Developing trust in vertical product development partnerships:
A comparison of South Korea and Austria

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Abstract

We develop and test a model of factors proposed to influence the formation of trust in R&D partnerships in two different cultures. We suggest that specific relational behaviors (communication quality, fairness, and unresolved conflicts) impact trust formation and that national culture has a direct and a moderating effect on trust development. Results of a study of 100 vertical product development partnerships in South Korea and Austria show that communication quality and fairness have a positive effect and unresolved conflicts have a negative effect on the amount of trust developed. We also find a lower amount of trust developed in South Korean partnerships compared to partnerships conducted in Austria. In Austria, the positive effect of communication quality and the negative effect of unresolved conflicts on trust formation are stronger than in South Korea. Overall, the impact of the three relational factors is much stronger than the direct and moderating influence of national culture in the R&D partnerships studied, indicating that the relational elements of trust formation might be more universal than country specific.

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1. Introduction

In this article we examine trust-building mechanisms in vertical product development partnerships in two culturally different countries: South Korea (subsequently: Korea) and Austria. A vertical partnership is a project-based collaboration between a manufacturer and a customer or a supplier partner for the development of new products (Anderson & Narus, 1990). Considerable research has demonstrated the crucial role of trust in buyer–supplier relations (e.g., Anderson & Narus, 1990; Doney & Cannon, 1997; Dyer & Chu, 2000). With few exceptions, however, trust formation has not been studied in vertical R&D partnerships and tested to see if its central role generalizes across cultures. In an age of globalization, such collaborations have become an important strategy element (Hagedoorn, 2002), reflecting a tendency of manufacturers to more closely involve supply chain partners into product innovation (Håkansson, 1990; Poe & Courter, 1993).

The significant challenges involved in making these partnerships work cause many to fail or break down prematurely and inflict financial damage on both partners (Dyer, Kale, & Singh, 2004). In collaborative new product development in particular, there is a need for a balance between protecting the proprietary interests of the firm and establishing trust with the partner company (Littler, Leverick, & Bruce, 1995). There is a mutual transfer of strategic information and sensitive technological knowledge between partners, but relatively weak incentives to prevent misappropriation (Das & Teng, 2001; Dutta & Weiss, 1997). As a
result, vertical collaborative R&D brings with it positive aspects, but also a certain degree of vulnerability to exploitation. This vulnerability makes collaborative development more uncertain and risky than any other buyer–supplier relationship. Contracts usually do not cover every possibility and are unlikely to significantly reduce this vulnerability. Rather, it is the formation of appropriate trust between the partnering entities that will contribute to reducing this transactional uncertainty.

For the purpose of this study we adopt the widely accepted definition of trust as a psychological state comprising the intention to accept vulnerability based upon one party’s positive expectations of the intentions or behavior of another party in situations that are interdependent or risky (Rousseau, Sitkin, Burt, & Camerer, 1998). Trust development is based on different processes, such as calculative, prediction, intentionality, capability, or transference (Doney, Cannon, & Mullen, 1998). All these processes imply a party’s willingness to accept vulnerability based on the expectation that it can rely on the other party (Morgan & Hunt, 1994) to fulfill its obligation. Trust can reduce uncertainty and allow each partner to concentrate on fulfilling its actual task within the collaboration. Because of the people-oriented nature of partnerships, research on buyer–supplier relations suggests that the formation of inter-organizational trust is strongly determined by relational factors (Atuahene-Gima & Li, 2002; Dyer & Chu, 2003).

National culture likely will emerge as an important element in how trust is developed within such relationships. Research on the effect of culture and the behavior of individuals or firms has focused on issues including leadership (House, Hanges, Javidan, Dorfman, & Gupta, 2004); attitudes towards cooperative strategies (Steensma, Marino, & Weaver, 2000); the timing of investment decisions (Li, Lam, & Qian, 2001); or the choice of entry mode (Kogut & Singh, 1988). Yet, the impact of national culture on inter-organizational trust formation in R&D partnerships largely remains unexplored.

National culture may directly determine the inclination to trust a partner. Because of cultural features, such as how individuals are socialized, the achievable level of trust in inter-organizational relations may vary between countries (Dyer & Chu, 2003; Fukuyama, 1995; Huff & Kelley, 2003). In addition, cultural differences may influence how inter-organizational trust processes evolve and support or harm those processes (Doney et al., 1998). This proposition, however, has not yet been empirically tested and appears to be an open area of research and analysis.

This study is an attempt to integrate research on inter-organizational trust formation and the role national culture plays in this process. We test a model of how certain relational elements, including communication quality, fairness, unresolved conflicts, and national culture affect the development of trust in two different cultures. We expect to contribute to the literature: (1) by assessing the relative importance of national culture as compared to relational factors for trust formation in R&D partnerships; (2) by examining the direct and moderating effects of national culture on trust; (3) by contrasting how trust evolves in European and East Asian new product development partnerships.

2. Theory and hypotheses

We argue that trust formation in R&D partnerships depends on certain relational behaviors that foster or impede the creation of an engaging environment within which the partnership can succeed. As will be explained presently, two constructs that are expected to promote trust formation – communication quality and fairness – and one construct that is expected to have a detrimental effect on trust development between partners – unresolved conflicts – were selected for inclusion because prior work suggests that these play a central role regarding trust formation in such inter-organizational arrangements (e.g., Mohr & Spekman, 1994; Morgan & Hunt, 1994). Additionally, we propose that national culture has a direct and moderating influence on trust formation.

2.1. Mechanisms of inter-organizational trust development

Instant trust rarely will be achieved in any relationship when the other party is not well known. Rather, information needs to be accumulated and exchanged regarding the other partner’s objectives, expectations, or intentions. The time and resources required for this process to occur can be conceptualized as transaction cost (Williamson, 1993) or as an investment in social capital (Adler & Kwon, 2002).

Communication in a partnership can be defined as the formal as well as informal sharing of meaningful and timely information between firms (Anderson & Narus, 1990). Research on inter-organizational relations has emphasized the importance of a quality communication to resolve disputes, align perceptions and expectations, and get the job done efficiently (Morgan & Hunt, 1994). More specifically, a quality communication, characterized by a timely, accurate,
adequate, and complete information exchange, helps develop a shared understanding, improves the atmosphere of the relationship, fosters commitment, and is essential for efficient and effective collaborative new product development (Bruce, Leverick, Littler, & Wilson, 1995).

Research suggests that a quality communication with an external partner supports the formation of trust (Anderson & Weitz, 1989) and is a key ingredient to that partnership success (Mohr & Spekman, 1994). Social interactions between partner companies characterized by high quality communication also create the perception that the partner acts out of care and concern and thus fosters positive attributions about the benevolence and goodwill of the partner (Ring & Van de Ven, 1994). Hence, we suggest that a quality communication helps generating trust in R&D partnerships.

**Hypothesis 1.** The quality of communication between the partners is positively related to trust formation in new product development partnerships.

The perception of fairness between partners can be expected to enhance the quality of partnerships in general and trust development in particular (Dwyer, Schurr, & Oh, 1987; Kumar, Scheer, & Steenkamp, 1995). Fairness refers to the perception of how well one is treated during the course of a project – procedural fairness – and whether benefits and burdens are shared in proportion to the tangible or intangible investments made to the relationship by each partner – distributive fairness (Culnan & Armstrong, 1999; Frazier, Spekman, & O’Neal, 1988; Kumar et al., 1995).

Perceived fairness can give the partner firms confidence that their views and contributions are taken into account and that they are treated as respected and valued partners, giving them a sense of direct or indirect influence over the outcome of the collaborative R&D project. That sense of influence allows the partners to feel comfortable in the collaborative arrangement and is positively related to relationship quality (Kumar et al., 1995), thereby promoting trust. To illustrate, manufacturers that developed a reputation among channel members for playing fairly were found to engender greater trust (Anderson & Weitz, 1989). In contrast, perceived violations of fairness by one partner are likely to be detrimental to the development of trust in the partnership.

**Hypothesis 2.** Perceived fairness is positively related to trust formation between the partners in new product development partnerships.

Dyadic conflicts can be understood as processes which begin when one party perceives that the other has frustrated, or is about to frustrate, some concern (Thomas, 1976). Conflicts usually involve serious disagreements and arguments about something important. In the course of collaborative product development, however, the occurrence of disagreements and arguments between representatives of the two partners is not an unusual event. After all, the intentions, expectations, or objectives of both partners are not perfectly coherent at the outset. Conflicts, when well managed, may even promote the effectiveness of a partnership (Chen, Liu, & Tjosvold, 2005).

If conflicts are not addressed and resolved carefully in a timely manner, however, they may evolve into a history of unresolved conflicts. As these differences between the partners increase, they can have deleterious impacts on trust (Anderson & Weitz, 1992; Mohr & Spekman, 1994). To illustrate, survey results from logistics managers at manufacturing firms indicated many trading firms engage in questionable business practices that threaten to erode the trust between supply chain partners (Moberg & Speh, 2003). Likewise, recent research found that at one time or another in virtually every marketing channel, one of the channel members adopted policies or engaged in actions that were perceived by the other members as deceptive or destructive to the relationship within that channel (Hibbard, Kumar, & Stern, 2001).

In the context of trust formation, such unresolved conflicts can undermine the foundation of collaborative R&D and subsequently deter the development of trust or even destroy ongoing trust between the firms that was developed previously. This deterrence of trust can be attributed to the perception that the intentions or expectations of one partner are not sufficiently congruent with the other partner or that one partner’s behavior is not sufficiently predictable and reliable to meet the standards of the other.

**Hypothesis 3.** A history of unresolved conflicts is negatively related to trust formation between partners in new product development partnerships.

### 2.2. National culture and trust development

Cultural norms and values may affect how inter-organizational trust is established (Doney et al., 1998). The cultural dimension is suggested to be a major factor to differentiate between East and West (Hofstede, 2001). Observations of the differences among countries in their propensities and style of developing trust in inter-
organizational relationships suggest a direct influence of national culture. Fukuyama (1995) argues that societies differ in their overall levels of trust. The amount of trust inherent in a society is based on the prevalence of social ties between parties or individuals within that society. For inter-organizational partnerships this thesis suggests that in ‘low-trust’ societies, trust is more difficult to achieve because of the predominance of acquired social ties that confine trust to be within the boundaries of the family or the group and it requires more time and patience to establish that same level of trust with outsiders. In ‘high-trust’ societies, in contrast, a higher level of inter-organizational trust can be developed more quickly. According to Fukuyama (1995), the United States, Japan, and Germany are characterized as ‘high-trust’ and China, Hong Kong, Taiwan, Korea, France, and Italy as ‘low-trust’ countries.

In fact, recent empirical studies have confirmed such international differences in inter-organizational trust building. For instance, Dyer and Chu (2003) in studying supplier–automaker relationships found that trust levels in Korea were much lower than in Japan and slightly lower than trust levels in the US. Huff and Kelley (2003) researched the levels of trust developed by bank managers in the US and several Asian countries and found that trust was stronger in the US than in Asia. Among the Asian countries, the Korean respondents showed particularly low levels of trust. Taken together, previous research suggests that the level of inter-organizational trust developed in external business relationships in Korea may be relatively low.

Austria, in contrast, has not been the subject of extensive comparative research on trust formation. However, despite certain national differences, it appears to have considerable cultural similarity with other German-speaking countries in Europe. For instance, Hofstede (2001) reports quite similar scores regarding Germany, Switzerland, and Austria for four cultural dimensions: power distance, uncertainty avoidance, individualism/collectivism, and masculinity/femininity. In a recent global study on national cultures, Germany, Austria, the Netherlands, and German-speaking Switzerland were identified as one cultural cluster and labeled as ‘Germanic Europe’ (Gupta, Hanges, & Dorfman, 2002), which appears, in the language of Fukuyama, as a ‘high-trust’ region. Thus, we expect to find a difference between Korea and Austria in the amount of trust developed in these R&D partnerships.

**Hypothesis 4.** The level of trust achieved in new product development partnerships is higher in Austria than in Korea.

### 2.3. Moderating effects of national culture on trust formation

East Asian countries such as China, Korea, and Japan are regarded as high-context cultures, whereas the German-speaking European countries (Germany, Austria, and German-speaking Switzerland) are low-context cultures (Hall, 1976). Managers in low-context cultures tend to evaluate a situation by facts or behavior that is immediately visible or retrievable and rely on explicit words to convey messages directly. In contrast, managers in high-context cultures rely on indirect cues and implicit communication to send messages embedded in words. They rely on the receiver’s ability to infer meaning from context (Hall, 1976). More attention is paid to contextual factors, such as to social status or existing relationships between people or the organizations involved. As a consequence, high-context cultures are strongly driven by well-defined relationships between individuals or organizations. Within these relationships less communication is needed compared to relationships in Western countries. Therefore, we expect that in a society that is highly collectivist, homogeneous, and high context like Korea, communication quality is less important in developing trust than in more individualistic, low-context cultures such as Austria.

**Hypothesis 5.** The positive impact of communication quality on trust formation in new product development partnerships is weaker in Korea than in Austria.

A central feature of collectivist societies, predominantly East Asian, is a strong perceived need for harmony in relationships. Even when there are differences in perceptions, there is a strong tendency to not make the differences too explicit, to avoid confrontation and conflict and instead to seek consensus (Kim & Slocum, 2008). The maintenance of harmonious relationships is considered a positive value in collectivist societies, whereas conflict is regarded as a negative phenomenon that threatens group cohesiveness and functioning and may lead to loss of ‘face’ (Ho & Chiu, 1994; Kirkbride, Tang, & Westwood, 1991; Triandis, 1995). In individualist societies, in contrast, which mainly include North America and Western European regions, disagreements are more openly expressed and conflicts and conflict handling are sometimes seen as a necessary and even advantageous means to find or regain consensus between disagreeing parties (Hofstede, 2001). Thus, unresolved conflicts in collectivist cultures can be expected to more strongly deter the formation of trust compared to Western
individualist cultures. More specifically, conflicts create an atmosphere that is strongly incommensurable to the formation of any trustful relationship when harmony is highly valued.

Hypothesis 6. The negative impact of unresolved conflicts on trust formation in new product development partnerships is stronger in Korea than in Austria.

It also could be argued that the perceived fairness of the partner is particularly important to trust formation in collectivist cultures. Fairness enhances harmony in relationships, which are strongly emphasized in such cultures. At the same time, however, cross-cultural research has shown that collectivists emphasize maintaining good relationships more so than fairness (Leung, Koch, & Lu, 2002; Ohbuchi, Fukushima, & Tedeschi, 1999). Thus, it appears that there are two countervailing effects regarding the relative importance of fairness for trust formation across cultures. Since these effects can be expected to neutralize each other, we do not predict a moderating effect of national culture regarding the importance of fairness for trust formation.

3. The empirical study

3.1. Sample characteristics and data collection

This study collected data on new product development partnerships between independent companies in South Korea and Austria. Our country selection was guided by strongly perceived cultural differences between the two countries. In both countries, data were collected from manufacturing firms in the machinery industry having a minimum threshold size of 50 employees. Company directories of machinery industry associations were used to identify the sample firms; then a preliminary informant – usually the director of R&D, marketing, new product development, or new business development – was identified and contacted by phone to make sure the manufacturer was indeed active in new product development or R&D.

In the next step, the preliminary informant was approached to solicit participation, help identify the most recent product development projects conducted in partnership with a customer or supplier firm and developed and commercialized within the last 3 years. Finally, a key informant, the person considered most competent and qualified to respond to our survey – mostly project managers, within each firm was identified with the assistance of the preliminary informant. The key informant was contacted by phone and asked about their role and responsibility, as well as knowledge and involvement, with the development project. Their cooperation was solicited.

A structured questionnaire was used for the data collection. The German language version of the questionnaire was translated into Korean and then translated back into German by a different person to secure the identity of the contents. A panel of Austrian and Korean academics reviewed the questionnaire for appropriateness and wording of the scales in the respective country version. Both versions were pre-tested with managers from the sample firms, resulting in slight adaptations of some scales, mostly in terms of re-phrasing or refining items. This process was applied to secure the identity of the survey contents in both countries.

Responses on vertical partnerships were received on 56 projects from as many Korean firms and 44 projects from Austrian firms. The response rates were 34% in Korea (out of 165 companies in the firm population after initial screenings) and 36% in Austria.

The sample characteristics for both countries are as follows: the focal manufacturers entered slightly more supplier than customer partnerships in Korea (52%:48%) and slightly less supplier partnerships in Austria than with customer firms (48%:52%). The average firm size was similar in both countries (558 employees in Korea vs. 577 employees in Austria). In both countries, the responding firms were quite evenly dispersed among a wide range of sub-classifications within the machinery industry, such as plastic working machinery, power machinery and equipment, agricultural machinery, and machine tools, indicating a high degree of technical similarity between the two subsamples.

3.2. Measurement of variables

Data on different aspects and outcomes of collaborative new product development partnerships were collected from the focal manufacturers. Most of the survey items were measured on an 11-point Likert scale (from ‘0 = strongly disagree’ to ‘10 = strongly agree’). Details on the measurements are summarized in Table 1.

3.2.1. Dependent variables

Trust was operationalized with six variables adapted from previous research (Ganesan, 1994) which addressed perceptions about the partner’s honesty, reliability, and benevolence (see Table 1). A sample item is ‘in this partnership, promises made by the partner were reliable’. In order to reduce social
desirability, the word ‘trust’ was avoided in all items. In total, 70.7% of the overall variance was extracted by a single factor. The Cronbach alpha for this construct was $\alpha = 0.92$.

### 3.2.2. Independent variables

Nine items addressed trust formation mechanisms within the partnership (see Table 1): quality of communication (four items), fairness (three), and unresolved conflicts (two). These items were adapted from or inspired by existing scales. Communication quality was measured by the timeliness, reliability, adequateness, and completeness of the information exchanged related to the collaborative development project (Mohr & Spekman, 1994; sample item: ‘In this partnership, communication between the partners was reliable’). The items for the construct of fairness were inspired by measures used in studies by Kumar et al. (1995) and LaBahn and Krapfel (1994). The measures gauged the evenness in resolving disagreements and sharing benefits between the partners (sample item: ‘In this partnership, benefits were evenly shared between the partners’). Unresolved conflicts were measured by the volatility of the partnership and previous considerations to terminate the arrangement (Anderson & Weitz, 1992; sample item: ‘There were more than the usual up’s and down’s in this partnership’).

All items were subjected to principal component factor analysis. Using varimax rotation, the analysis for the three blocks of items settled on a three-factor solution that explained 75% of the variance (see Table 1). The Cronbach alphas were $\alpha = 0.88$ for communication quality, $\alpha = 0.78$ for fairness, and $\alpha = 0.73$ for unresolved conflicts. We used ‘country’ as a proxy for national culture, coded with a value of ‘1’ for Korea.

### 3.2.3. Control variables

Prior relationship experience may facilitate or increase trust formation between external partners and generally influence the way in which trust is developed (Anderson & Weitz, 1989; Dwyer et al., 1987; Ring & Van de Ven, 1994). We included relationship experience as a control variable, measured by the number of years of a previous business relationship with the partner firm. Additionally, the newness of a product may be relevant to trusting behavior since it determines the degree of uncertainty surrounding a development project. We measured product newness with three items related to the extent that the product ‘was based on a radical technological innovation’, ‘required a lot of engineering knowledge’ and whether ‘the project was technically complex’. The Cronbach alpha for this scale was $\alpha = 0.73$. Finally, we included the type of partner (customer or supplier) involved in the joint development project. This information was coded with a ‘1’ for a supplier partnership.

For each country data set, we performed additional factor analyses to examine whether the constructs
measured were equivalent across countries (van de Vijver & Leung, 1997). We found that the factors emerged as being consistent with the operationalization of the constructs and similar to the result of the factor analysis that used the pooled data. For the Korean data all items loaded at greater than 0.70 on their respective factors and many at greater than 0.80. For the Austrian data, the results were similar to the Korean, with the exception of two cross-loadings at or above 0.40 for the independent variables. The trust construct in both countries was confirmed as one-dimensional, i.e., all items loaded on one factor, with average factor loadings of 0.79 for Korea and 0.88 for Austria. Overall, these results led us to believe that the constructs appeared to be broadly equivalent across the two countries.

Culture level analysis can yield strikingly dissimilar results for standardized and non-standardized data (van de Vijver & Leung, 1997). For instance, in some cultural contexts respondents may tend to give more socially desirable responses. That is the case in collectivistic societies (Nyaw & Ng, 1994). Such tendencies may cause response bias and result in spurious differences between country scores. However, cross-cultural differences may also reflect legitimate differences (van de Vijver & Leung, 1997). Standardization of data would remove these otherwise valid sources of variation. As a compromise, the raw data was subjected to a within-country standardization and the factor analyses were performed again. The factor score loadings and the variances extracted were similar to the factor scores and variances obtained without country standardization (see Table 1). These results made us believe that we were not dealing with this type of response bias. As a consequence, we decided to use the raw data for the subsequent analyses.

In addition, we employed two statistical procedures to check for potential common method bias as suggested by Podsakoff, MacKenzie, Lee, and Podsakoff (2003). First, we conducted Harman’s single factor test by running an exploratory factor analysis on all survey items. This procedure generated seven factors with Eigen values greater than 1 with no dominating single factor. Second, we checked for a social desirability bias, using a marker variable for project success (“was the project overall a success or not”). The correlation between the independent and dependent variables was not altered notably, when controlled for this variable. Both results led us to believe that the potential for a common method bias in the survey data appears to be limited.

3.3. Data analysis and results

The descriptive statistics and bivariate correlations between the variables are provided in Table 2. There was no significant correlation between the moderator (country) and dependent variable (trust), a condition considered necessary before testing for moderating effects. We also checked for collinearity and calculated the variance inflation factors. None of the factors exceeded a value of 1.4, indicating a potential low collinearity.

We tested Hypotheses 1–6 with hierarchical multiple regression analysis. In the first step, the effects of the control variables on trust were measured (models 1, 4 and 6 in Table 3). Relationship experience is significantly related to trust only for the Austrian sample (model 6). The degree of product newness is positively associated with trust for the pooled sample and for the Korean and Austrian samples (models 1, 4 and 6). The type of partner is significantly related to trust in Korea, where more trust is developed in supplier

<table>
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<th>Variables</th>
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<td>1. Communication</td>
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<td>2. Fairness</td>
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<td>3. Unresolved conflicts</td>
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<td>-0.353***</td>
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<td>4. Country</td>
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<td>-0.030</td>
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<td>5. Relationship experience</td>
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<td>0.177</td>
<td>0.067</td>
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<td>6. Product newness</td>
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<td>0.173</td>
<td>0.326***</td>
<td>-0.189*</td>
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<td>7. Type of partner</td>
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<td>-0.032</td>
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<td>8. Trust</td>
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<td>0.629***</td>
<td>0.675***</td>
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<td>Mean</td>
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<td>7.23</td>
<td>3.32</td>
<td>0.560</td>
<td>7.27</td>
<td>6.79</td>
<td>0.500</td>
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<td>1.79</td>
<td>1.88</td>
<td>2.60</td>
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<td>2.03</td>
<td>0.503</td>
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Note: *p < 0.1, ***p < 0.001 (two-tailed); n = 100.
partnerships than in partnerships with customers (model 4).

The independent variables were entered into the regression. Communication quality and fairness are both significantly and positively related to trust formation. Unresolved conflicts are negatively related to trust in all three groups (models 2, 5, 7), thereby lending support to Hypotheses 1–3. The importance of these three predictors of trust formation was slightly different between the countries. In Korean partnerships, fairness has the strongest relationship with trust formation, followed by communication quality, and unresolved conflicts (model 5). In contrast, in Austrian partnerships unresolved conflicts exhibited the strongest relation with trust development (model 7). The country variable had a significant and negative relationship with trust (model 2), indicating that less trust is developed in Korean than in Austrian partnerships. This provides support for Hypothesis 4.

Finally, the interaction terms of communication quality, fairness, and unresolved conflicts with the country variable were added to the regression to test for any moderating effects of national culture on trust formation (model 3). As predicted by Hypothesis 5, the impact of communication quality on trust was stronger in Austria than in Korea. However, in contrast to Hypothesis 6, the impact of unresolved conflicts on trust was stronger in Austria than in Korea. Therefore, Hypothesis 5 is supported, but Hypothesis 6 is rejected. The country–fairness interaction was not significant, as we expected.

In sum, the regression results suggest that the relational factors of communication quality, fairness, and unresolved conflicts play a dominating role in trust formation in both countries, also evidenced by the explanatory power of all the models. National culture, in contrast, has a significant main and moderating effect on trust formation, but still plays a relatively modest role overall.

### 3.4. Discussion and conclusions

Often cross-country comparisons start with a presumption that differences are to be expected and that similarities will be the surprise. This tendency may be related to the fact that in most cross-cultural research significant differences between countries were observed (Cheng, 1994). It may also result from a bias regarding the concept that differences are easier to perceive than are more subtle similarities (Farley & Lehmann, 1994). In many cases, organizations may find themselves in unique circumstances according to their institutional context that may cause them to respond differently to similar situations. As a result, differences in organizational and professional cultures between alliance partners may be more disruptive for alliance processes or performance than differences in national culture (Sirmon & Lane, 2004).
The findings of this study on trust formation in R&D partnerships in two supposedly very different cultures suggest that inter-cultural differences do exercise some effects, but only play a modest role for the overall trust development process when compared with such factors as communication quality, fairness, or unresolved conflicts. In this sense, our findings are consistent with the results of other cross-cultural research, which identified factors that appear to strongly influence the behavior of managers and firms, regardless of their national culture (House et al., 2004).

First, the results support the notion that the quality of communication between partners and the perception of fairness generally contribute to a high degree to trust formation within a partnership. It appears to be difficult to achieve high levels of trust without steady and intense communication between the partners or when one partner gains the perception that it is not being fairly treated. Moreover, unresolved conflicts between partners hamper the development of trust. In those partnerships that experienced a high degree of volatility or came close to being terminated at one time, only a low amount of trust could be developed. These effects were observed to a similar extent in both countries.

Second, national culture affects trust formation. A high level of trust in R&D partnerships is more difficult to develop in Korea than in Austria. The finding that trust is harder to achieve in Korea supports the notion by Fukuyama (1995) that the level of inter-organizational trust that can be developed differs between cultures and countries. However, this effect was relatively weak when compared with the importance of communication quality, fairness, and unresolved conflicts to trust formation, suggesting that even in ‘low-trust’ cultures, it is by no means impossible to achieve a high level of trust in relationships with external partners.

Third, our findings indicate that national culture also exhibits a moderating effect on trust formation. The effects observed were partially different compared to what was predicted. Communication quality was more important for trust formation in Austria than in Korea, suggesting that indeed less communication is needed for trust formation in East Asian high-context cultures than in Western low-context cultures. The negative relation of unresolved conflicts with trust formation was significantly stronger in Austria than in Korea, running counter to what was expected.

The relatively weaker relationship between unresolved conflicts and trust in Korea could have its roots in the effects of the political, economic, and social disruptions the country has experienced over the last 50 years (Chang, 2003). During that time, the business environment in Korea has been unstable amid various political and economic upheavals, resulting in frequent reorganizations and bankruptcies of firms or whole business groups. Austria, in contrast, has entered a period of stability and prosperity over the last 50 years, after having experienced two World Wars and a lot of unrest in the first half of the 20th century. In Korea, however, major political and economic disruptions continued during the last decades and have occurred as recently as in the late 1990s when the country went through a deep economic crisis. As a consequence, Korean managers may have become accustomed to and more tolerant of conflict in their business relations despite a strong cultural tradition that stresses harmony. Alternatively, disagreements and conflicts may have been task-related, as compared to involving strong personal elements, and thus are easier to resolve (Amason, 1996).

The unexpected finding regarding the relation of unresolved conflicts with trust formation across cultures indicates that some of the general observation patterns of national cultures may be insufficient to explain the moderating effects of cross-cultural differences in the specific context of vertical partnerships. Interestingly, a recent study investigating the effect of national culture on the relationship between efficacy and work attitudes also reported results, which were partially reverse to expectations (Luthans, Zhu, & Avolio, 2006). Thus, it appears that further conceptual elaborations regarding precise differences between national cultures and the implications of those differences for business relationships are needed. For instance, when comparing particular countries, a review of the specific historical and institutional contexts in these countries could potentially improve the understanding of cross-cultural differences between them.

3.5. Limitations

The research results are built on information obtained from one side of the partnership only. Since collaborative development in this study means two partner companies working together, given the reciprocal nature of trust, it would have been valuable to take into account the perceptions from respondents of both partnership participants. This approach would also have been suitable to avoid the problem of a potential common method bias. While we initially sought to collect such dyadic data, we eventually had to limit our observations to one side (the manufacturer’s perspective) due to the reluctance of participating manufacturers to reveal information about their partners.
A single key informant was used for most measures. Given the interest in capturing the perceptions of respondents toward partnerships the key informants were actively involved in, the use of self-report seemed justified for this kind of research. Moreover, as we employed various methodological and statistical checks, the potential of a common method variance appears to be limited. However, the possibility of such a bias cannot be strictly excluded.

Furthermore, the study is subject to another limitation that applies to all cross-cultural research based on perceptual measures: the difficulty to reach full cross-cultural equivalence (van de Vijver & Leung, 1997). We used expert panels, applied the back translation method, and conducted pretests when developing the questionnaires in the two countries of our study and placed all our survey questions in the clearly defined and specific context of vertical development partnerships. Notwithstanding this approach, however, the possibility cannot be excluded that the interpretation of certain questions on behavioral factors, such as ‘timely communication’ or ‘adequate communication’ could be somewhat different between the Korean and Austrian respondents due to cultural differences.

Another limitation of this study is the equation of ‘country’ with ‘national culture’. The use of country as a proxy is sub-optimal, as this variable could also reflect factors that are different from national culture, but may have an effect on trust development in R&D partnerships, such as the institutional environment and economic development of a country. The equation of national culture with country would be particularly problematic when comparing countries with a high level of internal cultural heterogeneity and distinct subcultures. However, when societies are a relatively homogeneous ethnic group as compared to a multicultural society and speak the same language, face a similar climate, or largely experience similar economic status, as in the case of Korea and Austria, country may be an acceptable substitute for culture (Schaffer & Riordan, 2003).

Finally, while the results of this study show relatively strong relations between the predictor variables and trust formation, the data were collected in two countries and in a relatively narrow industry segment only. Thus, any claim regarding generalization of the results to other contexts or industries should be made with caution.

3.6. Managerial implications and directions for future research

On the one hand, the findings of our study suggest that national culture has a statistically significant, although weak, impact on how much trust is developed in R&D partnerships in different countries and on the relative importance of general determining factors on trust formation. On the other hand, the results also indicate that relational factors, such as communication quality, fairness, and unresolved conflicts, are more important for trust formation than national culture. Therefore, the most important determinants of trust formation appear to be universal rather than country specific.

From a managerial viewpoint, this conclusion indicates that whereas national culture is relevant and has to be considered when building external partnerships, managers’ attention should focus first on universal factors, which appear to be more important for trust formation. In other words, managers should make sure that their attention is not being diverted from the most fundamental issues, i.e., dealing with external partners in a fair way and maintaining a high quality communication, by choosing to focus on cultural differences only.

Moreover, our findings suggest that managers should not become preoccupied by the assumption that the establishment of trust is extremely difficult in certain countries due to cultural characteristics. The difference in the level of trust achieved between partnerships in a ‘high-trust’ and a ‘low-trust’ country was only weakly significant, indicating that trustful relationships can indeed be established anywhere by addressing more important factors, such as communication quality and fairness.

The integration of general (universal) and country-specific factors into our research design revealed some interesting results. Specifically, our study shed light on the importance of different determinants of trust formation. Therefore, the application of such integrated research models may also be valuable for future research to prevent generation of possibly misleading results when the range of explanatory factors considered is too narrow.

Another issue derived from our study is the partial mismatch between theoretical considerations and empirical observations regarding the moderating effects of national culture on trust formation. This mismatch suggests that a considerable refinement of the conceptual aspects of national culture is needed to provide a meaningful explanation of cross-cultural differences regarding trust formation mechanisms in inter-firm relationships.

Finally, trust is a process that takes time to emerge and evolve. It would be desirable to employ longitudinal research methods that are appropriate to study how trust
is initiated and evolves or is destroyed over time and its effect on partnership performance.

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