hence, entrepreneurs should manage and foster the different dimensions of their venture’s legitimacy. The results of the marginal effect analysis show that, particularly when the level of legitimacy is low, small improvements in legitimacy can substantially improve the probability of being selected as a supplier.

Buying firms may use the findings to complement their supplier evaluation “catalogue” in order to improve the assessment of new ventures. At the same time, they need to understand and define which legitimacy dimensions they want to consider. For example, if a buying firm believed that environmental-level legitimacy is a poor indicator of new venture performance in its typical sourcing environment, the firm should make this explicit to their purchasing managers. Otherwise there would be a risk that the decision makers would still consider endorsements (because they are salient characteristics of new ventures) and are vulnerable to judgmental biases. Moreover, managers of buying firms should know that experience with new ventures makes the supplier selection decision more robust to general legitimacy judgments. For important sourcing decisions, buying firms that have little experience with new ventures should carefully assess the new venture’s legitimacy dimensions and, in case of doubts, seek external advice or counsel.
5.3 Limitations and future research directions

This study contains several limitations that should be considered in the interpretation of its results, but also provides directions for future research opportunities. Despite the encouraging results of tests the study has reported herein, a few obvious limitations pertain to the data collection and analyses. Obviously, the response rate is rather low. In addition, no distinctions among industries were made because across group comparisons are critical in LDV models (Hoetker, 2007). In the study, it was not possible to draw on more objective data for the main variables in the model. Finally, social values and expectations are difficult to operationalize, and thus, difficult to assess empirically (Shocker & Sethi, 1974). As a result of the latter, most of the literature on legitimacy is conceptual and only few empirical studies exist (Deephouse & Suchman, 2008).

Moreover, supplier selection decision making is essentially part of the dyadic relationship between buying firm and supplier in which each party affects the other’s interpretation and understanding of behaviors, actions, and attitudes. In the study only the perceptions of buying firms were considered; actions and perceptions of new ventures were not directly incorporated, for example, by surveying representatives from new ventures on how they maneuver through supplier evaluation and selection. Recent literature on entrepreneurship has emphasized that new ventures are capable of actively managing legitimacy (Tornikoski & Newbert, 2007) and has strengthened the notion that new ventures are powerful players in the market that should not shy away from competition with established firms (Santos & Eisenhardt, 2009). It would be interesting to gain more insights into the action-and-response process between buying firms and new ventures in the course of supplier evaluation and selection.
The primary criterion to differentiate new ventures from established firms is age. This is in line with previous research where cut-off values for firm age of six or eight years are common (Song et al., 2008; Zahra et al., 2000). Yet, it seems reasonable to make further distinctions among new ventures, for example, according to what they produce (Cooper, 1971). In summary, this is a call for a replication with an extended focus of the unit of analysis which would allow closer scrutiny of the results.

Additional directions for future research can be pointed out. As legitimacy judgments are subject to cognitive biases (Tost, 2011) a promising avenue for research would be to assess legitimacy judgments in which such biases are taken into account, for example, through experimental studies. In addition, factors beyond those incorporated in the hypotheses are likely to affect firms’ perception of new ventures (e.g., strategic orientation). For example, firms might follow a strategy of specifically selecting and purchasing from new ventures. Lastly, since the study is concerned mainly with the extent of experience, it would be interesting to focus on the quality of experience made with new ventures and its effect on both the selection of new ventures and the outcomes of the exchange relationship.

6 Conclusion

Being perceived as legitimate increases a new venture’s chances of forming exchange relationships with buying firms, thereby improving their chances of survival. The proposed model takes the perspective of an established firm that is to judge whether a new venture is an appropriate, desirable, and capable supplier. The study is one of the few empirical endeavors to empirically assess new venture legitimacy and, to date, the first to directly examine perceptions of new ventures’ external audience. The study
makes two important contributions to the understanding of the dynamics of legitimacy judgments by lending support for the view that (1) new venture legitimacy is not binary (either legitimate or not), but composed of several different dimensions; and (2) that formation and use of legitimacy judgments are condition-dependent because observers draw upon previous experience in order to determine new venture legitimacy.
Chapter III The effects of buying firms’ strategic and operational postures on relationship outcomes with new ventures

1 Introduction

Recent articles have highlighted important research opportunities at the intersection between supply chain management and entrepreneurship (Ireland & Webb, 2007; Kickul et al., 2011; Shepherd & Patzelt, 2013). One key theme identified to require more research attention are supply chain relationships between mature, established firms and new, entrepreneurial ventures (Kickul et al., 2011). The distinction between established firms and new ventures is relevant because new ventures differ from mature organizations in many important aspects (Aldrich & Ruef, 2006; Su, Xie, & Li, 2011). These differences have significant implications for supply chain relationships. From the perspective of a buying firm, the formation and maintenance of supply chain relationships with new ventures typically involve more uncertainty and more efforts than those with established suppliers. At the same time, new ventures are often flexible, dynamic, and innovative, making them particularly attractive suppliers (Kickul et al., 2011; Rothaermel, 2002).

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7 A further developed version of this section entitled “Strategic and operational determinants of relationship outcomes with new venture suppliers” has been accepted for publication in the *Journal of Business Logistics* on June 8, 2015.

8 The term “established firm” is used in order to distinguish these firms in the market from new entrants, i.e. new ventures.
Against this background, it is surprising that researchers in the supply chain field have paid relatively little attention to new ventures. Only recently have these scholars started to combine the literature from supply chain management/operations management and entrepreneurship in order to, for example, examine how new ventures manage their supply chains and leverage the capabilities of their suppliers in new product development and first product launch (Golicic & Sebastiao, 2011; Song et al., 2011; Song & Di Benedetto, 2008). The purpose of this study is to add to this emerging research stream by investigating the buying firm’s role in value creation in relationships with new ventures and to offer contributions to the supply chain management as well as entrepreneurship literature.

Given the pivotal role of the buying firm in creating value with its suppliers (Vonderembse & Tracey, 1999; Watts et al., 1992), the phenomenon of interest in our study, revolves around how buying firms work with new ventures to achieve desired relationship outcomes. We focus here on the organizational characteristics that buying firms can directly influence: their own strategic and operational postures to selecting and developing new ventures as suppliers. The competitive priorities framework in purchasing and supply chain management (Krause et al., 2001; Ward et al., 1998) and the supplier development literature (Das et al., 2006; Krause et al., 2000; Monczka et al., 1993; Wagner, 2010a) provide the theoretical background. Specifically, we develop and—based on cross-sectional survey data of 136 buying firms—test a proposed model that answers the following two research questions. How do firms’ supplier selection orientation, especially their cost orientation and innovation orientation in supplier selection, influence new venture-specific relationship outcomes? How do firms’ new
venture supplier development, both indirect and direct, influence new venture-specific relationships outcomes?

Our study extends the literature on buyer-supplier relationships by closely examining the buyer side of relationships between established firms as buyers and new ventures as suppliers. From the buying firm’s perspective, the study answers the important question of how buying firms create valuable outcomes with and, thus benefit, from new, entrepreneurial ventures. Conversely, from an entrepreneurship perspective, the study explains how new ventures can benefit from relationships with established buying firms. Overall, this study provides insights into how relationship outcomes between established firms and new venture suppliers can be improved for both sides of the relationship dyad.

2 Conceptual background on new ventures

We distinguish two parties: established buying firms that select and develop suppliers, and new ventures which are (potential) unique suppliers for buying firms. To understand their relationship and possible relationship outcomes, we integrate the entrepreneurship and operations management and the supply chain management literature. We start with the latter and a review of the term “new venture,” of the substantial differences between established firms and new ventures, and of prior research on new ventures in interfirm relationships.

2.1 The unique features of new ventures

A new venture has not been in existence for a long time. Alternative terms such as nascent (Sebastiao & Golicic, 2008), emerging (Patel, 2011), or simply start-up (Rothaermel, 2002) are also often used. It is difficult to determine at what age firm
newness ends. In primary studies on new ventures, firm age ranges from a maximum of 12 to 15 years to a minimum of six years or less (Bantel, 1998; Song et al., 2008; Zahra et al., 2000). (Bantel, 1998) argued that by their fifth year, many new ventures that have failed to achieve a strong position on the market have gone out of business. However, firms that have been in existence for 12 years “have survived the critical initial years, yet have not reached the mature phase where they resemble established firms” (Bantel, 1998, p. 207). In their meta-analysis of new venture success factors, (Song et al., 2008) found that most studies select a cut-off age between six and eight years.

What characterizes new ventures is the liability of newness (Stinchcombe, 1965). According to (Singh et al., 1986, p. 171) “[t]his liability of newness occurs because young organizations have to learn new roles as social actors, coordinate new role for employees and deal with problems of mutual socializations of participants, and because of both their inability to compete effectively with established organizations and their low level of legitimacy.” As a consequence, new ventures differ substantially from established firms in several important respects (Aldrich & Ruef, 2006; Su et al., 2011). Firstly, “almost by definition, small new firms lack the resources of many larger, established firms” (Zhao & Aram, 1995, p. 349). For example, new ventures often have limited access to financial resources and labor (Cooper, 1981), and lack competitive management (Hitt et al., 2001) and manufacturing capabilities (Terjesen et al., 2011). Extant research suggests that the lack of resources per se is a key factor in why new ventures have such high failure rates (Evans & Leighton, 1989). Secondly, new ventures are initially characterized by relatively little organizational formalization (Aldrich & Ruef, 2006), particularly the identification and designation of particular roles to specific individuals (Sine et al., 2006). New ventures rely on a short chain of command and
informal methods (Cooper, 1981), whereas established firms are more structurally formalized and bureaucratic (Aldrich & Auster, 1986). This is accompanied by a lack of productive routines that established firms possess to transform their existing resources into products and services (Nelson & Winter, 1982; Schumpeter, 1934). Finally, new ventures have little legitimacy in the marketplace (Singh et al., 1986; Zimmerman & Zeitz, 2002), which established firms have accumulated over time (DiMaggio & Powell, 1983). New ventures can passively acquire this legitimacy by exhibiting characteristics deemed legitimate by the environment, or actively through strategic actions (Tornikoski & Newbert, 2007). One such strategic action is the establishment of ties with legitimate exchange partners which endorse the new venture (Stuart et al., 1999).

Besides the liabilities they face, new ventures also feature several strengths. In particular, they are often seen as incubators for product, service, and market innovation (Reynolds, 1987). New ventures are the vehicle through which entrepreneurs develop and market their products. By founding a firm, entrepreneurs assemble, coordinate, and orchestrate the resources needed to exploit market opportunities and introduce new products into the market (Alvarez & Barney, 2004; Peteraf & Barney, 2003). The development of new products is critical to generate early cash flows, external visibility and legitimacy, early market share, and increase the likelihood of survival (Schoonhoven et al., 1990). Overall, the capability to innovate is a critical variable for new venture performance (Chrisman et al., 1998).

2.2 New ventures and interfirm relationships

In general, interfirm relationships—particularly those with reputed and potent exchange partners—are key for new venture performance and survival, because they confer
legitimacy and provide access to needed resources (Stuart et al., 1999). It has been suggested that it is most advantageous for new venture firms to enter relationships with responsive firms that offer a cooperative, partnership-like mode of exchange (Larson, 1991, 1992; Ozcan & Eisenhardt, 2009). For example, high technology ventures with management teams that possess great technical expertise can effectively leverage their expertise and know-how in cooperative arrangements with other firms (McGee & Dowling, 1994). Prior studies investigating the boundary conditions under which collaborating with established firms is beneficial for new ventures found that effective relational governance (particularly property protection) and complementary assets owned by the established incumbent firms increase new ventures’ rents from their innovations (Gans & Stern, 2003). Recently, scholars have explored settings in which new ventures are exposed to potential misappropriation by corporate “sharks” (Hallen, Katila, & Rosenberger, 2014; Katila, Rosenberger, & Eisenhardt, 2008). Their results challenge conventional wisdom that entrepreneurs and their ventures are the weaker party in relationships with large established firms. Quite to the contrary, new ventures were found to develop strategies to prevail in relationships with seemingly more powerful partners.

In particular, supply chain (or buyer-supplier) relationships, defined as those relationships in which the new venture is either buyer or supplier to other firms, are one of the most important success factors for new ventures (Song et al., 2008). Supply chain partners with credibility, expertise, and the willingness to experiment are important antecedents to new venture survival (Golicic & Sebastiao, 2011; Sebastiao & Golicic, 2008). For example, through collaboration with established suppliers, new ventures can build an efficient supply chain to market their products (Golicic & Sebastiao, 2011;
Song & Di Benedetto, 2008). Forming supply chain relationships with incumbent buying firms helps new ventures to create and demarcate the market for “their” products (Santos & Eisenhardt, 2009) and to gain market legitimacy (Hills & Sarin, 2003). From a capabilities perspective, new ventures can augment their incipient manufacturing capabilities, especially the capabilities contributing to low cost and product quality, by allying with external partners (Terjesen et al., 2011). Conversely, established buying firms can benefit greatly from entering into relationships with new ventures because new ventures may stimulate buying firms’ future business growth and provide technology and product innovation (Larson, 1991). However, there is great uncertainty in terms of product quality, capabilities, and strategic intent when evaluating new ventures as exchange partners (Wathne et al., 2001). The formation of interfirm linkages and partnerships involving new venture firms also takes time and significant effort (Lorenzoni & Ornati, 1988). In this vein, Larson (1991) stressed the importance of reciprocity, integration, and continuous improvement in the evolution of partnerships between entrepreneurial and established firms.

In summary, based on the theoretical and practical distinction between new ventures and established firms, we propose that buyer-supplier relationships involving an established firm and a new venture differ from buyer-supplier-relationships between two established firms. Although prior studies have investigated buyer-supplier relationships between new ventures and established firms, our knowledge is limited when it comes to the role of established buying firms in such settings. In order to create value, a supplier must synchronize its resources and technological capabilities (e.g., engineering and process know-how) with customer capabilities (Danneels, 2002). This suggests that a new venture should seek input, support, development effort from the
firms to which it is supplying. By the same token, the unique features of new ventures require buying firms to both prudently select and properly develop new ventures as suppliers.

3 Research model and hypotheses

To develop our model, we start by reviewing the current knowledge on competitive priorities in purchasing and supply chain management and on supplier development from a buying firm perspective. These two building blocks provide the conceptual input for our predictions on how buying firms manage the features of new ventures in the supplier selection and development context.

3.1 Buying firm’s strategic posture in purchasing: Competitive priorities

Competitive priorities are the cornerstone of every firm’s strategy and the critical element to align competitive and functional strategies (Wagner, Grosse-Ruyken, & Erhun, 2012). The term refers to a firm’s emphasis on developing specific key capabilities that support its competitive strategy (Boyer & Lewis, 2002; McKone-Sweet & Lee, 2009; Sanders & Premus, 2002). These capabilities may include cost, quality, delivery, and flexibility (Boyer & Lewis, 2002; Kroes & Ghosh, 2010), as well as innovation (Krause et al., 2001; Kroes & Ghosh, 2010). Prioritizing certain capabilities involves trade-offs (Boyer & Lewis, 2002; Skinner, 1969), at least with respect to the rates of improvement of the various priorities (Hayes & Pisano, 1996). Some scholars developed taxonomies to cluster firms based on their prioritizing of capabilities. For example, Miller and Roth’s (1994) study of manufacturing firms identified caretakers who focus primarily on price (cost) and innovators who focus primarily on the
introduction of new products (innovation). Both caretakers and innovators, however, rank conformance (quality), dependability (delivery), and volume flexibility as almost equally important (as compared to their top priority of price or high product performance). Frohlich and Dixon (2001) confirmed this taxonomy with respect to caretakers and innovators. Thus, manufacturing firms seem to discriminate according to the two competitive priorities of cost and innovation which is in congruence with the generic strategy framework of cost-leadership (low cost) versus differentiation (uniqueness perceived by the customer which is typically achieved by innovation) put forward by Porter (1980). In a similar vein, it has been suggested that there is a hierarchy of priorities such that cost efficiency, quality, delivery, and flexibility are essential for and unanimously pursued by every firm (Swink & Way, 1995), whereas low cost and innovation priorities may vary greatly from firm to firm, depending on its competitive strategy (Craighead, Hult, & Ketchen, 2009; Miller & Roth, 1994). Against this background, we focus on buying firms’ cost and innovation strategies as the primary supplier selection strategies.

Purchasing is pivotal in securing a firm’s input for manufacturing and for maintaining its competitive position (González-Benito, 2007; Krause et al., 2001). For this reason, the concept of competitive priorities has been extended to the purchasing function to align its strategy with the overall competitive strategy. The purchasing function’s competitive priorities are the strategic business objectives and goals of a firm’s buying organization (Kroes & Ghosh, 2010). Our study follows (Krause et al., 2001) viewing purchasing’s competitive priorities as being expressed in the firm’s supplier selection and retention activities. Selection refers to determining what capabilities the buying firm wants to buy from prospective suppliers; retention is the
continuous process of evaluating and, if necessary, developing selected suppliers to ensure that their performances and outputs live up to the buying firm’s expectations. The notion that the long-term strategic objectives of the firm and its purchasing function are manifested in supplier selection and retention is the basis for the conceptualization of the firm’s supplier selection orientation—more specifically, cost orientation and innovation orientation. In this study, a firm’s cost orientation leads to the selection of suppliers that contribute primarily to the firm’s cost reduction goals, for example, through price reductions, economies of scale, and redesigns. Innovation orientation makes the firm choose primarily innovative suppliers that enhance and advance the firm’s product and service offerings, for example through product or process innovations (Scannell, Vickery, & Dröge, 2000).

3.2 Buying firm’s operational posture in purchasing: Supplier development

Supplier development can be defined as “any effort of a buying firm with its supplier to increase the performance and/or capabilities of the supplier and meet the buying firm’s supply needs” (Krause & Ellram, 1997, p. 21) which entails both a reactive (to react to poor supplier performance) and a proactive (to strategically enhance suppliers’ capabilities) aspect. Supplier development can be further distinguished based on the role of the buying firm (i.e., depending on the resources committed to an individual supplier) (Das et al., 2006; Krause et al., 2000; Monczka et al., 1993; Wagner, 2010a): In the case of direct supplier development, the buying firm plays an active role and dedicates human, technical, and/or financial resources to the supplier. This may include activities such as on-site consultations, education and training programs, temporary personnel transfer, and even the provision of equipment or capital. In the case of indirect supplier
Development, the buying firm commits no or only limited resources to a supplier. Here, the idea is to improve supplier capabilities by counseling, monitoring, and performance feedback activities. The communication may come in the form of coercive (“Do this or else!”) and/or non-coercive (rewards, e.g., promising future business based on goal attainment) influence strategies.

Although both approaches are independent concepts, they are not mutually exclusive and they may act as complements. Either of the two approaches may also be effective, depending on the desired relationship outcomes. Direct supplier development may be viewed as the more resource-intensive, forceful, and collaborative approach, as it attempts to actively upgrade a supplier’s knowledge and capabilities. In contrast, indirect supplier development may be viewed as a somewhat more narrow, transactional, and competitive approach which requires less resources and dedicated relationship management.

Given the difference between new ventures and established firms, buying firms may invest less, equal, or more effort into proactively developing new ventures as suppliers compared to established suppliers. We conceptualize new venture supplier development as the buying firm’s effort related to the development of new ventures relative to established suppliers. In line with the prior literature, we identify new venture supplier development as either indirect or direct. Indirect new venture development measures and monitors the supplier; direct new venture development directly supports the supplier through resources such as training.
3.3 Relationship outcomes with new ventures

Our model, shown in Figure 1, identifies a buying firm’s strategic (expressed in its supplier selection) and operational (expressed in its supplier development) postures in purchasing as the key antecedents of relationship outcomes with new venture suppliers. With regard to these outcomes, a buying firm’s goals can be to access new sources of supply and/or to upgrade and leverage existing suppliers’ capabilities (Hahn, Watts, & Kim, 1990). For this reason, we distinguish two relationship outcomes: Purchasing volume as a quantity-related outcome, and innovations as a quality-related outcome. The goal of our model is to predict how buying firms’ strategic and operational postures affect the attainment of these goals with new ventures.
Supplier selection orientation describes the strategic goals the buying firm pursues with a supplier. Suppliers are selected according to their ability to contribute to the firm’s competitive strategy: achieving low cost, high innovation, or both (Craighead et al., 2009). In the most basic setting, when evaluating new ventures in supplier selection decision making, it seems likely that buying firms measure new ventures against the same performance criteria as established suppliers. Therefore, buying firms are likely to analyze the new venture’s capabilities and base their supplier selection...
decision on the degree to which the new venture’s capabilities match the buying firm’s cost or innovation orientation.

According to the entrepreneurship literature, new ventures are attractive suppliers because of their innovation potential (Larson, 1991), but less so because of their low cost structures (Rothaermel, 2002). In particular, a new venture’s innovativeness stems from a strong emphasis on R&D and resource concentration on new product development (Li & Atuahene-Gima, 2001) and their capabilities of exploiting entrepreneurial opportunities, for example, sensing the potential of new technologies (Ireland et al., 2003). This innovativeness makes new ventures attractive exchange partners and potential suppliers of new products and technologies. In his study of 325 biotechnology start-ups that had entered 973 strategic alliances with established pharmaceutical companies, (Rothaermel, 2002) found a positive link between a start-up’s new product development and its attractiveness as alliance partner. As supplier selection orientation also serves as a proxy for the firm’s willingness and ability to devote resources to supplier retention and integration (Krause et al., 2001), buying firms with a strong innovation orientation in their supplier selection process may strategically select new ventures as suppliers and, hence, be more committed to building and retaining long-term, partnership-like relationships with new ventures (Ozcan & Eisenhardt, 2009).
Thus,

**Hypothesis 1:** There is a *positive* relationship between *innovation orientation* in supplier selection and
(a) the *share of purchasing volume obtained from new ventures*, and
(b) the *number of realized innovations with new ventures*.

In contrast, buying firms dedicated to low cost as a competitive priority and hence in their supplier selection orientation will be less interested in selecting new ventures as suppliers and will prefer larger, established suppliers that can benefit from economies of scale and a solid body of experience (e.g., learning curve effects). Even if a new venture is selected as a supplier, the cost-oriented buying firm’s willingness to allocate resources to the new venture can be expected to be rather low. This, in turn, is counterproductive to fostering and unlocking a new venture’s innovative potential. Thus,

**Hypothesis 2:** There is a *negative* relationship between a buying firm’s *cost orientation* in supplier selection and
(a) the *share of purchasing volume obtained from new ventures*, and
(b) the *number of realized innovations with new ventures*.

Potential suppliers differ in their innovativeness and technical capabilities to develop a product and technology (Hoetker, 2005). In supplier selection, buying firms evaluate suppliers on the basis of their *current* capabilities (Henderson & Cockburn, 1994), because the more capabilities a supplier possesses, the more potential value offers to a buying firm (Hoetker, 2005). However, when a firm chooses a supplier with few or inferior capabilities, it needs to decide whether relational investments are needed to proactively upgrade the selected supplier’s capabilities (Das et al., 2006). Thus, part of the decision as to whether a potential supplier enters the buying firm’s supply base
and to what extent the supplier is awarded business volume, is the buying firm’s
customer awareness and commitment to develop the supplier’s capabilities.

When the buying firm seeks to leverage the quality of the relationship outcomes
(i.e., innovations resulting from the suppliers’ innovative capabilities), it must closely
collaborate with and provide technical expertise to the supplier which translates directly
in improved supplier capabilities (Wagner, 2010a) and into the improvement of buying
firm’s product quality (Carr & Kaynak, 2007). However, as buying firms are also
constrained in terms of financial and managerial resources (Rothaermel & Hess, 2007),
direct supplier development efforts, which are effort and resource intensive, cannot be
granted to every supplier. Thus, buying firms have to concentrate their direct efforts on
suppliers from which they can expect innovative outcomes by developing those
suppliers’ capabilities at the expense of other suppliers (reducing the overall number of
suppliers and associated volume of input) (Sarkar & Mohapatra, 2006).

In order to generate value from interfirm relationships so that the potential value
attainable through the buying firm-new venture relationship and the realization of such
value (here innovations) are achieved, strong relationship-building efforts are needed
(Madhok & Tallman, 1998). Indeed, new ventures do not fully realize their innovation
potential when they are constrained to simplistic arm’s length buyer-supplier
relationships (Ozcan & Eisenhardt, 2009). This suggests that, from a buying firm’s
perspective, direct supplier development efforts are linked to leveraging the capabilities
of new ventures because new ventures lack or have incipient financial resources and
labor (Cooper, 1981), management (Hitt et al., 2001) and manufacturing capabilities
(Terjesen et al., 2011). Buying firms emphasizing direct development can specifically
augment a new venture’s capabilities to their advantage and leverage their innovative potential, thus translating into the generation of innovations. Thus,

**Hypothesis 3**: The pursuit of direct development of new venture suppliers is
(a) negatively associated with the share of purchasing volume obtained from new ventures, and
(b) positively associated with the number of realized innovations with new ventures.

When the buying firms seek to leverage the quantity of the relationship outcomes (i.e. volume of supply through number of supplier), indirect supplier development through measuring and monitoring provides a frugal and less costly approach to enhancing supplier capabilities (Sarkar & Mohapatra, 2006). As the selection and addition of new ventures is associated with great uncertainty about the true performance potential, indirect supplier development is an effective way to evaluate and test new ventures.

Buying firms that engage in indirect supplier development of new ventures contract the new ventures as suppliers, however, the relationship building and development efforts are likely not strong enough to compensate for the new venture’s organizational, managerial, and manufacturing incipiency to successfully leverage the innovative potential of new ventures. By indirect supplier development the buying firm is also able to alter the supplier’s behavior in a way that the supplier intrinsically develops new practices and builds up new practices (Wagner, 2010a). However, lacking the direct transfer of resources to stimulate certain supplier capabilities, it is more difficult for the new venture to deliver innovations that are valuable to the buying firm.
Thus,

**Hypothesis 4:** The pursuit of *indirect development* of new venture suppliers is
(a) *positively associated with the share of purchasing volume obtained from new ventures,* and
(b) *negatively associated with the number of realized innovations with new ventures.*

4 Methods

4.1 Data and procedure

To test the hypotheses on a comprehensive empirical basis, we conducted a self-administered internet-based survey among 1,385 buying firms in Austria, Germany, and Switzerland. The survey targeted senior managers in purchasing and supply chain management who are likely to participate in the selection and development of suppliers. Contact addresses were received from a provider of company data and respondents were selected on basis of job function, firm size (> 50 employees), and firm age (the buying firm needed to be established in the market). In exchange for their participation, respondents were offered a summary of the results and an entry into a drawing for a tablet computer.

The data were collected in two rounds (Round 1: November 2011 – February 2012, \( N = 1035 \); Round 2: August – December 2012, \( N = 350 \)). For each round of mailing, an invitation and then three follow-up e-mails were sent. We received 113 responses in Round 1 and 37 in Round 2. However, 14 responses (10/113 and 4/37, respectively) lacked information for key variables used in this study and had to be excluded, leading to a total of 136 usable responses. The aggregated effective response rate for the final sample is 7.84% across both data collection rounds which is comparable to recent surveys of supply chain professionals (e.g., Devaraj, Krajeweski,
& Wei, 2007; Gibson et al., 2005; Wagner & Bode, 2014). In order to examine whether there are structural differences between the two data sets obtained from Round 1 and Round 2, we performed a multivariate analysis of variance (MANOVA) of the 14 measurement items of the main effect variables as well as with respect to firm sales, firm age, and number of employees. No significant differences were found at the multivariate level (Wilks’ $\lambda = 0.85$, $p = 0.13$), and none of the scrutinized items was significantly different at the univariate level ($p < 0.05$).

The data collection yielded a heterogeneous sample covering a broad range of manufacturing industry sectors and firm sizes, with no evidence of systematic biases. The largest industry sectors represented in the sample are industrial machinery (22.8%), electronics, optics, and medical devices (15.4%), and automotive (12.5%). Respondents’ firms’ annual sales volume in 2012 ranged from less than US$ 1 million up to US$ 55,676 million ($M = \text{US$} 1,201 \text{ million}, SD = \text{US$} 5,660 \text{ million}$), and firms’ number of employees ranged from less than 100 to 400,000 ($M = 8,168, SD = 40,167$). The majority of the respondents were senior managers in purchasing and supply chain management. They had been in their current position for an average of 9.80 years ($SD = 7.29$) and with their firms for 15.29 years ($SD = 9.83$). In addition, respondents indicated that they had work experience in supply chain management and associated tasks for an average of 17.40 years ($SD = 9.01$). The respondents reported that the importance of suppliers, in general, for their firms’ operations and overall success is high ($M = 5.56, SD = 1.40$; using a 7-point rating scale anchored at “1: not important at all” and “7: extremely important”). The respondents indicated that they had considered selecting new ventures for a wide range of products in recent supplier selection decisions. For example, new ventures offered tailor-made extrusion profiles, sensors for
the use in instrumentation devices, development and implementation of software, re-
engineering of a drive propulsion system, and mechanical components. In summary, 
these data show that respondents were knowledgeable about supplier selection decision 
making and of supplier development. A detailed overview of the sample appears in 
Table 1.
To assess the presence of nonresponse bias in the sample, we used a staggered approach for each data set (Wagner & Kemmerling, 2011). Differences between early
and late respondents were inspected. No statistically significant differences ($p < 0.05$) among the responses from early versus late respondents for all items were found when assessing data sets individually. In addition, we compared 50 randomly selected nonresponding firms drawn from each initial sample on annual sales, employees, and firm age (in 2010). Again, no statistically significant differences were found ($p < 0.05$) suggesting that non-response bias does not pose a significant threat to the validity of the results.

4.2 Survey instrument and measures

The survey instrument was developed in several stages following standard scale and questionnaire development techniques (DeVellis, 2003; Dillman, Smyth, & Christian, 2009). This process included a number of interviews with purchasing managers, an extensive review of the scholarly and practitioner literature, and in-person pretesting as well as a small pretest study.

For the survey instrument we ensured the ease of use, low burden on respondents, and that respondents maintained interest until completion of the survey. Several procedural measures were implemented to minimize the introduction of common method variance into the data (Podsakoff et al., 2003). We offered fully anonymity and confidentiality to reduce social desirability bias in the responses. Further, we provided only general information about the study’s objectives, but no specific information about the actual relationships under investigation. Finally, a clear definition of the term new venture (consistent with the definition discussed above) was provided to ensure a common understanding among respondents. In congruence with the entrepreneurship literature (e.g., Zahra et al., 2000), we chose six years as cutoff for new venture age.
For the measurement of the variables related to supplier selection orientation and for new venture supplier development, we were able to draw on measurement scales that had been previously developed and validated in the pertinent literature. However, in order to fit the original scales to the specific research context (new venture suppliers), it was necessary to amend or modify several items. Bivariate correlations and descriptive statistics of all variables are shown in Table 10.

### Table 10: Correlations of model variables (Paper 2).

<table>
<thead>
<tr>
<th>Variable</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
<th>(9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Purchasing volume&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(2) Realized innovations&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.20&lt;sup&gt;*&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(3) Firm size&lt;sup&gt;b&lt;/sup&gt;</td>
<td>-0.23&lt;sup&gt;**&lt;/sup&gt;</td>
<td>0.03</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(4) Number of new venture suppliers&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.26&lt;sup&gt;**&lt;/sup&gt;</td>
<td>0.37&lt;sup&gt;***&lt;/sup&gt;</td>
<td>0.20&lt;sup&gt;*&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(5) Supply base size&lt;sup&gt;b&lt;/sup&gt;</td>
<td>-0.30&lt;sup&gt;***&lt;/sup&gt;</td>
<td>-0.12</td>
<td>0.34&lt;sup&gt;***&lt;/sup&gt;</td>
<td>0.18&lt;sup&gt;*&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(6) Cost orientation</td>
<td>-0.05</td>
<td>-0.22&lt;sup&gt;**&lt;/sup&gt;</td>
<td>-0.03</td>
<td>0.12</td>
<td>0.10</td>
<td>0.72</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(7) Innovation orientation</td>
<td>0.15</td>
<td>0.23&lt;sup&gt;**&lt;/sup&gt;</td>
<td>-0.09</td>
<td>0.03</td>
<td>0.02</td>
<td>0.34&lt;sup&gt;***&lt;/sup&gt;</td>
<td>0.69</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(8) Indirect development</td>
<td>0.29&lt;sup&gt;***&lt;/sup&gt;</td>
<td>-0.11</td>
<td>-0.04</td>
<td>0.12</td>
<td>-0.09</td>
<td>0.18&lt;sup&gt;*&lt;/sup&gt;</td>
<td>0.03</td>
<td>0.58</td>
<td>-</td>
</tr>
<tr>
<td>(9) Direct development</td>
<td>-0.15</td>
<td>0.47&lt;sup&gt;***&lt;/sup&gt;</td>
<td>-0.02</td>
<td>0.12</td>
<td>0.03</td>
<td>-0.12</td>
<td>0.16</td>
<td>0.01</td>
<td>0.66</td>
</tr>
</tbody>
</table>

**Note:** Pearson product-moment correlation coefficients are below the diagonal and diagonal values represent average variances extracted (where appropriate). Number of observations (n) is 136.

*Transformed using the square root function.

<sup>a</sup>Transformed using the natural logarithm.

<sup>p</sup><sup>*,</sup> <sup>p</sup><sup>**,</sup> <sup>p</sup><sup>***</sup> <sup>p</sup><sub>0.05</sub> (equals |r| > 0.17), <sup>p</sup><sub>0.01</sub> (equals |r| > 0.22), <sup>p</sup><sub>0.001</sub> (equals |r| > 0.28) (two-tailed).

**Dependent variables.** The relationship outcome in terms of quantity was captured via the new ventures’ share in the purchasing volume of the buying firm. To this end, respondents were asked to report the percentage (%) of the total volume supplied by new ventures, hereafter purchasing volume (M = 4.59, SD = 3.91, Range = [0, 12]; in %).

The relationship outcome in terms of quality was captured via innovations received from new ventures. In congruence with the literature (e.g., Azadegan & Dooley, 2010; Nielsen & Nielsen, 2009), we defined “innovation” as newly developed and/or significantly enhanced product(s) and/or process(es). Respondents reported the number of innovations, hereafter realized innovations (M = 3.86, SD = 3.32, Range = [0,
10], that their firm had realized in close collaboration with or with the close support of new venture suppliers in the past three years.

**Independent variables.** The firm’s supplier selection orientation relates to two factors, cost orientation and innovation orientation which are based on the scales for competitive priorities in supply chain and operations management introduced by (Ward et al., 1998) and in purchasing conceptualized by (Krause et al., 2001). All items were formulated as reflective indicators and scored on seven-point rating scales (Likert-type). Innovation orientation \( (M = 5.46, SD = 1.01; \alpha = 0.87) \) captures the extent to which the firm emphasizes a supplier’s ability to offer innovations in terms of improving product aspects such as product functionality, providing most advanced and up-to-date technologies, and offer innovations in general. Cost orientation \( (M = 4.90, SD = 1.04; \alpha = 0.88) \) captures the extent to which the firm emphasizes a supplier’s ability to contribute to lowering costs in terms of offering the lowest unit price of a product, helping to reduce overall costs, and increasing productivity.

New venture supplier development relates to two factors, direct development and indirect development, which capture the effort by which the firm integrates and develops a new venture into its supplier base, i.e. devoting more, equal, or less of the firm’s effort, in relation to other (established) suppliers. The chosen scales reflect practices by which a firm develops suppliers and were adapted from (Das et al., 2006) and Wagner (2010a). Direct development \( (M = 4.67, SD = 0.98; \alpha = 0.88) \) refers to the practices that aim at imminently supporting suppliers whereas indirect development \( (M = 4.61, SD = 0.80; \alpha = 0.84) \) relates to practices that aim at monitoring of suppliers and at performance feedback. To ensure a high congruence with current practices in supplier development, the scales were validated and cross-checked in accordance to what
practitioners have highlighted as relevant and important for the development of new ventures and other (established) suppliers.

**Control variables.** In the hypothesis testing procedure, we control for firm size, size of the supply base, and the number of new venture suppliers. *Firm size* of the buying firm (measured in annual sales) serves as a proxy for the firm’s similarity to a new venture which could affect the tendency to buy from new ventures (Wagner, 2010b). Larger firms may also attract more innovations from suppliers than smaller firms (Inderst & Wey, 2007). *Size of the supply base*, measured as the number of direct suppliers, may affect the firm’s ability to pay attention to and devote resources to a single supplier. Finally, the *number of new venture suppliers*, measured as the current number of new venture suppliers that are part of the firm’s supply base, may affect the firm’s affinity with and ability to identify, select, and integrate new ventures (Wagner, 2010b).

### 4.3 Measurement assessment

Prior to measure assessment, we applied the expectation-maximization algorithm to impute the small amount (less than three percent of the data points) of missing values (Little & Rubin, 2002). For all observed variables, we examined the univariate distributions for outliers and for both skewness and kurtosis (i.e., absolute values of skewness below 2.0 and of kurtosis below 7.0), but no obvious and critical issues were detected through visual inspection.

We assessed the psychometric properties of the reflective measurement scales (*cost orientation, innovation orientation, indirect development, and direct development*) by means of a single multifactorial covariance-based confirmatory factor analysis
Given that we found some indications of the presence of multivariate nonnormality, we applied maximum-likelihood estimation with robust standard errors using the MLR estimator in the statistical software package *Lavaan* in *R* (Rosseel, 2012). The measurement model revealed an acceptable fit to the data (Hair et al., 2009): $\chi^2 = 118.69 \ (p < 0.001)$, $\chi^2/df = 1.67$, CFI = 0.95, TLI = 0.94, SRMR = 0.06, RMSEA = 0.07 with 90%-CI = (0.05, 0.10). Details of the measurement model are shown in the Table 11.

Table 11: Measures and assessment indicators (Paper 2).

<table>
<thead>
<tr>
<th>Measures and assessment indicators (Paper 2)</th>
<th>Coefficient $\alpha$</th>
<th>Composite reliability</th>
<th>$\lambda$</th>
<th>$t$</th>
<th>SE</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Innovation orientation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Please indicate to what extent your firm emphasizes the following capabilities when selecting new suppliers. (Not important – Extremely important)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INN1 Suppliers offer products that improve our products drastically (e.g. functionality, design)</td>
<td>0.87</td>
<td>0.87</td>
<td>0.78</td>
<td>$^{b}$</td>
<td>$^{b}$</td>
<td>0.61</td>
</tr>
<tr>
<td>INN2 Suppliers are able to offer innovations.</td>
<td>0.88</td>
<td>0.91</td>
<td>0.10</td>
<td></td>
<td></td>
<td>0.78</td>
</tr>
<tr>
<td>INN3 Suppliers provide the most advanced technologies and products.</td>
<td>0.83</td>
<td>10.91</td>
<td>0.10</td>
<td></td>
<td></td>
<td>0.69</td>
</tr>
<tr>
<td><strong>Cost orientation</strong></td>
<td>0.88</td>
<td>0.89</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(same lead in as in “Innovation orientation” above)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CST1 Suppliers offer the lowest unit price of a product.</td>
<td>0.79</td>
<td>0.63</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CST2 Suppliers help to reduce our cost drastically.</td>
<td>0.93</td>
<td>13.40</td>
<td>0.09</td>
<td></td>
<td></td>
<td>0.87</td>
</tr>
<tr>
<td>CST3 Suppliers help to increase our productivity drastically.</td>
<td>0.82</td>
<td>10.29</td>
<td>0.10</td>
<td></td>
<td></td>
<td>0.67</td>
</tr>
<tr>
<td><strong>Direct development</strong></td>
<td>0.88</td>
<td>0.88</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Please indicate to what extent your firm emphasizes the following measures when developing new venture suppliers in comparison to other (non-new venture) suppliers. (Much lesser – Much stronger)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIRD1 Provision of financial assistance/support.</td>
<td>0.74</td>
<td>0.55</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIRD2 Provision of technical assistance/support.</td>
<td>0.87</td>
<td>9.84</td>
<td>0.12</td>
<td></td>
<td></td>
<td>0.76</td>
</tr>
<tr>
<td>DIRD3 Joint problem solving.</td>
<td>0.81</td>
<td>7.81</td>
<td>0.14</td>
<td></td>
<td></td>
<td>0.65</td>
</tr>
<tr>
<td>DIRD4 Training of supplier staff.</td>
<td>0.81</td>
<td>10.04</td>
<td>0.11</td>
<td></td>
<td></td>
<td>0.66</td>
</tr>
<tr>
<td><strong>Indirect development</strong></td>
<td>0.84</td>
<td>0.84</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(same lead in as in “Direct development” above)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INND1 Setting of specific goals.</td>
<td>0.66</td>
<td>0.44</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INND2 Regular information exchange.</td>
<td>0.84</td>
<td>7.30</td>
<td>0.19</td>
<td></td>
<td></td>
<td>0.70</td>
</tr>
<tr>
<td>INND3 Regular visits of supplier sites.</td>
<td>0.73</td>
<td>7.01</td>
<td>0.17</td>
<td></td>
<td></td>
<td>0.53</td>
</tr>
<tr>
<td>INND4 Regular formal performance supplier evaluation.</td>
<td>0.80</td>
<td>6.62</td>
<td>0.19</td>
<td></td>
<td></td>
<td>0.64</td>
</tr>
</tbody>
</table>

**Note.** All items were measured on seven-point rating scales (Likert-type) with higher numbers reflecting increases in the underlying constructs. $\lambda$ refers to standardized factor loading and $SE$ refers to standard error (asymptotically robust estimate). $a$ $t$-values are from the unstandardized solution. All factor loadings are significant at the $p < 0.001$ level (two-tailed).

The CFA results indicated that the reflective items capture the underlying the latent variables well and suggested a satisfactory level of convergent validity and

---

$^{9}$ Using the robust maximum likelihood estimator, the $\chi^2$-value incorporates a scaling correction based on the degree of multivariate nonnormality. CFI refers to comparative fit index; TLI refers to Tucker-Lewis index (also non-normed fit index, NNFI); SRMR refers to standardized root mean square residual; RMSEA refers to root mean square error of approximation.
internal consistency. Without exception, each item loaded on its hypothesized factor with a large and significant loading (all loadings significant at $p < 0.001$), thus supporting convergent validity. Composite reliabilities and average variances extracted (AVE) exceeded the commonly recommended cutoffs (i.e., 0.70 and 0.50) (Bagozzi & Yi, 1988; Fornell & Larcker, 1981; Hair et al., 2009). Discriminant validity was assessed on the basis of the criterion suggested by (Fornell & Larcker, 1981). Table 2 shows that each construct extracted variance that is larger than the highest variance it shares with other constructs, thus providing support for discriminant validity.

Given that different scale formats were used for the dependent and independent variables, the design of our study is relatively robust against detrimental effects of common method variance (CMV) (Craighead, Ketchen, Dunn, & Hult, 2011). Still, in order to gauge the extent to which CMV might pose a problem, we compared our base CFA model with an extended CFA model which includes a single latent method factor that is uncorrelated with all other latent variables and that loads equally on all items (Podsakoff et al., 2003). The results showed that the inclusion of the method factor only marginally improved the model. To compare both models in terms of their difference, we applied a $\chi^2$-difference test which revealed a nonsignificant $\chi^2$-difference ($\Delta\chi^2(1) = 2.11, p = 0.15$), suggesting that CMV is unlikely to introduce a substantial bias in our models.

Having established the validity and reliability of the reflective scales, scale averages were used as latent variable scores in the hypothesis testing procedure.
5 Analysis and results

To test our hypotheses, we opted for ordinary least squares (OLS) regression, because it allows not only a straightforward interpretation of the estimates, but also the direct comparison of the independent variables effects’ on the two dependent variables (i.e., quantity- and quality-related relationship outcomes). However, given the nature of the two dependent variables, we compared the estimates obtained from OLS regression with two alternative regression approaches that provide a more nuanced treatment of the two dependent variables, and verified the robustness of the OLS results.\(^{10}\) For the OLS estimation, the dependent variables were transformed using the square root function and the control variables were transformed using the natural logarithm (Cohen et al., 2003). Specifically, the following linear models were estimated in several hierarchical steps.\(^{11}\)

For purchasing volume,

\[
P V = a^{PV} + b_1^{PV} SZE + b_2^{PV} NVS + b_3^{PV} BAS + b_4^{PV} INN + b_5^{PV} CST + b_6^{PV} DIRD + b_7^{PV} INDD + \varepsilon
\]

(Model 1a)

(Model 2a)

and for realized innovations,

\[
R I = a^{RI} + b_1^{RI} SZE + b_2^{RI} NVS + b_3^{RI} BAS + b_4^{RI} INN + b_5^{RI} CST + b_6^{RI} DIRD + b_7^{RI} INDD + \varepsilon
\]

(Model 1b)

(Model 2b)

\(^{10}\) Specifically, for the dependent variable \textit{purchasing volume}, which was measured as a percentage and thus can be viewed as a proportion on the closed interval \([0, 1]\), we used a fractional logit regression (Baum, C. F. 2008. Stata tip 63: Modeling proportions. \textit{The Stata Journal}, 8(2): 299-303, Papke, L. E., & Wooldridge, J. M. 1996. Econometric methods for fractional response variables with an application to 401(K) plan participation rates. \textit{Journal of Applied Econometrics}, 11(6): 619-632.). Likewise, for the dependent variable \textit{realized innovations}, which can be viewed as an overdispersed count variable (i.e., \(RI = 0, 1, 2, \ldots\), with the unconditional mean being significantly lower than the variance), we used negative binomial regression with a quadratic specification of the variance function (NB2) as an alternative approach (Hilbe, J. M. 2011. \textit{Negative binomial regression} (2nd ed.). New York: Cambridge University Press.). In both cases, the results obtained for the hypothesized main effects were consistent with the estimates received from OLS regression.

\(^{11}\) The variable identifiers are as follows: \(PV := \) Purchasing volume, \(RI := \) Realized innovations, \(NVS := \) Number of new venture suppliers to buyer, \(BAS := \) Size of supply base of buyer, \(SZE := \) Size of buying firm, \(CST := \) Cost orientation, \(INN := \) Innovation orientation, \(INDD := \) Indirect development, \(DIRD := \) Direct development.
Since we have identical right-hand side variables in both sets of equations, a system estimator (e.g., seemingly unrelated regression) provides no advantages over OLS. Control variables were entered as a block in Model 1a and b, followed by the main effect variables in Models 2a and b. We scrutinized influence diagnostics and verified that the critical assumptions underlying OLS regression analysis were met: (1) residuals were normally distributed (Jarque & Bera, 1980: Jarque-Bera-Test), (2) residuals were of constant variance (Breusch & Pagan, 1979: Breusch-Pagan-Test), and (3) no indications for problematic levels of multicollinearity were found. With regard to the latter, the bivariate correlations between the independent variables were low ($|r| < 0.50$) and both the variance inflation factors (maximum: 1.33) and the condition numbers (maximum: 29.93) were below the commonly suggested thresholds for all models (Cohen et al., 2003). In summary, no indications were found that the chosen estimation approach was inappropriate. For the sake of prudence, we used robust (Huber-White) standard errors to correct for possible heteroskedasticity in our models (Huber, 1967). Based on $F$-tests, all models were statistically significant ($p < 0.001$). The results appear in Table 12 and a summary in Table 13.
Table 12: Results of regression analysis (Paper 2).

<table>
<thead>
<tr>
<th>Hyp.</th>
<th>Model 1 (Controls)</th>
<th>Model 2 (Main effects)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Purchasing volume</td>
<td>Realized innovations</td>
</tr>
<tr>
<td>Constant [$\beta_0$]</td>
<td>3.94***</td>
<td>3.69**</td>
</tr>
<tr>
<td></td>
<td>(0.60)</td>
<td>(0.60)</td>
</tr>
<tr>
<td>Firm size [$\beta_1$]</td>
<td>−0.10***</td>
<td>−0.09*</td>
</tr>
<tr>
<td></td>
<td>(0.04)</td>
<td>(0.04)</td>
</tr>
<tr>
<td>Number of new venture suppliers [$\beta_2$]</td>
<td>0.43***</td>
<td>0.39***</td>
</tr>
<tr>
<td></td>
<td>(0.09)</td>
<td>(0.09)</td>
</tr>
<tr>
<td>Supply base size [$\beta_3$]</td>
<td>−0.26***</td>
<td>−0.23***</td>
</tr>
<tr>
<td></td>
<td>(0.07)</td>
<td>(0.07)</td>
</tr>
<tr>
<td>Innovation orientation [$\beta_4$]</td>
<td>0.20*</td>
<td>0.22**</td>
</tr>
<tr>
<td></td>
<td>(0.08)</td>
<td>(0.08)</td>
</tr>
<tr>
<td>Cost orientation [$\beta_5$]</td>
<td>−0.13</td>
<td>−0.16*</td>
</tr>
<tr>
<td></td>
<td>(0.09)</td>
<td>(0.08)</td>
</tr>
<tr>
<td>Direct development [$\beta_6$]</td>
<td>−0.22**</td>
<td>0.37***</td>
</tr>
<tr>
<td></td>
<td>(0.07)</td>
<td>(0.06)</td>
</tr>
<tr>
<td>Indirect development [$\beta_7$]</td>
<td>0.23***</td>
<td>−0.15*</td>
</tr>
<tr>
<td></td>
<td>(0.07)</td>
<td>(0.08)</td>
</tr>
</tbody>
</table>

| R²                    | 0.23               | 0.34                   |
|                       | 0.17               | 0.43                   |

| F                     | 13.13***           | 13.55***               |
|                       | 11.76***           | 14.66***               |

| $\Delta R^2$          | –                  | 0.11                   |
|                       | –                  | 0.26                   |

| F of $\Delta R^2$     | –                  | 7.02***                |
|                       | –                  | 14.95***               |

Note. OLS estimation was used (in STATA 13.0). Standardized regression estimates are shown (with robust standard errors in parentheses). Number of observations (n) is 136.
† p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001 (two-tailed).

Table 13: Summary of hypotheses tests (Paper 2).

<table>
<thead>
<tr>
<th>Effects</th>
<th>Innovation orientation</th>
<th>Cost orientation</th>
<th>Direct development</th>
<th>Indirect development</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>H1a: ⊕</td>
<td>H2a:⊖ n.s.</td>
<td>H3a:⊕</td>
<td>H4a:⊕</td>
</tr>
<tr>
<td>Prediction</td>
<td>Result</td>
<td>Prediction</td>
<td>Result</td>
<td></td>
</tr>
</tbody>
</table>

Note. “⊕/⊖” indicate the hypothesized direction of the effect (positive/negative) and “✓” indicates that it is significantly different from zero (p < 0.05); “n.s.” means not significant.

In the main-effects models (Models 2a and 2b), we investigate the direct effects of supplier selection orientation and new venture supplier development on the relationship outcome variables purchasing volume and realized innovations (H1–H4).

We ask whether the buying firm’s supplier selection orientations (cost and innovation) affect the outcomes obtained from relationships with new ventures.
The first set of hypotheses focuses on *innovation orientation* in supplier selection and predicts positive effects on *purchasing volume* (H1a) and on *realized innovation* (H1b). Consistent with these predictions, we obtained positive and significant estimates for both relationships ($b_{PV}^{PV} = 0.20, p < 0.05$; $b_{RI}^{RI} = 0.22, p < 0.01$). Hence, firms with a strong innovation focus in their supplier selection process are more likely to have a larger share of their purchase volume with new venture suppliers and are more likely to obtain a relatively larger amount of innovations from new ventures.

The second set of hypotheses focuses on *cost orientation* and suggests negative effects on *purchasing volume* from new venture suppliers (H2a) and on *realized innovations* with new venture suppliers (H2b). The results reveal a negative but hardly significant estimate for the former relationship ($b_{PV}^{PV} = –0.13, p = 0.14$) and a negative and significant effect for the latter relationship ($b_{RI}^{RI} = –0.16, p < 0.05$). Thus, H2b was supported, but H2a received only very weak support: Firms emphasizing on cost in their supplier selection process tend to have a relatively small purchasing volume with new venture suppliers and obtain a relatively small amount of innovations from such suppliers.

We proceed by analyzing the direct effects of new venture supplier development, in terms of indirect and direct development, on quantity- and quality-related relationship outcomes.

The third set of hypotheses focuses on *direct development* and predicts a negative effect on purchasing volume (H3a) and a positive effect on *realized innovations* (H3b). In support of both predictions, the corresponding regression coefficient was negative and significant for *purchasing volume* ($b_{PV}^{PV} = –0.22, p < 0.01$) and positive and
significant for realized innovations \( (b_6^{PV} = 0.37, p < 0.001) \). Together, these results suggest that a strong emphasis on direct supplier development leads to relatively less quantity but relatively more quality-related relationship outcomes with new ventures.

Our fourth set of hypotheses posits that indirect development has a positive bearing on purchasing volume (H4a) and a negative bearing on realized innovations (H4b). Indeed, the results show a positive and significant coefficient on purchasing volume \( (b_7^{PV} = 0.23, p < 0.001) \) and a negative and significant coefficient on realized innovations \( (b_7^{RI} = -0.15, p < 0.05) \). In sum, the prediction that indirect supplier development is associated with increasing relationship outcomes in terms of quantity and with decreasing relationship outcomes in terms of quality was supported.

Finally, we turn our attention to the control variables. In the main effect models, firm size is negatively related to purchasing volume \( (b_1^{PV} = -0.09, p < 0.05) \), but not significantly related to realized innovations. As to the former result, it seems reasonable to assume that as the size of the buying firm increases the relative contribution of new ventures to the total purchasing volume decreases. Interestingly, the size of the supply base is linked negatively to both relationship outcomes \( (b_3^{PV} = -0.23, p < 0.05; b_3^{RI} = -0.18, p < 0.05) \). This result hints at the individual new venture’s role in the supplier portfolio, which is less important when the portfolio is large.

6 Discussion

This study adds to the understanding of relationships between established firms as buyers and ventures as suppliers by investigating the buying firm’s influence on new venture-specific relationship outcomes in such relationships. To this end, we proposed
and tested two models to analyze how buying firms’ strategic (expressed in cost and innovation orientation in supplier selection) and operational (expressed in indirect and direct development of new ventures) postures affect new venture-specific relationship outcomes (captured in terms of “quantity” through purchasing volume obtained from new venture suppliers and in terms of “quality” through realized innovations with new venture suppliers). The conceptualization of the buying firms’ strategic posture was built on the competitive priorities perspective (e.g., Krause et al., 2001; Ward et al., 1998), and the conceptualization of the buying firms’ operational postures was built from the supplier development literature (e.g., Das et al., 2006; Wagner, 2010a). While Model 2a looks at whether firms buy at all from new ventures, and if so “how much,” Model 2b is directed at whether firms are able to set differentiated relationships with new ventures as suppliers and generate new or significantly enhanced products and processes. We discuss implications the for the supply chain and entrepreneurship literature.

6.1 Implications for the supply chain management literature

The study makes four contributions to the supply chain management literature. First, from the strategic perspective, our results show that firms pursuing a strategy of selecting innovative suppliers do in fact select and realize innovations with new ventures. The results from the relationships between the firm’s cost orientation in supplier selection and new venture-specific outcomes suggest that a low-cost approach does not significantly lower the firm’s tendency to buy from new venture suppliers; but this approach interferes with the realization of innovative outcomes. It is interesting to note that innovation orientation positively affects both relationship outcomes, which
provides empirical support for the notion that new ventures are welcomed as a valuable source of innovation (e.g., Reynolds, 1987; Rothaermel, 2002), while cost orientation only reveals its negative impact with respect to innovations. (Hoetker, 2005, p.79) noted that “innovations cannot be obtained by a one-off, anonymous transaction and require time to develop.” Hence, taking both cost and innovation orientation into account, this suggests that in the long run (when attempting to realize innovations), the trade-offs between low cost and innovation orientation becomes evident as both have the hypothesized opposing effects.

Second, from the operations perspective, we have observed strong opposing effects of indirect and direct new venture development on new venture-specific relationship outcomes. These results suggest that firms might first seek an arm’s length relationship (e.g. uncertainty reduction, testing, exploitation of short-term advantages through measuring and monitoring practices) at the beginning of the relationship. However, as the new venture proves being a capable supplier, the results imply that firms with a proactive and direct development approach invest into the relationship to become a collaborative relationship and leverage the new venture’s capabilities (Sarkar & Mohapatra, 2006). Hence, a firm’s direct development activities may yield a more cooperative and long lasting relationship (Krause, 1997), which is beneficial for new venture to leverage their innovative capital (Larson, 1991, 1992; Ozcan & Eisenhardt, 2009). From a temporal perspective, scholars have posted recommendations that indirect development should precede direct development because indirect efforts lay out the foundation for the direct efforts to be effective (Modi & Mabert, 2007), and also because the simultaneous deployment of indirect and direct development efforts negatively affect supplier capabilities (Wagner, 2010a). In light of our findings this
suggests that buying firms may first lodge new ventures as new suppliers to test, evaluate, and monitor them in order become familiar with new ventures’ processes and capabilities. In a second step, over time (up to three years as reported by our respondents), buying firms should commit direct development and provide transfer of resources to enhance the capabilities of new venture suppliers.

Third, from an integrated strategic and operations perspective, our results suggest that the buying firm should to align its strategic and operational postures with respect to new ventures when contracting them as suppliers. Buying firms should configure their purchasing strategy in that it systematically recognizes new ventures to tap into new ventures’ potential. New ventures should be regarded as a distinct subset of suppliers in the marketplace. By manifesting a new venture-specific buying strategy, buying firms could complement their strategic supplier selection and secure competitive advantage in that they both identify and adequately integrate new ventures’ capabilities into their own product development. Moreover, the creation of supplier portfolios for new ventures would support the buying firm in learning and developing a management process to strategically leverage the capabilities of new ventures (Krause, Handfield, & Scannell, 1998). For example, (Olsen & Ellram, 1997, p. 106) proposed a set of factors that determines relative supplier attractiveness, in particular “types and depths of supplier’s current and future technological capabilities.” If a buying firm highly values a new venture’s innovativeness (because of current or anticipated future capabilities) in relation to other suppliers with similar capabilities, the consequence should be that the buying firms invests more generously into the new venture. The development approach has also to be contingent upon what the specific needs of the suppliers are (Olsen & Ellram, 1997). Development measures, such as direct measures, should then be tailored
to new ventures. We suggest that an improved alignment of the buying firm’s strategic and operational postures as well as a purposeful adjustment of both postures contribute to improved buying firm’s partner compatibility and development measures relative to new ventures, which translates into improved value realization in inter-firm relationships (Madhok & Tallman, 1998).

Finally, from a practical viewpoint, purchasing and supply chain managers should acknowledge differences between established suppliers and new ventures while maintaining high quality standards for their own firms. Hence, this study should direct firms’ attention to the need to train their purchasing and supply chain managers to adequately manage new venture suppliers. In order to facilitate an effective and efficient selection process and subsequent partnership, buying firms need to develop measures specifically tailored towards selecting and integrating new ventures. In interviews conducted in preparation our this study, the majority of purchasing and supply chain management professionals stated that their firms neither have the means to identify capable new ventures, nor the routines, processes, or other development measures in place to effectively leverage the capabilities of new ventures. However, such new venture-specific measures may be the key to effective and efficient cooperation with new ventures.

6.2 Implications for the entrepreneurship literature

We also offer two contributions for entrepreneurship literature that predominantly puts the new ventures at the center of the analysis. First, new ventures can enhance and complement their market position by leveraging the buying firm’s supplier development capabilities in their own interest. Like buying firms that specifically target new
ventures, new ventures can build high-performance alliance portfolios (Ozcan & Eisenhardt, 2009) by seeking buying firms that offer sophisticated, long-term buyer-supplier relationships. Our results suggest that new ventures should partner with firms that pursue an innovative supplier selection strategy and proactively demand direct development.

Second, strategy and entrepreneurship scholars emphasize the importance of entrepreneurial firms having access to larger exchange partners to signal legitimacy (Gulati & Higgins, 2003; Stuart et al., 1999). We suggest, in the light of our findings, that new ventures face a trade-off in regard of their relative standing in the buying firm’s supplier portfolio. Since firm size and supply base size negatively relate to new venture-specific relationship outcomes, the benefits of contracting with a very large, probably more prominent, exchange partner that has a relatively large supply base goes with the decreased relative important in that partner’s supply base. Contracting with a smaller partner gets the new ventures a higher relative standing in the buying firm’s supply base; however smaller partners might have fewer resources to provide (Welsh & White, 1981) and also be less prominent thereby signaling less legitimacy (Stuart et al., 1999).

7 Limitations and future research directions

This study contains several limitations that should be considered in the interpretation of its results but that also point out opportunities for future research. Despite the encouraging results of tests that the study has reported herein, a few obvious limitations pertain to our data collection and analyses. The first is the low response rate. Second, except for the control variable firm size, the study was unable to draw on objective data
for the variables under scrutiny. Third, the data collection is confined to German-speaking countries. Forth, due to the cross-sectional nature of our data, it is acknowledged that it is difficult to establish direct causality between the proposed independent constructs and dependent variables. Only a longitudinal research design could confirm causality, which would allow further investigation of the proposed relationships in this study.

In addition, supplier selection and development are part of the dyadic relationship between buying firm and supplier in which each party affects the other’s interpretation and understanding of behaviors, actions, and attitudes. In our study, we did not incorporate actions of new ventures, for example, by surveying representatives from new ventures on how they maneuver through and act in supplier selection and development. Recent literature on entrepreneurship has emphasized that new ventures are powerful players in the market that should not shy away from competition with established firms (Santos & Eisenhardt, 2009). Thus, it would be worthwhile to gain more insights into the action-and-response process between buying firms and new ventures in the course of supplier selection and development. It would also be insightful to investigate how new ventures transform their capabilities under the buying’s firms development efforts.

We also acknowledge that other important factors come into play when contracting and collaborating with suppliers that influence the innovation generation in buyer-supplier relationships such as the use and installation of safeguards (Wagner & Bode, 2014). It might also well be that the buying firm’s supplier development may vary over the relationship cycle (Dwyer, Schurr, & Oh, 1987). In summary, we are well
aware of the limitations of this study and call for a replication with an extended scope and focus of the unit of analysis which would allow closer scrutiny of the results.

The limitations also point the way for future research. First, factors beyond those incorporated in the hypotheses are likely to affect firms’ perception of new ventures. The inclusion of factors such as relationship length, relationship history, alliance experience, and other environmental context factors represents an excellent opportunity to extend the scope of our study. Second, an extension of this study could consider how competitive priorities such as flexibility, quality, and delivery that were left out in our affects a firm’s relationship outcome with new ventures.

To conclude, by investigating the buying firm’s role in value creation in relationships with new ventures, this study adds to the research on the interaction among supply chain management, operations management, and entrepreneurship. We hope that academics and practitioners alike deem the results of our study interesting and agree that our study contributes to a better understanding of relationships between established firm and new venture and stimulates future research in this area.
Chapter IV  New venture-partnering capability: An empirical investigation into how buying firms effectively leverage the capabilities of innovative new ventures

1  Introduction

Recent articles have highlighted research opportunities at the intersection of the supply chain management and entrepreneurship literature (Ireland & Webb, 2007; Kickul et al., 2011; Shepherd & Patzelt, 2013). One key theme that deserves more research attention are supply chain relationships between established firms\(^{12}\) and new ventures (Kickul et al., 2011). New ventures are seen a major source for innovation (Reynolds, 1987), because they have traditionally been relatively skilled at identifying and exploiting entrepreneurial opportunities (Ireland et al., 2003). From the buying firm’s perspective, new ventures’ innovative potential and new product development capabilities make them attractive suppliers (Kickul et al., 2011; Rothaermel, 2002).

The distinction between established firms and new ventures is important because new ventures are unique organizational forms (Aldrich & Ruef, 2006; Su et al., 2011). From a theoretical perspective, new ventures suffer from “liabilities of newness” (Singh et al., 1986; Stinchcombe, 1965). In part, this is due to their low level of legitimacy in the market place (Singh et al., 1986). New venture are usually lacking a record of

\(^{12}\)The term “established firm” is used in order clearly distinguish firms in the market from new entrants, i.e. new ventures.
accomplishments, credentials, and external endorsements (Zimmerman & Zeitz, 2002). In terms of firm resources, new ventures suffer from limited financial and human resources (Cooper, 1981) as well as from lacking or only incipient management (Hitt et al., 2001) and/or manufacturing capabilities (Terjesen et al., 2011). Initially, new ventures are characterized by relatively little formalization (Aldrich & Ruef, 2006), which refers to the identification and designation of particular roles to specific individuals (Sine et al., 2006). New ventures rely on a short chain of command and informal methods (Cooper, 1981), and they typically lack productive routines that established firms possess to transform their existing resources into products and services (Nelson & Winter, 1982; Schumpeter, 1934). In sum, concerning buying firms, these aspects imply that forming and maintaining an exchange with a new venture differ significantly from a relationship with an established supplier firm.

Given that suppliers in general have become a valuable source of innovation in many industries (Azadegan & Dooley, 2010; Wagner & Bode, 2014), a considerable amount of research has focused on how buying firms can identify relevant innovations of their suppliers (Dyer & Singh, 1998) and use a variety of supplier management initiatives and practices to leverage supplier innovations (e.g., Das et al., 2006; Monczka et al., 1998; Perols et al., 2013; Petersen et al., 2005; Ragatz et al., 1997; Schiele, 2006). Most of this literature has been limited to buyer-supplier relationships between established firms, yet little has been done to specifically examine how established firms leverage innovations of their new venture suppliers. While there is anecdotal evidence that large corporations have built purchasing and supply chain-related capabilities that enable them to tap into the innovativeness of small, entrepreneurial ventures such as Procter & Gamble’s Connect and Develop Program
(Huston & Sakkab, 2006), the supply chain literature is scarce of scholarly investigations addressing how firms leverage the specific features of new ventures and their potential innovativeness. For this reason, this study offers detailed insights into how firms deal with new ventures from a purchasing and supply chain perspective. Specifically, the study focuses on relationships in which an established buying firm obtained a new product or technology from a new venture. The study’s purpose is to provide answers to the research question: How do buying firms effectively leverage the capabilities of innovative new ventures?

To accomplish this goal, an exploratory, qualitative approach is used, which is supported by literatures from organizational supply chain capabilities (McKone-Sweet & Lee, 2009; Wu et al., 2010), supplier evaluation and development (e.g., Das et al., 2006; Monczka et al., 1998; Ragatz et al., 1997), and relationship marketing (e.g., Palmatier et al., 2006; Wilson, 1995). Based on a detailed investigation of ten buyer-supplier relationships between established firms (as buyers) and new ventures (as suppliers), it is analyzed how buying firms manage the relationships with new ventures at a micro level. At the core of the analysis stands the conceptualization of the buying firm’s new venture-partnering capability (NVPC), which is delineated as the buying firm’s capacity to effectively leverage the capabilities of new ventures.

2 Conceptual background
In order to generate synergies and value from interfirm relationships to achieve the potential value attainable through the relationship and the actual realization of such value, strong relationship-building efforts are needed (Madhok & Tallman, 1998). Indeed, innovative new ventures do not fully realize their potential when they are
constrained to simplistic buyer-supplier relationships based on mere arm’s length basis (Ozcan & Eisenhardt, 2009). To provide a conceptual background outlining the variables that play a key role in effectively leveraging the innovative capabilities of new ventures, the study draws on literatures from organizational supply chain capabilities (McKone-Sweet & Lee, 2009; Wu et al., 2010), supplier evaluation and integration (e.g., Das et al., 2006; Monczka et al., 1998; Ragatz et al., 1997), and relationship marketing (e.g., Palmatier et al., 2006; Wilson, 1995). In the study’s point of view, the notion of **effectiveness** is the extent to which a certain measure or deployment of a certain resource is conducive to achieving a specific. Thus, “effectively leverage,” refers, for example, to any of the buying firm’s efforts and contributions to forming and maintaining a relationship with a new venture with to successfully realize an innovation.

Organizational capabilities provide the means for configuring a firm’s resources and relate to the firm’s capacity to deploy resources to achieve specific goals (Wu et al., 2010). Recently, scholars have conceptualized organizational supply chain and operational capabilities which are central to firms’ ability to leverage the capabilities of suppliers (McKone-Sweet & Lee, 2009; Wu et al., 2010). Specifically, Wu et al. (2010, p. 731) defined **operational cooperation** capability as “differentiated sets of skills, processes, and routines for creating healthy and stable relationships with […] external supply chain partners” – a capability that becomes increasingly valuable when uncertainty about potential supply chain partner is high (Wu et al., 2010), as it is in case of selecting new ventures (Wathne et al., 2001; Wathne & Heide, 2000). The buying firms’ skills, processes, and routines for effective resource deployment are embedded in how buying firms evaluate, select, and develop suppliers in order to set up a stable relationship and leverage their innovative potential and capabilities.
Given the importance of a capable supplier base for new product development (Krishnan & Ulrich, 2001) and firm performance (Kannan & Tan, 2006), the process of supplier evaluation/assessment (some previous works, e.g. Kannan and Tan (2002), used these terms interchangeably) and subsequent supplier selection have been recognized as one of the most critical decision processes for buying firms (Hoetker, 2005; Narasimhan, 1983). A comprehensive supplier evaluation and selection process is linked to the overall success of the buyer-supplier alliance (Monczka et al., 1998). The literature addresses supplier selection/evaluation, for example, in the light of multiple selection/evaluation criteria (e.g., Ho et al., 2010; Rosenblatt et al., 1998; Sarkis & Talluri, 2002), in specific industries (Choi & Hartley, 1996), as well as with respect to product configuration (Kim & Wagner, 2012). However, as most of the research has been limited to established suppliers, it remains unclear whether and how these selection criteria are suitable and relevant when evaluating and selecting new ventures. Assuming risk aversion, a supplier selection that is based strictly on such means-end rationality would probably lead to the exclusion of new ventures when at least one established firm with a proven track record of meeting these criteria is a viable alternative (Zimmerman & Zeitz, 2002). However, the new venture might be the “right” supplier because it may offer unique capabilities that buying firm want to integrate into their new product development and/or the buying firm’s culture (Petersen et al., 2005).

Supplier integration and supplier development have been the subjects of considerable research attention. In their review of the supplier integration literature, Das et al. (2006, p. 564) defined supplier integration as “a state of syncretism among the supplier, purchasing and manufacturing constituents of an organization” with a primary focus on intra-firm and supply base integration. Thus, in the broadest sense, supplier
integration refers to practices that aim to enable, support, develop, and maintain the capabilities of suppliers selected by the buying firm. Supplier development has been identified as an element within the wider context of external supplier integration (Das et al., 2006). Krause and Ellram (1997, p. 21) defined supplier development as “any effort of a buying firm with its supplier to increase the performance and/or capabilities of the supplier and meet the buying firm’s supply needs.” Among these efforts can be direct transfers of resources such as the provision of training, knowledge, and capital, and indirect support and guidance through goal setting and monitoring of key performance indicators (Wagner, 2010a). For innovations to be successful, a firm must link its technological competence, such as engineering and process expertise, with customer competence (Danneels, 2002). From a new venture’s perspective, this suggests that the new venture should seek input, support, and development effort from the firms it supplies to. From a buying firm’s perspective, this suggests that buying firms have to adequately develop new ventures as suppliers to tap into the new venture’s competence and knowledge.

Beyond comprehensive supplier evaluation and development, the literature has proposed and tested various factors, which significantly affect supplier evaluation and development efforts and thus directly (or indirectly) drive effective value creation in buyer-supplier relationships. Examples are communication quality (Claycomb & Frankwick, 2010; Palmatier et al., 2006), trust and commitment (Palmatier et al., 2006; Wilson, 1995), the degree of cooperation (Wagner & Bode, 2014; Wilson, 1995), and effective contractual governance (Poppo & Zenger, 2002; Wagner & Bode, 2014). In particular, buying firms’ use of informal (trust-based) and formal (contract-based) safeguards to protect their relationship-specific investments has recently been
demonstrated to affect suppliers’ willingness to share innovations with their customers (Wagner & Bode, 2014). In case of new ventures, the extant empirical research has suggested that it is advantageous when they partner with responsive and collaborative exchange partners (Larson, 1991, 1992; Ozcan & Eisenhardt, 2009) and that trust is more important than formal contracts in governance of exchange relationships involving young, and entrepreneurial firms (Larson, 1992). Finally, scholars have argued that antecedents such as interdependence and organizational compatibilities (Jean, Kim, & Sinkovics, 2012; Mentzer, Min, & Zacharia, 2000), as well as geographical distance (Schiele, 2006) are critical for the formation and success of buyer-supplier relationships.

In summary, a large body of literature provides insights into how buying firm may leverage the capabilities of their suppliers. However, to date, little scholarly work exists on how buying firms manage their relationships with innovative new ventures. In response, the present study aims to contribute to the supply chain management literature by generating insights into how buying firms effectively leverage the capabilities of innovative new ventures.

3 Methods

Given the nature of the stated research questions, an exploratory, qualitative methodology is most appropriate for investigating the interaction between buying firms and new ventures. A multiple case study design is used, which allows building and extending theories as well as exploring contemporary phenomena in the real world settings (Barratt et al., 2011). Building on the proposed critical variables, namely, supplier evaluation, development, and potential relational mediators, moderators, and antecedents, which are likely to play a key role in our research setting, the study is
located in the mapping (i.e. identifying and describing critical variables) and relationship building (i.e. identifying linkages between variables, causal understanding) stage of theory building and elaboration (Ketoviki & Choi, 2014; Stuart, McCutcheon, Handfield, McLachlin, & Samson, 2002). The study follows established case study research methods (Miles & Huberman, 1994; Patton, 2002; Yin, 2009) that correspond to this stage of epistemology.

3.1 Sampling and data collection

The sampling approach is a combination of criterion sampling – the selection of cases that meet some predetermined criterion of importance (Patton, 2002) – and theoretical sampling – defined as a “more conceptually oriented version” of criterion sampling (Patton, 2002, p. 238) which allows the identification of “places, people, or events that will maximize opportunities to discover variations among concepts and to densify categories in terms of their properties and dimensions” (Strauss & Corbin, 1998, p. 201). This approach made it possible to establish a certain degree of variation in the sample while maintaining comparability among individual cases, specifically with regard to (1) buying firm’s prior experiences with new ventures, (2) new venture’s seller experience with other firms, and (3) new venture’s resource endowments at the time of relationship formation. The primary criterion for sampling was that either an established firm had selected a new venture to acquire an innovative product, or a new venture had offered an innovative product and thus it was selected as supplier by an established firm. The focus was on cases where the new venture offered a self-developed product or technology (which was subject to further development/enhancement) or yet-to-develop product or technology (not solely distribution).
Regarding the definition of a *new venture*, cases were considered in which new venture firms had been in existence for a maximum of six years at the beginning of the buyer-supplier relationship. In primary studies that investigated new venture firms, firms’ age ranged from a maximum of 12 to 15 years to a minimum of six years or less (Bantel, 1998; Song et al., 2008; Zahra et al., 2000). Bantel (1998) proposed that by the age of five, many new ventures that have failed to achieve a strong position on the market have vanished. However, firms that have been in existence for up to 12 years “have survived the critical initial years, yet have not reached the mature phase where they resemble established firms” (Bantel, 1998, p. 207). Hence, it is difficult to determine at what age new ventures lose their distinctive features. In their meta-analysis of new venture success factors, Song et al. (2008) found that most studies selected a cut-off age between six and eight years, which is congruent with common definitions of new ventures in the literature (e.g. Zahra et al., 2000). On the other side of the relationship dyad, only established firms with annual sales exceeding USD 50 million that had been in existence for several decades were considered.

Regarding data collection from the established buying firms, the informants were concerned with the selection and management of the specific new venture supplier and/or held a senior position in purchasing. Within the scope of their responsibilities, the informants were knowledgeable about the particular procurement project, which was central to the data collection. On the part of the new venture supplier, the informants were founding members of the new ventures and/or held executive management positions. Thus, they were key decision makers centrally involved in their venture’s relationships with customer firms. In addition, an experienced investment manager from a venture capital firm was added who possessed general knowledge about these types of
buyer-supplier dyads to our informant pool. In summary, it was ensured that the conditions were met in which it is legitimate to rely on well-informed key informants (Rosenberg & Stern, 1970).

Following Eisenhardt (1989), the data collection followed a sequential process and was ceased after no significant additional insights emerged from the interviews. In summary, 15 interviews were conducted (7 from buying firms, 7 from new ventures, 1 from the external expert). Each interview was initiated by a personal invitation sent by email. When an affirmative response was received, appointments were scheduled either for face-to-face (where feasible; 13 interviews) or telephone interviews (2 interviews).

Two researchers conducted the interviews between June 2013 and January 2014. Each interview lasted, on average, approximately 75 minutes. All gathered data were carefully documented in a structured database that was accessible to the researchers. This procedure ensured a high reliability of the data.

During the data collection, dyadic interview data were opted for (i.e., from both the established firm and the corresponding new venture). However, due to the confidentiality of ongoing business relationships, such dyadic interviews could only be obtained for two cases. The interviews were based on a previously fixed semi-structured interview instrument designed for the buying or supplying party (the interview instrument appears in the Appendix 1.1). Prior to data collection, the basic research setting and objectives were outlined to the interviewees. The informants were asked to base their answers on ongoing or past (if appropriate) buyer-supplier relationships. To reduce the chances of eliciting responses that were socially desirable or consistent with how informants believe researchers want them to respond informants were guaranteed anonymity and confidentiality. All interviews were recorded and transcribed. Lastly, for
the purposes of triangulation and establishing construct validity, secondary data sources (e.g., annual reports, business press, corporate websites, general terms and conditions of purchase, internal documentation) were consulted to complement the interview data. An overview of the analyzed cases appears in Table 14.
### Table 14: Overview of investigated firms (Paper 3).

<table>
<thead>
<tr>
<th>Case</th>
<th>Supplied product / technology (time frame)</th>
<th>Firm / Country</th>
<th>Alliance experience</th>
<th>Industry</th>
<th>Firm age/ Employees / Revenues at beginning of project</th>
<th>Informant(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Medical (mechanical) device</td>
<td>Buying firm-1</td>
<td>**</td>
<td>Healthcare</td>
<td>&gt; 50 / &gt; 500 / undisclosed</td>
<td>(1) Head of Strategic Purchasing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>New venture-1</td>
<td>**</td>
<td>Medical components</td>
<td>5 / &lt;10 / undisclosed</td>
<td>(1) Co-founder</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(2) Chief Operating Officer</td>
</tr>
<tr>
<td>2</td>
<td>Electronic device</td>
<td>Buying firm-2</td>
<td>***</td>
<td>Electronics</td>
<td>&gt;50 / &lt; 10000 / &lt; 2bn</td>
<td>(1) Head of Corporate Procurement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>New venture-2</td>
<td>**</td>
<td>Electronics, soft- and hardware development</td>
<td>5 / 15 / Undisclosed</td>
<td>(1) Founder, Head of Engineering</td>
</tr>
<tr>
<td>3</td>
<td>Software application</td>
<td>Buying firm-3</td>
<td>*</td>
<td>Engineering/ Electronics</td>
<td>&gt; 50 / &gt; 200 / undisclosed</td>
<td>(1) Head of Corporate Procurement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>New venture-3</td>
<td>*</td>
<td>Software development</td>
<td>4 / &lt; 10 / Undisclosed</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>Electronic device</td>
<td>Buying firm-4</td>
<td>*</td>
<td>Infrastructure, transportation</td>
<td>&gt; 50 / &gt; 1000 / &gt; 800mn</td>
<td>(1) Infrastructure Engineer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>New venture-4</td>
<td>**</td>
<td>Electronics</td>
<td>4 / &lt; 15 / Undisclosed</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>Mechanical component</td>
<td>Buying firm-5</td>
<td>**</td>
<td>Sensor technology</td>
<td>&gt; 50 / &gt; 200 / &gt; 50mn</td>
<td>(1) Purchasing manager</td>
</tr>
<tr>
<td></td>
<td></td>
<td>New venture-5</td>
<td>*</td>
<td>Mechanical engineering</td>
<td>3 / 5 / Undisclosed</td>
<td>-</td>
</tr>
<tr>
<td>6</td>
<td>Undisclosed</td>
<td>Buying firm-6</td>
<td>*</td>
<td>Engineering, industrial machinery</td>
<td>&gt; 50 / &gt; 40000 / &gt; 8bn</td>
<td>(1) Head of Supply Chain Management</td>
</tr>
<tr>
<td></td>
<td></td>
<td>New venture-6</td>
<td>-</td>
<td>Undisclosed</td>
<td>Undisclosed</td>
<td>-</td>
</tr>
<tr>
<td>7</td>
<td>Software application</td>
<td>Buying firm-7 /</td>
<td>***</td>
<td>Electronics</td>
<td>&gt; 50 / &gt; 200000 / &gt; 100bn</td>
<td>(1) Co-founder, Head of Product Development</td>
</tr>
<tr>
<td></td>
<td>Subsidiary based in US</td>
<td>New venture-7</td>
<td>*</td>
<td>Electronics, Software development</td>
<td>2 / &lt; 10 / Undisclosed</td>
<td>-</td>
</tr>
<tr>
<td>8</td>
<td>Electronic device/technology</td>
<td>Buying firm-8</td>
<td>**</td>
<td>Engineering/Electronics</td>
<td>&gt; 50 / &gt; 200000 / &gt; 100bn</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>New venture-8</td>
<td>**</td>
<td>Detection technology</td>
<td>2 / &lt; 10 / Undisclosed</td>
<td>(1) Founder and CEO</td>
</tr>
<tr>
<td>9</td>
<td>Manufacturing technology</td>
<td>Buying firm-9-1</td>
<td>**</td>
<td>Automotive</td>
<td>&gt; 50 / &gt; 100000 / &gt; 100bn</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>New venture-9</td>
<td>*</td>
<td>Manufacturing</td>
<td>4 / &lt; 10 / Undisclosed</td>
<td>(1) Head of Sales</td>
</tr>
<tr>
<td>10</td>
<td>Electronic device</td>
<td>Buying firm-10</td>
<td>**</td>
<td>Telecommunication</td>
<td>&gt; 50 / &lt; 20000 / &gt; 10bn</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>New venture-10</td>
<td>*</td>
<td>Engineering</td>
<td>2 / &lt; 10 / Undisclosed</td>
<td>(1) Co-founder, Chief Operating Officer</td>
</tr>
</tbody>
</table>

1 All buyer-supplier relationships were in-between 2001-2013 and lasted at minimum 6 months and at maximum 4 years (on average approximately 1-2 years for the particular case).

2 All firms are located in German-speaking countries unless otherwise indicated.

3 *none to little alliance experience (established firm with new venture, and vice versa), ** medium alliance experience, *** great alliance experience; rating based on key informants’ estimation.
3.2 Data analysis

The data analysis was based on standard coding procedures (Miles & Huberman, 1994), and it consisted of data reduction and matrix displays as well as within-case and cross-case analyses. The theoretical conceptualization of the important supplier management relationship variables and influencing factors served as starting point for the data analysis. The interview notes were reviewed and several recurring behavioral patterns and themes were identified, which were used to preliminarily organize and structure the data. This initial review provided a basic classification of behaviors and themes that could be coded (Miles & Huberman, 1994). Throughout the research, the coding was iteratively refined and modified to capture all themes/variables that emerged from the data. Once the data collection ceased, the data were consolidated and all interview transcripts were coded in the final categories (exemplar codes are displayed in the appendix 1.2). The independent coding of two researchers yielded an inter-coder agreement rate of over 90 percent and a Cohen’s Kappa of greater than 0.75, indicating “substantial” (Landis & Koch, 1977, p. 165) and “excellent” agreement (Fleiss, Levin, & Paik, 2003, p. 604). The remaining discrepancies were discussed among researchers until full agreement was reached. In combination with the research framework and the a priori proposed variables, the inter-coder agreement suggests a high level of internal validity of the results. The qualitative data analysis software (Nvivo 10) supported the data organization and analysis. Table 15 presents an overview of the steps undertaken to ensure the validity and reliability of the research.
Table 15: Validity measures (Paper 3).

<table>
<thead>
<tr>
<th>Test</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construct validity</td>
<td>• Interview instrument guided by a priori constructs/variables</td>
</tr>
<tr>
<td></td>
<td>• Use of interview data, internal documents and publicly available information</td>
</tr>
<tr>
<td></td>
<td>• Follow-ups by E-mail in case of need for clarification</td>
</tr>
<tr>
<td></td>
<td>• Iterative data analysis process</td>
</tr>
<tr>
<td>Internal validity</td>
<td>• High inter-coder reliability of two independent coders</td>
</tr>
<tr>
<td></td>
<td>• Key informants highly knowledgeable</td>
</tr>
<tr>
<td>External validity</td>
<td>• Multiple cases</td>
</tr>
<tr>
<td></td>
<td>• Appropriately sampled informant firms (i.e. through theoretical/criterion sampling)</td>
</tr>
<tr>
<td></td>
<td>• Carefully selected key informants</td>
</tr>
<tr>
<td>Reliability</td>
<td>• Interviews recorded and transcribed thoroughly</td>
</tr>
<tr>
<td></td>
<td>• Information gathered in database and accessible to research team</td>
</tr>
<tr>
<td></td>
<td>• Interview instrument disclosed</td>
</tr>
</tbody>
</table>

4 Analysis and results

The informants from the buying firms in the study reported that they generally do not distinguish between new ventures and established suppliers when making supplier selection decisions. Indeed, buying firms applied the same basic criteria and development measures and provide the same resources to new ventures and established suppliers. Yet, the findings suggest that some firms are able to capitalize on their experiences from prior relationships with new ventures, which allows them to execute their supplier management processes and deployment of resources in a different and more effective manner. The buying firm’s effectiveness of leveraging the new venture’s capabilities was assessed by how well the buying firm’s efforts were geared towards creating, developing, and maintaining a healthy and stable relationship that produced an innovation with the new venture. Buying firms that leveraged the new venture’s capabilities effectively managed their supplier management processes in a way that was suitable for new ventures suppliers because they considered new ventures’
organizational features. Vice versa, the informants from the new ventures were able to report, which of the buying firms’ efforts were of effective use and had a significantly positive effect on the buyer-supplier relationship.

In sum, the analyses suggest that buying firms in the “effective” dyads possess a distinctive capability, which allows them to acquire a skilled acquaintance with new venture suppliers. This capability is termed new venture-partnering capability (NVPC). NVPC is the buying firm’s capacity to gear its supplier management, i.e., evaluation, development, communication, and governance, towards new ventures while appropriately accounting for their characteristic features. Furthermore, NVPC is a relationship-based variable that is affected by ex-ante firm-specific and dyadic antecedents, which are buying firms’ principal decision-makers, partner similarity, geographic proximity and dependence. In the following section, the discussion of NVPC is complemented with an analysis of its antecedents. Separate analyses for the individual variables that constitute NVPC are presented. For each variable, propositions are derived, and finally, all findings are synthesized into a model of buying firms’ NVPC and its antecedents (shown in Figure 3).
4.1 Evaluation of new ventures

To determine whether the new venture potentially qualifies as a capable supplier, the buying firm has to evaluate the new venture. During the evaluation, the investigated buying firms unanimously apply the same selection criteria to the prospective new venture, which they also use for established suppliers. The buying firms in our sample
had strict supplier selection criteria in place, some of which were internal criteria while others were imposed externally, e.g. governmental regulations (Walton, Handfield, & Melnyk, 1998). These criteria typically represent general requirements to which suppliers need to adhere and lead to non-consideration in case the supplier cannot comply. While external criteria are hard (i.e., cannot be relaxed), some buying firms allowed a certain degree of freedom in their internal criteria when evaluating new ventures. In this context, it is understood that the degrees of freedom reflect a deliberate deviation from the buying firm’s standard evaluation criteria in favor of the new venture. It was observed, on the one hand, that buying firms differed in how they assessed new ventures. On the other hand, it was observed that when buying firms had asserted that the new venture possessed a basic endowment of capabilities and resources, they applied the predefined selection criteria more flexibly in order to offer the new venture a chance of being selected as supplier.

In a first step, the buying firm sought to reduce the uncertainty involved with selecting a new venture. Thus, while we observed that buying firms generally assessed new ventures more rigorously compared to other suppliers, *assessment agility* describes the buying firm’s approach to appropriately assess the new venture by adapting the assessment as well as devoting relatively more effort to the assessment. Exemplarily, buying firm-2’s (BF\textsuperscript{13}) manager reported that “We visit the start-up, we audit them. We evaluate them very hard, much harder then we use to evaluate other suppliers, because we have to. We pay very close attention to detail, where does the start-up produce, who are their suppliers, and supplier’s supplier? We take into account different assessment criteria and perspectives...if applicable we have to change them.” In addition, BF-4’s

\textsuperscript{13} For ease of notation, we use the identifiers BF for buying firm and NV for new venture; for the numbering see Table 1.
manager admitted that the application of the firm’s standard evaluation approach is difficult when selecting new ventures. The firm would perform some assessment procedures with increased scrutiny, but also acknowledge that the assessment required adjustment in order to appropriately account for the new venture. BF-4’s manager stated, “It’s that we do certain evaluation steps additionally, for example, you run evaluation cycles where you look very closely and we don’t usually invest this effort in the evaluation of other suppliers [...]. Basically, procurement processes are defined at corporate-level that you can’t change. However, we can and sometimes we need to take the liberty to really get to know the start-up firm. It just takes more time, the corporate processes can’t be applied 1:1 when it comes to checking start-ups.”

In addition, criteria fulfillment flexibility refers to the buying firm’s ability to be flexible in attaining its selection criteria with regard to new ventures. Given the result of the assessment of the new venture’s accounts, the buying firm determines whether the new venture adheres to the firm’s selection criteria. Thereby, the extent of criteria fulfillment is critical. For example, BF-1 stated that when three references of prior successful business accounts are required, only two could be presented by new venture. An exception could be made if those two references had been thoroughly checked to meet a certain level of quality. As expressed by one of BF-1’s managers, “in such cases, we can be flexible, and offer the venture an opportunity to partner with us.” Another example was observed at BF-2 as one manager stated, “We take into account different selection criteria and perspectives…we can change some criteria, if necessary.”

Combining the assessment and the exertion of selection, our findings suggest that the buying firms were attempting to assert that the new venture possessed a basic endowment of resources and capabilities, which we label base capability. Having
assessed and confidently verified such threshold capability (which may be specific for the individual buying firm), the buying firm can be, but does not necessarily have to be, more flexible in the attainment of specific values of selection criteria. This observation is summarized by BF-5’s manager who stated that “It’s quite the contrary...I’d rather say that we raise the bar when we evaluate new ventures. Everybody’s telling a nice story, but you have to be very careful, because sometimes not everything is entirely correct. That’s the reason why we have to evaluate the start-up very carefully. If we do that, we have a safety margin and can buffer against disturbances, when something’s not right. If the general evaluation was good, we can be more relaxed on the criteria.”

In summary, regarding the assessment and selection of new venture suppliers, we offer the following propositions:

**Proposition 1a:** Buying firms’ assessment agility is positively associated with effective new-venture partnering.

**Proposition 1b:** Buying firms are more likely to select new ventures as suppliers if new ventures exhibit a basic endowment of resources/capabilities (“base capability”).

**Proposition 1c:** The more favorable the new venture’s capability assessment, the greater the buying firm’s criteria fulfillment flexibility.

### 4.2 Development of new ventures

After a successful selection process and decision, the buying firm has to develop the new venture. Development is referred to as the buying firm’s efforts to enable, support, and develop the capabilities of suppliers. In the development of the new venture, buying firms again unanimously relied on the same practices they also use to leverage the capabilities of other suppliers. However, it was observed that buying firms differed in
terms of the deployment of these practices, particularly with regard to specificity and timing.

Enhancing the development effort specificity enabled the buying firm to advance the product (technology) more effectively. In addition, the more specific the measure/resource was, the better the buying firm was able to master problems encountered in the course of the collaboration. For instance, BF-2 deliberately tailored its milestone plan to its NV-2’s current abilities. As BF-2’s manager explained: “Our approach is that we sit together with the start-up’s employees and discuss all options. I see that as a joint business case. [...] We have adapted ourselves to [NV-2] as we always do in these circumstances. That counts for approval labs, the internal validation, workshops we’ve had with the start-up and of course for our product manager.” The manager of NV-2 emphasized the importance to “[BF-2] set up realistic action plans that we were able to live up to – other than that I felt that [BF-2] was fair when we had to discuss problematic issues and [BF-2] made adjustments to the planning if necessary.” To the contrary, if the buying firm did not deviate from its standard approach, development measures proved to be less effective. For example, BF-8 was unwilling to gear its supplier development (e.g., design workshops and staff meetings in way that specifically target NV-8’s needs) towards NV-8 and did not provide flexible payment terms to address NV-8’s cash needs. In this context, NV-8’s comment points not only to the lack of specificity, but also to a lack of timeliness in BF-8’s development efforts: “At [BF-8], there were always many people in the meetings and workshops, but responsibilities were unclear, their coordination processes were lengthy. [BF-8] generally was a difficult customer, because everything was taking so long.”
The development effort timeliness – the buying firm’s ability to apply measures and deploy resources in a fast and timely manner – has a direct effect on the new venture’s ability to advance its product (technology) and, in addition, is closely intertwined with enhancing development specificity. In BF-1’s case, the responsible manager reported that NV-1 was in need of cash, so that the buying firm provided new venture-friendly payment terms (amount) and ensured a quick payment transfer. The more timely the buying firm provided resources, the quicker problems could be tackled before they became serious obstacles. In addition to the relationship between BF2- and NV-2 described above, NV-2’s manager remarked, “Given that [BF-2] is relatively large, they’re very agile. Of course, [BF-2] has formal processes, which have to be followed but when there’s a need to get things quickly done, they respond and act quickly. That’s something I haven’t experienced with other firms with which we’ve cooperated. In that regard, [BF-2] is pragmatic. That definitely contributed to the success of the partnership.”

The interdependent effectiveness of timeliness and specificity of explicit development efforts also become evident, as the lack of one discounts the other. For example, BF-3’s manager stated that his firm was timely on providing resources to NV-3 (such as testing NV-3’s technology and defining project responsibilities). However, BF-3 did not manage to alter the processes/resources that led to deferral because NV-3 was simply not able to cope with BF-3’s requirements. BF-3’s manager admitted that, “sadly, the project’s milestones were constantly missed. The project parameters and specifications mismatched [NV-3]’s capabilities and understanding of the project.” On the other hand, if a buying firm were able to offer specific new venture development measures, a slow response time of the buying firm would influence new ventures and
possibly impede partnering progress. The expert remarked that, “In most larger companies, expressed with some exaggeration, it doesn’t matter if things happen half a year later, however, in start-ups such delay can have more severe consequences in terms of capacity and capital.” Concerning the development of new venture suppliers, the following propositions are offered:

**Proposition 2a:** The specificity of development efforts is positively associated with effective new venture-partnering.

**Proposition 2b:** The timeliness of development efforts is positively associated with effective new venture-partnering.

**Proposition 2c:** The lack of specificity (timeliness) of development efforts discounts the positive effect of timeliness (specificity) of development efforts on effective new venture-partnering.

### 4.3 Communication

Communication quality is referred to as frequency, content-related quality, and immediacy of communication and information exchange between the buying firm and the new venture. It was found that the quality of communication is critical to the progress and success of the collaboration between buyer firm and the new venture throughout the relationship.

In relation to the explicit development efforts, as reported in the previous section, communication represents an implicit (i.e., less quantifiable) supplier development effort. Communication quality affects both the buying firm’s evaluation and development of new ventures, and it helps reduce uncertainty on both sides of the relationship dyad. It was found that the launch and coordination of evaluation and development activities crucially depend on the buying firm’s ability to communicate in a frequent and immediate manner with the new venture. For example, in addition to BF-2’s manager remarks that his firm puts a high value on frequent and personal
communication, NV-2’s informant said, “One of the success factors was the professional collaboration with [BF-2]. [BF-2] had managed the communication interface between their internal processes and us very well. We were well integrated and knew exactly, when [BF-2] tested our product and what they tested, and thus we were able to respond well.” This in turn improved effectiveness in the partnering process between BF-2 and NV2.

The ability of the buying firm to articulate to the new venture all steps of the project, give transparent reasons to actions, and define needs influences the progress of collaboration. BF-1’ frequently exchanged information with NV-1 about the progress of the product, and based on the regular exchange, BF-1 provided timely access to specific technical support. The more the collaboration moves towards completion (commonly termed “the hot phase”), the more frequent the communication becomes, as highlighted by all interviewees.

Second, while the “overall quality” of communication largely seemed to be a function of frequency (how often?) and content (what is shared?), the aspect of communication immediacy emerged as an integral part of the perceived communication quality, which can be referred to as buying firm’s ability to communicate at “eye level” with the new venture. For example, independently of each other, BF-2’s manager underlined that they “told [NV-2] exactly what we wanted and we communicated and spoke with [NV’s representatives] each other as equals.” Likewise, NV-2’s manager highlighted that “we were perceived professionally and they talked to us as equals.” Throughout this relationship, BF’s-2 manager who was Head of Corporate Purchasing had been personally and directly communicating with NV-2’s representatives who were part of the venture’s core management team. While at the new venture’s side an
individual from the core management team is involved in the direct communication, this is not necessarily true of the buying firm’s side. For example, in case of BF-3, which encountered several misunderstandings when communicating with NV-3, BF-3’s manager said that, “With [NV-3] it was difficult...I think that’s interesting, most of the time, the start-up’s top management is involved, but established firms do not necessarily involve their top management. I think that bears the potential of misunderstandings, because the start-up’s executive feels superior, because you may have the situation that [formally] a higher ranking manager is talking to lower ranking manager [...] . That’s a different interaction, a different communication. [...] I was under the impression that [NV-3’s executive] felt superior, he wouldn’t accept my arguments and insisted on his point of view. [...] It’s the style of communication. There is a social aspect to it, the mutual respect when working together.”

Taken together, the quality (amount, frequency, immediacy) of the communication are important to the overall role of communication between the buying firm and the new venture. In summary, the following propositions are offered:

Proposition 3a: Communication quality in terms of frequency, content-related quality, and immediacy is positively linked with effective new venture-partnering.

Proposition 3b: The positive relationship between specificity (timeliness) of development effort and effective new venture-partnering is stronger when communication quality is high than it is when communication quality is low.

4.4 Governance arrangement

Governance arrangement is referred to as the buying firm’s approach to govern the relationship with the new venture, potentially ranging from purely informal (trust-based) to purely formal (contract-based) arrangements (Wagner & Bode, 2014). The
specific choice of governance arrangement has the potential to influence the buying firm’s approach to evaluating and developing the new venture. In the investigated cases, the focus was not on whether the buying firm actually puts emphasis on either formal or informal governance mechanisms, but on whether the governance arrangement was able to promote cooperativeness and collaboration between the buying firm and the new venture.

Of course, almost all firms used some kind of formal framework agreements (i.e., contracts, written agreements) to assign basic responsibilities, which were required internally by the firm’s purchasing/supplier management guidelines or due to external regulations. In two cases, the buying firms explicitly sought to secure exclusivity (i.e., being the only firm granted access to the new venture’s technology) and attempted to push the new venture into a contract; however, in both cases, the new ventures did not acquiesce and did not accept the contract. As NV-9’s manager explained, “We have experienced that the big players are audacious when dealing with smaller ventures. [BF-9] had presented us a contract very early on that provided [BF-9] exclusivity and other obligations in favor of [BF-9]. Those were pretty much conditions that no entrepreneur could accept if he was sane. We rejected the contract and stopped the collaboration for the time being.” Later, BF-9 changed its approach to manage the relationship with NV-9 and introduced changes to the proposed contract. Beyond that, BF-9 increased the effort to deploy resources made available to NV-9, both in terms of specificity and timeliness. Of course, the use of contracts is directed at securing appropriation of the project’s outcomes. However, in most relationships, it was beneficial if the buying firm was capable of installing formal, mutually agreeable arrangements that did not restrict the new venture. Ideally, the buying firm granted the
right degree of freedom to new ventures to operate independently and flexibly, as exemplified by BF-6, “We are looking for exclusivity in some sense, but we also don’t want to limit [NV-6].” Such arrangements involved a well-balanced mix of the installment of a contract (as a base agreement to provide some legal security to the involved parties) and the use of relational governance (trust-based) by the buying firm.

Indeed, it has been suggested that relational governance and contracts may function as complements (Poppo & Zenger, 2002). Buying firms’ trust in the new venture as exchange partners promotes mutual confidence and collaboration, as contracts do not per se guarantee the intent of bilateralism, mutuality, and collaboration. BF-2’s informant put it as follows: “Formally, we have a contract, but what does it really mean? [...] I mean I could choose a different supplier. Why did we choose to partner with [NV-2]? We have trust in [NV-2]. This venture is committed to us and so are we to them...put differently, our firms share a mutual vision for a long-term partnership.” Finally, formal agreements can also be entirely absent or relatively unimportant as compared to the significance of trust (Larson, 1992). For example, in dyad 7, a contract was not even put in place. When determining the next project steps, BF-7 and NV-7 predominantly relied on consensus decisions, which would not have been possible if BF-7’s project manager had been lacking trust in NV-7’s abilities. Interestingly, at this point, a contract respecting both parties’ interests and ‘rewarding’ NV-7 efforts had been set out as a goal given a successful completion of the project. These insights suggest:

**Proposition 4a:** Cooperative governance by the buying firm is positively linked with effective new venture-partnering.

**Proposition 4b:** Cooperative governance by the buying firm is positively linked with the specificity (timeliness) of development efforts.
4.5 **Ex-ante firm-specific and dyadic antecedents**

Beyond the variables discussed (which unfold during the relationship between the buying firm and the new venture), one ex-ante firm-specific and three dyadic antecedents emerged as important antecedents in the analyses. In particular, these are principal decision makers of the buying firm as well as geographic proximity, interfirm dependence, and partner similarity\(^{14}\).

*Principal decision makers* make the key decisions in their firms (Zahra, Sapienza, & Davidsson, 2006). In our study, principal decision makers make the decisions that are central to the firms’ approach to manage relationships with new ventures. Oftentimes, these people embody a large amount of the experience, which is – alongside the buying firm’s organizational knowledge and experience – important for developing NVPC. In cases in which the buying firm had little experience with new ventures in general or little experience with the new venture’s particular technology, principal decision makers are critical in that they take responsibility for the selection and integration of new venture suppliers. Exemplarily, BF-7’s project engineer can be seen as a committed principal decision maker who played a key role in selecting, developing, and promoting NV-7 and its technology within BF-7.

*Geographic proximity* can facilitate the relationship between the buying firm and the new ventures. For example, NV-2’s manager explicitly highlighted the fact that BF-2 was very closely located and said that this nurtured frequent and immediate communication between the firms. In other cases, where both firms were located close to each other (< 50km radius), the positive effects were also apparent. However, informants did not mention geographic distance as a major obstacle.

\(^{14}\) The antecedents not discussed (see Figure 1) here were accounted for in the sampling process.
Interfirm dependence or the power that one firm may exercise over another is also an important antecedent of buyer-supplier relationships. In a general setting, it is important to analyze dependence and power differentials (Casciaro & Piskorski, 2005). In our specific setting, however, the dependence/power differential is almost surely in favor of the buying firm. This leads to the assumption that buying firms use their power to fully appropriate the new ventures’ technology. Yet, the findings show that, for example, the two firms with a developed NVPC refrained from aggressively exercising power over the new venture. In BF-2’s case: “Quite the contrary, we don’t want to be [NV-2]’s only customer. That’d mean we are responsible for that venture to some extent. I’d see that as a risk. If they sell their [core technology] to other firms, that’s fine.” In other relationships, attempts to wield power and gain control over the new venture were counterproductive to the progress of the relationship. The most remarkable case in this regard is that of BF-9 and NV-9. BF-9 had heavily attempted to exercise power over NV-9, which was reluctant to respond to BF-9’s demands (i.e., entirely committing its technology to the buying firm). However, NV-9 firmly defined its position as an independent enterprise, which, in turn, was one of the reasons that made the buying firm change its approach in dealing with the new venture.

Partner similarity, which is referred to as similarity in terms of industry and firm size (number of employees), also seemed to be an important dyadic antecedent. When a buying firm and new venture shared the same industry of origin or shared a similar technological focus, this fostered the relationship, because both firms had a common understanding of the technology at hand. However, no evidence was found indicating that the absence of such similarity severely impeded the relationships in the sample. Rather, evidence was found (BF-7 and NV-7) that a lack of technological understanding
(BF-7) may lead to increased communication. Additionally, the fact that the two BF-7 and NV-7 firms were very different in terms of their size did not negatively influence their relationship. However, similarity in size might have a positive effect. For example, NV-8’s manager conjectured that the relationships with smaller buying firms were usually easier mainly because these firms would understand the needs of a small venture better than larger corporations.

4.6 Understanding how buying firm effectively leverage the capabilities of innovative new ventures

Based on the analyses of the individual variables in the model, NVPC was conceptualized as the buying firm’s capacity to appropriately account for a new venture’s characteristics and specifics in the evaluation, development, communication, and governance of suppliers. In summary, in the evaluation of new ventures, NVPC refers to the buying firm’s *assessment agility* and ability to retain a certain degree of *criteria fulfillment flexibility*. In the development of new ventures, firms that possess NVPC appropriately adjust their development effort (i.e., explicit measures and resources) in terms of *specificity* and *timing* when working with new ventures. In addition, part of firms’ NVPC is the ability to maintain a high *communication quality* (i.e., frequency, content-related quality) and immediacy with their new venture suppliers. Finally, firms with NVPC are able to govern the relationship with new ventures in such a way that it promotes cooperation between the two firms. Across the sample, buying firm’s efforts and the amount of resources spent on each relationship differed. At the variable level, each firm examined exhibited different parameter values. As depicted in Table 16, considerable variation emerged in the parameters (ranging
from low to high values) both horizontally within each variable across all buying firms and vertically across all variables per buying firm.

Table 16: Parameter values per variable and buying firms’ NVPC across sample (Paper 3).

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\(^a\) To estimate variables, we assigned “+” if the firm geared at least one criterion/measure/resource towards the new venture, “++” if the firm was very proactive in doing so, “+++” if there the firm adjusted multiple criteria/measures/resources and was very proactive in doing so

\(^b\) To estimate variables, we assigned “+” if the use of the particular lever was weak, “++” if medium, “+++” if strong

\(^c\) Final score based upon average score of NVPC-variables and concluding discussion among researchers

n/a indicates non-existent or not observed

In the sample, BF-2 managed the relationship with NV-2 most effectively in terms of overall NVPC. BF-2 is a leading firm in its industry that has a history of partnering with new ventures and the firm’s management systematically recognizes new ventures as a fruitful source of innovation. BF’s representative explicitly said that acquiring new ventures through M&A is not the firm’s primary strategy; rather, new ventures are
supposed to be acquired as long-term suppliers (~3 years, which is consistent with BF-2’s new product introduction cycle). BF-2’s approach to such a partnership is a fair and structured collaboration in which the new venture is an equitable partner. Consequently, BF-2 was able and willing to proactively adapt its processes with respect to new ventures, as BF-2’s manager put it in one phrase “The intensity and the pulse [of the collaboration] on the operational level always depend on the start-up und the technology...that means we have to be prepared and adjust accordingly.” In addition, the statement of NV-2’s describes BF-2’s attitude: “To my knowledge, [BF-2] has a couple of new venture firms in its supplier portfolio. [BF-2] has good experience with young firms like ours. They know very well how manage the process, how can I say...the credit and trust we got in advance was very big.” Hence, BF-2’s NVPC enabled the firm to set up a stable and healthy relationship with NV-2.

In comparison, the firms with the lowest overall NVPC (BF-8 and NF-9) are large corporations and leading technology firms. These firms draw innovations from suppliers and have some experience (by the nature of their long existence) with smaller firms and new ventures. However, BF-8 and BF-9 were reluctant to deviate from their standard approaches and make adjustments in favor of the new venture suppliers. In BF-9’s case, the firm exhibited some attributes of NVCP after NV-9 had refrained from engrossing itself with the buying firm, and subsequently, BF-9 eventually realized that the current management approach was ineffective in creating a stable and healthy relationship. In particular, the change involved a timelier and specified provision of BF-9’s engineering skills and monetary resources.

An ambiguous presence of NVPC is exhibited by BF-3, which is a small but very successful competitor and technology leader in its segment. At the time of our study, the
firm had gathered very little specific experience with new ventures. However, the firm is used to collaborating with other small firms. While BF-3 geared the supplier assessment towards NV-3 (for example, NV-3 was lacking a required third-party certification, which in turn led BF-3 to audit NV-3 itself) and BF-3 provided resources to NV-3 very timely, eventually, BF-3 terminated the relationship with NV-3. The main reason was that BF-3 failed to adequately communicate with NV-3 after NV-3 had been selected, failing to provide the resources that would support NV-3 more purposefully.

Essentially, the results suggest that NVPC can complement the firm’s overall ability to partner with external exchange partners and represents a distinct approach to managing new ventures. While firms with no or low levels of NVPC may form relationship with new ventures and partner with them, the findings suggest that NVPC enables the buying firm to advance the relationship more effectively. Summarizing this result, the following proposition is offered:

**Proposition 5a:** New venture-partnering capability (i.e. the buying firm’s capacity to appropriately account for a new venture’s characteristics and specifics in the evaluation, development, communication, and governance of suppliers) is positively associated with effective new venture-partnering.

**Proposition 5b:** The individual new venture-partnering capability variables are synergistic; that is, new venture-partnering capability is most effective when buying firms develop the new venture-partnering capability variables evenly.

5 Discussion

The main purpose of this study was to explore how established firms manage interfirm relationships with new ventures in a buyer-supplier context. The exploratory, qualitative approach allowed investigating this phenomenon at a micro-level. The theoretical conceptualization of *new venture-partnering capability* contributes to the literature on
and adds to the understanding of the relationship between established firms and new ventures. Overall, research at the operations management-entrepreneurship intersection has recently attracted interest in the literature and continues to do so (Ireland & Webb, 2007; Kickul et al., 2011). In the following section, the theoretical and managerial implications of this work are discussed, as well as limitations of this research and opportunities for future inquiry.

5.1 Theoretical implications

This research adds to the understanding of buying firm’s organizational supply chain capabilities, which focus on the upstream-side of a firm’s supply chain (McKone-Sweet & Lee, 2009), and on the ways in which these capabilities relate to the firm’s management of young, entrepreneurial suppliers. The study revealed effective ways in which firms partner with new ventures when they evaluate (propositions 1a–c), develop (propositions 2a–c), and communicate (proposition 3a–b) with new ventures as well as the ways in which firms govern (propositions 4a–b) the relationship with new ventures. The subsequent theoretical conceptualization of new venture partnering capability (NVPC) and the proposed effect on effective new venture-partnering (propositions 5a–b) augments the literature on the operations and supply chain that has used the organizational capabilities perspective to study supply chain strategies and capabilities (McKone-Sweet & Lee, 2009) or taxonomies of operational capabilities (Wu et al., 2010). NVPC is proposed to be a differentiated organizational capability and delineates a buying firm’s capacity to appropriately account for new ventures’ specifics and characteristics, and accordingly, gear the buying firm’s supplier management processes
and deployment of resources towards new ventures. This conceptualization of NVPC identifies single measures and ways of deploying resources positively affecting the formation of a healthy and stable partnership with a new venture (propositions, 1a, 1b, 2a, 2b, 3a, 4a). Moreover, this conceptualization highlights that individual measures complement and amplify each other (proposition 1c, 2c, 3b, and 4b). Thus, NVPC emphasizes firms’ capability to both purposefully deploy measures and resources and to do so in a coordinated manner. This is in line with the notion that “what a firms does with its resources is at least as important as which resources it possesses” (Hansen, Perry, & Reese, 2004, p. 1280, italics in original).

There are two important premises for NVPC to be effective. The first premise is that NVPC-firms have the ability to deliberately gear individual measures towards new ventures. Buying firms that are able to do so, recognize the differences and challenges that are posed when partnering with new ventures, thus building up NVPC. Second, firms must be willing to actually use their NVPC-related measures and resources to nurture a collaborative relationship. Both, the ability and willingness have been identified as critical issues for realization of anticipated rents/outcomes in firm collaboration (Madhok & Tallman, 1998).

Wu et al. (2010, p. 725) listed six attributes that characterize organizational capabilities, which are firm-specificity, tacitness (their existence may be unnoticed by the firm), path dependency, gradual emergence over time, and finally, empirical validation. The study’s conceptualization of NVPC fits these characteristics as NVPC; in particular, it was observed that firms vary in the extent in which they exhibit NVPC, which can be attributed to path dependency and graduate learning. Thus, practicing collaborating with new ventures (for example, see BF-2) enables the firm to selectively
and deliberately gear its measures and deploy resources towards new ventures, which shows whether firms have NVPC and, if they do, it depends on their experience related to new ventures.

The presence of NVPC is likely correlated with firm’s general supplier management capabilities. Hence, if the buying firm depends on external suppliers (e.g., for innovations) and already has a strong supplier management capability, it will more likely exhibit NVPC. However, even large firms with a diverse supply base in the sample, did not exhibit strong NVPC because they may have been too rigid, unable, or unwilling to change their existing supplier management capabilities.

To summarize, in their need to tap into new, innovative supply sources, partnering with new ventures is a highly attractive option, but also poses a great challenge for firms. The conceptualization of NVPC proposes a distinct, firm-specific capability that helps explain how buying firms effectively leverage the capabilities of new ventures.

5.2 Managerial implications

The results have practical implications for both established firms and new ventures. The findings highlight that new ventures should pay attention to the firm with which they choose to partner. NV-9’s manager described his venture’s strategy to enter the market via a large OEM as the most difficult. The key learning was that they should have asked early on about the type of partnering firm that would be the best for the development of the venture and indirectly pointed at such firm that have a skilled acquaintance with new ventures: “Who are the right first customers? The firms have to be willing to take risks for developing a new technology and to introduce into the market. Typically, these are smaller companies [...]. The buying firm has to engage in the partnership and accept
that there are going to be problems. But the big firms want to profit from new ventures, so they have find a way to deal with us. They have to develop the necessary capabilities and cope with the situations when new ventures are involved.” Hence, new venture should invest into finding partners that are willing to enter relationships that build on integration and reciprocity (Larson, 1991).

The findings have also shown that some of the relationships with new ventures were promoted by convinced individuals which highlighted the importance of principal decision makers (Zahra et al., 2006). Thus, in order to systematically access the potential of new ventures, buying firms should move towards institutionalizing the partnership with new ventures by first recognizing them as competent technology suppliers and second by providing new venture-specific and timely means of supplier development. Ideally, the expert suggested that buying firms should introduce a “Fast track procurement process” through which new ventures can quickly be provided support: “The customer-supply-duo will become dramatically more competitive when there’s more speed and accuracy in the procurement and decision processes, basically if the large firm brings in more start-up suitability.”

5.3 Limitations and future research directions

This study has several limitations that should be considered when interpreting the results. First, from a methodological standpoint, an exploratory, qualitative research design was used. For this reason, and although the informants were carefully selected, the results may nevertheless lack external validity and the conclusions may be idiosyncratic (Eisenhardt, 1989). Second, although dyadic data were obtained in two cases, this was not possible for the entire sample, and thus, the analysis had to rely
largely on one side of the buyer-supplier dyad. Third, all firms except for one were located in German-speaking countries, which reduces the generalizability of the results to other parts of the world. Finally, although the model integrates antecedents that influence buying firms’ management of new ventures, it excluded other potentially important antecedents (e.g., contextual factors, such as the competitive landscape).

Several additional directions for future research can be outlined. Concerning buying firms, future research should explore how they learn from relationships with new ventures and how specific experiences contribute to developing partnering capabilities with dissimilar firms, in general, and new venture-specific partnering capability, in particular. Scholars should be encouraged to validate and generalize the results with quantitative samples of firms (buying firms and new ventures alike) from various sectors.

To conclude, by conceptualizing new venture-partnering capability, a distinct, firm-specific capability is proposed, which helps explain how buying firms can effectively leverage the capabilities of new ventures. Yet, research on the interaction among supply chain management, operations management, and entrepreneurship is still in its infancy. Hopefully, this study contributes to a better understanding of relationships between established firm and new venture and stimulates future research in this area.
References


Appendix

1 Appendix to Chapter IV

1.1 Interview instrument

A. Firm profile

<table>
<thead>
<tr>
<th>Questions targeted at buying firm</th>
<th>Questions targeted at new venture</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the major business of your firm?</td>
<td>What is your experience in managing external partners / customers?</td>
</tr>
<tr>
<td>What are the responsibilities of your job?</td>
<td></td>
</tr>
<tr>
<td>How many years of experience do you have in supply chain management, i.e. supplier selection, evaluation, and integration?</td>
<td>What is your experience in managing external partners / customers?</td>
</tr>
<tr>
<td>In general, what is your firm’s supplier selection strategy?</td>
<td>What are your firm’s customers / downstream supply chain partners?</td>
</tr>
<tr>
<td>Does your firm have experience in partnering with new ventures? If yes, please specify.</td>
<td>In general, what is your firm’s customer acquisition strategy?</td>
</tr>
<tr>
<td>What is your firm’s overall propensity to partner with new ventures?</td>
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</tbody>
</table>

B. Relationship formation, evaluation, and selection

<table>
<thead>
<tr>
<th>Questions targeted at buying firm</th>
<th>Questions targeted at new venture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please characterize your and the other firm at the beginning of the relationship (e.g. sales, employees).</td>
<td></td>
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<tr>
<td>How did you first get in touch with the other firm?</td>
<td></td>
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<tr>
<td>Please identify the principal decision makers that were involved in the project.</td>
<td></td>
</tr>
<tr>
<td>Please characterize the product / technology.</td>
<td></td>
</tr>
<tr>
<td>How did you evaluate the new venture?</td>
<td>Did your firm have all the necessary resources and assets to be able to deliver the product / technology?</td>
</tr>
<tr>
<td>Please name the most important measures that were used to assess the new venture’s capabilities and describe how these were applied to the new venture.</td>
<td>Did the buying firm evaluate and assess your firm’s capabilities and competences? If yes, please specify.</td>
</tr>
<tr>
<td>Do you apply the same means and measures to all suppliers?</td>
<td></td>
</tr>
<tr>
<td>Did you see any differences to other (established) suppliers?</td>
<td></td>
</tr>
<tr>
<td>What were the major reasons the new venture was selected?</td>
<td></td>
</tr>
</tbody>
</table>

C. Collaboration during project

<table>
<thead>
<tr>
<th>Questions targeted at buying firm</th>
<th>Questions targeted at new venture</th>
</tr>
</thead>
<tbody>
<tr>
<td>At the beginning, what was the specific goal of the project? Did you have a common agenda with the other firm?</td>
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<tr>
<td>How did you communicate during the project? By which means and how frequently?</td>
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</tbody>
</table>
Please describe how the collaboration process proceeded – At the personal level and at the technical level.

Did you encounter any problems during the project? If yes, please describe them. How were they resolved?

Did you encounter any unforeseen developments during the project? How did they influence the project and the relationship with the other firm?

Were contracts, or other formal agreements, put in place before / in the course of the project? Who was the initiator?

Did your firm use any means / measures to integrate, develop, or further qualify the new venture? If yes, please describe them and explain how they were put in place.

Did the buying firms use any means / measures to integrate, develop, or further qualify your firm? If yes, please describe them and explain how they were put in place.

D. Summary

What were the major learnings for your firm from this project?

Do you want add something to the answers?

1.2 Exemplar codes

<table>
<thead>
<tr>
<th>Category</th>
<th>Code</th>
<th>Definition</th>
<th>Original quote</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplier evaluation by buying firm</td>
<td>Assessment agility</td>
<td>Extent to which buying firm gears the assessment towards new ventures</td>
<td>“Basically, we treat established suppliers and start-up [suppliers] the same way. But we know that the evaluation process can be problematic for start-ups because they lack references, and so on. This, in turn, leads to a very detailed assessment from our side” (Buying firm-1); “We visit the start-ups, we audit the start-ups. We evaluate them very hard, much harder then we use to evaluate other suppliers, because we have to. We pay very close attention to detail, where does the start-up produce, who are their suppliers, and supplier’s supplier? We take into account different assessment criteria and perspectives…, if applicable we have to change them’” (Buying firm-2); “It’s that we do certain evaluation steps additionally, for example, you run evaluation cycles where you look very closely and we don’t usually invest this effort in the evaluation of other suppliers […]. Basically, procurement processes are defined at corporate-level that you can’t change. However, we can and sometimes we need to take the liberty to really get to know the start-up firm. It just takes more time, the corporate processes can’t be applied one-to-one when it comes to checking start-ups.” (Buying firm-4)</td>
</tr>
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</table>
| Criteria fulfillment flexibility | Extent to which buying firm requires new venture to conform with supplier selection criteria       | “Yes, there are frequently situations in which start-ups compete with established firms and offer new, innovative products. But for us, it doesn’t make a difference whether it’s a start-up – we are neutral in such situations. Now, let’s say on scale from 0 to 10, 3 indicates that a supplier is basically capable. If we can confidently rate the start-up at 3, we’ll consider. If we then normally require three references, but the start-up can only offer one or two, that met a certain
level of level of quality, we consider the start-up, as long as we don’t discriminate other [established] suppliers. In such cases, we could be flexible, and offer the venture an opportunity to partner with us.” *(Buying firm-1)*; “In principle, there criteria for start-ups and established firms are the same. But we have to consider the risk in this equation, a long-term planning has to be made and asked if the start-up is likely to still exist in five years from now...Finally, we knew that [NV-4] is a firm that doesn’t have millions in its pocket. So, we had to take that fact into account when we made the decision and relax a bit on our selection criteria.” *(Buying firm-4)*; “After the assessment, we can adjust the key-figures to make them “start-up-suitable”.’” *(Buying firm-6)*

<table>
<thead>
<tr>
<th>Supplier development by buying firm</th>
<th>Specificity of development effort</th>
<th>Extent to which the buying firm gears development measures and deployment of resources towards new ventures</th>
</tr>
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<tr>
<td>“Our approach is that we sit together with the start-up’s employees and discuss all options. I see that as a joint business case. [...] We have adapted ourselves to [NV-2] as we always do in these circumstances. That counts for approval labs, the internal validation, workshops we’ve had with the start-up and of course for our product manager.” <em>(Buying firm-2)</em>; „We support the new venture in that we provide what’s needed…We regard certifications as very important, if a new venture needs help with certifications that it doesn’t have, we talk to the supplier and figure out how we can provide the support,[NV-5] did exactly get this kind of support.” <em>(Buying firm-3)</em>; “Start-ups need other processes and measures. I recall a situation where the large company and the start-up were coming along very well…the buying firm wanted to connect its processes to the start-up, but the interfaces weren’t there, the buying firm’s standardized measures wouldn’t work. The result was that the relationship took a step back, because the buying firm wasn’t really prepared for that.” <em>(Expert)</em></td>
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<tr>
<th>Timeliness of development effort</th>
<th>Pace/timeliness by which the buying firm provides development measures and deploys resources</th>
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<tr>
<td>“Given that [BF-2] is relatively large, they’re very agile. Of course, [BF-2] has formal processes, which have to be followed, but when there’s a need to get things quickly done, they respond and act quickly. That’s something I haven’t experienced with other firms with which we’ve cooperated. In that regard, [BF-2] is really pragmatic. That definitely contributed to the success of the partnership.” <em>(New venture-2)</em>; “At [BF-8], there were always many people in the meetings and workshops, but responsibilities were unclear, their coordination processes were lengthy. [BF-8] generally was a difficult customer, because everything was taking so long.” <em>(New venture-8)</em>; “In most larger companies, expressed with some exaggeration, it doesn’t matter if things happen half a year later, however, in start-ups such delay can have more severe consequences in terms of capacity and capital.” <em>(Expert)</em></td>
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<tr>
<th>Communication Quality of communication between the</th>
<th>Frequency, content-related quality, and each other as equals.” <em>(Buying firm-2)</em>; “One of the</th>
</tr>
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</table>
buying firm and immediacy of the new venture communication success factors was the professional collaboration with [BF-2], [BF-2] had managed the communication interface between their internal processes and us very well. We were well integrated and knew exactly, when [BF-2] tested our product and what they tested, and thus we were able to respond well.” (New venture-2); “With [NV-3] it was difficult…I think that’s interesting, most of the time the start-up’s top management is involved, but established firms do not necessarily send their top management. I think this bears the potential of misunderstandings, because the start-up’s executive feels superior, because you may have the situation where [formally] a higher ranking manager is talking to lower ranking manager […]. That’s a different interaction, a different communication. […] I was under the impression that [NV-3’s executive] felt superior, he wouldn’t accept my arguments and insisted on his point of view. […] It’s the style of communication. There is a social aspect to it, the mutual respect when working together.” (Buying firm-3)

<table>
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<tr>
<th>Governance arrangement</th>
<th>Arm’s length versus cooperative arrangement</th>
<th>Buying firm’s approach to choose governance mechanisms (contract-based and trust-based) that promote cooperation and collaboration</th>
</tr>
</thead>
</table>
| “Formally, we have a contract, but what does it really mean?...I mean I could choose a different supplier. Why did we choose to partner with [NV-2]? We have trust in [NV-2]. This venture is committed to us and so are we to them…put it differently, our firms share a mutual vision for a long-term partnership.” (Buying firm-2); “We have a clear action plan how to manage such a project, we’ve got a steering committee and meetings accordingly, the responsibilities are clear---and, in particular, we are aware that we have a special responsibility as buying firm for the quality of the product, not just the supplier, and not just the start-up.” (Buying firm-3); “[We] expect a different attitude and appearance from [established firm] in comparison to [NV-4]. We are more patient with a start-up, that builds trust, and that eventually pays off during the collaboration.” (Buying firm-4); “We are looking for exclusivity in some sense, but we also don’t want to limit [NV-6].” (Buying firm-6); “We have experienced that the big players are audacious when dealing with smaller ventures. [BF-9] had presented us a contract very early on that provided [BF-9] exclusivity and other obligations in favor of [BF-9]. Those were pretty much conditions that no sane entrepreneur could accept. We rejected the contract and stopped the collaboration for the time being.” (New venture-9)