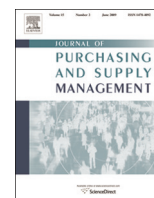




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Managing supplier relationships in a new product development context

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ABSTRACT

Organizations can no longer rely solely on their own resources to innovate and therefore look for strategic interactions outside their organizational boundaries. During the past years Early Supplier Involvement, supplier relationship management (SRM) and knowledge exchange in supply chain relationships have been separately covered in academic research. Using insights from RBV Theory this study proposes and validates an integrated framework that explains outcome effects of new product development (NPD) projects. The initial framework was derived from existing research and validated using four in depth case studies studying actual global NPD projects taken from a large multinational company. The case study findings resulted in a revised framework that can be used to assess NPD outcomes of buyer–supplier interactions. Our research confirms that a positive relationship between relationship quality, knowledge transfer and NPD outcomes exists. Twelve constructs appear decisive for buyer–supplier relationship quality. These constructs act on either an individual or organizational level. A better relationship quality allows for more knowledge transfer among partners, more (innovative) ideas and solutions and positive NPD project outcomes. The reverse, however, also appears to be the case. The proposed integrated framework can be used to predict the performance of a NPD project by measuring the quality of the relationship between buyer and supplier on the twelve constructs. As such this research advances our understanding of the importance and dynamics of supplier relationship management in NPD projects. Future research, however, is needed to further validate and test the proposed framework.

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1. Introduction

Firms increasingly rely on resources beyond their own to innovate in today's competitive environment. They foster strategic interactions beyond their organizational boundaries, contracting out non-core activities, thus allowing them to invest in core competencies and improve the quality of their internal resources. During the past years supplier relationship management (SRM) and early supplier involvement in new product development (NPD) have received ample interest from researchers. Suppliers increasingly seem to represent an important source for innovation to firms Chesbrough (2003). However, unleashing this innovation potential i.e. mobilizing a supplier's innovative capabilities still seems to be a challenge.

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A major issue here is: which formal coordination mechanisms (e.g. contracts) and informal coordination mechanisms (e.g. relationship quality) foster innovation knowledge exchange in supply chain relationships. Research studying the impact of informal coordination mechanisms on NPD outcomes is rare. Our study contributes to this field of research by providing outcomes of four in depth case studies, taken from complex consumer goods innovation projects. During the past years the relationship between supplier relationship quality and NPD performance have been the subject of study many times. Also, a large amount of research has been conducted on the role of knowledge transfer and its impact on NPD performance. Empirical research that includes these two important aspects of the NPD process appear to be limited. More specifically: empirical studies that investigate the constructs that determine the quality of a relationship between buying and supplying organizations and their outcome effects within an NPD context were not found. Therefore, this research aims to study the relationship between supplier relationship quality, knowledge transfer and NPD performance. More specific: our research aims to

answer the following question: ‘What key factors underlying supplier relationship management foster buyer–supplier knowledge transfer and positive NPD outcomes?’

After having considered different theoretical perspectives, we adopted the Resource Based View (RBV) as the main basis for developing a theoretical framework. Based on our literature review we present a comprehensive research framework that can be used to explain moderators and outcomes of early supplier involvement.

Our study brings advances to the existing literature in several ways. First, our study identified twelve constructs that seem decisive for the quality of the buyer–seller relationship. Next, using RBV theory our study proposes an integrated theoretical framework that explains the causal relationship between SRM in a NPD. Third, we use four in depth case studies to explore how the buyer–seller relationship quality affects NPD performance. Fourth, our revised framework can be used to assess the performance of a NPD project by measuring the quality of the relationship between buyer and supplier on our proposed twelve constructs. Therefore, our study has important implications for practitioners. For researchers, our research model provides a starting point to further define, explore and validate the dynamics of innovation in buyer–seller relationships.

The paper is organized as follows. First, we review the literature on SRM in NPD to develop a research framework that delineates the relationship between supplier relationship quality, knowledge transfer and NPD performance. Hereafter, our research methodology is described, followed by in depth within-case and cross-case analyses. We conclude the paper with a discussion of our findings and their managerial implications. Also we indicate the limitations of the study and promising directions for further research.

2. Theoretical background

Innovation is a crucial process central to the development of a competitive advantage. The management of supplier involvement in design and development, therefore, can be positioned as being a major and increasingly important part of this process (Croom, 2001). Establishing a successful buyer–supplier relationship is key to attain a competitive advantage (Rajendran et al., 2012) as it enables the buyer to gain benefits that are unlikely to come from traditional transactional relationships (Rajendran et al., 2012). Thus, by managing the supplier innovation potential effectively, the performance of the buying firm is more likely to improve. (Cusumano and Takeishi, 1991; Lawson et al., 2009). In order to exploit this potential and thus improve the NPD performance, the relationship with the supplier should be actively managed (Walter, 2003; Gemünden et al., 1996; Håkansson and Snehota, 1989; Dyer and Ouchi, 1993). Following RBV theory we argue that companies can become more successful if they are able to manage and to access (supplier) resources that are immobile, scarce, inimitable, non-substitutable and that provide competitive advantage (Hunt et al., 2002). The RBV states that the basis for a firm competitive

advantage primarily lies in the application of that bundle of valuable tangible and intangible resources, both internal and external, that are at the firm disposal. These resources should be heterogeneous in nature and not perfectly mobile. Therefore, supplier's resources and the firm ability to exploit these resources to achieve its goals are key factors in its competitive and innovation strategy.

The impact of successful, high quality buyer–supplier relationships on the NPD performance have been studied by many authors (e.g. Kale et al., 2000; Walters and Rainbird, 2007; Zsidisin and Ellram, 2001). We have done an extensive literature search based on a collection of papers published between 1990 and 2013. Using various sources (e.g. JSTOR; ABI/Inform) and a pre-determined set of keywords (e.g. “relationship management”; “NPD performance”) a selection of 133 potentially relevant papers were selected. This set has been expanded using two methods (i) back-and forward searches; and (ii) snowballing leading to a total of 193 publications. Through both a content and an abstract check this set was reduced to 123 sources that were used for our literature review.

Using this literature review seventeen factors were identified that are significant for the outcome of the NPD process. Fourteen of these factors are independent, three factors had dependencies. The fourteen independent variables are the following:

(i) access to resources and knowledge; (ii) information sharing; (iii) efficiency and effectiveness in NPD processes; (iv) organizational performance; (v) value through synergy; (vi) innovativeness; (vii) NPD complexity; (viii) customer satisfaction; (ix) profit margins; (x) supplier contribution of new ideas; (xi) quality of relationship; (xii) joint problem-solving activities; (xiii) manufacturability of the product; (xiv) redesign and rework.

In literature, there is consensus that three outcomes are the most significant for the NPD process, i.e. product quality, cycle time or time to market and NPD costs. This is why we choose these three outcomes as metrics to measure NPD performance (see Table 1).

Next, we explored the determining factors of the quality of a buyer–seller relationship using our literature survey. Twelve different constructs were identified as having a strong impact on the relationship quality. These are discussed below in order of magnitude and effect. The following five determinants are the most powerful in establishing a high quality relationship.

The first factor is trust: when buyers have high levels of trust in their suppliers and vice versa, they are likely to pursue more cooperative negotiations and open communication, which affects the NPD performance in a positive manner. Trust also increases the willingness to share information and knowledge (Bensaou, 1999; Wognumet al., 2002; Walter, 2003; Knudsen, 2007; Dyer and Chu, 2011; Cantista and Tylecote, 2008; Lawson et al., 2009; Rajendran et al., 2012; Walter et al., 2003; Bunduchi, 2013). Second, communication is key. Without sufficient communication, there cannot be any relationship build-up. The performance of the relationship depends on the appropriateness and effectiveness of the communication (Knudsen, 2007; Kale et al., 2000; Sivadas and Dwyer, 2000; Walters and Rainbird, 2007; Lorange et al., 1992;

Table 1
Main outcomes of buyer–supplier relationships.

Outcome	Authors
Increased product quality	Cusumano and Takeishi (1991), Zhao and Lavin (2012), Petersen et al. (2005), Bunduchi (2013), Wagner and Hoegl (2006), Goffin et al. (2006), Walter (2003), Primo and Amundson (2002), Madhok (2002)
Reduced cycle time or time to market	Zsidisin and Ellram (2001), Zhao and Lavin (2012), Petersen et al. (2005), Wynstra et al. (2010), Primo and Amundson (2002), Bunduchi (2013), Wagner and Hoegl (2006), Madhok (2002), Walter (2003)
Reduced NPD costs	Zsidisin and Ellram (2001), Zhao and Lavin (2012), Petersen et al. (2005), Rajendran et al. (2012), Wynstra et al. (2010), Primo and Amundson (2002), Goffin et al. (2006), Madhok (2002), Dyer (1997), Walter (2003), Walter et al. (2003)

Zhao and Lavin, 2012). Third, information and knowledge sharing between the buyer and supplier and within the NPD project members helps to generate new and innovative ideas among partners. This also improves the build-up of trust between the supplier and buyer (Bensaou and Venkatraman, 1995; Gadde and Snehota, 2000; Sivadas and Dwyer, 2000; Knudsen, 2007; Jap, 2001; Zsidisin and Ellram, 2001; Lawson et al., 2009). Fourth, cooperation and coordination positively affects the NPD performance, as it strengthens the relationship between supplier and buyer. Coordination helps to align the goals and operations among supply partners (Bensaou, 1999; Gadde and Snehota, 2000; Dyer and Chu, 2011; Lawson et al., 2009). The fifth impact factor is commitment. Commitment can be viewed as a perception or attitude towards a relationship that is expressed by certain actions, such as information sharing. Commitment affects the relationship between the buyer and supplier. Mutual commitment creates opportunities within and outside the NPD project (Seppänen et al., 2007; Barnes et al., 2005).

Besides these five constructs, there are several other factors, which will not be discussed in length here but are included in our conceptual framework. These constructs are: relationship-specific adaptations and investments (Dyer, 1997; Jap, 2001; Zhao and Lavin, 2012); satisfaction (Rajendran et al., 2012; Walter et al., 2003); dependency and power (Gadde and Snehota, 2000; Wognum et al., 2002); flexibility (Zhao and Lavin, 2012); reputation (Rajendran et al., 2012); loyalty (Rajendran et al., 2012) and; relationship history (Handfield et al., 1999; Zhao and Lavin, 2012). Strong inter-firm relationships have a positive impact both on the efficiency and on the effectiveness of the NPD process (Lin and

Huang, 2013). The twelve relationship constructs that have been identified in literature are depicted in Table 2.

As recent research shows, whenever a buying firm intends to collaborate with a supplier in NPD, the quality of the relationship is of the utmost importance. From the literature studied we conclude that the higher the quality of the relationship with a supplier, the more likely a positive outcome of the NPD process.

Recent research indicates that knowledge transfer facilitates the generation of those resources and skills that are essential for product innovation (Zhao and Lavin, 2012; Clark and Fujimoto, 1991; Clark, 1989). With the additional knowledge that a supplier brings, a buyer is more likely to generate new product ideas, develop them more quickly, resulting in a higher NPD performance (Zhao and Lavin, 2012; Brown and Eisenhardt, 1995). Furthermore, the supplier can introduce ideas on how to improve product quality, improve manufacturability or ideas that contribute to the performance of the NPD process overall (Sivadas and Dwyer, 2000; Zhao and Lavin, 2012; Knudsen, 2007). Thus, knowledge sharing increases the performance of the overall NPD process (Lawson et al., 2009).

The transfer of knowledge is influenced by several factors. Other than the influence of the relationship between buyer and suppliers, there are four more distinct variables that affect the knowledge transfer. First, the characteristics of the knowledge itself have an impact (Kogut and Zander, 1992). For example, tacit knowledge is much more difficult to transfer than explicit knowledge (Hansen, 1999). The second variable identified is a collection of organizational characteristics (Van Wijk et al., 2008). This can be summarized as the ability of an organization to

Table 2
Twelve constructs that determine the relationship quality.

Construct	Definition
Trust	Trust is defined as a positive belief, attitude, or expectation of one party concerning the likelihood that the actions or outcomes of another party will be satisfactory. The belief of one party that the other party is honest (or credible), benevolent and competent (Bensaou, 1999; Wognum et al., 2002; Walter, 2003; Knudsen, 2007; Dyer and Chu, 2011; Cantista and Tylecote, 2008; Lawson et al., 2009; Rajendran et al., 2012; Walter et al., 2003; Bunduchi, 2013).
Communication	Communication can be defined as formal and informal sharing of information between firms and fulfills a coordination and alignment function between parties (Knudsen, 2007; Kale et al., 2000; Sivadas and Dwyer, 2000; Walters and Rainbird, 2007; Knudsen, 2007; Sivadas and Dwyer, 2000; Lorange et al., 1992; Zhao and Lavin, 2012)
Information & knowledge sharing	Knowledge and information sharing facilitates the generation of resources and skills essential for product innovation. Knowledge and information sharing for NPD between two companies is a set of experiences, information and knowledge, which may be both tacit and explicit in nature (Bensaou and Venkatraman, 1995; Gadde and Snehota, 2000; Sivadas and Dwyer, 2000; Knudsen, 2007; Jap, 2001; Zsidisin and Ellram, 2001; Lawson et al., 2009)
Cooperation & coordination	Cooperation and coordination consists of mutual adjustment and alignment between buyer and seller: of expectations; organization; goals; and responsibilities (Bensaou, 1999; Gadde and Snehota, 2000; Dyer and Chu, 2011; Lawson et al., 2009)
Relationship-specific adaptations & investments	Relationship-specific adaptations can constitute of changes by one party in processes, product technologies, or procedures to the specific needs and/or capabilities of the other party. This increases switching costs, establishes expectations of future exchanges and creates trust (Dyer, 1997; Jap, 2001; Zhao and Lavin, 2012)
Commitment	Commitment can be viewed as a perception or attitude towards a relationship that is expressed by certain actions, such as information sharing. Commitment improves the functioning of the relationship between the buyer and supplier. Mutual commitment creates opportunities and performance within and outside the NPD project. (Seppänen et al., 2007; Barnes et al., 2005)
Satisfaction	Satisfaction can be described as a feeling of happiness or fulfillment that arises when expected or desired result is attained.
Dependency & power	Interdependence motivates buyers and suppliers to develop long-term relationships characterized by stability, co-operation and mutual benefit. It reflects the degree of dependability on each other without which either organization encounters loss of opportunity, business or sales. (Gadde and Snehota, 2000; Wognum et al., 2002)
Flexibility	The willingness and the ability to make changes to accommodate the relationship-counterpart's (changing) needs allows for more knowledge transfer between the actors in the relationship. (Zhao and Lavin, 2012)
Reputation	Reputation is an intangible asset and it describes a perception about fairness, honesty and concern of a firm. Reputation also covers the perception of past performance, experience and competencies of a firm. A good reputation will decrease uncertainty and perceptions of risk within the relationship, allowing for increase trust build-up (Rajendran et al., 2012).
Loyalty	Loyalty can be described as the tendency of an exchange partner to maintain and continue the relationships with existing partners (Rajendran et al., 2012).
Relationship history	Relationship history encompasses the duration of a relationship and the past events within those relations. The longer a relationship is, the more likely the actors are to collaborate to a greater extent. The duration of a relationship positively affects the commitment and loyalty of both actors and contributes to the expectation of the relationship to continue (Handfield et al., 1999; Zhao and Lavin, 2012).

recognize, apply and assimilate new and external knowledge (Cohen and Levinthal, 1990). Network characteristics are the third variable that influences knowledge transfer. This variable encompasses attributes, which operate at the network-level or within a dyad. Many of these attributes are embedded in the social behaviors and resources of an organization. They can be categorized, according to Van Wijk et al. (2008) using a structural dimension, a relational dimension and a cognitive dimension. The last variable is socialization or behavioral characteristics, as discussed by Lawson et al. (2009). These are key means of facilitating the flow of knowledge across firms. They can act as an enabler for the actors in a relationship to learn about each other's culture which allows them to adjust behavior accordingly.

These four variables do not act strictly as a barrier or a promoter of knowledge transfer. The way these characteristics are given shape determines the type and magnitude of their influence on the knowledge transfer. The relationship between the knowledge transfer and the relationship quality seems a reciprocal one: a higher quality knowledge transfer seems beneficial to the relationship between buyer and seller. Also, a more established relationship between buyer and seller seems to foster knowledge transfer.

The meta-analytic review of Van Wijk et al. (2008) shows that knowledge transfer is an enabler for organizations to generate new ideas for NPD. The combination of existing and acquired knowledge increases the organizational capacity for recombining current ideas and developing new ideas, which has a positive influence on the NPD performance. The transfer of tacit knowledge seems more important for NPD performance than the transfer of explicit knowledge (Hansen, 1999). This is to a large extent due to the fact that explicit knowledge is more imitable than tacit knowledge and therefore easier accessible to all partners (Croom, 2001).

From our literature review we conclude that inter- and intra-firm knowledge transfer affects NPD outcomes. In high quality relationships effective knowledge sharing and transfer seems to be in place. Strong ties facilitate the acquisition of valuable knowledge whereas weak ties seem to make greater amounts and diversity of information accessible to the firm. Both are necessary to unleash supplier resources to increase performance of the NPD process in term of effectiveness, efficiency and innovativeness (Lin and Huang, 2013).

It is established that relationship quality, knowledge transfer and NPD performance are strongly related. The findings from the literature review are captured in the conceptual framework presented in Fig. 1. This figure depicts the complex relationships between relationship quality, knowledge transfer and NPD performance. It serves as the framework to be used as the basis for our empirical research.

3. Methodology

3.1. Research design

This research aims to provide knowledge that helps to determine what intervention can be used in order to improve an existing situation. Following this aim, the nature of our research is both exploratory and practice-oriented (Verschuren and Doorewaard, 2010). We made use of a systematic research plan to ensure the quality of this research (Yin, 2003). Exploratory research is used to get familiar with all aspects of the research in order to formulate the problem more precisely. This exploratory research is needed because of our aim to unravel and analyze factors and conditions that determine the outcomes of early supplier involvement in a favorable way. Practice-oriented research refers to the unstructured set of problems with which a practitioner is dealing (Dul and Hak, 2008). Our conceptual framework was used to provide directions to the empirical research. The empirical research is case-study based. We have employed a multi-case method focused on single unit of analysis, i.e. the dyadic relationship (the relationship between the supplying and the buying firm). This research method is appropriate as: (i) a contemporary phenomenon is studied and (ii) the boundaries between phenomenon and context are not clearly demarcated. Furthermore, a case study method is in favor when: (iii) the research is focused on “how” and “why” aspects and (iv) the researcher has limited control over the phenomena. A multiple case study design increases the possibility of generalizing findings in an analytical way (Yin, 2003). To assure reliability, a case study protocol was used and a case study database was developed (Yin, 2003).

Validity is ensured by establishing the correct operational measures for the concepts being studied: definition of unit of analysis, operational concepts, use of multiple sources of evidence (to avoid potential sources of bias) and the establishment of a chain of evidence (Yin, 2003). Different sources of information have been triangulated to control for validity of the research. The external validity is assured by the replication logic in multiple case studies: the data collection instruments and methods of analysis used for the four cases involved were identical.

The cases studied were all from Company Alpha. Company Alpha was selected as it has requested to have these processes studied. Company Alpha is to us also of special interest as most research in this area has been done within the automobile industry, whereas the Company Alpha cases are within the consumer products industry. The company is active in the consumer product industry and has over 100.000 employees with an annual turnover of over 10 billion Euros. To increase the measure of applicability and comparison, a set of criteria was defined (Verschuren and Doorewaard, 2010). Deliberate sampling of the four cases was applied, meaning that the cases were selected based on

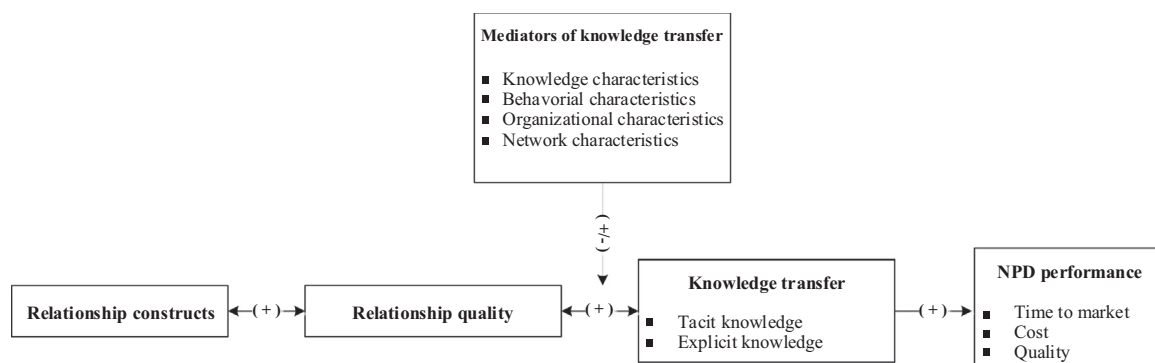


Fig. 1. Conceptual framework.

Table 3
Selection criteria for the case study.

Selection criteria	Rationale
Recency	To take into account the dynamic nature of the industry To avoid memory retrieval problems To gain insight in the most current state of affairs
Representativeness	To minimize between case variance To avoid rare cases To increase generalizability
Maturity	To identify any influence of maturity on the NPD process and the collaboration with suppliers
Type of innovation	To identify any differences between radical and incremental innovation projects with regard to way of working and supplier relationship management

a maximal variation of the dependent variable (Verschuren and Doorewaard, 2010) being a successful SRM. Using experts' opinions (i.e. experts from within the client company; experts holding a purchasing function within the client company and scholars specialized in purchasing and supply management research), the projects were selected using the following criteria: (i) a comparable industry; (ii) similar organizational governance and; (iii) the locus of the problem defined, company Alpha. The selection criteria are shown in Table 3.

Four cases (regarding NPD) were thus selected for the empirical research. Two cases concern projects of business unit Kappa (within Alpha); Case 1 Gamma (a new plastic cup for toddlers) and Case 2 Delta (a microwave sterilizing bag for baby bottles). The other two cases are project of business unit Lambda (within Alpha); Case 3 Zeta (an electronic milk frother) and Case 4 Eta (a grind and brew drip filter coffeemaker). All suppliers involved in the cases are located in Asia with the exception of the supplier for Case Gamma who was an internal supplier. The mapping of the selected against the selection criteria is given in Table 4.

3.2. Data collection

The data were collected via interviews and desk research. For the case study, the research has mostly been done by conducting interviews, combined with desk research. This case study research encompassed interviewing experts, business practitioners and employees from various functional areas. All respondents were selected as the most appropriate informants because of their overall and in-depth knowledge of the project under research or because of their direct or indirect involvement in one or more of these projects. We have used informants from both partners

Table 4
Case selection.

Selection criteria	Case
Recency	The cases were selected because: They were the most recent finished projects within the two organizational entities involved Key team-members were still within the company
Representativeness	Case 1 and Case 2 were both performed in the same development site. To enhance the generalizability of the findings, two more cases (Case 3 and Case 4) were selected from another development site in the same company. Furthermore, the cases were selected on comparable product characteristics and technology. Case 1 and 2 contain plastic and focus on production; Case 3 and 4 contain electronics, heating elements and moving parts.
Maturity	The cases were selected from two different development sites. The first two cases are developed on an "immature" site (age < 5 years); the other two cases on a very mature site (age < 25 years).
Type of innovation	Case 2 and Case 3 are an innovation new to company Alpha, thus a radical innovation. Case 1 and Case 4 are project to create a next generation of an existing product, thus making these an incremental innovation.

(buyer and suppliers) within a relationship. Multiple interviews were conducted with project members, project leaders, management and suppliers. An interview protocol was used together with a questionnaire (interview and questionnaire can be found in the online Appendix). The interview protocol was tailored per type of interviewee. Within each interview the interviewees were asked to verify the correctness of the conceptual framework. The results of the interviews and questionnaire were used to determine the "scoring" of a construct or variable of the conceptual framework. Altogether, 27 one-hour interviews were held. All interviews were taped; transcribed literally to coded text. For verification, they were sent back to the interviewee. A data overview of the interviews is presented in the online Appendix. The scoring of the different constructs, resulting from the questionnaire, were used to crosscheck against the coded text of the interviews and served as confirmation of the open interview with the interviewees.

The objectives of the interviews were twofold. The first objective was to learn about the company's vision and strategy towards early supplier involvement (ESI) and SRM. The second objective was to unravel relations between SRM and the performance of NPD projects. A third objective was to learn how the researched organizations and projects manage their supplier relationships in NPD projects.

To address the concerns on reliability of the data collection process, a priori developed data protocols were used (Yin, 2003). These protocols (based on the conceptual framework) identified a set of constructs and their logical relationships. They were used to guide our field research and to provide a standard format for data coding. As our research framework might be incomplete the interviews were used to find extensions and additions with so far unknown variables.

Besides using academic literature, extensive desk research was conducted, consisting of consulting company websites, non-scientific research reports, online databases and project documentation and reports.

3.3. Data analysis

When analyzing the data produced by the multiple case studies, the design of Yin (2003) was followed. For the analysis of the data, the program NVivo was used. This program allows for large quantities of qualitative data to be analyzed and allows for extensive pattern matching. It further helps to improve the rigor of this research. Each case was analyzed and described in a dedicated report. Based upon these reports, a cross-case comparison was made. Hence, conclusions were drawn from this analysis with regards to our initial conceptual framework. Finally, the theoretical and practical implications were formulated.

Van Aken et al. (2007) have described a method to analyze qualitative data, which is adopted for this research. The conceptual framework served as input for this method. Hence, our analysis focused on three main aspects: (i) the presence of the variables in our framework; (ii) the relations in the proposed framework; and (iii) any new variables and relations that were mentioned in the interviews. Section 4 provides an overview of the similarities and differences among the case studies. Next, it discusses the consequences for the hypothesized conceptual framework. This data analysis resulted in in-depth insight into our research questions, which in turn gave way to our final explanatory framework describing the relationship between supplier relationship quality, knowledge transfer and new product development performance.

4. Results

4.1. Within-case analysis

4.1.1. Case 1 Gamma

This project is part of Alpha's consumer products division. The aim of the project is to redesign, re-develop the existing plastic cup range produced by Alpha's baby and child care division. There are three types of cups for toddlers with varying volumes. The lid and spout of the bottles need to be re-designed such that they also fit the glass bottle range of the baby and childcare division. This inter-exchangeability will increase the functionality of the product range and increases the attractiveness of the product for the consumer. For this project Alpha decided to use an internal supplier.

The supplier selection for this project was based on incomplete assumptions. Also, there were problems regarding communication, a lack of transparency of the processes of the supplier and a lack of quality assurance procedures. This all led to a change in the sourcing model from CM (contract manufacturing) to ODM (original design and manufacturing), where the internal supplier was responsible for production and Alpha specified the product. The supplier was selected based on the quoted price and the fact that the supplier was part of Alpha. During the project, the benefit of working with a supplier, who was familiar with Alpha's way-of-working and culture showed in a positive way. Both teams were satisfied with the relationship. The formalized communication structure contributed greatly to the quality and quantity of knowledge sharing. This, in turn, contributed to the performance of the project. The communication structure was formalized to overcome the difficulties caused by the geographical split of the team. Because of this and the early supplier involvement a strong sense of goal alignment existed between both partners.

The face-to-face visits of the Alpha team to the supplier were an effective way to build trust and keep the project aligned. An important effect of this trust was that the problem solving capacity was enhanced. Also, trust allowed for better information sharing, in terms of openness and honesty. The mutual trust improved the relationship and the performance of the project. The project was effectively coordinated and both parties showed their cooperation. This was further ensured by the flexibility that both organizations displayed.

The fact that the relationship was good between the two parties proved to be beneficial for the knowledge transfer within the project. The explicit knowledge transfer was ensured by the communication structure and a similar way-of-working; the tacit knowledge transfer mainly took place during the visits of the Alpha team. Both proved to be vital for the overall performance of the project.

It was remarkable to find that while both parties were committed to the project, both companies still pulled away committed

resources from the project, frustrating both companies. The supplier regarded Alpha's extensive procedures as cumbersome.

The project slipped a bit time wise, which was due to the difficulties in scoping the project at the beginning. The budget of the project remained under control. Finally, the collaboration with the supplier not only led to a successful product launch, it also helped to solve many issues, which Alpha had within the project.

The implications from this case study for our research model were the following: (i) confirmation of the positive relationship between relationship quality, knowledge transfer and NPD performance; (ii) the constructs trust, communication, information and knowledge sharing, cooperation and coordination, commitment, loyalty, flexibility and reputation have been confirmed, meaning that these constructs have been identified within the case having an influence on relationship quality; (iii) the constructs relationship history, satisfaction, dependency and power, and relationship-specific adaptations and investments have not been confirmed, meaning that these constructs have not been identified as having an influence on relationship quality; (iv) transparency was identified as an important construct for relationship quality.

4.1.2. Case 2 Delta

The second case concerns the development of a microwave-sterilizing bag (MSB) to be produced and sold by Alpha's baby and child care division. The aim of the project was to develop a plastic bag in which a consumer can sterilize multiple baby bottles in a microwave. The bottles are sterilized by adding a small amount of water in the bag and putting the bag in the microwave. The bag itself is a 'standard' plastic product, with a zipper and a valve through which excess steam can escape.

In case Delta, the intention of Alpha was to buy the product off-the-shelf. However, the requirements forced a change in the ODM model, where Alpha in collaboration with a key supplier needed to specify and partly develop the product themselves. The selected supplier was wrongly assumed to have the development capabilities required. Furthermore, the supplier considered the project as routine and did not allocate an engineer. This strained the communication between Alpha and the supplier, as Alpha found no technical counterpart within the supplier. Adding to this, Alpha had not scoped the project well; Alpha did not have sufficient insights in this type of industry. Also, the soft-skills of the supplier were not really taken into account in selecting the supplier.

The communication was one of the bottlenecks during this project, the language barrier proved to be the most difficult. According to the supplier, the project was not well coordinated; it was not always clear whom to address with questions. The supplier's CEO eventually became involved in the project, which was taken by Alpha as a sign of commitment. His involvement meant that issues were solved quicker and supplier project members showed more effort.

Supplier's failure to perform had a detrimental effect on the relationship. This caused Alpha to lose trust in the supplier. The supplier, on the other hand, did trust Alpha, mainly based on their reputation. Knowledge sharing was hindered by the difficulties in communication. Alpha provided training to the supplier in order to speed up the project. As a result, the supplier thought Alpha to be very committed to the project. Due to the behavior and attitude of the supplier, Alpha did not feel valued as a customer. Furthermore, the development processes of the supplier and Alpha were very different, which caused problems in alignment. The project ran smoother after the project leader had a chance to visit the supplier, four months after the kickoff of the project.

As a result of this strained relationship, there was not much knowledge transfer in the project. The exchange of tacit knowledge was nonexistent; explicit knowledge was shared, but only after great effort by Alpha.

The project was delayed to such extent that the targeted launch window was missed. The final financial budget has not been exceeded by this project. However the initial budget was exceeded by 300 per cent. This is because Alpha had to assign extra resources to guide the supplier through the development process.

In the end, the project was performed following the CM sourcing model. Alpha ended up designing and writing the specifications for the product and the supplier produced the product. This was a large change compared to the initial project goal. Nonetheless, the product has been launched in the market. Both parties are satisfied with the produced quality of the final product, but both are left frustrated with the project itself.

Concluding, implications for the research model are: (i) confirmation of the positive relationship between relationship quality, knowledge transfer and NPD performance; (ii) the constructs trust; communication; information and knowledge sharing; cooperation and coordination; commitment; and loyalty have been confirmed; (iii) the constructs reputation; relationship-specific adaptations and investments; relationship history; satisfaction; dependency and power; and flexibility have not been confirmed; (iv) transparency; attractiveness as a customer; and performance, capabilities and individual competencies have been identified as important constructs for relationship quality.

4.1.3. Case 3 Zeta

The third case concerns the development of a milk frother. This product has a mechanical functionality, with a heating element to warm up the milk. To foam the milk, a rotating element beats the air into the milk.

This is a case where both Alpha and the supplier have indicated that they have a good relationship. Within the project both organizations were very much aligned. Even though the project did not always run without issues, these did not affect the relationship. Instead, the quality of the relationship positively affected the negotiations and the overall process of the project.

The development capabilities of the supplier were not as advanced as Alpha had assumed. This decision was even further supported, as the supplier was already involved in a previous project with Alpha that eventually was canceled. The supplier already knew that they were to be chosen for this project as Alpha had to make up for the lost project. This reduced the leverage of Alpha in the negotiations with the supplier. This resulted in a price setting that, later, was not satisfactory to Alpha. The project had to be paused in order for Alpha to re-negotiate the price. Many projects would have suffered from this kind of action, however, the relationship between the supplier and Alpha was of such quality that the negative effects for other projects were minimal.

Both parties were committed and trusted each other. This was created and reinforced by the open and honest communication between the two project teams. Furthermore, both the purchaser and the project leader had shown a lot of commitment by delivering what was promised. According to the supplier, Alpha had a very strong and collaborative team staffed to the project. Alpha stated that, despite the supplier's team not being completely technically capable, it still was a strong team in terms of collaboration and effort.

The transparency and honesty during the whole project was crucial to keep the project running. The product has been released to the market, to the satisfaction of both the supplier and Alpha. Even though both organizations had to increase their investments in the development of the new project, the project resulted in a quality product within the planned timeframe.

The implications for the research model are: (i) confirmation of the positive relationship between relationship quality, knowledge transfer and NPD performance; (ii) the constructs trust; communication; information and knowledge sharing; cooperation and

coordination; flexibility; and commitment have been confirmed; (iii) the constructs reputation; relationship-specific adaptations and investments; relationship history; satisfaction; dependency and power; and loyalty have not been confirmed; (iv) transparency; and performance, capabilities and individual competencies have been identified as important constructs for relationship quality.

4.1.4. Case 4 Eta

This case concerns the development of a grind and brew drip filter coffeemaker, which has the additional functionality of a coffee bean grinder. Alpha already has a version of this product in the market; this project aimed to develop an improved product. This second version should be of higher quality and thus with a lower field call rate. It is to be produced and sold by Alpha's consumer products division.

The choice for the supplier was largely based on the fact that the selected partner was also the supplier for the first generation product. Alpha did perform a market scan for alternative suppliers, which resulted in a short-list of suppliers that were deemed more capable than the incumbent supplier. However, three factors proved to be decisive in the supplier selection: firstly, preferably the supplier was already in the Alpha supplier base. Secondly, Alpha had experience in working with this supplier and lastly, the incumbent supplier quoted the lowest price. Even though the supplier displayed many quality issues, the assumption of Alpha was that they could achieve the desired level of quality by providing training to the supplier.

Alpha felt that the relationship with the supplier was troublesome, whereas the supplier felt that they had a good relationship with Alpha. The biggest challenge for Alpha was communication. Without the presence of Alpha Asia the project would be impossible as there was a language barrier. Furthermore, the supplier was not very responsive. To counter this, Alpha set up a governance and communication structure halfway in the project.

It is remarkable that the supplier's view differs to a large extent from the view of Alpha. The supplier perceived Alpha as trustworthy and did not consider the communication to be a problem. The fact that Alpha sent over engineers to train the supplier representatives was considered by supplier as a sign of commitment and trust. However, the supplier found that Alpha did not communicate their quality standards well enough. The project delay decreased the satisfaction of the supplier with the relationship. Also, the supplier thought that Alpha was unresponsive at that stage of the relationship.

For Alpha the only way to build trust in this relationship was to have a formal agreement. No interviewee from the Alpha team mentioned that they trusted the supplier. Especially the project leader did not trust the supplier. For him, the only way for a supplier to gain his trust is to have him work exactly according to Alpha's way-of-working and to perform according to Alpha's standards. Other than Alpha, the supplier did mention that a better personal relationship between the two project teams could increase the performance of the project.

Both parties stated that the visits of Alpha to the supplier helped the progress of the project. Furthermore, the collaboration was not very coordinated, causing misalignment between the two organizations. For instance, instead of having one action list visible to all project team, there seemed to be four different uncontrolled action lists.

The issues regarding trust and communication caused problems in terms of information and knowledge sharing. The supplier had concerns about the inflexibility that Alpha showed in their procedures. The supplier thought that, if Alpha had shown more flexibility and would allow for adaptation of procedures, the project would have run a lot smoother and the relationship

between the supplier and Alpha would have been better. It is remarkable to find that Alpha also found the supplier to be inflexible. It is also remarkable to find that both organizations were of the opinion that they both were very flexible themselves.

This troublesome relationship between the supplier and Alpha resulted in very limited knowledge transfer. Alpha tried to train the supplier in their way-of-working. However, the communication issues decreased the effectiveness of these attempts. Even the sharing of explicit knowledge proved to be difficult, mainly due to the language barrier. The only instances where both parties felt that they were aligned and working together took place during the visits of the Alpha team to the supplier. Alpha would have trusted the supplier better if they had shown more project ownership.

The project itself performed very poorly. Both parties were in agreement on that. There were a lot of quality issues and the project overall was delayed. Overall, both parties are not satisfied with the final result.

To conclude, implications for the research model are (i) confirmation of the positive relationship between relationship quality, knowledge transfer and NPD performance; (ii) the constructs trust; communication; information and knowledge sharing; cooperation and coordination; relationship-specific adaptations and investments; commitment; satisfaction; dependency and power; flexibility; and reputation have been confirmed; (iii) the constructs loyalty; and relationship history have not been confirmed; (iv) performance, capabilities and individual competencies has been identified as an important construct for relationship quality.

The results of the four cases are depicted in Table 5.

4.2. Cross-case analysis

Following the discussion and analysis of the individual cases,

the cross-case analysis is as follows.

The findings of the case studies show that the constructs that determine the quality of the relationship either act on an individual or an organizational level. The individual level refers to the interaction and perception on a person-to-person level, whereas the organizational level refers to how the involved organization is perceived as an entity (e.g. on an organizational level a company can be regarded as trustworthy, however one of its employees can be perceived as untrustworthy at the individual level). The importance of the distinction between the individual and organizational level results from the case interviews. The results of the case studies also suggest that the effect of the constructs at the individual level have a greater impact on the quality of the relationship than the constructs at the organizational level. The constructs satisfaction, relationship-specific adaptations; reputation; and loyalty are identified to act at the organizational level. These constructs mainly play a role during supplier selection and contract negotiations. As not all constructs and their contents were known at the start of the project, these constructs have been scrutinized and explored before the project is allocated to a supplier. The constructs relationship history, dependency and power should, based on our case studies, be omitted in the final model as the results from our case study do not support the importance of these constructs. These constructs appear to be of little value to the quality of the relationship and the success of the collaboration. The constructs trust; communication, information and knowledge sharing; cooperation and coordination; commitment and flexibility have all been confirmed as being decisive for the quality of the relationship between two organizations. These constructs seem to act primarily at the individual level.

Based upon the results of the four case studies, several constructs need to be added to our initial, conceptual model. The first is transparency; in three of the four case studies transparency was

Table 5
Findings from the case study, based on conceptual framework.

Construct	Experience			
	CASE 1 Gamma	CASE 2 Delta	CASE 3 Zeta	CASE 4 Eta
Relationship Quality	(0)/(+)	(-)	(+)	(-)/(+)
Trust	(+)	(-)	(+)	(-)
Communication	(+)	(-)	(+)	(-)
Information sharing and knowledge transfer	(-)/(+)	(-)	(+)	(-)
Cooperation and coordination	(+)	(-)	(+)	(0)/(+)
Adaptations and investments	(-)	(-)	(0)/(+)	(+)
Commitment	(-)	(-)/(+)	(+)	(-)/(+)
Satisfaction	(+)	(0)	(0)/(+)	(-)
Dependency and power	(0)	(-)	(+)	(-)
Flexibility	(-)/(+)	(0)	(-)	(-)
Reputation	(0)	(-)	(0)	(-)
Loyalty	(+)	(0)	(0)	(0)
Relationship history	(0)	(-)/(0)	(0)	(0)
Additional findings	Supplier is part of Alpha and familiar with the way-of-working Transparency increased the quality of the relationship	Transparency would have contributed to trust and information and knowledge sharing Alpha felt unvalued as a customer	Both organization were very much aligned Ability to deliver was high	A large discrepancy between the perceptions of Alpha and the supplier on the relationship
Knowledge transfer	(+)	(-)	(+)	(-)
Explicit knowledge	(+)	(-)	(+)	(-)
Tacit knowledge	(+)	(-)	(+)	(-)
NPD performance	(+)	(-)	(+)	(-)
Timing	(-)	(-)	(+)	(-)
Budget	(+)/(+)	(-)	(+)	(-)
Quality	(+)	(-)	(-)	(-)

identified as a contributor to the constructs trust and communication and thus the quality of the relationship. The construct transparency acts at an individual level, according to the interviewees. Secondly, the attractiveness as a customer is the other construct that can be added to the conceptual model. The findings of the case studies show that the attractiveness as a customer determines to a large extent the commitment shown in a relationship. This construct proves to be a determinant at the organizational level. The last construct that proves to be important to the quality of the relationship is the performance, capability and competencies of the partner and will be added at the organizational level.

5. Discussion

In the Case 1 Gamma and Case 3 Zeta that showed a quality relationship among partners involved, knowledge transfer was present and effective, both in terms of tacit and explicit knowledge. Case 2 Delta and Case 4 Eta showed flawed knowledge transfer among partners, which probably was due to a poor relationship. As Lawson, Petersen, Cousins, and Handfield state in their paper in 2009, knowledge transfer and sharing cannot be mandated by the organization through formal mechanisms. Instead, organizations are recommended to make use of informal socialization tactics to establish knowledge transfer. The results of this research underline this. A positive relationship between relationship quality and knowledge transfer has been demonstrated by the case study, indicating that informal socialization mechanisms have a positive influence on knowledge transfer. This result is in line with literature findings.

The results of our case study identify the positive influence of knowledge transfer on the NPD performance. Knudsen (2007), Zhao and Lavin (2012), Brown and Eisenhardt (1995), Sivadas and Dwyer (2000) and Lawson et al. (2009) have all described the positive relationship between knowledge transfer and NPD performance. The results of this empirical research reaffirms this understanding of the effect of knowledge transfer on NPD performance and the dynamics of this relationship.

Our research underlines our argument that organizations can become more successful if they are able to manage and access resources (internal or external) that are immobile, scarce, inimitable, non-substitutable and provide competitive advantage, which is the main argument posited by Hunt et al. (2002). When organizations manage their supplier relationships in such a way that the quality of that relationship is perceived as high, both at the supplier and buyer end, the NPD performance is affected in a positive way and the overall competitiveness of those organizations increases. In general, our empirical research offers support for a positive relation between the quality of the relationship, knowledge transfer and the performance of the NPD project. Based upon the quality of the relationship and knowledge transfer, the expectation would be that Case 1 and 3 would perform well and Case 2 and 4 would underperform. This expectation is supported by the findings of our empirical research. Other than the research of Lawson et al. (2009), Knudsen (2007), Zhao and Lavin (2012), Das and Teng (2001), Van Wijk et al. (2008), our research has attempted to investigate the dynamic relationship between relationship quality; knowledge transfer; and NPD performance. Thus we have developed a comprehensive integrated framework explaining the moderators and outcomes of early supplier involvement. Furthermore, we have shown that better relationship quality allows for more knowledge transfer among partners, more (innovative) ideas and solutions and positive NPD project outcomes. The results of this study indicate that the reverse also is the case.

The cases appear to confirm most of the relationships proposed in our initial, conceptual framework. The findings show that Case 1 and 3 both have a better quality relationship between Alpha and the supplier. Especially the constructs trust; communication; information and knowledge sharing; and cooperation and coordination are strongly present. This allowed for better quality of and quantity of knowledge transfer between the two parties. Eventually this resulted in both parties being satisfied with the result of the NPD project. Even though the respondents of these two cases are not unanimously positive about the results, the overall result in terms of budget, timing and quality of these two NPD projects is positive. Based on these findings, it appears that the performance of these two cases can be explained predominantly by the quality of the relationship. However, one of these cases included the relationship with an internal supplier rather than an external supplier, which prevents unequivocal conclusions on this matter.

To explain the (poor) performance of Case 2 and 4, it appears that a similar dynamic as in the positive cases is at work, yet with a negative connotation. Within Case 2 the relationship quality was poor, according to Alpha and the supplier. With regards to nearly every construct Alpha and the supplier had a negative experience. For this project, the construct communication was identified as having a negative effect on the relationship and the performance of the project. This also contributed to a negative finding regarding knowledge transfer within the collaboration, which resulted in a poor performance of the NPD project itself.

For Case 4, Alpha is of the opinion that the relationship with the supplier was poor. Remarkably, the supplier holds a different view. The supplier feels that they have a good relationship with Alpha, mainly because of the commitment Alpha showed. Similar to Case 2, there was not much knowledge transfer during the project. Largely due to the perceived poor quality of the relationship, the project did not perform well, as both the schedule and the budget were exceeded. Next, the project resulted in a poor quality product with which neither organization was satisfied.

Many scholars have researched the constructs that determine the quality of a buyer-supplier relationship (e.g. Walter, 2003; Monczka et al. 2011). In our research, we have made a selection of these constructs based on our literature research and tested these with support of our conceptual framework in a case study. As a result, we are now able to rank these constructs in terms of influence on the quality of buyer-supplier relationship and identify the key factors that affect buyer-supplier knowledge transfer and NPD performance.

We argue that the proposed integrated framework can be used to predict the performance of a NPD project by measuring the quality of the relationship between buyer and supplier on the twelve constructs. This can support organizations in getting most value out of their supplier involvement in NPD projects, as organizations can focus on these constructs to strengthen the buyer-supplier relationship.

These findings are used to construct the final research model, which is presented in Fig. 2. Concluding, the four case studies have provided sufficient evidence to confirm the proposed positive relation between relationship quality, knowledge transfer and NPD performance.

6. Limitations and future research

This research has several limitations. Firstly, the case studies selected for this research are all within the context of one company and thus in a limited context of industries. This introduces the possibility of context-specific findings. Our research should be replicated in other industries and organizations. Second, one

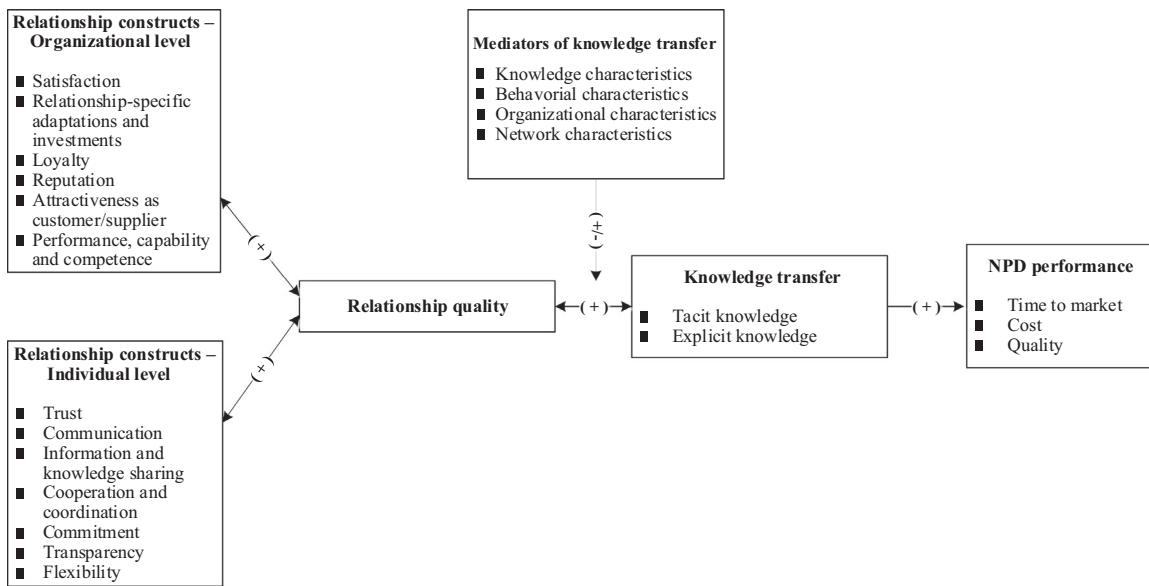


Fig. 2. Research model.

researcher coded the collected data. This researcher also conducted the interviews to collect the data. The fact that the interviewer is aware of the connotations of the interviews allows him to interpret the data more accurately. Nonetheless, this introduces the risk of biased coding. The concepts under study are complex phenomena and strongly linked to perception and interpretation. To eliminate bias, similar research would benefit from conducting it with more than one researcher.

Third, it would be interesting to develop the results of this research into testable hypotheses, which could be investigated by means of large-scale follow-up studies in the form of a survey. This would provide statistical support for and improve the validity and reliability of our suggested framework. Additionally, it would allow for additional analysis, such as investigating the differences across industries.

The relational set in the observation for this research is limited to one type of interaction (i.e. dyadic buyer–supplier relationships) and the firm level. Yet, as discussed in this research, dyadic relationships do not occur in a vacuum; they are part of supply chains, networks and contexts. The actors in a relationship interact simultaneously with more than one partner. This research has paid little attention to network relationships. We recommend expanding the scope of the research beyond the dyad, to gain insight on SRM in a larger NPD context.

7. Conclusion

During the past years much research has been done on the relationship between supplier relationship quality and NPD performance. Next, many scholars have done their research on the role of knowledge transfer and its impact on NPD performance. Research encompassing these two important aspects of the NPD process is limited. Empirical studies that investigate the constructs that determine the quality of a relationship between both buying and supplying organizations and their outcome effects were not found. Therefore, this research studied the dynamic relationship between supplier relationship quality, knowledge transfer and NPD performance. This study contributes to existing literature by confirming a positive relationship between supplier relationship quality, knowledge transfer and NPD performance. Also, it contributes to literature by suggesting key constructs that determine

the relationship quality between a buyer and supplier, thereby providing an answer to our research objective: ‘What key factors underlying supplier relationship management foster buyer–supplier knowledge transfer and NPD outcomes?’

The findings of the four case studies were in line with our hypothesized conceptual framework. In two of the four cases the relationship between supplier and buyer was not optimal. In those cases the results of the NPD projects were sub-optimal as well. Poor relationship quality did affect both the course of the project and its outcomes negatively. In the third case study the relationship was of better quality and the NPD process yielded better quality products within the planned timeframe. This outcome again provides support for our hypothesized conceptual framework. The fourth case study also showed a better quality relationship. However, the actual outcome of the project was disappointing. The findings show that this was not due to the collaboration with the supplier, but was rooted in the capabilities and culture at Alpha. During the project the requirements continuously shifted as a result of a lack of scoping, governance and changing demands. This caused the project to be severely delayed. It also resulted in an unanticipated strong increase of the product’s factory cost price.

The findings of the research have several theoretical implications. First of all, the positive relationship between relationship quality; knowledge transfer; and NPD performance is supported. This holistic view on the dynamics of relationship quality, early supplier involvement and knowledge exchange in NPD projects has not been provided in earlier research. The study identified twelve constructs that appear decisive for the quality of the relationship between buyer and supplier. These constructs act both at an individual and an organizational level. The constructs that mainly act at an individual level seem to have the greatest impact on the relationship quality.

The first and foremost practical implication is that organizations which aim to involve supplier early in their innovation processes, should actively manage supplier relationships in order to increase the success rate i.e. performance of NPD projects. Organizations need not only focus on formal agreements (e.g. contracts), but also focus on managing the informal relationship with the supplier to maximally leverage the knowledge and capabilities of suppliers in their NPD projects.

The personal capabilities in this respect of both the project

manager and the purchaser seem crucial here. By actively managing the supplier relationship, organizations can improve the knowledge transfer among relevant business functions. The study has shown that the capabilities of a project leader are decisive for the success of early supplier involvement. The behaviors of the project team members proved to have a strong impact on the quality of the relationship with the supplier and the collaboration as a whole.

Practitioners are advised to be selective in what suppliers and more particularly what supplier experts to involve early in NPD. Suppliers should have demonstrable innovative capabilities. Supplier experts should be able to connect effectively with the company's designers and developers, both in terms of expertise, style and values. Effective knowledge exchange, next, would call for both formal and informal settings where individuals could connect and collaborate on a personal basis. NPD managers should be careful in replacing people in NPD teams as each newcomer may need time and effort in order to get accepted by the other team members involved. The same holds for changing suppliers or supplier representatives. As interpersonal relationships and institutional trust and reputation seem important drivers and enablers for effective knowledge exchange in NPD, companies are advised to periodically check and follow up on buyer–supplier relationship quality through a concise relationship audit. Our proposed framework may be used here to design such an audit.

The research framework can be used to determine the most effective way of managing supplier relationships in a NPD context. In heavyweight innovation projects with many involved suppliers, the buying firm should make use of the full research model in their approach, with a special focus on the constructs that are manifest on an individual level. For lighter weight NPD projects or projects with fewer responsibilities for the supplier, the buying firm may opt for an adapted, simplified version of the research model where emphasis is put on the organizational constructs as this is the least extensive approach to successful supplier relationship management.

The additional constructs that have been identified in this research require verification and validation with regard to their role in buyer–supplier relationships. Especially the construct attractiveness as a customer/supplier is an interesting field of study, as this study shows preliminary results that it seems a very powerful construct for the quality of a relationship.

Appendix A. Supplementary material

Supplementary data associated with this article can be found in the online version at <http://dx.doi.org/10.1016/j.pursup.2015.05.002>.

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