The double-edged sword of cultural distance in international alliances—How perceived cultural distance influences trust and task discourse to drive new product development performance

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ABSTRACT

Purpose: While previous studies have primarily assumed dysfunctional effects of cultural distance in joint ventures and M&A, this paper elucidates from a Positive Organizational Scholarship (POS) perspective how perceived cultural distance can advance firms’ new product development (NPD) within non-equity alliances. This paper explains how perceived cultural distance stimulates task discourse that supports alliance partners’ employees in recognizing and applying culture-related differences as complementary problem-solving potentials. Due to a lower integration level in non-equity alliances compared to joint ventures or M&A, this paper assumes that the positive effects outweigh the negative effects of cultural distance.

Design/methodology/approach: This study applies structural equation modeling to test the hypothesized effects on a sample of 246 international alliances in the manufacturing industry.

Findings: The analysis mainly supports the hypothesized model and unravels how positive effects can emerge from perceived cultural distance.

Practical implications: The findings provide managerial implications. Alliance managers should note that cultural distance can have positive and negative effects, and thus it is not a barrier per se in alliances. Firms can benefit from cultural distance if they are able to leverage culture-specific complementarities through task discourse among partners in alliances.

Keywords: alliances, cultural distance, new product development, Positive Organizational Scholarship, task discourse
INTRODUCTION

Previous research on cultural distance questions international alliances’ efficiency and innovativeness. Scholars have argued that international alliances’ inherent cultural distance causes interaction problems, such as mistrust and destructive conflicts (Lyles and Salk, 1996), impeding knowledge exchange (Van Wijk, Jansen, and Lyles, 2008) and decreasing alliance longevity (Barkema and Vermeulen, 1997; Hennart, Kim, and Zeng, 1998; Makino, Chan, Isobe, and Beamish, 2007). Empirical evidence indicating both negative and positive effects of cultural distance (Christoffersen, Globerman, and Nielsen, 2013) has prompted recommendations to examine and rethink the prevailing research. Scholars have theorized the effects of cultural distance from a problem-focused view, while de-emphasizing beneficial effects (Stahl and Tung, 2015). The sparse literature conceptualizing positive outcomes of cultural distance assumes that culture-related differences in inter-organizational relationships result in complementarities and learning opportunities (Björkman, Stahl, and Vaara, 2007; Morosini, Shane, and Singh, 1998; Vaara, Sarala, Stahl, and Björkman, 2012). Nevertheless, research remains vague on the underlying processes of the positive effects of cultural distance in international alliances. This is a crucial research gap, as the learning and combination potentials driven by cultural distance might not automatically bring benefits (Reus and Lamont, 2009). In addition, research on cultural distance has mainly concentrated on joint ventures and M&A that have higher integration levels compared to non-equity alliances. Neglecting non-equity alliances is a serious omission, as empirical evidence indicates that cultural distance is less detrimental under conditions of higher autonomy and lower interdependency within inter-organizational collaborations (Stahl and Voigt, 2008).

Therefore, this paper aims to explain the effects of perceived cultural distance on new product development (NPD) in non-equity alliances. The Positive Organizational Scholarship (POS) lens is applied (Cameron and Caza, 2004) to conceptualize positive effects of cultural distance. Although scholars strongly recommend POS for investigating the effects of cultural distance, previous studies on cultural distance have rarely applied POS (Stahl and Tung, 2015). POS is a frame that draws on different theories to explain positive effects and to investigate the processes that produce them (Cameron and Caza, 2004). The hypothesized model builds on insights from social psychology (Björkman et al., 2007; Turner, 1987) and
integrates the research on inter-organizational learning and complementarities (Grant and Baden-Fuller, 2004; Reus and Lamont, 2009). As theories explaining the effects of cultural distance strongly hinge on the perception of these differences (Shemla, Meyer, Greer, and Jehn, 2016), we build the argumentation of this study on the concept of perceived cultural distance instead of the Kogut and Singh index, which has been criticized in detail (Shenkar, 2001). This paper elucidates that perceived cultural distance stimulates task discourse, referring to open and constructive discourse concerning ideas and opinions about the task being performed. This discourse can enhance firms’ product innovativeness and speed to market in international alliances, as it enables alliance partners’ employees to challenge their opposing positions critically (Tjosvold, Wong, and Feng Chen, 2014) and to develop a better understanding of each other’s different skills, abilities, and knowledge (Hambrick, Li, Xin, and Tsui, 2001), supporting the combination of complementary knowledge.

This optimistic view of cultural distance might be clouded by interactional obstacles driven by perceived cultural distance, hampering task discourse in international alliances. As POS does not reject the examination of negative effects that might disable the positive effects (Cameron, Dutton, and Quinn, 2003), this study integrates the negative perspective of cultural distance into the hypothesized model. By relating to the insights from the social categorization theory, this paper hypothesizes that perceived cultural distance decreases inter-organizational trust. This study further points out that inter-organizational trust supports task discourse and enhances firm’s innovativeness and speed to market through supporting knowledge combination in the alliance. Finally, this study assumes that in the context of non-equity alliances the assumed positive effect of cultural distance will outweigh the assumed negative ones.

Insert Figure 1 about here

The framework of this study was tested through a survey of 246 international alliances in the manufacturing industry, estimating direct and indirect effects by structural equation modeling. The main contribution of this paper is the conceptualization of the underlying processes of the positive effects of perceived cultural distance. By introducing task discourse and knowledge combination as mediating effects, this study advances a clarification of the currently vague argumentation on the beneficial effects of cultural distance.
THEORY AND HYPOTHESES DEVELOPMENT

New Product Development in International Alliances

Alliances are defined as two or more firms’ voluntary and collaborative activities that can have different levels of formalization and institutionalization, ranging from long-term contracts and non-equity to joint ventures (Das and Teng, 2000). This study concentrates on non-equity alliances, as the detrimental effects of cultural distance might diminish in such inter-organizational relationships with lower levels of integration compared to joint ventures or M&A (Stahl and Voigt, 2008). Although non-equity alliances are not an unusual governance mode in international contexts, previous research has mostly concentrated on joint ventures and M&A.

International alliances’ advantage is the access to each other’s complementary resources that are not controlled or available in the firms’ home countries, enabling learning and the development of innovative products (Kim and Inkpen, 2005). Two dimensions of NPD performance are proposed to be critical in alliances (Bouncken and Pesch, 2014): 1) product innovativeness, indicating the relative novelty of benefits for customers compared to competitive products (Lee and Colarelli O'Connor, 2003) and 2) speed to market, referring to the time elapsed between the development of an initial product idea and its ultimate commercialization (McNally, Akdeniz, and Calantone, 2011). Empirical studies have identified several antecedents of NPD performance in alliances (Bouncken and Pesch, 2014; Cousins, Lawson, Petersen, and Handfield, 2011; Nielsen and Nielsen, 2009; Pesch, Bouncken, and Kraus, 2016), but most of this research has concentrated on the national context. Despite the fact that international alliance research emphasizes cultural distance as a crucial context variable (Christoffersen et al., 2013), it remains unclear how cultural distance shapes NPD in international alliances.

Cultural Distance in Alliances

Cultural distance captures differences in values, attitudes, and behavior between two different nations (Kogut and Singh, 1988; Solberg, 2008). Alliance research mainly points out the negative effects of cultural
distance on inter-organizational learning, alliance longevity, and alliance performance (Stahl and Tung, 2015). Although most of these studies provide empirical evidence for the negative effects of cultural distance, some studies show that cultural distance does not have any significant effect or even increases alliance longevity and performance (Christoffersen et al., 2013). The theoretical basis to explain negative effects of cultural distance relies on the social categorization theory (Turner, 1987) and the similarity-attraction theory (Berscheid and Walster, 1978). In contrast, the information and decision-making approach assumes enhanced problem-solving capacity and creativity through cultural differences within cross-border encounters (Williams, Han, and Qualls, 1998). Empirical findings of international M&A studies (Dikova and Rao Sahib, 2013; Saarla and Vaara, 2010) support the logic behind the information and decision-making approach, but little is known about the underlying processes in international alliances and how the positive and negative effects are interrelated with each other.

In addition to the focus on the negative effects of cultural distance, research on cultural distance uses two different measurement approaches: the Kogut and Singh index versus a perceptual approach. Scholars mostly apply the Kogut and Singh index, which offers a simple way to calculate cultural distance, because it averages the variance-corrected differences between Hofstede’s (1984) four national cultural value scores for the countries of interest. However, researchers following this approach compare national cultural values (Sasaki and Yoshikawa, 2014) and thus neglect other cultural dimensions, such as behavior, particularly culture-specific communication behavior (Triandis, 1996). Hall and Hall (1990) have emphasized communication as an important dimension of culture. Communication differs between low- and high-context cultures. Persons from low-context cultures communicate explicitly and in a goal-oriented fashion. Individuals in high-context cultures instead use a great number of contextual elements in communication situations, and the kernel of the communicated meaning is interwoven with the more implicit context of the information (Hall and Hall, 1990). Beyond value focus, research highlights other fundamental limitations of the Kogut and Singh index (Kirkman, Lowe, and Gibson, 2006; Sasaki and Yoshikawa, 2014; Shenkar, 2001; Stahl et al., 2013; Tung and Verbeke, 2010) that are particularly relevant in the alliance context. The Kogut and Singh index does not consider organizational cultural distance, which refers to dissimilarities
among alliance partner’s business practices and institutional heritage (Hofstede, Neuijen, Ohayv, and Sanders, 1990; Simonin, 1999). Research on international alliances stresses that cultural distance among alliance partners includes both national and organizational cultural differences (Makino and Beamish, 1998; Nielsen, 2007; Parkhe, 1991), and that these overlap with each other (Sasaki and Yoshikawa, 2014). National culture shapes the development of shared business practices (Björkman et al., 2007; Hambrick et al., 2001), and organizational culture alters the dynamics of national cultural distance (Shenkar, 2001). As the Kogut and Singh index uses the mean of nations, it cannot capture the specific perceived and experienced cultural distance between alliance firms. In addition, both primary team diversity research (Shemla et al., 2016; van Knippenberg and Schippers, 2006; Zellmer-Bruhn, Maloney, Bhappu, and Salvador, 2008) and alliance research (Pothukuchi, Damanpour, Choi, Chen, and Park, 2002) highlight the value of considering the perceptions of cultural differences as a more promising predictor of processes and outcomes in teams or alliances, since cultural differences might be unlikely to develop an effect if they remain unnoticed by individuals. Consequently, most theories applied to explain the negative or positive effects of cultural differences within or between organizations—such as the social categorization theory or the complementary knowledge and expertise perspective—hinge on the perception of these differences (Shemla et al., 2016).

Following the recommendation of international business research (Kirkman et al., 2006), the argumentation of this study builds on perceived cultural distance. As the objective assessment (the Kogut and Singh index) of cultural distance (the Kogut and Singh index) focuses on value differences, it fails to incorporate other dimensions of cultural distance. Perceived cultural distance measures capitalize on the intricate and multidimensional nature of cultural distance, as they allow researchers to capture both the value and behavior dimension and to consider both interrelated levels of cultural distance (national and organizational). Against this backdrop, the present study investigates how perceived cultural distance affects firms’ product innovativeness and speed to market within international non-equity alliances.

### Positive Lens: Perceived Cultural Distance as Enrichment
The focus of POS is the examination of extraordinary positive processes and relationships that are typically neglected or ignored in organizational contexts (Cameron et al., 2003). Proponents of POS in cross-cultural management suggest that cultural distance fosters synergetic effects through complementarities (Stahl and Tung, 2015). The starting point for the complementarities perspective of cultural distance is the notion that social systems that include diverse members are equipped with a broader range of individual and organizational problem-solving potentials (Mannix and Neale, 2005). Culture-specific differences in individual cognitions scale up to the organizational level, as they affect the development of organizational practices, decision-making processes, and knowledge within organizations (Hambrick et al., 2001). The firm’s cultural background shapes the perception of the business environment and the design and execution of innovation processes (Björkman et al., 2007). Thus, cultural distance makes complementary perspectives and problem-solving approaches in inter-organizational relationships more likely, creating opportunities for arbitrage and creativity (Morosini et al., 1998; Stahl et al., 2013; Zaheer, Schomaker, and Nachum, 2012).

As alliance partners’ employees will have problems understanding the other party’s actions or even disagree on how the other party prefers to operate, the culture-specific perspectives and problem-solving approaches can cause task ambiguity (Kumar, 2014; Simonin, 1999). Culture-specific and contrasting communication behavior (high-context versus low-context), divergent expectations about power distance or risk-taking behavior, and the different perspectives and problem-solving methods—correlating with these value differences—may provoke irritation. This task ambiguity stimulates learning and joint sensemaking processes (Cheung, Myers, and Mentzer, 2011) as alliance partners’ employees enter into task discourse. Task discourse is a communicative practice (Phillips, Lawrence, and Hardy, 2004) that refers to open and constructive discussions concerning ideas and opinions about the task being performed. In alliances, task discourse can occur through medial communication (e.g., phone, email) or in direct co-presence. Task discourse spurs the elaboration of task-relevant information (Shemla et al., 2016) and enhances understanding of the other party’s actions and perspectives. Alliance partners’ employees make sense out of their culture-specific perspectives and create shared interpretations of assumptions through task discourse. Thus, the need for task discourse within international alliances is directly correlated with
increasing levels of perceived cultural distance. In essence, perceived cultural distance breeds and requires task discourse to gain advantages from complementarities.

**Hypothesis 1.** The greater the perceived cultural distance within an international non-equity alliance, the greater the task discourse will be.

Task discourse stimulates knowledge transfer and learning as alliance partners’ employees reflect and explicitly and implicitly share their different perceptions, expertise, and problem-solving methods through discussing these differences (Chen, 2004). They learn about technologies, NPD processes, and the other parties’ organizational routines and knowledge structures as they vigorously challenge their own and the other parties’ positions. Through critical discourse, they develop shared interpretation systems and a better understanding of each other, the alliance, and collaborative NPD processes. For instance, the clash and the critical evaluation of conflicting product design perspectives can result in a fine-grained design understanding and a better and even novel design solution (Parry, Song, and Spekman, 2008). A more comprehensive view of NPD and the alliance supports the recognition of the international alliances’ inherent complementarities and how to apply them effectively. Through task discourse, seemingly insurmountable differences turn out to be beneficial complementarities for developing innovative products. Task discourse further promotes the creativity on which product innovativeness strongly hinges. The discourse stimulates interest, curiosity, and a commitment to develop new ideas and approaches, and it prevents precipitate consensus (Jehn, 1995). Taken together, these elements of task discourse enable the beneficial combination of culture-specific complementarities (Björkman et al., 2007; Zaheer, McEvily, and Perrone, 1998) and thus improves product innovativeness.

**Hypothesis 2a.** The greater the task discourse, the higher the product innovativeness will be within an international non-equity alliance.
Building on the argument that task discourse supports the recognition and realization of complementarities in international alliances, this study assumes that task discourse enables faster task completion. Although task discourse might initially take time, employees learn during this time how to apply their complementary intellectual approaches and knowledge stocks. Challenging each other’s positions stimulates the creation and the refinement of more efficient problem-solving approaches and routines in the alliance, accelerating task completion. Discussing the status quo further speeds up NPD, because employees approach problems early rather than glossing over them (Jehn, 1995). Avoiding the critical discourse can raise serious problems for which the solutions will require effort and time (Lovelace, Shapiro, and Weingart, 2001). Discussions around different culture-related perceptions of alliance and NPD aspects especially support the early detection of problems, enabling the development of a prompt solution. In conclusion, the outcomes of discussions regarding opposing perspectives and approaches make up for the invested time for the discourse and even enable faster task execution.

**Hypothesis 2b.** The greater the task discourse, the higher the speed to market will be within an international non-equity alliance.

Our preceding hypotheses assume that task discourse supports the advantageous combination of complementarities in international alliances. To enrich the model’s explication, knowledge combination was added as a mediating variable between task discourse and NPD performance. Knowledge combination in alliances refers to knowledge-creation processes, including co-experimentation and leveraging each other’s unique but complementary knowledge (Grant and Baden-Fuller, 2004). Empirical studies indicate that combining specialized knowledge in this fashion improves innovation, as it encourages the co-discovery of novel solutions and new connections among product elements in alliances (Bouncken and Kraus, 2013; Grunwald and Kieser, 2007). In international alliances, partners’ culture-specific knowledge about foreign markets and customers supports the development of innovative products that will fulfill customers’ preferences. Combining each other’s specific expertise further promotes faster NPD, as it enables partners to leverage synergetic effects, leading to gains in NPD efficiency. Without knowledge combination, firms
require more time and effort to cope with the different problems occurring in NPD, as they have to develop the missing competencies.

Lubatkin et al. (2001) point out that an understanding of each other’s knowledge in the alliance is a precondition of knowledge combination. Task discourse promotes the development of a deep and broad understanding of the inherent knowledge complementarities in international alliances, as it enables alliance partners’ employees to identify the limitations in their own culture-specific views and to recognize valuable complementarities (Tjosvold et al., 2014). Critically challenging each other’s expertise supports the identification of complementarities and promotes learning on how to combine the specialized knowledge innovatively. In addition, Grunwald and Kieser (2007) emphasize that combining knowledge requires an awareness of who knows what in the alliance, which in turn enables members to contact the right expert when a specific problem occurs. Through task discourse alliance, a partner’s employees can identify the relevant experts and recognize recombination potentials. Thus, task discourse lays the foundation for knowledge combination in alliances, as it supports the localization and understanding of complementarities.

**Hypothesis 3.** Knowledge combination mediates the relationship between a) task discourse and product innovativeness and b) task discourse and speed to market.

**Negative Lens: Perceived Cultural Distance as Impediment**

Proponents of the pessimistic view of cultural distance, however, argue that perceived cultural differences cause affective tensions such as mistrust and stereotyping (Christoffersen et al., 2013) that might hamper task discourse and knowledge combination. Extensive evidence in social psychology shows that individuals tend to associate perceived similarities concerning values and beliefs with attractiveness and trustworthiness (van Knippenberg and Schippers, 2006). The potential for conflicts can increase and trust can erode when firm’s employees perceive that the partner does not share key cultural values (Björkman et al., 2007). Perceived cultural differences often result in the development of in-group versus out-group biases through which employees attribute negative characteristics to the other side, which may generate feelings of suspicion. Drawing on these insights, perceived cultural distance is negatively related to inter-organizational
trust—the extent of the perception of fairness and reliability placed in the partner organization by the members of the focal organization (Zaheer et al., 1998).

**Hypothesis 4.** The greater the perceived cultural distance, the lower the inter-organizational trust will be within an international non-equity alliance.

As open communication strongly depends on trust in alliances (Squire, Cousins, and Brown, 2009), inter-organizational trust is a necessary antecedent for task discourse. If alliance partners’ employees do not feel confident that the other party will refrain from acting opportunistically, they will be more likely to react in a retributive manner rather than engage in open-minded dialogue, as they will see disputes and contradictory opinions as personal attacks (Muthusamy and White, 2005; Zaheer et al., 1998). In a situation of low inter-organizational trust, employees fear the other party might apply their knowledge opportunistically. Inter-organizational trust allows for more honest interaction (Zaheer et al., 1998), encouraging employees to be more open to information exchange (Squire et al., 2009), and thus supports task discourse (Squire, et al., 2009).

**Hypothesis 5a.** The greater the inter-organizational trust, the greater the task discourse will be within an international non-equity alliance.

As inter-organizational trust encourages firms to be more open to information exchange, it may also facilitate the discovery of novel solutions (Nielsen and Nielsen, 2009; Zaheer et al., 1998). In trustworthy relationships, alliance partners feel confident that values will be fairly distributed, trusting the partner will increase the commitment to the alliance (Bouncken, Clauß, and Fredrich, 2016). Inter-organizational trust is positively related to the willingness to make the alliance-specific investments that are required to achieve high innovativeness and speed up NPD. As contracts cannot include all contingencies, complex, risky, and uncertain NPD activities require trustworthy relationships in which the alliance partners do not fear other party’s opportunistic behavior and need not worry about learning races (Khanna, Gulati, and Nohria, 1998). In essence, inter-organizational trust enhances the exchange and combination of complementary resources.
(Squire et al., 2009), enabling the development of creative product solutions and of more efficient and faster inter-organizational NPD processes.

**Hypothesis 5b.** The greater the inter-organizational trust, the higher the product innovativeness will be within an international non-equity alliance.

**Hypothesis 5c.** The greater the inter-organizational trust, the higher the speed to market will be within an international non-equity alliance.

Lubatkin et al. (2001) highlight trust as a precondition of knowledge of combination. Due to bounded rationality, firm’s employees have only a limited potential to understand and evaluate the other party’s specialized knowledge and NPD activities (Grunwald and Kieser, 2007). Without trusting in the other party’s reliability and fairness, the willingness to combine the firm’s own specialized knowledge with the partner will be low (Lui, 2009). High fairness and reliability perceptions will instead create a sense of security that the partner will act cooperatively and will not exploit the firm’s knowledge opportunistically (Dhanaraj, Lyles, Steensam, and Tihanyi, 2004). In addition, knowledge combination is an iterative process, requiring flexible coordination that formal governance structures can rarely achieve (Lui, 2009). Trustworthy relationships support flexible coordination processes (Krishnan, Martin, and Noorderhaven, 2006), enabling the effective and efficient combination of each other’s specialized knowledge.

**Hypothesis 6.** Knowledge combination mediates the relationship between a) inter-organizational trust and product innovativeness and b) inter-organizational trust and speed to market.

**Levels of Integration**

The crucial question is whether the negative aspects of cultural distance outweigh the positive aspects. Empirical evidence indicates that the negative effect of cultural distance is stronger in inter-organizational collaborations with a higher level of integration (Slangen, 2006; Stahl and Voigt, 2008). Lawrence and Lorsch (1967) define integration as “the process of achieving unity of effort among the various subsystems.
in the accomplishment of the organization's task” (p. 4). Integration in inter-organizational relationships refers to the extent of collaborating firms’ autonomy and the interdependencies between them (Luo, 2008; Stahl and Voigt, 2008). M&A and joint ventures have a higher integration level compared to non-equity alliances, due to equity participation, strong operational interdependencies, and closer inter-organizational interaction. Compared to joint ventures or M&A, non-equity alliances are loosely coupled, as they remain legally and physically independent (Luo, 2008).

Cultural frictions become more likely under a high integration level, as extensive interaction and high operational interdependencies create a breeding ground for social categorization processes and culture-related conflicts. Additionally, the fear of losing the invested capital in the firm or joint venture increases the potential of escalating cultural-related conflicts that negatively affect the perception of the trustworthiness of the other party, undermining the realization of complementarities. Due to greater autonomy and lower levels of intensive face-to-face interaction, the potential for social categorization processes and escalating cultural tensions is lower in inter-organizational relationships with lower integration levels (Slangen, 2006). Non-equity alliances restrain the detrimental effect of cultural distance and enable the access and combination of alliance partner’s culture-specific knowledge, with a low risk of escalating cultural frictions.

**Hypothesis 7.** The assumed positive effect of perceived cultural distance outweighs the assumed negative effect of cultural distance in international non-equity alliances.

**METHOD**

**Sample and Procedure**

This study draws on a survey of 246 international alliances by firms in the global manufacturing industry. Forty-two research assistant teams visited three worldwide leading manufacturing trade fairs to identify key informants to participate in a paper and pencil survey about non-equity NPD international alliances. This approach has two main advantages. First, trade fairs offer a unique opportunity to make personal contact with top and middle managers. In personal dialogues with these managers, the research assistant teams asked
them to evaluate their knowledge about their firms’ international alliances. If the contacted person was not knowledgeable about their firm’s alliances, the teams asked them to recommend a colleague that was involved in and competent regarding the firm’s international alliances. Second, international trade fairs bring top and middle managers of a specific industry from all over the world together and thus permit the creation of a sample that is not limited to a specific national context. The selected fairs included around 12000 exhibitor firms from all over the world, from which the teams randomly asked 2500 firms to participate in this survey. A result report was promised to all participants to increase participation. The study included 290 key informants. Additionally, secondary data sources were used (the Amadeus and Hoppenstedt databank) to track firms’ employee numbers. World Bank data were also applied to calculate the economical distance, and data from Google maps were used to calculate the geographical distance between the capitals of both alliances partners’ countries. Due to missing values, the final sample consists of 246 international alliances. Thirty percent of the respondents of the final sample were CEOs or members from the management board. The other respondents hold different functions in middle management (R&D, production, purchasing, marketing, and sales). No significant differences in the alliance performance evaluation among the different positions exist.

The manufacturing firms of the sample were drawn from the industrial automation, technology, and supply industries (including factory and process automation, materials processing, lightweight construction, and packaging production). The firms in the sample have the following characteristics: The average previous year’s sales volume was about $111.15 million (median: $13.61 million), achieved with an average of 474 employees (median: 55 employees). The participating firms originated from all over the world; 82.52% were from Europe (mostly West and South Europe, especially Germany, Italy, and Great Britain), 12.21% from Asia (mostly China and India), 4.47% from America (United States), 0.40% from Africa (Egypt), and 0.40% from Australia. Firms’ alliance partners were also dispersed around the world; 58.54% were from Europe (mostly Germany, France, and Italy), 21.55% from Asia (mostly China, Japan, and India), 19.10% from America (mostly the United States), 0.40% from Africa (South Africa), and 0.40% from Australia. Most of the alliances in the sample (48.78%) were between firms from European countries. The data set
also comprises American-European alliances (21.55%), closely followed by Asian-European alliances (20.74%). The rest of the alliances were Asian-Asian alliances (5.28%), American-Asian alliances (2.03%), African-European alliances (0.81%), and Australian-Asian alliances (0.81%).

**Controlling for Endogeneity**

One potential risk is that the results might be biased by endogeneity issues, such as common method variance, measurement error, or omitting variables (Antonakis, Bendahan, Jacquart, and Lalive, 2014). In multiple ways, this study tried control such biases through the research design and via several analyses.

*Common method variance.* Several authors have pointed out that research tends to exaggerate the problem of common method variance (Schaller, Patil, and Malhotra, 2015). Nevertheless, to minimize the potential risk of statistically biased conclusions due to this problem, this study relied on the following recommendations: to reduce both the evaluation apprehension and the social desirability effect, the survey teams assured all respondents of complete anonymity and confidentiality during the empirical process (Podsakoff, MacKenzie, Jeong-Yeon, and Podsakoff, 2003), and to avoid item ambiguity, careful attention was paid to the wording of items (Tourangeou, Rips, and Rasinski, 2000). In addition, Siemsen, Roth, and Oliveira (2010) point out that the likelihood of effect inflation through common method variance is unlikely in complex models that include indirect or interaction effects. To check whether common method variance is a serious problem in this study, a latent method factor on which all perceptual indicator variables were loaded was added to the model (Podsakoff et al., 2003). The results indicated no substantial differences in path significance between the model without the latent method factor and the model with the latent method factor. Thus, common method variance seems not to be a serious problem in this study.

*Measurement errors.* Measurement errors are a further source of endogeneity problems. To control for measurement errors, this study applies structural equation modeling for hypothesis testing; that “is the method of choice to treat measurement error in latent constructs” (Antonakis et al., 2014, p. 104).

*Omitting variables.* Omitted variables might also cause endogeneity problems. Alliance interaction characteristics and other types of distance might be potential sources of endogeneity in the context of the
perceived cultural distance/performance relationships. To limit this risk, alliance experience, interaction frequency, and geographical and economical distance were inserted as covariates in the model.

**Measures**

The study measures perceived cultural distance, task discourse, knowledge combination, product innovativeness, and speed to market as latent variables operationalized on five-point Likert-type scales (see Table I). All these reflective measurement models relate to a firm’s international non-equity NPD alliance, about which key informants were well informed.

**Perceived cultural distance.** Perceived cultural distance has been widely operationalized by one to three items which directly ask respondents to state the degree of the perceived cultural distance within the alliance (Luo, Shenkar, and Nyaw, 2001; Simonin, 1999; Solberg, 2008). For a more sophisticated operationalization, this study measured perceived cultural distance with four items that capture cognitions and communicative behavior as well. This measure underlies a reflective measurement model logic, as the four items have the same antecedents and consequences and high positive inter-item correlations (Coltman, Devinney, Midgley, and Venaik, 2008; Jarvis, MacKenzie, and Podsakoff 2003). Empirical results support this assumption, as the correlations between these four items range from 0.39 to 0.61. To measure the communicative dimension of cultural distance, this study applied the divergent communication scheme scale, including two items that ask key informants to evaluate the degree of perceived differences of (1) context orientation and (2) directness of communication between the collaborating firms (Bouncken and Pesch, 2014). To capture the cognitive dimensions, respondents were asked to evaluate the difference regarding (3) power distance and (4) uncertainty avoidance. Research emphasizes that power distance and uncertainty avoidance are the decisive dimensions of culture in organizations, as they influence hierarchical structures, control, and risk-taking behavior (Erramilli, 1996; Hofstede, 1989; Shenkar, 2001). An empirical seminar with master students about cultural distance was conducted to pre-test this scale. Students asked over 200 middle managers about a specific international alliance and the perceived cultural distance. After
the pre-test, a fifth item about parallel or more sequential task completion was dropped, because the students observed the respondents’ confusion over this.

**Task discourse.** Task discourse, referring to open and constructive discussions concerning ideas and opinions about the task and its solutions, is a communicative practice through which alliance partners’ employees try to make sense (Phillips et al., 2004). To measure task discourse, this study modifies Mooney et al.’s (2007) cognitive conflict scale. Mooney et al. operationalized cognitive conflicts as debates and joint discussions on the team level. This study reformulates three of their items by concentrating on the aspect of joint discussions and adding the aspect of openness. The three items of the task discourse scale measure the regularity and openness of discussing different ideas, opinions, procedures, and processes within the alliance.

**Inter-organizational trust.** Trust involves multiple dimensions that vary according to the specific research context. Fairness and reliability are two dimensions that are particularly relevant to the international alliance context, as both are prerequisites for the openness and accessibility that enable interaction in international alliances (Lane, Salk, and Lyles, 2001). To measure inter-organizational trust, this study applies Zaheer’s et al. (1998) scale, including three items: one item addressed the fairness aspect of trust, one reflected the reliability component of trust, and one directly addressed the partner’s trustworthiness.

**Knowledge combination.** The idea behind knowledge combination is gaining advantages from alliance partners’ complementary knowledge through integrating and recombining knowledge complementarities (Grant and Baden-Fuller, 2004; Grunwald and Kieser, 2007). To measure knowledge combination, this study applies an established scale that includes three items that capture knowledge complementarities and the knowledge combination ability within the alliance (Bouncken and Kraus, 2013).

**Firms’ product innovativeness and speed to market within international alliances.** This study uses product innovativeness and speed to market to measure a firm’s NPD performance within a specific alliance. The product innovativeness scale refers to Lee and Colarelli O’Connor (2003) and examines the novelty and uniqueness of new products that are developed in the alliance. A firm’s speed to market within an alliance
refers to the relative speed of NPD compared with (1) other firms’ projects, (2) those of the firm’s main competitors, and (3) those in its industry (Rindfleisch and Moorman, 2001; Liao, Fei, and Chen, 2007).

**Controls.** On the firm level, this study controlled for firm size, because a firm’s capability to adapt to environmental change depends on its size (Hannan and Freeman, 1984). The logarithm of each firm’s number of employees was calculated to measure firm size. Firms’ general experience with alliances was added to the model, as greater alliance experience is associated with higher interaction quality (Rahman and Korn, 2014). On the alliance level, interaction frequency and alliance duration were considered as control variables. Frequent interaction supports knowledge exchange (Lawson, Petersen, Cousins, and Handfield, 2009) and improves collaborative NPD processes (Bouncken and Pesch, 2014). To measure interaction frequency, key respondents were asked how often they had previously collaborated with the alliance partner (never, seldom, and frequently). As alliances are dynamic, and their processes and outcomes can change over time (Das and Teng, 2002), this study also controls for the effects of alliance duration. Alliance duration was calculated as the logarithm of the number of months the alliance partners worked with each other. This study further controlled for geographical and economical distance, which assures that effects of cultural distance are not caused by geographical and economical distance interwoven with cultural distance. This study calculated geographical distance as the logarithm of the kilometers between the capitals of both parties. To measure economical distance, the logarithm of the difference between countries’ gross domestic product per capita was calculated based on World Bank data.

**Reliability and Validity of Measures**

Confirmatory factor analysis (CFA) validates the applied measurement model. The goodness-of-fit indices, which test the correspondence of the predicted from the proposed model, all indicated a very good model fit, with chi-square value=164.079 (df:137) CFI=0.987, RMSEA=0.028, and SRMR=0.037. Additionally, reliability and convergent and discriminant validity were checked. On the basis of the CFA composite reliability and the average variance extracted (AVE) were calculated. Due to the limitations of Cronbach’s alpha, this study applied composite reliability to test the reliability of the constructs (Cho and Kim, 2014).
To assume construct validity, Hair et al. (2010) suggest assessing the indicator loadings, the AVE, and the composite reliability (CR). All standardized loadings are greater than 0.6, the AVE of the constructs exceeds 0.5, and the CR is greater than 0.8, indicating adequate construct validity (see Table I). To assess discriminant validity, the Fornell-Larcker criterion was applied. Discriminant validity as the conceptual distinctiveness of measurement models is warranted in this study, as the square roots of the latent variables’ AVE exceeded the correlations with the other latent variables of the hypothesized model (see Table II).

\[ \text{Insert Table I about here} \]

\[ \text{Insert Table II about here} \]

The heterotrait-monotrait ratio was also applied to check discriminant validity, which takes into account the current debate about the limitations of the Fornell-Larcker criterion (Henseler, Ringle, and Sarstedt, 2015). All calculated ratios are below 0.85 and thus show good discriminant validity (Kline, 2011).

**RESULTS**

**Hypotheses Testing**

This paper examines how perceived cultural distance influences NPD performance through task discourse and knowledge combination. To test the hypotheses, this study applied structural equation modeling with the maximum likelihood estimation method by using Mplus 7.

\[ \text{Insert Table III about here} \]

The goodness-of-fit indices for all structural models indicated a good fit (χ²/df≤1.20; CFI≥0.98; RMSEA≤0.03; SRMR≤0.04). The results of model I (see table III) indicate that perceived cultural distance has a significantly positive association with task discourse (β=0.16, p<0.05), supporting hypothesis 1, while the effect on inter-organizational trust is insignificant, and thus hypothesis 4 is not supported. Task discourse has a significant positive association with product innovativeness (β=0.29, p<0.01), supporting hypothesis 2a. The results do not support hypothesis 2b, as the relationship between task discourse and speed to market
is insignificant. Hypothesis 5a assumes that inter-organizational trust supports task discourse. This hypothesis finds empirical support, as the association between inter-organizational trust and task discourse is significantly positive ($\beta=0.33$, $p<0.001$). Hypothesis 5c is also supported; the association of inter-organizational trust with speed to market is significantly positive ($\beta=0.20$, $p<0.05$). The relationship between inter-organizational trust and product innovativeness is, however, insignificant. The second model tested the mediation effect of knowledge combination by following Baron and Kenny’s (1986) mediation test approach. The results indicate that both task discourse ($\beta=0.41$, $p<0.001$) and inter-organizational trust ($\beta=0.32$, $p<0.001$) have a significantly positive effect on knowledge combination. The results further show that knowledge combination has a significantly positive relationship with both product innovativeness ($\beta=0.54$, $p<0.001$) and speed to market ($\beta=0.22$, $p<0.01$). As the indirect effect of task discourse on product innovativeness is significantly positive ($\beta=0.22$, $p<0.001$), and the direct effect of task discourse on product innovativeness becomes insignificant, knowledge combination fully mediates the effect of task discourse on product innovativeness. However, knowledge combination does not mediate the relationship between task discourse and speed to market, as the direct effect of task discourse on speed to market is insignificant in model I. The same accounts for the relationship between inter-organizational trust and product innovativeness, even though the indirect effect of inter-organizational trust on product innovativeness is significantly positive ($\beta=0.27$, $p<0.001$). Instead, knowledge combination fully mediates the relationship between inter-organizational trust and speed to market. The indirect effect of inter-organizational trust on speed to market is significantly positive ($\beta=0.09$, $p<0.1$) and the direct effect of inter-organizational trust on speed to market becomes insignificant. Thus, the mediation of knowledge combination is supported for the relationship between task discourse and product innovativeness and for the relationship between inter-organizational trust and speed to market.

---

Insert Figure 2 about here

---

Hypothesis 7 assumes that the positive effect of cultural distance outweighs the negative effect of cultural distance. The results show that the effect of perceived cultural distance on task discourse is significantly
positive while the assumed negative effect on inter-organizational trust is insignificant. To develop a deeper understanding, this study compares the positive indirect effects of perceived cultural distance on product innovativeness and speed to market with the assumed negative indirect effects of perceived cultural distance via trust on new product development performance. To compare indirect effects with assumed opposite directions, Lau and Cheung (2012) suggest the calculation of the total of the indirect effects. The total indirect effect is the sum of all indirect effects between an independent and dependent variable (Muthén and Muthén, 1998-2010). The total indirect effect of perceived cultural distance on product innovativeness in model II consists of six specific indirect effects and is significantly positive ($\beta=0.05$, $p<0.1$). The total indirect effect of perceived cultural via trust on product innovativeness is however insignificant. Thus, the results partially support the assumption that the assumed positive effect of perceived cultural distance on new product development performance (via task discourse) outweigh the assumed negative effect of perceived cultural distance (via trust) in non-equity alliances.

**Supplementary Analysis**

To check how the Kogut and Singh index relates to the perceptual measure and how the results might differ between both approaches, the correlation between the perceptual cultural distance measure and the Kogut and Singh index was calculated, and the structural equation model was tested with the Kogut and Singh index instead of the perceptual measure. Although the significant and positive correlation ($r=0.16$; $p<0.05$) between the perceptual measure and the Kogut and Singh index indicates that cultural distance between nations is perceived within the specific alliance context, this result also shows that the average of the differences between value scores does not capture the perceived cultural distance in a specific alliance. In addition, the results indicate that national cultural distance has a significant relation with neither task discourse nor inter-organizational trust. This finding supports the argumentation that the effects of cultural differences strongly depend on their perception (Pothukuchi et al., 2002; Shemla et al., 2016; Zellmer-Bruhn et al., 2008).
DISCUSSION

The ongoing research on cultural distance in alliances currently reflects a predominance of the Kogut and Singh index and the problem-focused view conceptualizing negative effects. Empirical results of previous studies reveal both dysfunctional and beneficial effects of cultural distance (Christoffersen et al., 2013). Although a growing number of scholars emphasize that cultural distance is a double-edged sword in inter-organizational relationships (Björkman et al., 2007; Reus and Lamont, 2009; Stahl and Voigt, 2008), the literature still remains unclear on the topic of the underlying processes that lead to positive effects of perceived cultural distance. To redress this imbalance in theory, this study applies POS on cultural distance. Stahl and Tung (2015) suggest POS as a “fresh lens” through which cultural differences can receive a “fair share of rigorous and systematic investigation” as a positive phenomenon. By arguing that perceived cultural distance stimulates task discourse, this study is related to the idea that cultural distance is associated with complementary perspectives, interpretations, and knowledge, creating learning and combination opportunities (Björkman et al., 2007; Zaheer et al., 1998). The hypothesized model extends previous research, as it shows the underlying mechanisms leading to the positive effects of perceived cultural distance. In so doing, this study follows the recommendation to refer to “perceived” cultural distance (Kirkman et al., 2006), as theories explaining the positive and negative effects of cultural distance hinge on the perception of these cultural differences (Shemla et al., 2016). Interestingly, perceived cultural distance does not negatively influence trust perceptions. The specific alliance context (non-equity) of this study might be one explanation for this finding. Due to the lower level of integration in non-equity alliances, the potential for destructive social categorization processes is lower compared to joint ventures and M&A. The absence of a negative relationship between perceived cultural distance and inter-organizational trust is in line with previous empirical findings, indicating that the destructive effects of cultural distance depend on the integration level in inter-organizational relationships (Slangen, 2006; Stahl and Voigt, 2008). This study concentrates on non-equity alliances, but it also provides valuable insights for international joint venture and M&A research. Introducing task discourse and knowledge combination as the underlying mechanisms of the positive effects of cultural distance unravels
the question of how firms in international joint ventures or M&A can realize combination potentials that are associated with cultural distance (Reus and Lamont, 2009).

This study further relates to research on inter-organizational learning—particularly on knowledge combination (Grant and Baden-Fuller, 2004; Grunwald and Kieser, 2007)—by highlighting the importance of task discourse and trust in international learning contexts. In addition, the results complement the research on divergent communication in NPD alliances that reveals ambivalent effects of divergent communication among alliance partners’ employees on NPD performance (Bouncken and Pesch, 2014; Pesch et al., 2016).

However, previous studies have neglected the international alliance context, in which inter-organizational communication differences are likely to be intermingled with cultural value differences and also to be greater compared to national alliances due to culture-specific communication behavior.

The findings also provide managerial implications. Alliance managers should note that cultural distance can have positive and negative effects, and thus it is not a barrier per se in alliances. Firms can benefit from cultural distance if they are able to leverage culture-specific complementarities through task discourse among partners in alliances. To utilize complementary perceptions, interpretations, and knowledge, alliance managers should not avoid task disagreement but rather promote task discourse to gain advantages. Due to geographical distance, international alliances often include virtual work characterized by asynchronous and temporary interactions (Wilson, O'Leary, Metiu, and Jett, 2008), complicating interaction and demanding specific practices and abilities that enable task discourse under such circumstances. The empirical results reveal some information about the antecedents of task discourse. The control effects show that alliance experience ($\beta=0.19$, $p<0.05$) and interaction frequency ($\beta=0.38$, $p<0.001$) have a significantly positive relationship with task discourse. With greater alliance experience, firms have learned how to communicate and cope with criticism in alliances. Interaction frequency is another crucial antecedent of task discourse; without frequent interaction—regardless of whether it is virtual or face-to-face—the communication opportunities in alliances will be low. Firm size, alliance duration, and geographical and economical distance, however, have no significant effect on task discourse. In addition, task discourse in international alliances will specifically require employees that are able and willing to enter into discourse with each other.
in an intercultural and often virtual work setting. This is not only a recruiting issue; firms can promote employees to develop intercultural competencies and discourse abilities.

Despite the empirical findings and managerial implications, this study has several limitations. As the sample consists only of firms from the manufacturing industry, it is hard to generalize the results. Furthermore, the findings rely on data from only one side of the alliance. The use of respondents from both sides of the dyad was not practicable due to the size of the sample and the anonymity of the alliance partner. However, surveying only one key informant is an accepted and often used approach in alliance research (Mjoen and Tallman, 1997). A further limitation might be the subjective measure of firms’ NPD performance in alliances. An objective alternative would be the number of developed patents in the alliance. This alternative was not suitable for this study, as the number of patents gives no information about the economic success and the efficiency of NPD. In addition, there was no access to data about the number of patents that were developed in a specific alliance. Contingency factors that shape the effect of perceived cultural distance on task discourse and inter-organizational trust might be a further limitation. Results of a post-hoc analysis reveal that the six control variables do not moderate the relationship between perceived cultural distance and task discourse and between perceived cultural distance and inter-organizational trust. Future research might investigate other relevant contingency factors, such as contractual governance or employees’ intercultural competencies, to advance the understanding of the effects of perceived cultural distance in alliances.
References


### Table I: Convergent and discriminant validity

<table>
<thead>
<tr>
<th>Items</th>
<th>Standard. Factor Loadings</th>
<th>Indicator Reliability</th>
<th>Composite Reliability</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Perceived cultural distance:</strong> Compared to us the alliance partner…</td>
<td></td>
<td></td>
<td></td>
<td>0.80</td>
</tr>
<tr>
<td>… has different context use in communication (more task-oriented or associated with more context information).</td>
<td>0.71</td>
<td>0.51</td>
<td></td>
<td></td>
</tr>
<tr>
<td>… has different communication directness (things are either addressed more directly or more indirect/paraphrased).</td>
<td>0.64</td>
<td>0.42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>… has different power distance: characterized by a higher / lower power differential between hierarchial levels.</td>
<td>0.73</td>
<td>0.54</td>
<td></td>
<td></td>
</tr>
<tr>
<td>… has different uncertainty avoidance/risk adversity (extent to which information is collected or rules used).</td>
<td>0.74</td>
<td>0.54</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Product innovativeness:</strong> In the collaboration our new products…</td>
<td></td>
<td></td>
<td></td>
<td>0.81</td>
</tr>
<tr>
<td>… incorporate technology that was new to customers.</td>
<td>0.76</td>
<td>0.57</td>
<td></td>
<td></td>
</tr>
<tr>
<td>… offer benefits that were new to the customers.</td>
<td>0.76</td>
<td>0.58</td>
<td></td>
<td></td>
</tr>
<tr>
<td>… introduce many completely new features to the market.</td>
<td>0.78</td>
<td>0.60</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Speed to market:</strong> In the collaboration our new products are developed and launched …</td>
<td></td>
<td></td>
<td></td>
<td>0.88</td>
</tr>
<tr>
<td>… faster than our typical product development speed.</td>
<td>0.76</td>
<td>0.57</td>
<td></td>
<td></td>
</tr>
<tr>
<td>… faster than our major competitor.</td>
<td>0.87</td>
<td>0.76</td>
<td></td>
<td></td>
</tr>
<tr>
<td>… faster than the industry norm.</td>
<td>0.90</td>
<td>0.81</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Knowledge combination:</strong></td>
<td></td>
<td></td>
<td></td>
<td>0.88</td>
</tr>
<tr>
<td>Our and our partners’ knowledge greatly complements each other.</td>
<td>0.83</td>
<td>0.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>We gain advantage with our partner by combining our knowledge.</td>
<td>0.87</td>
<td>0.76</td>
<td></td>
<td></td>
</tr>
<tr>
<td>We and our partners are good at combining our knowledge in order to solve problems quickly.</td>
<td>0.83</td>
<td>0.69</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Task discourse:</strong></td>
<td></td>
<td></td>
<td></td>
<td>0.86</td>
</tr>
<tr>
<td>We regularly discuss different ideas regarding the common approach with our partner.</td>
<td>0.83</td>
<td>0.69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Different ideas and opinions are openly expressed in the collaboration.</td>
<td>0.80</td>
<td>0.63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>We discuss regularly the appropriate design of procedures and processes with our partner.</td>
<td>0.84</td>
<td>0.70</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Inter-organizational trust:</strong></td>
<td></td>
<td></td>
<td></td>
<td>0.87</td>
</tr>
<tr>
<td>Our partner keeps promises made to our firm.</td>
<td>0.82</td>
<td>0.67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Our partner is always trustworthy.</td>
<td>0.93</td>
<td>0.87</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Our partner has always been evenhanded in its negotiations with us.</td>
<td>0.75</td>
<td>0.56</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All factor loadings are significant (t > 3.1 and p < 0.001 respectively).
<table>
<thead>
<tr>
<th>Construct</th>
<th>Mean</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Size</td>
<td>474.26</td>
<td>2254.55</td>
<td>n/a</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Experience</td>
<td>2.94</td>
<td>1.19</td>
<td>0.08</td>
<td>n/a</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Duration</td>
<td>112.81</td>
<td>96.25</td>
<td>0.07</td>
<td>0.04</td>
<td>n/a</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Interaction frequency</td>
<td>3.81</td>
<td>1.06</td>
<td>0.19**</td>
<td>0.25***</td>
<td>0.13*</td>
<td>n/a</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Geographical distance</td>
<td>3696.85</td>
<td>3311.98</td>
<td>-0.10†</td>
<td>0.03</td>
<td>-0.15*</td>
<td>-0.13*</td>
<td>n/a</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>6</td>
<td>Economical distance</td>
<td>20870.78</td>
<td>16556.42</td>
<td>-0.03</td>
<td>0.04</td>
<td>0.00</td>
<td>-0.07</td>
<td>0.19**</td>
<td>n/a</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Cultural distance</td>
<td>3.15</td>
<td>0.57</td>
<td>0.02</td>
<td>0.03</td>
<td>0.03</td>
<td>0.06</td>
<td>0.10</td>
<td>0.08</td>
<td>0.71</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Task discourse</td>
<td>3.64</td>
<td>0.82</td>
<td>0.21***</td>
<td>0.28***</td>
<td>0.04</td>
<td>0.60***</td>
<td>-0.12*</td>
<td>0.01</td>
<td>0.18*</td>
<td>0.82</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Trust</td>
<td>3.94</td>
<td>0.75</td>
<td>0.09</td>
<td>0.10</td>
<td>0.07</td>
<td>0.46***</td>
<td>-0.18**</td>
<td>-0.07</td>
<td>0.03</td>
<td>0.57***</td>
<td>0.84</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Combination</td>
<td>3.81</td>
<td>0.70</td>
<td>0.09</td>
<td>0.18**</td>
<td>0.02</td>
<td>0.53***</td>
<td>-0.09</td>
<td>0.02</td>
<td>0.08</td>
<td>0.67***</td>
<td>0.58***</td>
<td>0.84</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Innovativeness</td>
<td>3.53</td>
<td>0.67</td>
<td>0.12*</td>
<td>0.20**</td>
<td>-0.02</td>
<td>0.34***</td>
<td>-0.06</td>
<td>0.05</td>
<td>0.14†</td>
<td>0.42***</td>
<td>0.29***</td>
<td>0.57***</td>
<td>0.77</td>
</tr>
<tr>
<td>12</td>
<td>Speed to market</td>
<td>3.20</td>
<td>0.66</td>
<td>0.15*</td>
<td>0.29***</td>
<td>-0.06</td>
<td>0.22**</td>
<td>0.01</td>
<td>-0.06</td>
<td>0.18*</td>
<td>0.28***</td>
<td>0.27***</td>
<td>0.34***</td>
<td>0.68***</td>
</tr>
</tbody>
</table>

n=246

Diagonal elements (in bold) are square roots of the AVE values. Off-diagonal elements are the correlation between variables.

†p <0.1
*p <0.05
**p<0.01
***p< 0.001, two-tailed t-test
### Table III: Structural parameters

<table>
<thead>
<tr>
<th>Paths</th>
<th>Model I</th>
<th>Model II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size → Product innovativeness</td>
<td>0.08</td>
<td>0.07</td>
</tr>
<tr>
<td>Size → Speed to market</td>
<td>0.14 *</td>
<td>0.14 *</td>
</tr>
<tr>
<td>Size → Task discourse</td>
<td>0.09</td>
<td>0.09 †</td>
</tr>
<tr>
<td>Size → Inter-organizational trust</td>
<td>-0.03</td>
<td>-0.04</td>
</tr>
<tr>
<td>Size → Knowledge combination</td>
<td></td>
<td>0.01</td>
</tr>
<tr>
<td>Experience → Product innovativeness</td>
<td>0.06</td>
<td>0.06</td>
</tr>
<tr>
<td>Experience → Speed to market</td>
<td>0.18 *</td>
<td>0.19 *</td>
</tr>
<tr>
<td>Experience → Task discourse</td>
<td>0.17 **</td>
<td>0.17 **</td>
</tr>
<tr>
<td>Experience → Inter-organizational trust</td>
<td>-0.05</td>
<td>-0.05</td>
</tr>
<tr>
<td>Experience → Knowledge combination</td>
<td></td>
<td>-0.01</td>
</tr>
<tr>
<td>Duration → Product innovativeness</td>
<td>-0.05</td>
<td>-0.04</td>
</tr>
<tr>
<td>Duration → Speed to market</td>
<td>-0.08</td>
<td>-0.07</td>
</tr>
<tr>
<td>Duration → Task discourse</td>
<td>-0.06</td>
<td>-0.06</td>
</tr>
<tr>
<td>Duration → Inter-organizational trust</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Duration → Knowledge combination</td>
<td></td>
<td>-0.03</td>
</tr>
<tr>
<td>Interaction frequency → Product innovativeness</td>
<td>0.13</td>
<td>0.06</td>
</tr>
<tr>
<td>Interaction frequency → Speed to market</td>
<td>0.05</td>
<td>0.02</td>
</tr>
<tr>
<td>Interaction frequency → Task discourse</td>
<td>0.38 ***</td>
<td>0.38 ***</td>
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n=246

*p < 0.1

*p < 0.05

**p< 0.01

***p< 0.001, two-tailed t-test
Figures

Figure 1: Hypothesized model

Figure 2: Results of model II (control effects are not shown in the figure)