

# Market Orientation and Innovativeness in Supply Chains: Supplier's Impact on Customer Satisfaction

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*As today's firms increasingly outsource their noncore activities, they not only have to manage their own resources and capabilities, but they are ever more dependent on the resources and capabilities of supplying firms to respond to customer needs. This paper explicitly examines whether and how firms and suppliers, who are both oriented to the same customer market, enable innovativeness in their supply chains and deliver value to their joint customer. We will call this customer of the focal firm the "end user." The authors take a resource-dependence perspective to hypothesize how suppliers' end-user orientation and innovativeness influence downstream activities at the focal firm and end-user satisfaction. The resource dependence theory looks typically beyond the boundaries of an individual firm for explaining firm success: firms need to satisfy customer demands to survive and depend on other parties such as their suppliers to achieve customer satisfaction. Accordingly, the research design focuses on three parties along a supply chain: the focal firm, a supplier, and a customer of the focal firm (end user). The results drawn from a survey of 88 matched chains suggest the following. First, customer satisfaction is driven by focal firms' innovativeness. A focal firm's innovativeness depends, on the one hand, on a focal firm's market orientation and, on the other hand, on its suppliers' innovativeness. Second, no relationship could be established between a focal firm's market orientation and a supplier's end-user orientation. Market orientation typically has within-firm effects, while innovativeness has impact beyond the boundaries of the firm. These results suggest that firms create value for their customer through internal market orientation efforts and external suppliers' innovativeness.*

## Introduction

Nowadays, firms increasingly focus on their core competences, thereby outsourcing their noncore activities. Therefore, today's firms not only have to manage their own resources and capabilities but are ever more dependent on the resources and capabilities of supplying firms to respond to customer needs. Until recently, firms created value for customers by developing innovative products and services based on ongoing monitoring of customer needs and market conditions. Now, they have to realize that some of these value-creating activities are carried out in the supply chain beyond the firm's direct control.

Academically, this means that the key concepts of market orientation (Deshpandé and Farley, 1998; Jaworski and Kohli, 1993; Kohli and Jaworski, 1990; Narver and Slater, 1990) and innovativeness (Han, Kim, and Srivastava, 1998; Hurley and Hult, 1998) move beyond the boundaries of the individual firm and become

a supply chain concern (Baker, Simpson, and Siguaw, 1999; Song and Thieme, 2009). The objective of this paper is to gain insight in how multiple firms operating in a supply chain depend on each other for realizing customer satisfaction through market orientation and innovativeness.

So far, few studies have examined market orientation in a supply chain setting. Siguaw, Simpson, and Baker (1998) studied supplier-distributor dyads showing that a distributor's market orientation is related to a supplier's market orientation, while Langerak (2001) examined supplier–manufacturer–customer relationships finding that market orientation positively influences cooperative buyer–supplier relationships. Both studies focused on primary or key partners of the distributor and manufacturer, respectively. Other supply chain studies predominantly applied a single-firm perspective, looking at the performance of an individual firm (Lau, Tang, and Yam, 2010; Min, Mentzer, and Ladd, 2007; Song and Thieme, 2009). Surprisingly, the role of innovation and innovativeness has been absent in the market orientation studies of supply chains.

This study tries to fill a part of this gap by examining market orientation and innovativeness from a supply chain perspective. Following other studies in a supply

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chain setting (Deshpandé, Farley, and Webster, 1993; Farh, Tsui, Xin, and Cheng, 1998; Kotabe, Martin, and Domoto, 2003; Langerak, 2001; Siguaw et al., 1998), we focus on key partners in the supply chain. Key rather than average partners were selected to increase the reliability of potential supply chain effects (Kotabe et al., 2003). We consider three parties along the supply chain: a focal firm, one of its major suppliers, and one of its major business customers. We call the latter “end user.” We build our study on the well-known mechanism of an individual firm assuming that market orientation affects customer satisfaction through innovativeness (Kirca, Jayachandran, and Bearden, 2005). We extend this mechanism along the supply chain. Therefore, we also examine market orientation and innovativeness at the supplier. Supplier’s market orientation can be limited to the supplier’s customer market only. However, we explicitly consider the orientation of the supplier on the focal firm’s customer market. We call this “end-user orientation.”

Because we study strategic resources of firms, resource theories may support our study. However, the

most well-known theory in this field, the resource-based view, has a within-firm perspective (Barney, 1991). This also holds for a recent extension of the resource-based view, the resource management theory (Sirmon and Hitt, 2009; Sirmon, Hitt, and Ireland, 2007). To the best of our knowledge, there is only one theory dealing with resources having a perspective beyond the boundaries of the firm, i.e., the resource-dependence theory (RDT) (Casciaro and Piskorski, 2005; Pfeffer and Salancik, 1978; Stock, 2006). RDT deals with firms that are dependent on other parties with respect to their critical (strategic) resources. Because we focus in our study on supply chain mechanisms, we use the resource-dependence perspective to formulate our hypotheses about the relationships among the above-mentioned variables and their impact on the customer satisfaction of the end user. We test our hypotheses with 88 matched chains consisting of a supplier, a focal firm, and a business customer or end user. We measure the customer satisfaction at the end user.

Our study has a fivefold contribution to theory. First, it introduces a supply chain perspective on the key variables market orientation and innovativeness in the field of product innovation management. Second, it includes the concept of innovativeness in market orientation studies of the supply chain. Third, it positions the market orientation and innovativeness concept within the RDT, and it empirically judges the importance of two mechanisms in this theory, i.e., downstream power or power imbalance, and supplier or mutual dependence (Casciaro and Piskorski, 2005). Fourth, it introduces the concept of suppliers’ end-user orientation in supply chain studies. Finally, it emphasizes the importance of supplier relationship management as part of the resource management theory (Sirmon et al., 2007).

## Theoretical Background

RDT provides a useful theoretical background to explain that suppliers’ end-user orientation and innovativeness increase the chance of adequate responses to customer demands. RDT typically looks beyond the boundaries of an individual firm for explaining firm success (Christensen and Bower, 1996; Pfeffer and Salancik, 1978). The central proposition of the RDT is that firms change as well as negotiate with their environment, i.e., stakeholders, in order to access the resources they need to survive (Pfeffer and Salancik, 1978). First, survival depends on the ability of the firm to satisfy its customers (Christensen and Bower, 1996; Pfeffer and Salancik, 1978). For that survival, the generation of market infor-

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mation that supports the firm's awareness and the firm's responsiveness to market developments is paramount (Handfield, 1993; Olson, Walker, and Ruekert, 1995; Pfeffer and Salancik, 1978), as well as the firm's innovativeness, its continuous attitude toward change. Second, the RDT acknowledges that firms are not self-contained in responding to market developments and therefore establish linkages with suppliers to create access to resources and capabilities required to create customer value (Pfeffer and Salancik, 1978; Stock, 2006; Ulrich and Barney, 1984). Thus, in adapting and anticipating the developments in the customer market, firms depend on the resources of suppliers, in particular their key suppliers, to assure that those critical customer demands are satisfied (Pfeffer and Salancik, 1978; Ulrich and Barney, 1984).

### *Customer or End-User Satisfaction*

The RDT perspective holds that firms need to focus on delivering customer or end-user satisfaction. End-user satisfaction is defined as satisfaction that accumulates across a series of transactions of service encounters (Lam, Shankar, Erramilli, and Murthy, 2004). It is the cornerstone of a firm's survival. Many studies found antecedents of end-user satisfaction on the purchase or product level (Anderson and Sullivan, 1993; Churchill and Suprenant, 1982; Patterson, Johnson, and Spreng, 1997). The dominant paradigm is that disconfirmation of expectations is a very important determinant of end-user satisfaction. Disconfirmation is defined as the difference between an individual's prepurchase expectations and postpurchase experiences with regard to the performance of the product or service (Patterson et al., 1997). Other studies found antecedents on the individual level, like sales people's job satisfaction (Homburg and Stock, 2004) or on the firm level. For instance, Homburg, Krohmer, Cannon, and Kiedasch (2002) found a positive impact of perceived flexibility of the firm on end-user satisfaction. In their meta-analysis, Kirca et al. (2005) found a positive correlation between market orientation and end-user satisfaction, and between innovativeness and end-user satisfaction. Because our study concentrates on the firm and supply chain level, we will concentrate on the latter variables.

### *Market and End-User Orientation*

According to RDT, managers have to recognize their firms' environmental dependencies and uncertainties (Christensen and Bower, 1996). Market orientation will

be supportive in controlling the customers' dependencies and uncertainties. Here, we build on the ideas of Deshpandé and Farley (1998) who synthesized different perspectives on market orientation and concluded that market orientation predominantly focuses on (current and potential) customer-related activities rather than noncustomer-related behaviors regarding the competitors. Hence, we define market orientation as the set of cross-functional processes and activities directed at creating and satisfying customers through continuous needs assessment.

As we discussed before, firms need suppliers to fulfill downstream customer demands (Atuahene-Gima, Slater, and Olson, 2005; Handfield, 1993; Van Echtelt, Wynstra, Van Weele, and Duysters, 2008). It is easier to collaborate with suppliers that are not only aligned with the objectives of the focal firm but are also focused on the same customer market (Handfield, 1993; Siguaw et al., 1998; Slater and Narver, 1994; Song and Thieme, 2009). Therefore, we introduce the concept of suppliers' end-user orientation, i.e., the set of cross-functional processes and activities directed at creating and satisfying end users through continuous needs assessment (based on the market orientation definition of Deshpandé and Farley, 1998). If end user oriented, the supplier extends its understanding of the direct customer (focal firm) to *both* the end-user's demands and the interpretation of the direct customer of those demands (Ganesan, George, Jap, Palmatier, and Weitz, 2009).

### *Innovativeness*

Hurley and Hult (1998) introduce two innovation constructs into the models of market orientation, i.e., innovativeness and the capacity to innovate. Innovativeness is the notion of openness to new ideas as an aspect of the firm's culture. Capacity to innovate is the ability of the organization to adopt or implement new ideas, processes, or products successfully (Hurley and Hult, 1998). They found that firms that are more receptive to new ideas have higher levels of innovation capacity.

The concept of innovativeness seems to fit the RDT perspective better than the capacity to innovate. Not the outcome of the innovation but the firm's future orientation and proficiency in anticipating the environment differentiate firms in the RDT tradition. Where market orientation concerns the information generation and dissemination, innovativeness involves the willingness to use the information moving beyond status quo and translating ideas into valuable opportunities (Hurley and Hult, 1998; Maciariello, 2009; Menon and Varadarajan, 1992).

In past research, market orientation has been found to affect the firm’s innovativeness (Kirca et al., 2005). It enhances the diversity of internal market knowledge, thus creating opportunities for more experimentation and smarter innovation (Han et al., 1998). This mechanism not only holds for the focal firm but also for the supplier. If supplier and focal firm can combine their intelligence, they can better please the joint customer (Dutta and Weiss, 1997; Roy, Sivakumar, and Wilkinson, 2004; Shane and Ulrich, 2004).

### Conceptual Framework

To examine the role of suppliers in delivering customer value, we propose a conceptual framework in which the key concepts market orientation and innovativeness are studied both at the supplier and the focal firm. At the supplier, we will concentrate on end-user orientation instead of the general concept of market orientation. Figure 1 outlines the hypothesized relationships between suppliers’ end-user orientation and suppliers’ innovativeness, focal firms’ market orientation and focal firms’ innovativeness, and end-user satisfaction.

Following the RDT, we suggest that a focal firm’s major concern is to satisfy customer demands. A firm will achieve customer satisfaction by allocating firm resources in such a way that the firm can provide a suitable response to its customer (Christensen and Bower, 1996). A market orientation helps a firm identify the

demands imposed on the firm. Innovativeness as a part of the firm’s culture facilitates the continuous delivery of customer value in that customer market (Han et al., 1998). Our conceptual model therefore is consistent with existing research that suggests that market orientation impacts customer satisfaction via innovativeness (Kirca et al., 2005). Next, a focal firm depends on suppliers for resources to fulfill these identified customer demands. When the supplier’s efforts are directed at the same end user, we expect that the focal firm benefits from the supplier’s end-user orientation and thus, tries to control it. A supplier’s end-user orientation impacts its innovativeness. We therefore specify a supplier’s end-user orientation and a supplier’s innovativeness. Our model links the supplier to the focal firm by relating focal firms’ market orientation to supplier’s end-user orientation and supplier’s innovativeness to focal firms’ innovativeness. We also relate supplier’s innovativeness to end-user satisfaction.

Previous researchers have shown that the effects of a market orientation depend upon environmental factors (De Luca, Verona, and Vicari, 2010; Jaworski and Kohli, 1993; Narver and Slater, 1990; Petersen, Handfield, and Ragatz, 2003). As the RDT considers a market orientation as a means to reduce the uncertainty in the environment, this research controls for market turbulence, technology turbulence, and competitive intensity (Jaworski and Kohli, 1993). Moreover, we control for perceived buyer power of the end user. This variable reflects how flexible

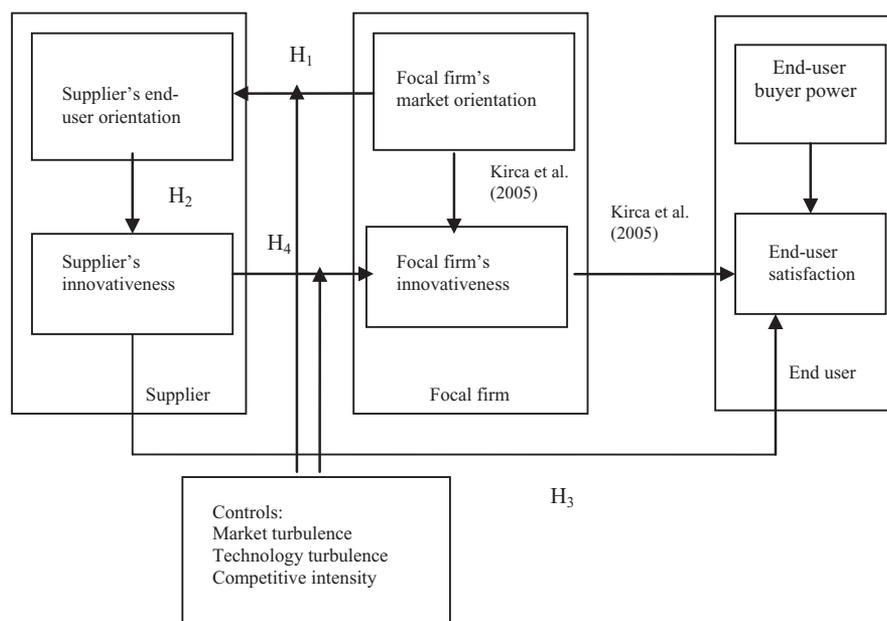


Figure 1. Conceptual Framework of the Study

the focal firm is (as perceived by the end user) in making changes to accommodate the end user's needs (Homburg et al., 2002).

## Hypotheses

We argued how market orientation and innovativeness are positioned in the RDT. Market orientation is about information generation and dissemination (Jaworski and Kohli, 1993), and innovativeness implies a willingness to share information and use it to translate ideas into opportunities that can anticipate ever-changing customer demands (Hurley and Hult, 1998; Maciariello, 2009; Menon and Varadarajan, 1992). In the RDT, we find two mechanisms that guide firm behavior toward market orientation, innovativeness, and establishing supplier relationships. On the one hand, *downstream power* of customers is considered and on the other hand, a firm's *supplier dependence* to respond to these demands (Casciaro and Piskorski, 2005; Handfield, 1993; Sherer and Lee, 2002). We apply the reasoning of downstream power and supplier dependence to understand how market orientation and innovativeness in supply chain relationships affect each other and potentially realize superior end-user value.

### *Downstream Power*

The RDT posits that organizational success is primarily evaluated by the external (downstream) customer. Firms can please the customer by offering competitive value propositions that secure customer satisfaction, customer retention, and thereby customers' financial resources (Christensen and Bower, 1996). A market orientation implies that the firm has an accurate picture of the customer's problems the firm needs to solve by developing opportunities, which respond to current and future demands (Nonaka, 1994).

Let us first take a focal firm perspective. The more market-oriented the focal firm, the more it realizes that it depends on its suppliers to respond to current and future end-user demands. The market-oriented focal firm will increasingly recognize that end user-oriented suppliers are crucial for their success. As a result the focal firm will preferably select suppliers that are end user oriented. They will use their downstream power as a "downstream customer" to force suppliers to increase their end-user orientation.

Moreover, to obtain more favorable exchange conditions and reduce uncertainty in the procurement of needed resources, the focal firm will try to build a strategic align-

ment with its key supplier (Casciaro and Piskorski, 2005). Such alignment at least involves the exchange of strategic information (Klein and Rai, 2009), e.g., information about the end user's needs and requirements.

The same mechanism holds at the supplier. It will also realize that strategic information exchange is necessary to remain a stable money stream from the focal firm and that this also includes information about the end user.

We thus hypothesize:

*H1: Focal firms' market orientation is positively associated with the supplier's end-user orientation.*

We argued before that market orientation has been found to affect the firm's innovativeness. It enhances the diversity of internal market knowledge, and it creates challenges and opportunities for more experimentation and smarter innovation (Han et al., 1998). This has been confirmed in many academic studies (Kirca et al., 2005). Market-oriented firms differentiate from other firms by their proficiency to reveal latent customer needs and their willingness to fulfill current customer needs and to control future demand by exploring new opportunities (Menguc and Auh, 2006).

This also applies to suppliers' end-user orientation. The more end user-oriented the supplier, the more the current and future end-user needs will become clear to the supplier's management. Moreover, the clearer the needs, the more the supplier's management will direct the firm's attention and resource allocation to generate new ideas and to experiment with them with the end-user needs in mind (Handfield, 1993; Olson et al., 1995; Pfeffer and Salancik, 1978; Sirmon et al., 2007).

Therefore, we hypothesize:

*H2: Suppliers' end-user orientation is positively associated with suppliers' innovativeness.*

We will next concentrate on the relationship between the supplier's innovativeness and the end-user satisfaction. We assume that it is not beneficial to the end user to purchase the required offerings fully from the supplier instead of the focal firm. Otherwise, the end user would not have currently dealt with the focal firm. Therefore, we may assume that the supplier has only an indirect relationship with the end user through the focal firm. In that case, the situation is beyond the setting of the RDT, which focuses on dyadic, direct dependencies.

Based on an extended RDT, we assume an extended downstream power mechanism in which the success of the supplier is evaluated by two external downstream customers, the focal firm and the end user. The supplier serves these downstream customers by offering competi-

tive value propositions. We argue that the higher the supplier's innovativeness, the more the supplier is open to new ideas and experiments focused on its downstream customers, i.e., the focal firm and the end user. However, some authors argue that end users need to invest in supporting technology and relationships to be able to acquire, assimilate, transform, and exploit suppliers' new ideas in their working processes (e.g., Malhotra, Gosain, and El Sawy, 2005). Relational investments would allow the end user to become more aware of the supplier's internal capabilities, including its innovativeness (Azadegan, 2011; Klein and Rai, 2009). However, given their indirect relationship, we argue that end users will invest to a lower degree in indirect (second tier) supplier relationships. And therefore, they will value suppliers' innovativeness at a much lower degree. Still we assume the effects of suppliers' innovativeness to be slightly positive. For instance, construction companies (as end user) will not be that interested in and in favor of innovative ideas about unions and pipes of the supplier of the installation company (as the focal firm). They probably would like to leave it to the installation company to judge these ideas and absorb them into the offering to the building company if beneficial. We hypothesize:

*H3: Suppliers' innovativeness is positively associated with end-user satisfaction.*

### *Supplier Dependence*

Finally, the mechanism of supplier dependence comes into play. Very few firms are internally self-sufficient with respect to their critical resources; most of them depend on their suppliers for complementing resources to fulfill customer demands (Heide, 1994; Pfeffer and Salancik, 1978). Firms benefit most from these exchange relationships through intensive information sharing and communication routines that are directed at collaborative value creation (Stock, 2006). Casciaro and Piskorski (2005) argue that the more the supplier and the focal firm perceive a mutual dependence, the more they will exchange critical information.

Complementary resources from suppliers can benefit the internal processes of the focal firm. The more innovative the supplier, the more potential new ideas, opportunities, and innovations are created and flow from the supplier to the focal firm. The focal firm, realizing its dependence on the supplier to fulfill end-user needs, probably allows the ideas and opportunities of the supplier to inspire its own idea- and opportunity-generation process (Lee and O'Connor, 2003).

Thus, we hypothesize:

*H4: Suppliers' innovativeness is positively associated with focal firms' innovativeness.*

In the tradition of RDT, situational factors such as complex and turbulent markets and intense competition determine the extent to which a firm is subject to downstream power and resources dependence. For instance, if customer preferences are uncertain or customer preferences change rapidly, firms will continuously adapt their value proposition in order to satisfactorily cater to customers' changing preferences (Stock, 2006). Likewise, in highly turbulent environments, firms are more dependent on one another for expertise, information, and other resources needed to satisfy uncertain demands (Olson et al., 1995). Therefore, we control for the environmental factors: market turbulence, technology turbulence, and competitive intensity (Jaworski and Kohli, 1993). Moreover, in accordance with the ideas of Homburg et al. (2002), we include the perceived buyer power of the end user as a control variable of end-user satisfaction.

## **Method**

### *Sample and Data Collection*

In order to examine market orientation and innovativeness along multiple firms operating in a supply chain, we collected survey data from three parties operating in a supply chain: a supplier, a focal firm, and a customer. For each group of respondents, we developed a separate questionnaire. The respondents participating in this research were typically executives from companies based in the Netherlands. We selected executives as key respondents for our survey because we deemed them to be the most knowledgeable about the strategic orientations of their firms. Additionally, by surveying executives, we align to the firm-level perspective of the RDT (Pfeffer and Salancik, 1978). We asked participating executives to identify one of their key suppliers and one of their key customers using the following criteria: (1) one of their top three suppliers/customers that (2) are perceived crucial for running business operations of the focal firm. We followed other studies that adopted a supply chain setting (Deshpandé et al., 1993; Farh et al., 1998; Kotabe et al., 2003; Langerak, 2001; Siguwaw et al., 1998) focusing on key rather than average suppliers and customers to increase the reliability of potential supply chain effects (Kotabe et al., 2003).

We recruited executives of the focal firms from the databases of three professional platforms including the

contact details of in total 885 executives: CSR Netherlands (MVO Nederland, 382), VOKA Chamber of Commerce Kempen (400), and buyers' cooperative INKA (103). Because it was likely that not all firms from the databases were directly involved in relationships with suppliers or business-to-business customers, we approached a selected group of executives (528) by telephone and invited them to fill out the questionnaire through a web-enabled survey tool or through a digital survey format by email. We asked them to provide the names and mail addresses of their contact persons at a key supplier and a key customer. We personally contacted the suggested contact persons for participation and sent them an invitation to the web-enabled survey.

In total, 528 executives were contacted for participation. Of them, 182 (34.5%) agreed to participate in the research and received a link or copy to their personal questionnaire. We received 125 (68.7% of the sent questionnaires) completed questionnaires after reminders by email and phone. We obtained contact details of 98 suppliers and 95 customers (53.3% of the participants that received the questionnaire). These 193 contact persons at supplier and customer firms received our questionnaire, and 185 were returned after several reminders. We only included matched chains in our paper, and thus, the final number in this paper was 88 chains with complete data from all three supply chain partners (48.4% of the focal firms that received the questionnaire and thus could lead to matched chains of questionnaires).

The focal firms of these 88 supply chains were operating in manufacturing (36 firms: 40.9%), construction (22 firms: 25.0%), information and communication (11 firms: 12.5%), wholesale and retail trade (7 firms: 7.9%), administrative and support service activities (4 firms: 4.5%), and other industries (8 firms: 9.1%).

We controlled for industry type and found no significant differences in our sample with respect to the dependent variable, i.e., end-user satisfaction. In addition, we compared the weighted average in our sample regarding sales volume and number of employees (245 million Euro; 794 full-time employees) with the weighted average of Dutch industrial statistics (444 million Euro; 899 full-time employees). Small firms seem to be somewhat overrepresented in our sample. To test for possible nonresponse bias, we followed the extrapolation method of Armstrong and Overton (1977) comparing early (half split completed matched questionnaires in one chain) with late responses on end-user satisfaction. The results indicated no significant differences at a 95% confidence interval.

### *Pretest*

A questionnaire served as the primary means for data collection. The original questionnaire was developed in English and translated to Dutch to allow both Dutch focal firms and international supply chain partners to participate in the research. The Dutch version was prepared using the parallel-translation/double translation method (Adler, 1983; Sekaran, 1983). The English questionnaire was translated into Dutch by two independent translators, and two others independently translated the Dutch version back into English. Minor inconsistencies were discussed with all four translators, and the final Dutch questionnaire was slightly modified for meaning.

In our questionnaire, we used existing item scales from literature where possible. This means that only for end-user orientation we developed a new scale inspired on validated scales of market orientation. We pretested the questionnaire to assess the adapted and translated scales. The pretest was conducted in three supply chains by interviewing three focal firms, three suppliers, and three customers. The respondents were asked to fill out the questionnaire and “think aloud” during reading and answering the questions (Hunt, Sparkman, and Wilcox, 1982). The interviews were recorded and carefully monitored by two researchers. The analysis of the pretest interviews resulted in adaptations for wording and instructions. Appendix A provides the measurement scales of the survey construct and the response format (one- to seven-point Likert-type scale).

### *Measures*

*Focal firm variables.* At the focal firm, we assessed the focal firm's market orientation and innovativeness. We apply the market orientation scale of Deshpandé and Farley (1998) who define market orientation by “the set of cross-functional processes and activities directed at creating and satisfying customers through continuous needs assessment” (p. 213). They developed a more parsimonious and managerially oriented scale from three existing market orientation scales for application in a broader study in which interviewing time is short. Our four-item scale included items such as “data on customer satisfaction are spread at all levels in this business on a regular basis” and “we measure customer satisfaction systematically.” In our research, innovativeness is an attitudinal characteristic of the focal firm. We therefore adopted the definition and scale of Hurley and Hult (1998) that measures innovativeness as the notion of openness to new ideas as an aspect of a firm's culture. For

focal firms’ innovativeness, a three-item scale was used including items such as “in our management team we actively seek innovative ideas” and “in our firm, innovation is readily accepted in program/project management.”

*Supplier variables.* At the supplier, we asked for the supplier’s end-user orientation and supplier’s innovativeness. The supplier’s end-user orientation scale was also adapted from Deshpandé and Farley (1998). We reformulated their definition, and items to let suppliers’ end-user orientation encompass all cross-functional processes and activities directed at creating and satisfying the end user through continuous needs assessment. This five-item scale includes items such as “our business activities originate from our customer’s customers (i.e., end user) needs” and “we actively talk with this specific customer about its customers’ needs.” For suppliers’ innovativeness—based on Hurley and Hult (1998)—we used the same three-item scale as presented in the focal firm variables.

*Customer variable (dependent variable).* Few studies on market orientation assess market orientation consequences at the customer. Customer satisfaction though is an appropriate measure for an overall evaluation of a firm’s products and services (Hsieh, Chiu, and Hsu, 2008). In the RDT, customer satisfaction is the most important indicator of a firm’s success (Pfeffer and Salancik, 1978). Consequently, we define end-user satisfaction by “satisfaction that accumulates across a series of transactions of service encounters” (Lam et al., 2004). End-user satisfaction was measured at the customer (end user) by a four-item scale on cumulative satisfaction based on Homburg and Stock (2004). Example items are “we enjoy collaborating with this supplier” and “we are very pleased with additional services this firm delivers.”

For the control variables of the focal firm, we used a subset of the items suggested by Jaworski and Kohli

(1993) that have been applied by several authors (Olson et al., 1995; Stock, 2006). As perceptions of environmental uncertainty guide management’s behavior, we asked the executives at the focal firms to evaluate their perceptions of market turbulence, technology turbulence, and competitive intensity by means of the items provided in Appendix A. As a control variable for the end-user satisfaction, we used buyer power (Narver and Slater, 1990), i.e., the extent to which the end user is in a position to negotiate lower prices from the focal firm.

*Analysis*

Table 1 displays the descriptive statistics and correlations for the constructs in our conceptual model.

We began by purifying our measurement scales by performing an exploratory factor analysis (EFA) using principal component analysis with varimax rotation in SAS 9.2. The analysis was performed for the dependent, mediating, and independent variables. After performing the EFA, we reviewed each construct and deleted items that loaded on multiple constructs or had low item-to-construct loadings. Subsequently, we performed a confirmatory factor analysis (CFA) by maximum likelihood estimation in LISREL 8.8 to check for possible additional adjustments. The CFA was also carried out for the dependent, mediating, and independent variables separately. The measurement models based on the results of the CFA are presented in Table 2.

In Table 2, we also report Cronbach’s alpha, average variance extracted, and composite reliability for each of the five constructs in the sample. The Cronbach’s alpha ranged from .68 to .88, which indicates that they are in the acceptable range (Nunnally, 1978). The average variance extracted ranged from .45 to .61 and the composite reliability from .71 to .86 so they were also acceptable (Fornell and Larcker, 1981). Our measurement models

**Table 1. Descriptive Statistics and Correlation Matrix**

	Mean	Standard Deviation	A	B	C	D	E	F	G	H	Respondent
Supplier’s end-user orientation	5.48	.90									Supplier
Supplier’s innovativeness	5.54	1.00	.19								Supplier
Focal firm’s market orientation	4.68	1.35	.08	.16							Focal Firm
Focal firm’s innovativeness	5.28	1.13	.04	.24*	.24*						Focal Firm
Market turbulence	4.35	1.31	-.08	.01	.32*	.33*					Focal Firm
Technology turbulence	4.84	1.33	.11	.05	.01	.46*	.46*				Focal Firm
Competitive intensity	5.10	1.38	.03	-.04	.25*	-.01	.15	.16			Focal Firm
End-user satisfaction	5.70	.84	-.01	-.06	.06	.24*	-.02	.11	-.06		Customer
End-user buyer power	4.70	1.37	.16	.13	.08	.05	-.10	.11	-.08	.37*	Customer

\*  $p < .05$ .

**Table 2. Confirmatory Factor Analysis Loadings, *t*-values, Cronbach's  $\alpha$ , Average Variances Extracted (AVE), and Composite Reliabilities (CR)**

Construct	Item	Factor Loadings	<i>t</i> -Value	Cronbach's $\alpha$ , AVE, and CR
Supplier's end-user orientation (SEO)	SEO1	.64	6.20	$\alpha = .82$
	SEO2	.59	5.62	AVE = .48
	SEO3	.82	8.45	CR = .82
	SEO4	.70	6.84	
	SEO5	.69	6.78	
Supplier's innovativeness (SINN)	SINN1	.55	4.41	$\alpha = .68$
	SINN2	.50	4.10	AVE = .47
	SINN3	.93	6.20	CR = .71
$\chi^2 = 18.13$ , <i>df</i> = 19, RMSEA = .000, NFI = .93, CFI = 1.00, GFI = .95				
Focal firm's market orientation (MO)	MO1	.40	3.38	$\alpha = .73$
	MO2	.84	8.08	AVE = .45
	MO3	.74	6.97	CR = .75
	MO4	.62	5.76	
Focal firm's innovativeness (INN)	INN1	.57	4.79	$\alpha = .71$
	INN2	.70	5.72	AVE = .45
	INN3	.73	5.94	CR = .71
$\chi^2 = 21.70$ , <i>df</i> = 13, RMSEA = .088, NFI = .87, CFI = .94, GFI = .93				
End-user satisfaction (EUS)	EUS1	.80	8.69	$\alpha = .88$
	EUS2	.89	10.09	AVE = .61
	EUS3	.67	6.84	CR = .86
	EUS4	.84	9.26	
$\chi^2 = 2.23$ , <i>df</i> = 2, RMSEA = .037, NFI = .99, CFI = 1.00, GFI = .99				

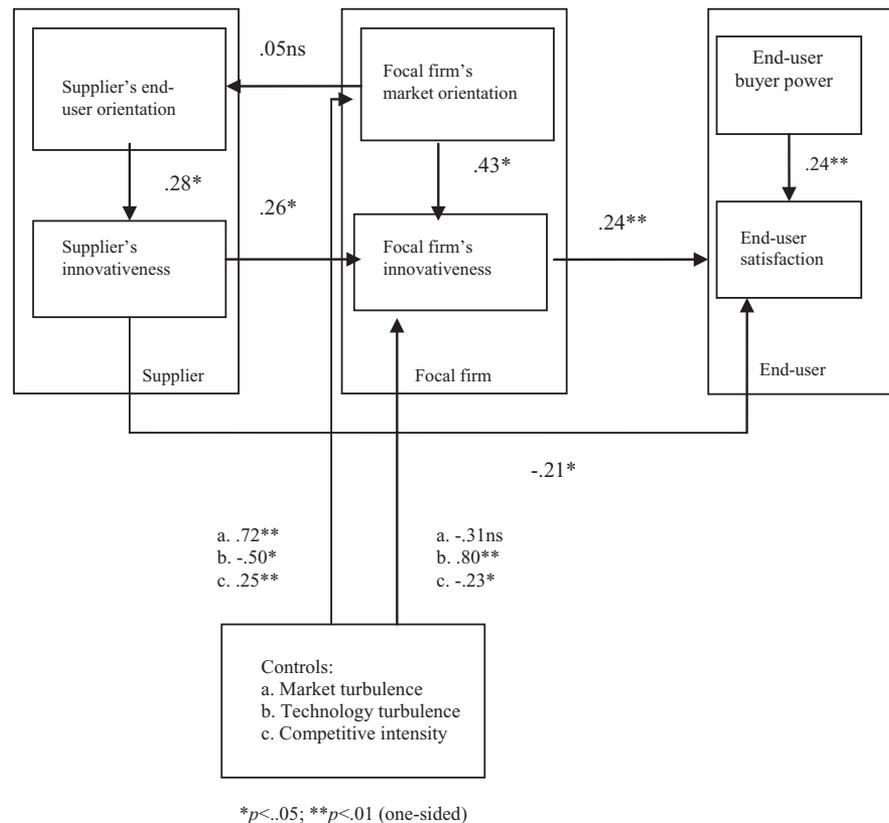
CFI, comparative fit index; GFI, goodness-of-fit index; NFI, normed fit index; RMSEA, root mean square error of approximation.

had a good fit with, respectively,  $\chi^2 = 2.23$ , *d.f.* = 2, root mean square error of approximation [RMSEA] = .037, normed fit index [NFI] = .99, comparative fit index [CFI] = 1.00, goodness-of-fit index [GFI] = .99 for the dependent variable;  $\chi^2 = 21.70$ , *d.f.* = 13, RMSEA = .088, NFI = .87, CFI = .94, GFI = .93 for the mediating variables; and  $\chi^2 = 18.13$ , *d.f.* = 19, RMSEA = .000, NFI = .93, CFI = 1.00, GFI = .95 for the independent variables (Hair, Tatham, Anderson, Black, and Babin, 2006). The scales demonstrate convergent validity because all loadings on the respective constructs are highly significant ( $p < .001$ ), and with one exception, standardized loadings of the items were greater than .5 (Fornell and Larcker, 1981). Additionally, we concluded discriminant validity from the absence of interfactor correlations with a confidence interval containing a value of one ( $p < .01$ ) and insignificance in the Lagrange multiplier test of all item-level correlations between constructs (Kim, Cavusgil, and Calantone, 2006). Examination of the patterns of item–item correlations and item–total correlations indicated that there were no deviations from internal and external consistency. Thus, we conclude that the measurement models adequately fit the data, and the testing of the structural model is appropriate.

Because the market orientation and innovativeness data were gathered from the same source, we tested for

common method bias. We carried out a Harman's single factor test by specifying a hypothesized method factor as an underlying driver of all the indicators (Podsakoff, MacKenzie, Lee, and Podsakoff, 2003). We conducted the test for the two supplier variables and the two focal firm variables. Results of both one factor models appeared to be bad:  $\Delta\chi^2 = 42.32$ ,  $\Delta f = 1$ ;  $\Delta\chi^2 = 49.30$ ,  $\Delta f = 1$  respectively. Because it is known that this test is not very sensitive (Podsakoff et al., 2003), we also conducted a test suggested by Malhotra, Kim, and Patil (2006). They propose to look at the correlation between the manifest variables. The absolute value of the second smallest correlation among these variables provides a conservative estimate for the common method variance. In our data, we could only execute this test for the focal firm variables, as only there we had more than one correlation unequal to 1. The second smallest correlation was the correlation between competitor intensity and focal firms' innovativeness ( $|r| = .01$ ;  $p = .90$ ). Both tests indicate that common method variance is not a major source of variation in the observed items.

In the second step, the structural relations among the constructs were examined with path analysis using the maximum likelihood estimation procedure in LISREL 8.8. We ran the hypothesized model including the control variables. Although the model fit the data well and the fit



**Figure 2. Nonstandardized Path Coefficients (and t-Values) of the Conceptual Model.**

\* $p < .05$ ; \*\* $p < .01$  (One-Sided).  $\chi^2 = 18.04$ , d.f. = 17, Root Mean Square Error of Approximation = .026, Normed Fit Index = .84, Comparative Fit Index = .99, Goodness-of-Fit Index = .96

indices exceeded the acceptable level, several modification indices suggested that the model could be improved. Hence, we reran the path model on the sample with additional paths between the control variables and focal firms' market orientation and focal firms' innovativeness. The path coefficient estimates resulting from this final analysis with control variables are presented in Figure 2. The final model fit was  $\chi^2 = 18.04$ , d.f. = 17, RMSEA = .026, NFI = .84, CFI = .99, GFI = .96.

Finally, we did some robustness checks on our findings. First, results with respect to H1, the relationship between the focal firm's market orientation and the supplier's end-user orientation could depend on the power relationship between the focal firm and the supplier. In an extra analysis, we used the buyer power of the focal firm (as perceived by the supplier) as a moderator of the focal firm's market orientation–supplier end-user orientation relationship. However, the addition of this moderator did not change our findings; the buyer power itself was insignificant ( $\beta$ -coefficient was .07;  $t$ -value was .97), and the interaction term with focal firms' market orientation was also insignificant ( $\beta$ -coefficient was .00;  $t$ -value was

-.08). Second, results with respect to H2, the relationship between supplier's end-user orientation and supplier's innovativeness, could be influenced by common method bias at the supplier. However, as indicated before, Harman's single factor test showed that this is very unlikely. Finally, the results of H4, the relationship between supplier's innovativeness and focal firms' innovativeness, might be driven by the nature of the industry (innovativeness of the industry). Therefore, we did an additional analysis with industry as a control variable of focal firms' innovativeness. Although industry had a significant influence on the focal firm's innovativeness ( $\beta$ -coefficient was  $-.73$ ;  $t$ -value was  $-2.71$ ), our findings remained unchanged.

## Results

The results in Figure 2 partially support our conceptual model. In general, we find that market orientation at each of the supply chain partners influences end-user satisfaction through innovativeness. We found a direct negative relationship between the supplier's innovativeness and

end-user satisfaction. H1 suggested a positive relationship between focal firms' market orientation and supplier's end-user orientation. This relationship was not supported by our findings. H2 related suppliers' end-user orientation to suppliers' innovativeness. This hypothesis was supported with a  $\beta$ -coefficient of .28 ( $p < .05$ ). H3, which suggested a positive relationship between suppliers' innovativeness and end-user satisfaction, was not supported. We found a significant negative relationship between suppliers' innovativeness and end-user satisfaction ( $\beta = -.21$ ;  $p < .05$ ). Finally, H4 suggesting a positive impact of suppliers' innovativeness on focal firms' innovativeness was supported ( $\beta = .26$ ;  $p < .05$ ). Although not explicitly hypothesized in our conceptual model, we found that the relationships from the meta-analysis of Kirca et al. (2005) were confirmed in our sample. We observed a positive association between focal firms' market orientation and focal firms' innovativeness ( $\beta = .43$ ;  $p < .05$ ) and a positive association between focal firms' innovativeness and end-user satisfaction ( $\beta = .24$ ;  $p < .01$ ).

The control variable market turbulence has a positive effect on focal firms' market orientation ( $\beta = .83$ ;  $p < .05$ ). Technology turbulence is negatively related to a focal firm's market orientation ( $\beta = -.61$ ;  $p < .10$ ) and positively related to focal firms' innovativeness ( $\beta = .93$ ;  $p < .05$ ). Competitive intensity though shows a positive association with focal firms' market orientation ( $\beta = .26$ ;  $p < .05$ ) and a negative association with focal firms' innovativeness ( $\beta = -.26$ ;  $p < .10$ ). Finally, end-user buyer power had a positive association with end-user satisfaction ( $\beta = .24$ ;  $p < .01$ ). We may conclude that market orientation is stimulated by changing customer preferences and competitor intensity, in other words by a dynamic market, while technological changes discourage the efforts to keep informed about customers' wishes and needs. Moreover, technological changes stimulate innovativeness of the focal firm, while competitor intensity discourages the openness to new ideas. Probably, firms become more cost-oriented if competition is intense. Finally, in line with the findings of Homburg et al. (2002), end-user buyer power stimulates end-user satisfaction.

## Discussion

The objective of this study was to understand how suppliers support firms to achieve customer satisfaction using market orientation and innovativeness as explanatory variables (Han et al., 1998; Hurley and Hult, 1998; Jaworski and Kohli, 1993; Kirca et al., 2005; Narver and

Slater, 1990). For that purpose, the concept of a *supplier's end-user orientation* was introduced to represent the supplier's activities directed at generating and disseminating end-user information aimed at responding to the customer of the focal firm (in this study called the end user). By doing so, the study clarifies how a supplier's end-user orientation and a supplier's innovativeness relate to the ability of the focal firm to achieve customer satisfaction. Hypotheses were developed applying insights from RDT (Pfeffer and Salancik, 1978).

The results of the study explain how suppliers support a focal firm in achieving end-user satisfaction. End-user satisfaction is, in our model, attributed to focal firms' innovativeness. A focal firm's innovativeness—a firm's continuous attitude for change—depends, on the one hand, on a focal firm's market orientation. On the other hand, a focal firm's innovativeness is positively impacted by a supplier's innovativeness. No relationship could be established between a focal firm's market orientation and a supplier's end-user orientation. Market orientation and end-user orientation, hence, are in the first place enablers of innovativeness within each firm rather than enablers of supply chain collaboration. Innovation, on the contrary, seems to be the crucial enabler in supply chain collaborations. Thus, it seems that a supplier's innovativeness is a driver of focal firms' innovativeness and consequently of end-user satisfaction. However, suppliers' innovativeness appears to have a negative direct impact on end-user satisfaction, so suppliers' innovativeness stimulates end-user satisfaction only through the focal firm's innovativeness.

Overall, our findings support the RDT claim that firms depend on suppliers to enhance value for the customer (Pfeffer and Salancik, 1978). Moreover, we can confirm the effects of focal firms' market orientation and innovativeness on customer satisfaction. These effects remain when the satisfaction is measured at the customer and not at the focal firm. Furthermore, the control variables support the RDT perspective that environmental uncertainty influences the extent to which a firm demonstrates market-oriented behavior and develops an innovative attitude, while the customer buyer power increases customer satisfaction.

Our findings have some important theoretical implications. First, we contribute to the RDT by exploring and testing supply chain relationships based on the theoretical arguments of demand power and resource dependence. Our findings demonstrate a significant relationship for the resource-dependence argument, i.e., suppliers' innovativeness positively affects focal firms' innovativeness. The proposed relationships reflecting downstream power

and the extension of the RDT are only partly confirmed. First, our findings show that one has to be careful by extending the RDT beyond dyadic, direct partnerships, and dependencies. Focusing on a larger part of the supply chain entails a more complex situation with more mechanisms coming into play than are covered in the RDT. More indirect relationships often involve less critical dependencies between partners. In such cases, RDT mechanisms may be less dominant. Second, we support the suggestion of Casciaro and Piskorski (2005) that within the RDT, the downstream power mechanism can hardly be isolated from the supplier dependence mechanism. Actually, the state in a supply chain is a subtle balance between downstream power and supplier dependence. Probably, the dependence on its key supplier does not allow the focal firm to force a strategic alignment with regard to a mutual end-user orientation. Our findings thereby support Chesbrough's claim (Chesbrough, 2003; Chesbrough, Vanhaverbeke, and West, 2006) that the supplier is a valuable, high-potential partner in an *open innovation perspective*, in which firms rely on externally developed as well as internal knowledge to improve innovation and create value (Chesbrough, 2003; Chesbrough et al., 2006; Huston and Sakkab, 2006). While much attention has been drawn to the open innovation perspective, the role of the supplier as a valuable partner to the focal firm has been relatively underresearched. Future research can increase the understanding about the contribution of supplier knowledge and capabilities in an open innovation framework and elaborate on the drivers of supply chain innovativeness and its consequences for product, process, and business innovation.

Second, our findings contribute to the understanding of the role of the *marketing* concept *within* and *beyond* the firm. Our data picture market orientation typically as a within-firm phenomenon affecting innovativeness within the individual firm, but without affecting any other firm in the supply chain, whether it is the supplier or the (business) customer. We interpret these findings as an indication that market orientation and end-user orientation are predominantly enablers of internal firm capabilities rather than concepts that will enforce marketing beyond firm boundaries. Interestingly, we hereby trace back to one of the first definitions of market orientation by Kohli and Jaworski (1990) who state that the market-oriented firm has the *internal* abilities to obtain, diffuse, and utilize customer information to develop innovative offerings that satisfy customer demand (see also Jaworski and Kohli, 1993). Moreover, on the basis of our findings, we can challenge the idea that orientations on the end user among supply chain partners must necessarily fit.

Finally, our results contribute to the field of *supplier relationship management* showing how suppliers affect end users. First, the results indicate that suppliers' innovativeness is an important external source of focal firms' innovativeness. Thus, focal firms have a role to play in developing, identifying, and unlocking supplier knowledge and capabilities (Menon and Pfeffer, 2003). Sirmon and Hitt (2009) suggest that it is a specific managerial capability to initiate and control this process of unlocking the potential value of suppliers, making supplier relationship management a crucial internal resource (Ha and Tong, 2008). Second, our results indicate that the focal firm has to judge the potential new ideas of the supplier for appropriateness to the end user. Direct attempts of the supplier to please the end user appear to have negative effects. Future research should further examine this subtle balance between the supplier, the focal firm, and the end user.

How could practitioners interpret these results? Our study is one of the few that uses multiple supply chain partners to assess suppliers' effects on end-user satisfaction. Our findings therefore provide practitioners with realistic insights on how end-user value is created through linking up with innovative suppliers. For the focal firm, our findings emphasize the importance of innovativeness in satisfying end-user needs. More importantly, innovativeness is not only an effect of market-oriented behavior within the firm but equally depends on the supplier's innovativeness. This means that firms better establish a sophisticated supplier evaluation and selection process that is not so much inspired by transaction costs or prices (Xia, Chen, and Kouvelis, 2008); firms rather must focus on identifying complementary relationships with suppliers that pay attention to downstream customer markets and are willing to share skills, abilities, and financial support in order to create end-user value for the focal firm (Stump and Heide, 1996; Wathne and Heide, 2004; Zenz and Thompson, 2009). A major consequence for practitioners in the field of purchasing and supply management is that they, at first, need to identify adequate and innovative suppliers. Second, after the contract settlement, practitioners need to enable suppliers to share their best and most up-to-date knowledge with the focal firm to embed these supplier insights into the firm's business processes.

The supplying firm has to understand that intelligence of downstream customer markets drives suppliers' innovativeness and allows for providing innovative solutions to their immediate customers. Knowing this, suppliers are able to establish more and stronger relationships by continuously seeking new ideas and embedding them in their

value propositions. Suppliers do not have a direct positive effect on their downstream markets but have the potential to leverage their customers through an end-user orientation. As the supplier pleases the end user only through the focal firm, the supplier can secure its own survival by investing in the well-functioning of the focal firm.

This study is subject to limitations that provide avenues for future research. First, like many studies in a supply chain setting, our study focused on a key supplier and a key customer. That makes our results conservative in the sense that we do not believe that insignificant results in our study will become significant if average partners are examined instead of key partners, but significant results in our study may become insignificant. Moreover and more importantly, our study focused on *one supplier, one focal firm, and one customer*. Although the effort of collecting data at these parties was intense, we have to acknowledge that these supply chains miss the fact that firms work with multiple suppliers and for multiple customers. The same holds true for the supplier and the customer who are also related to multiple supply chain partners. Refinement of the relationships by examining a few focal firms in relation to multiple suppliers and/or customers would be a fruitful next step for future research. It would require a network perspective on supply chain interactions. We do not suggest that the data collection process will be easy, but involving multiple suppliers and customers in the research design is required to further academic understanding of supply chain relationships.

Second, by pioneering with data collection in supply chains, the research addressed the *main effects* between the supplier, the focal firm, and the customer. Supply chain management though seems context-specific. Supply chain relationships, interfirm collaboration, and the level of innovativeness required may be subject to contingencies. Although we controlled for environmental turbulence, industry type, and customer buyer power, contingencies such as type of product or service, production methods (continuous processing, batch, project-based), and information technology infrastructure determine the ways through which firms are able and willing to collaborate with each other. In addition, increasingly important and relevant is the observation that firms interact with each other in multiple roles; as supplier, competitor and/or customer depending on the challenge at hand. The role of a focal firm and a supplier are thus not static. Research in dynamic environments, where dependencies are extremely high, is a next step to understand the contingencies of supply chain relationships.

Finally, this research adopted the RDT and consequently studies all variables at the firm level. With innovativeness demonstrating interfirm effects, future research would benefit from embedding multiple dimensions of innovation. This research could, for instance, address the different types of innovation regarding incremental and radical innovation. Song and Thieme (2009) found that suppliers' market intelligence gathering may have different effects for radical and incremental innovation depending on the stages of the product development process. Future research needs to focus on alternative levels of analysis, for instance at the program or project level.

To conclude, the market pressure that individual firms face is a source for innovation and change. In a global highly competitive business context, it has become increasingly difficult to possess and develop all resources, competences, and capabilities required to respond to end user demands in-house. This paper has shown the strategic relevance to develop relationships with suppliers, especially with those suppliers that are able to anticipate environmental change through innovativeness, to realize superior value for end users.

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## Appendix A

### Customer Variable

End-user satisfaction (taken from Homburg and Stock, 2004) ( $\alpha = .88$ )

Please evaluate the following statements on a scale of 1 (strongly disagree) to 7 (strongly agree).

1. We are very pleased with additional services this firm delivers.
2. We enjoy collaborating with this supplier.

3. The general atmosphere in meetings with this supplier has been positive.
4. On an overall basis, we are satisfied with this supplier.

End-user buyer power (Narver and Slater, 1990)

1. We are in a position to negotiate lower prices from this supplier.

### Focal Firm Variables

Focal firm's market orientation (adapted from Deshpandé and Farley, 1998) ( $\alpha = .73$ )

Please evaluate the following statements on a scale of 1 (strongly disagree) to 7 (strongly agree).

1. Our strategy for competitive advantage is based on our understanding of customers' needs.
2. We measure customer satisfaction systematically.
3. We ask our main customers at least once a year to evaluate the quality of our products/services.
4. Data on customer satisfaction are spread at all levels in this firm on a regular basis.

Focal firm's innovativeness (adapted from Hurley and Hult, 1998) ( $\alpha = .71$ )

Please evaluate the following statements on a scale of 1 (strongly disagree) to 7 (strongly agree).

1. In our firm, it is readily accepted to develop (technical) innovations based on research results
2. In our management team, we actively seek innovative ideas.
3. In our firm, innovation is considered crucial in project management.

Competitive intensity (Jaworski and Kohli, 1993)

1. Competition in our industry is cutthroat.

Market turbulence (Jaworski and Kohli, 1993)

1. In our kind of business, customers' product preferences change quite a bit over time.
2. Our customers tend to look for new products all the time.

Technology turbulence (Jaworski and Kohli, 1993)

1. Technological changes provide big opportunities in our industry.
2. The technology in our industry is changing rapidly.

### Supplier Variables

Supplier's end-user orientation (adapted from Deshpandé and Farley, 1998) ( $\alpha = .82$ )

Please evaluate the following statements on a scale of 1 (strongly disagree) to 7 (strongly agree).

1. Our business activities originate from our customer's needs.
2. We are responsive to our current customer's needs.
3. We know the future needs of the customers of this specific customer.
4. We actively talk with this specific customer about its customers' needs.
5. We are aware of the importance of downstream demand for our competitive advantage.

Supplier's innovativeness (adapted from Hurley and Hult, 1998) ( $\alpha = .68$ )

Please evaluate the following statements on a scale of 1 (strongly disagree) to 7 (strongly agree).

1. In our firm, it is readily accepted to develop (technical) innovations based on research results.
2. In our management team, we actively seek innovative ideas.
3. In our firm, innovation is considered crucial in project management.