

# **Revisiting the Debate: Assessing the Impact of Trust, Control and Understanding on Interorganizational Performance**

## **Abstract**

Literature on interorganizational collaboration emphasizes trust and control as important determinants of collaborative performance. Although authors joining the ensuing debate have recurrently touched upon understanding as a precursor and consequence of both constructs, this construct has received little explicit attention in literature on interorganizational relationships. We therefore investigate how focal organizations' understandings of their partners and the alliances in which they are engaged influence interorganizational performance. Our analysis of unique survey data on 76 international joint ventures, indicates that the influence of trust and control on interorganizational performance becomes insignificant when the construct of understanding – deriving from compatibility between partners, negotiation processes and information processing – is introduced in the analysis. At the same time, incorporating understanding in the equation more than doubles the model's explanatory power. These findings provide preliminary empirical support for the significance of understanding in interorganizational collaboration. They urge researchers and practitioners to pay more attention to processes by which managers in interorganizational relationships advance their understandings, such as partner selection, negotiation and continuous information processing, urging them to revisit the debate on trust and control in interorganizational relationships.

**Key-words:** Trust; Control; Understanding; Interorganizational relationship; Performance.

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## INTRODUCTION

During the last decade, several researchers investigating cooperative endeavors – e.g., alliances and joint ventures – have become enrolled in a debate discussing the interrelationship between trust and control. Some have primarily emphasized the effect of both constructs on collaborative performance (e.g., Luo, 2002; Kern, 1998; Mayer and Argyres, 2004; Sydow and Windeler, 2003) and the effects moderating these relationships (Carson et al., 2006; Krishnan et al., 2006). Others have devoted attention to the question as to whether trust and control act as substitutes and/or complements (e.g., Das and Teng, 1998, 2000, 2001; Deakin and Wilkinson, 1998; Inkpen and Currall, 2004; Mellewigt et al., 2007; Poppo and Zenger, 2002). Implicit in this discussion, researchers have oftentimes touched upon the term understanding, suggesting that it precedes and follows from trust and control. In describing an international construction project, for instance, Huemer (2004: 195, italics added) observes that ‘[F]or trust to be established, the parties had to reach an *understanding* of the situation [and] learn about the others participating in the alliance.’ Similarly, in their inquiry regarding contracting practices by a large Silicon Valley software firm, Mayer and Argyres (2004: 404, italics added) note that ‘Many provisions no doubt served governance, production and communication purposes simultaneously, such as [...] those defining major and minor engineering changes (aimed at reaching common *understanding* and avoiding self-serving definitions).’

Hitherto, it remains unclear, however, whether and to what extent the construct of understanding induces variation in interorganizational performance. We therefore examine the following research question: *To what extent does a focal organization’s understanding of its partner(s) and the alliance in which it is engaged affect interorganizational performance?* To investigate this question, we analyze survey data regarding 76 international joint ventures, each involving at least two European organizations. We find that trust and control have a positive, albeit weak,

association with interorganizational performance. Nevertheless, when the construct of understanding is incorporated into our analysis, their effects on performance dissipate and understanding becomes the most significant predictor of interorganizational performance, significantly increasing the explanatory power of our model ( $R^2$ -adjusted increases from .15 to .40). More specifically, our results suggest that the performance of collaborative relationships is likely to be higher when partners: (1) are more compatible, increasing the probability that understandings are common, shared or congruent; (2) have developed shared understandings during negotiation and contracting processes; and (3) continuously analyze and scrutinize new information and cues during the course of their relationship.

These results contribute to the literature by providing preliminary empirical support for the significance of understanding as a predictor of interorganizational performance. Our findings signify that problems of understanding (Vlaar et al., 2006), transfer of pre-existing understandings, co-creation of novel understandings (Hargadon and Bechky 2006), as well as techniques and processes used for developing shared (Bechky, 2003, 2006; Bigley and Roberts, 2001), common (Davidson, 2002; Orlikowski and Gash, 1994), similar (Dougherty, 1992), mutual (Cramton, 2001) or congruent and actionable understandings (Vlaar et al., 2007) should receive more attention from researchers and practitioners. Particularly, we advance that focal actors' understandings of their partners and the alliances in which they are engaged can be ascertained by specifying particular conditions and processes at different points during the lifecycle of collaborative relationships (e.g., see Das and Teng, 2002; Doz, 1996; Van Fenema et al., 2007). We propose a distinction between *pre-contractual* conditions and processes (e.g., organizational compatibility and partner selection), *contractual* conditions and processes (e.g., information-asymmetry and negotiation efforts) and *post-contractual* conditions and processes (e.g., degree of autonomy and information processing) when determining alliance participants' understandings concerning their partner(s) and the alliances in which they are engaged.

In building our argument, we first develop a conceptual framework. Subsequently, we conduct hierarchical multiple regression analysis on a sample of 76 partnerships to test whether and to what extent trust, control and understanding affect interorganizational performance. We conclude with the implications of our inquiry, its limitations and opportunities for future research.

## **CONCEPTUAL BACKGROUND**

A large stream of research on interorganizational collaboration has emphasized the influence of trust and control on the performance of interorganizational relationships (e.g., Carson et al., 2006; Das and Teng, 1998, 2000, 2001; Deakin and Wilkinson, 1998; Inkpen and Currall, 2004; Kern, 1998; Krishnan et al., 2006; Luo, 2002; Mayer and Argyres, 2004; Mellewigt et al., 2007; Poppo and Zenger, 2002; Sydow and Windeler, 2003). These studies have shown mixed results, but generally suggest that trust and control are positively associated with interorganizational performance. Implicit in some of these contributions, the construct of understanding emerges, acting as a predecessor and determinant of trust and control (e.g., Akkermans et al., 2004; Doz, 1996; Huemer, 2004; Mayer and Argyres, 2004). In Figure 1, we therefore depict interorganizational performance as the outcome of trust, control and understanding. This provokes the questions to what extent each of these constructs contributes to explaining interorganizational performance.

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### **Trust and Interorganizational Performance**

Literature on interorganizational relationships suggests that cooperative initiatives fail for a variety of reasons, including the absence or dissipation of trust, and the existence of a surfeit of distrust (Boersma et al., 2003; Inkpen and Currall 2004; Vlaar et al., 2007). Trust is defined as ‘a

psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another' (Rousseau et al., 1998: 395). It encompasses the belief in the ability of a partner organization to accomplish a task, the belief in the goodwill or positive intentions of this partner and the perception that it adheres to acceptable values (Mayer et al., 1995; Serva et al., 2005). We refer to interorganizational instead of interpersonal trust in this article, as a partner and its behaviors become objects of trust for the members of the focal organization (Inkpen and Currall, 2004). Interorganizational trust then concerns 'the extent of trust placed in the partner organization by the members of a focal organization' (Zaheer et al., 1998: 142). Trust has been shown to contribute positively to collaborative performance and satisfaction (Krishnan et al. 2006; Sherwood et al., 2006), alliance stability (Inkpen and Currall 2004), information and knowledge sharing (Szulanski, 2001), cooperative behavior (Ferrin et al. 2005), relational quality (Ariño et al., 2001) and the attainment of objectives in collaborative endeavors (Madhok, 2006). This leads us to our first hypothesis.

**Hypothesis 1:** *The higher the level of trust, the higher the performance of interorganizational relationships.*

### **Control and Interorganizational Performance**

A second research stream focuses on explaining interorganizational performance by emphasizing the ability of partners to effectively handle issues of control (Choi and Beamish, 2004; Faems et al., 2007; Mayer and Argyres, 2004; Park and Ungson 2001; Sampson, 2004). Control is defined as the purposeful and goal-oriented processes by which one partner is able to influence, to varying degrees, the behaviour and output of another entity (Geringer and Hebert, 1989; Makhija and Ganesh, 1997; Ouchi, 1977). Control provides protection and exploitation of key resource inputs and is gained through increased bargaining power (Mjoen and Tallman, 1997). It tends to entail the codification and enforcement of inputs, outcomes and interorganizational activities

(Bijlsma-Frankema and Costa, 2005; Das and Teng, 2001; Inkpen and Currall, 2004) and its principal exponent consists of contractual planning and the contracts eventuating from this process (Macneil, 1980).

Despite the existence of trust, partners generally wish to attain at least basic levels of control (Das and Teng, 2001; Dyer and Singh, 1998; Gulati, 1995; Inkpen and Currall, 2004; Vlaar et al., 2007; Zaheer and Venkatraman, 1995). According to transaction cost economists and agency theorists, for example, formal controls are aimed at curbing opportunistic behavior and establishing influence over partner organizations and their members (Lui and Ngo, 2004; Oxley, 1997; Reuer and Ariño, 2002, 2007; Williamson, 1985). Formal controls also have a coordination function, which is gradually receiving more systematic attention in the literature (e.g., Carson et al., 2006; Foss and Foss, 2005; Geringer and Hebert, 1989; Gulati and Singh, 1998; Klein Woolthuis et al., 2005; Madhok, 2002; Mayer and Argyres, 2004; Reuer and Ariño, 2007). Evidence regarding the relationship between formal control and interorganizational performance is mixed and narrow (Jap and Ganesan, 2000; Sobrero and Schrader, 1998). Following other researchers (Luo, 2002; Mintzberg, 1994; Sampson, 2004) we suggest that too little control gives rise to chaos and that too much control involves rigidity. Moreover, we recognize that it is not control per se that influences interorganizational performance, but its alignment with organization- and exchange characteristics (Colombo, 2003; Leiblein and Miller, 2003; Madhok, 2002; Williamson, 1985, 1999). This implies that there is no direct relationship between control and interorganizational performance, which is captured in our second hypothesis.

**Hypothesis 2:** *Control is not associated with the performance of interorganizational relationships.*

## **Understanding and Interorganizational Performance**

We propose that the impact of trust and control on interorganizational performance is often conflated with the understandings that members of a focal organization have of their partner(s) and the alliance(s) in which they are engaged. As has been noted earlier, understanding appears to precede and follow from trust and control (see block arrows in Figure 1), something which becomes obvious from the following citations. Mayer and Argyres (2004: 401, italics added), for example, in their study of the relationship between a large software firm and one of its clients, find that detailed contracts helped the collaborating firms to achieve ‘agreement on expectations’ concerning what each party should do and assisted in avoiding ‘*misunderstandings* [concerning] expectations on roles and responsibilities’ by each of them. Similarly, in discussing collaborative supply chain planning in high-tech electronics, Akkermans et al. (2004: 453, italics added) found that ‘[O]ne of the root causes for [the] lack of trust was a lack of *understanding* of each other’s planning processes.’ Other authors have argued that contracts for collaborative relationships become more extensive when trust increases and information sharing between partners enhances their ability to employ formal controls (Mayer and Argyres, 2004; Poppo and Zenger, 2002; Ryall and Sampson, 2004). Although these examples show that the construct of understanding is strongly intertwined with the notions of trust and control, little is known about the effects of understanding on interorganizational performance.

To investigate this, we first elaborate on the concept of understanding itself. Understanding implies that individuals focus their attention on a particular topic and invest mental efforts to develop meaningful and elaborate thoughts on it, reducing the doubts and ambiguity they experience (Bakhtin, 1986; Spender, 1989, 1996; Weick, et al., 2005). Researchers have developed at least twenty labels to describe understandings that are in some sense similar, shared, overlapping, compatible, complementary or distributed (Cannon-Bowers and Salas 2001). Following Cronin and Weingart (2007) and Sandberg and Targama (2007), we focus on

understandings that are at least congruent with each other, so that different partners envision comparable behaviours and outcomes. Taking this position is warranted by the fact that partner understandings almost always differ (Bechky 2003; Donnellon et al. 1986; Gibson 2001; Maitlis 2005; Ngwenyama and Lee 1997). Partners understand, interpret and attend to situations differently (Baba et al. 2004; Cronin and Weingart, 2007) because of lasting differences in prior experience (Balogun and Johnson 2004), bounded rationality (Simon 1997) and discrepancies in interests and objectives among stakeholders (Vlaar et al. 2006).

If partners develop more advanced understandings, they become more likely to achieve a “meeting of minds” (Choi and Gulati, 2006) and they tend to exhibit a higher relative absorptive capacity (Lane and Lubatkin, 1998). Better understandings may also help to impart otherwise ambiguous social and situational information (Gioia, 1986), and it may assist parties in anticipating, recognizing and understanding the way other participants in the relationship frame their tasks. This does not only help parties in preventing and mitigating problems of understanding, but it also assists them in transferring pre-existing understandings and co-creating novel understandings, thereby amplifying opportunities for value creation (Hargadon and Bechky, 2006; Vlaar et al., 2007). We thus conclude that a positive association exists between understanding and interorganizational performance. A more refined conception of this relationship can be created, however, by distinguishing conditions and processes conducive to the development of advanced understandings at different points during the lifecycle of collaborative relationships (e.g., see Das and Teng, 2002; Doz, 1996; Van Fenema et al., 2007). In particular, we propose a distinction between *pre-contractual*, *contractual* and *post-contractual* conditions and processes affecting the understandings that members of focal organizations develop concerning their partner(s) and the alliances in which they are engaged.

### **Pre-Contractual Understanding: Compatibility**

Although diversity in understandings among actors will always persist due to lasting differences in prior experience (see Balogun and Johnson, 2004; Brown, 2000, 2004), bounded rationality (Simon, 1991) and discrepancies in interests and objectives (Vlaar, et al., 2006), understandings among participants in collaborative relationships tend to be more congruent, when parties possess similar organizational structures, cultures and functional capabilities (Barkema and Vermeulen, 1997; Doz, 1996). Likewise, partners tend to understand each other better when they adopt more or less equivalent terminologies (Kaghan and Lounsbury, 2006), and management styles and philosophies (Lane and Lubatkin, 1998). Understandings also tend to cohere when cooperating organizations have comparable backgrounds and when they are active in the same type of industries, with similar belief systems (Sutcliffe and Huber, 1998). Jointly, these observations suggest that differences and similarities between partners, or the degree to which they are compatible, serves as an indicator of *ex ante*, or *pre-contractual understanding*. We advance that higher levels of *ex ante* understandings facilitate information-sharing, learning and trust development. Moreover, such understandings probably increases a focal organization's ability to exert control and devise appropriate coordination mechanisms. Taken together, this suggests that *ex ante* understanding is positively associated with interorganizational performance, as is reflected in our third hypothesis.

**Hypothesis 3:** *The higher pre-contractual levels of understanding by members of a focal organization, the higher the performance of interorganizational relationships.*

### **Contractual Understanding: Negotiation and Contracting Processes**

Partners' understandings do not only derive from pre-contractual conditions and processes, but they also develop in response to factors and processes characterizing the negotiation and contracting phase of alliances. In line with this, Blomqvist et al. (2005: 497) argue that 'the

contracting process may be used purposefully to increase mutual understanding'. These authors found that a global machine and equipment supplier and a small metal engineering company 'got to know each other through the lengthy contracting process' (Blomqvist et al., 2005: 502). Vlaar et al. (2006) add that understandings tends to develop during negotiation and contracting processes, as these processes can: help partners to focus their attention; provoke articulation, deliberation and reflection; instigate and maintain interaction; and reduce judgment errors, individual biases, and incompleteness and inconsistency of cognitive representations. This enables members of focal organizations to better comprehend the competences, ambitions and goals of other parties involved in the relationship, and to advance their understandings of the situational opportunities and constraints faced by each of the participants (Johns, 2006). By negotiating, discussing and contemplating on formal agreements, potential collaborators attempt to achieve a meeting of minds (Choi and Gulati, 2006), which serves as the basic cognitive infrastructure for effectively integrating and coordinating behaviors with those of others (Hardy et al., 2005). Moreover, by proceeding through the social-psychological processes that lie behind the formal bargaining processes characterizing negotiations, participants come to appreciate the potential for transacting with each other and they obtain a better understanding of the nature of the interorganizational relationship in which they are involved (Ariño and Ring, 2004; Ring and Van de Ven, 1989). They use these processes to transfer pre-existing understandings and co-create novel understandings (e.g. see Hargadon and Bechky 2006). This implies that a focal actor's understanding of its partner and the alliance at the time a contract is signed has a positive relationship with interorganizational performance, which is reflected in our fourth hypothesis.

**Hypothesis 4:** *The higher the level of understanding by members of a focal organization at the time the contract is signed, the higher the performance of interorganizational relationships.*

### **Post-Contractual Understanding: Information Processing**

Understandings of partners also develop during the course of collaborative relationships due to the accumulation of experiences with the other organization. Learning and continuous (re)evaluation enable partners to understand the other party better (Doz, 1996; Faems et al., 2007; Ring et al., 2005; Ring and Van de Ven, 1994). Moreover, most organizations will actively seek to ameliorate the quality of the information upon which they base their decisions (Simon, 1997). They therefore undertake, amongst others, information processing activities (e.g., Thomas and Trevino, 1993; Weick, 1978). Information processing refers to the acquiring, interpreting and synthesizing of information (Huber, 1991; Tushman and Nadler, 1978). Managers experiencing the need to engage in more vigilant and deeper examinations of a situation at hand search for information (Thomas and McDaniel, 1990; Tushman and Nadler, 1978). They process this information to reduce uncertainty and equivocality (e.g., Carsson et al., 2006; Daft and Lengel, 1986; Weick, 1978) and to ameliorate the expectations about the future value of resources combinations (Makadok and Barney, 2001). Furthermore, by processing information they may reduce suspicion about a partner's motives and they may be able to remove confusion regarding each other's responsibilities (Gray, 1985; Thomas and Trevino, 1993). This suggests that a focal actor's understanding of its partner and the alliance in which it is engaged during the post-contracting stages of collaborative initiatives has a positive relationship with interorganizational performance, something which is reflected in our fifth hypothesis.

**Hypothesis 5:** *The higher the level of understanding by members of a focal organization in the post-contracting phase, the higher the performance of interorganizational relationships.*

## RESEARCH METHOD

*Sample and data collection.* The data for our study has been derived from partners in European Economic Interest Groupings (EEIGs) and was collected in May 2006. EEIGs are joint ventures between international firms involving at least two partners operating in different members states of the European Union. They are classified under the definition of joint ventures, because they entail the formation of a separate legal entity. The EEIG was enacted by the European Commission in 1985 in order to promote international cooperation between organizations across the European Union. We opted for collecting data on EEIGs for a number of reasons. First, partners in EEIGs are obliged to submit the founding documents for their relationship and alterations in the number of partners, or the managing directors to the Companies House or Chambers of Commerce in the respective country in which the EEIG is established. This enabled us to collect very accurate and recent data on the total number of partners, the contact details of each partner and the activities included in the EEIG. It also facilitated the verification of the status of the joint venture. Second, EEIGs consist of a relatively unexplored set of joint ventures, despite the fact that approximately 1.500 EEIGs involving around 6.000 partner organizations have been established in the European Union since they were first enacted in 1985.

We collected data on EEIGs established in the period from 1985 until 2004 through an online self-administered questionnaire. The selected time period incorporates the establishment of the Single European Market in 1992. Hence, our sample-frame was likely to present significant alliance activity due to the opportunities and threats posed by the opening of markets and increased competition. For our sample, we selected partners with registered EEIGs in the Netherlands and the United Kingdom, as we only had access to databases incorporating contact information for each of the partners in these relationships. Preliminary assessments of the

formation motives and governance characteristics of these relationships exhibited strong similarities with other research on joint ventures (e.g., see Choi and Beamish, 2004; Glaister and Buckley, 1996), enhancing the generalizability of our findings.

The participants in our study were active as general managers or presidents of one of the partner organizations. Although, ideally, we would like to include multiple informants – both representatives of parent firms and joint venture managers – Hennart and Zeng (2002) have already shown that differences in the use of single responses and multiple responses do not significantly affect results in research on interorganizational relationships. Similarly, Child et al. (1997) found significant inter-rater reliability among IJV managers in their assessments of control structures. In line with previous research on joint ventures (e.g., Barden et al., 2005; Choi and Beamish, 2004; Glaister and Buckley, 1996; Reuer and Ariño, 2007), we also rely on single respondents analysis so as to increase the number of usable responses.

We identified a total of 178 EEIGs registered in the Netherlands or the UK. Of the 676 partners involved in these relationships, 76 self-administered survey-responses were returned (n=76), representing an 11.2% response rate, which is equivalent to other recent empirical inquiries on joint ventures (e.g., Barden et al., 2005; Choi and Beamish, 2004). In Table 1, we present the nationality of the responding partners and we identify whether they are active in manufacturing or services organizations. The sample comprises participants from 20 different countries.

Organizations are active in the following industry-segments: energy (4%); non-heavy industry, such as chemicals, electronics and pharmaceuticals (13%); education, such as research institutes and universities (13%); legal services (26%); management consultancy (32%); and other industries or sectors, comprising partners in the book-selling business, public health institutions and the music industry (12%). General Managers included in the sample worked for their

organization between two and 38 years, with an average of 12.3 years. The age of the joint ventures studied varied between six months and 21 years, with an average of eight years.

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After obtaining the data, we tested for key response bias by checking whether the persons who completed our questionnaire were the ones that were included in the founding documents for the EEIGs. As the study relied on data collected from a single respondent, we also assessed whether common method bias could become a problem (Harrisson et al., 1996). First, specific questions in the interview protocol were worded and sequenced in such a way so as to reduce potential contamination effects by using different anchors across the measured constructs (Barden et al., 2005). Second, the items for our dependent variable and the items for our independent and control variables were included at different sections in the survey. Third, multiple items constructs were developed, as response bias has been shown to be more problematic at the item level than at the construct level (Harrisson et al., 1996). Finally, we performed Harman's (1976) single-factor test to assess whether a significant amount of common variance existed in the data (e.g., Podsakoff and Organ, 1986; Barden et al., 2005). Unrotated factor analysis criteria revealed five factors with the first factor explaining 36% of the variance in the data, indicating that the findings cannot be attributed to common method bias.

In addition, we assessed the potential for non-response bias by testing for significant differences in the mean values on all independent and dependent variables between early and late respondents. We performed paired-sample t-tests comparing the responses of participants returning the questionnaire in the first and fourth inter-quartile range over time (Armstrong and Overton, 1977), but did not find any significant differences. Moreover, as a number of EEIGs has

been established in the 1990s, the data may potentially be affected by recall bias, limiting the accuracy with which respondents assesses issues related to control, trust and understanding. In order to test for differences, we have divided the sample in two subsamples containing older and more recent EEIGs, using 1997 as the anchor date. A comparison of the mean values in both subsamples for all independent and dependent variables in the form of a paired-samples t-test revealed no major differences.

**Measurement.** In constructing the questionnaire, we followed the approach advocated by Dillman (2000), using strict procedures with regard to the design of the survey, follow up procedures, assurance of confidentiality and guaranteed access to the study's findings. The survey questions were posed in English and preliminary versions of the questionnaire were reviewed by academic scholars in the field of interorganizational relationships. Multiple item scales were developed to test the hypotheses and ensure reliability and validity. The variables included in our study were constructed based on existing literature and the consultation of fellow academic researchers and practitioners. After conducting a pilot survey, several questions were modified. Table 1 provides an overview of the multiple item constructs used in our study. To assess the validity of our items, we conducted a missing value analysis, which revealed no significant omissions. Furthermore, an analysis of potential outliers<sup>1</sup> exhibited no problematic cases. Hence, the entire sample of 76 partners was used in constructing the scales for our variables. Numerical scales were constructed by summing the standardized item scores for each construct, following recommendations issued by Nunally (1978). All Cronbach's alphas exceeded 0.7, indicating sufficient reliability of the scales used (Hair et al., 1998).

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<sup>1</sup> We ran regressions with missing data deleted case-wise, then with missing data deleted pair-wise, with exclusion of the outlier, and finally by substituting the missing value of the construct with the mean value of the construct (see for example, Szulanski *et al*, 2004). In all cases, no major changes were noted.

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*Performance.* Our dependent variable, performance, is composed of four 7-point Likert-scale items. We used proxies identified in prior research (e.g., Ariño, 2003; Glaister and Buckley, 1998; Parkhe, 1993) for the development of this scale, selecting items that capture a variety of performance-related aspects. Respondents were asked to what extent: (1) they were satisfied with the overall results of the JV; (2) they were positive about the overall results of the joint venture; (3) strategic goals related to the joint venture were met; (4) the ROI of the joint venture was positive (response categories: 1= to a very low extent; 7= to a very high extent). Cronbach's alpha for this measure is .93.

*Trust.* In a similar manner we constructed a measurement scale for trust. Again, we adopted measures used in the existing literature (Sherwood et al., 2006; Currall and Judge, 1995). The variable consisted of three proxies, including questions on the extent to which: (1) the other parties in the JV were honest in dealing with each other; (2) respondents considered other people in the JV to be trustworthy; and (3) respondents trusted participants from the partner organization (response categories: 1= to a very low extent; 7= to a very high extent). Cronbach's alpha for this scale is .91.

*Control.* We constructed a measure for control by asking respondents to what extent specific control mechanisms were adopted in the partnership. Geringer and Hebert (1989) propose multiple dimensions of control – i.e., *mechanisms* of control and the *extent* of control exercised. We operationalized both dimensions by adopting measurements of contractual complexity and, more specifically, term specificity ( Parkhe, 1993; Reuer and Arino, 2007). We then asked respondents to what *extent* these items were enforced in the JV, covering both dimensions of

control. Based on prior studies (e.g, Luo, 2003; 2004; Parkhe, 1993; Reuer and Arino, 2007), we assessed whether respondents agreed or disagreed with the following statements: the contract specified terms and clauses concerning: (1) how to operate and manage the relationship; (2) how to cooperate and resolve conflicts; (3) how to communicate and share information; (4) how to plan and program activities in the relationship; and (5) how and when parties should (re)negotiate (response categories: 1= Strongly disagree; 7= strongly agree). The Cronbach's alpha for this scale is .86.

*Compatibility* signifies the extent to which parties are (dis)similar in terms of, amongst other factors, culture, organizational structure and management and operating systems. When organizations, for example, possess compatible resources or internal processes, this makes it easier to understand each other. We decided to use a perceptual measure as a proxy of compatibility, because people act on the basis of their interpretation and understanding of a situation. We used measures identified by Barkema and Vermeulen (1997) to operationalize this construct, including to what extent partners had: (1) organizational cultures that were compatible with each other; (2) management and operating styles that were compatible with each other; and (3) organizational structures that were compatible with each other (response categories: 1= to a very low extent; 7= to a very high extent). Cronbach's Alpha for this scale equals .91.

*Shared Understanding Contract* reflects to what extent cooperating parties perceive they had congruent or shared understandings at the time the contract was signed. We asked participants to what extent shared understanding between the partners in the joint venture was present at this point in time concerning: (1) each others' competences and constraints; (2) each others' objectives and interests; and (3) the issues written down in the contract (response scale: 1= to a very low extent; 7= to a very high extent). Cronbach's alpha for this scale is .83.

*Information Processing* represents the extent to which parties continuously analyzed new information and cues during the course of their relationship. The measure is composed of two 7-point Likert-scale items measuring the accumulation of experience with partners via learning and (re)evaluation. The respondents were asked to evaluate to what extent they: (1) tried to understand what made things work well in the relationship; and (2) to what extent they identified the causes of mistakes so that these were not repeated (response scale: 1= to a very low extent; 7= to a very high extent). The Cronbach's alpha for this measure was .86.

*Control variables.* A first control variable consists of investments in relation-specific assets (Williamson, 1985), as these are known to augment the need for formal control (Carson et al., 2006). To measure this variable we adopted three proxies from Reuer and Ariño (2002, 2007) referring to the extent to which organizations participating in a relationship: (1) would be wasting a lot of knowledge; (2) would have high non-recoverable investments; and (3) would experience problems in redeploying people, equipment and/or facilities if this relationship were to dissolve. Cronbach's Alpha equalled .77. A second control variable concerns the size of the respondent's organization, reflected by the natural logarithm of the number of employees in the respondent's organization (Heiman and Nickerson, 2004; Muthusamy and White, 2005). We also incorporated two dummy variables, including familiarity, indicating whether the parties to the relationship had been engaged in any cooperative activities prior to the establishment of the joint venture (0 = not familiar; 1 = familiar), and equity, reflecting whether the relationship had an equity or non-equity governance form (0 = non-equity; 1 = equity). To assess the psychometric properties and discriminatory validity of our scales, we performed a confirmatory factor analysis on our trust, control and understanding variables in MPlus (Lisrel), using the maximum-likelihood criterion (see Table 3). The findings indicate high discriminant validity between each of the variables. The lowest factor loading equals .59 with an adjusted R-square of .35, indicating a high fit between the items and each of their factors (Kelloway, 1998).

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### **Data Analysis and Results**

Table 4 reports the variable means, standard deviations and correlation coefficients relating to the dependent, independent and control variables. We observed that two variables had a correlation coefficient of .66 ( $p\text{-value} < .01$ ), indicating potential multicollinearity. To assess this, we checked the tolerance values and variance inflation factor for all variables. The lowest tolerance level was .58. The highest VIF was 1.72. Both scores indicate low and acceptable levels of multicollinearity. Furthermore, all numerical variables were assessed against assumptions of normality (skewness and kurtosis), which rendered no significant problems. We used hierarchical regression analysis to test our hypotheses (see Table 5).

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Model 1 captures the effect of the control variables on interorganizational performance. It has an adjusted- $R^2$  of .08. Organizational size and the adoption of equity or non-equity governance forms appear to be unrelated to interorganizational performance, whereas familiarity between the partners ( $p < .10$ ) and asset-specificity ( $p < .05$ ) both show positive associations. In model 2, we introduce trust and control, which increases the adjusted- $R^2$  from .08 to .15. Including trust and control in the analysis renders the impact of our control variables (firm size, equity structure, and familiarity of partners) on performance insignificant, which corresponds to the notion that governance mechanisms such as trust and control are intended to mitigate the effect of organization- and exchange characteristics on interorganizational performance (Sampson, 2004). Only asset specificity remained significant at the  $p < .10$  level. Trust and control themselves both have a positive relationship with performance ( $p < .05$  and  $p < .10$  respectively), supporting hypothesis one but disconfirming our second hypothesis.

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Insert Table 4 about here  
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Model three includes the variables “compatibility”, “shared understanding” and “information processing,” representing the understanding that members of the focal organization had of their partner and the alliance in which they were engaged at three different points in time: ex ante (pre-contractual), at the end of the negotiation and contracting phase (contractual), and in the post-formation phase (post-contractual). Including these underlying dimensions of understanding in the analysis substantially increased the adjusted-R<sup>2</sup> from .15 to .40. The association between compatibility, representing ex ante understanding, is positive and significant at the .01-level, supporting hypothesis 3. The relationship between shared understanding amongst partners at the time the contract was signed is positive and significant at the .05-level, supporting hypothesis 4. Information processing, reflecting the advancement of understanding in the post-formation stage, has a positive and significant relationship with interorganizational performance as well (p<.01), supporting hypothesis 5.

## **DISCUSSION**

Our findings show that researchers on interorganizational collaboration in general and on the trust-control nexus in particular, may benefit from explicitly including the construct of understanding in their analysis. Understanding does not only explain a large part of variance in interorganizational performance (in our analysis approximately 25 percent), but it also appears to be more informative than trust and control in predicting interorganizational performance. This is surprising, given the fact that the literature grants abundant attention to trust and control, while only sparsely touching upon the significance of understanding. Moreover, incorporating understanding in the analysis renders the relationships between trust, control and performance

insignificant, suggesting that positive effects that have traditionally been attributed to trust and control may actually derive from understanding.

### **Theoretical and Practical Implications**

Our findings have significant theoretical and practical implications. In a broad sense, they call for more research on the concept of understanding and its influence on organizational (e.g., see Sandberg and Targama, 2007) and interorganizational performance (e.g., see Vlaar et al., 2006, 2007). More specifically, conceptual and empirical inquiries as well as managerial practice are likely to benefit from considering possible linkages between understanding and the trust-control nexus, the formation and evolution of interorganizational networks, and learning in alliances.

#### *Understanding and the Trust-Control Nexus*

Our findings contribute to the trust-control debate in which authors have advanced substitutive and complimentary effects between trust and control (e.g., Das and Teng, 1998, 2000, 2001; Deakin and Wilkinson, 1998; Inkpen and Currall, 2004; Mellewigt et al., 2007; Poppo and Zenger, 2002). Briefly stated, researchers have argued that, on the one hand, trust and control could act as substitutes, because high trust reduces the need to exercise specific control mechanisms over partners (Inkpen and Currall 2004). On the other hand, the use of formal controls may result in a clear direction for partners and thereby stimulate the development of trust among them, suggesting a complementary relationship between both concepts (Poppo and Zenger, 2002). In further nuancing this debate, other researchers have mentioned that augmenting control can also have a direct negative effect on trust in the form of a signaling effect (Madhok, 2006), as it may actually be interpreted by another partner as a signal of distrust (Faems et al., 2007; Ghoshal and Moran, 1996; Vlaar et al., 2007; Zand, 1972). Furthermore, some have suggested that trust may have a moderating effect on the relationship between control and

performance, in the sense that control mechanisms become more effective when trust increases (Das and Teng, 1998).

Incorporating the notion of understanding in this debate may shed new light on the relationship between trust and control. Our results show that the effects of trust and control on interorganizational performance become insignificant when understanding is incorporated into the analysis. This hints at several possible relations between the three constructs. First, understanding may imply that ambiguity, which forms a fertile basis for negative interpretations and distrust, is no longer present (see Carson et al., 2006). Kunda (2001) offers the example of persons pushing others to get a relationship started, which can lead them to be perceived as being very committed by others, but which can also be interpreted as an act of opportunistic behaviour, particularly when a person is perceived to be distrustful. Second, understanding is likely to improve one's ability to control (e.g., through a contract) as a focal organization can better specify what behavior and outcomes it expects from the other organization, and as it can better anticipate on its partner's behavior. Third, we advance that understanding may follow from trust, as trust implies increased information sharing and openness towards a partner, which generates more raw material for developing one's understanding. Fourth, understanding may emanate from control in that the use of control mechanisms by a partner clarifies what the partner wants and what it values. Beyond this, a partner's reactions on the controls demanded by a focal organization increase one's understanding of this partner's competences and goodwill.

To assess whether trust and control mediate the relationship between understanding and performance, we performed SOBEL tests for both constructs (Sobel, 1982). These tests were conducted independently and showed no significant role for trust and control in mediating the relationship between performance and compatibility (Sobel's  $t = -1.17$ ;  $p < .23$ ;  $t = 0.62$ ;  $p < .54$ ) shared understanding at the time the contract was signed (Sobel's  $t = -.045$ ;  $p < .65$ ;  $t = -0.19$ ;

$p < .85$ ) and information analysis (Sobel's  $t = -1.30$ ;  $p < .19$ ;  $t = 0.59$ ;  $p < .56$ ). These results suggest that the influence of understanding on interorganizational performance is not mediated by trust and control. This contrasts with the observation that the effects of trust and control on interorganizational performance become insignificant after incorporating the construct of understanding in the analysis. It suggests that the relationships between trust, control and understanding are possibly even more intricate than we have proposed here, something which offering fertile ground for future research.

#### *Understanding and the Formation and Evolution of Interorganizational Networks*

The significance of understanding may even extend towards the network level of analysis, witnessing the following citation of Sydow and Windeler (2003: 87: italics added) regarding the organization of a service network: 'personal trust relations and *shared understandings* [...] provided a sufficient basis for taking the first collective steps in organizing the regional network.' Our results contribute to a relatively small, but rapidly growing strand in the literature suggesting that our environment and changes in the organization of work require us to pay more attention to the concept of understanding (Sandberg and Targama, 2007; Vlaar et al., 2006). In interorganizational relationships – alliances, outsourcing and offshoring initiatives, and joint ventures – where organizations are sometimes confronted with partners stemming from different backgrounds, industries and environments, which are organized fundamentally different in terms of culture, structure and strategy, the challenge involved with arriving at understandings that enable collective action may even be more significant (Maitlis, 2005; Weick and Roberts, 1993). In such relationships, understanding does not only contribute to the development of trust and more appropriate and sophisticated use of formal control mechanisms, but it probably also enhances performance by means of implicit means of coordination, such as providing task relevant information, knowledge and feedback without prior request, proactively sharing of

workloads and helping colleagues, monitoring progress of activities and other participants, and adapting one's behaviour to the actions expected of others (e.g., see Rico et al., 2008).

### *Understanding and Learning in Alliances*

Finally, understanding is generally conducive to learning. Lane and Lubatkin (1998) in their study of pharmaceutical and biotech firms showed that when partners understand or share the underlying assumptions of each other's systems, learning will be facilitated. This has several implications on learning at the level of both dyads and firms. First, understanding of the ambitions of the other partner enables firms to select potential allies with knowledge or resources that are most appropriate to make a relationship work. Second, when a firm that is supposed to teach or transfer knowledge to its partner in an alliance has a better understanding of this partner, it is in a better position to select an appropriate method for teaching (Arrow, 1969; Leonard-Barton, 1988), which may result in more effective knowledge transfer. Third, a 'deeper understanding' of the other partner's expectations (Doz, 1996; p. 70) and motives enables a more precise assessment of the knowledge that is to be shared and the knowledge that should be protected. Understanding thus helps the teaching partner to identify which knowledge should not be transferred and thus leads to better protection of the transferor's core competitive assets.

In our paper we focus on the 'positive' side of understanding. We observe the effects of compatibility and shared understanding between partners and how this can lead to a 'meeting of minds'. In this case, understanding results in a favourable assessment of partner and a higher likelihood that a 'meeting of minds' ensues between them. Understanding will then lead to a virtuous cycle of engagement with the partner and improved performance. Arguably, one can also advance that enhanced understanding by a partner may lead to vicious cycles of disengagement and performance declining along downward spirals when the information that is processed during the alliance lifecycle results in an increasingly negative image of the partner. Although we did not

incorporate this in our study, interorganizational performance in this case can decline even though partner's understanding is enhanced.

### **Limitations and Future Research**

The paper has several limitations. The nature of our study is deductive, as we aimed to assess the relative influence of understanding on interorganizational performance as compared to trust and control. Our paper therefore incorporates the classical weaknesses of a deductive study, such as a lack of in-depth knowledge. Second, the results are derived from single respondents reporting on 76 different partnerships representing a particular type of joint venture. Ideally, one would prefer using multiple respondents from a single partner to increase validity. Unfortunately, the nature of the EEIGs and limited access to the managers responsible for managing the EEIGs inhibited this approach. Third, the paper measures understanding at three different moments in time (i.e. ex ante/pre-contractual; contractual; and ex post/post-contractual understanding). The use of longitudinal data promises to provide deeper insights not only in the development of understanding, but also in the relationship between understanding and interorganizational performance. Although beyond the scope of this research, our findings suggest a clarion call for such research in future. Fourth, our study is limited by the fact that we only investigate the effect of understandings held by focal partners, ignoring the fact that different partners may hold distinct understandings. It is possible, for example, that one partner has a high understanding of its counterparts and the alliance in which it is engaged, whereas other partners exhibit low levels of understanding. The question that may then arise is how these asymmetries in understanding and alternative configurations of partner understandings influence interorganizational performance; can we expect that high levels of understanding by one partner and low understandings by other partners involved in the same relationship lead to mediocre performance? And can we presume that high understandings by both parties lead to very high levels of performance? The latter would imply that the effect of understanding on interorganizational

performance is even greater than depicted in our current results, which only reflect the influence the understanding held by a focal partner. A fifth limitation concerns the causality of the relationships proposed between understanding, trust, control and interorganizational performance. It is not inconceivable that increases in performance augment trust, information sharing and understanding, which may facilitate control in turn. Although part of this issue has been addressed by conducting Sobel t-tests and by measuring understanding at three different points in time (i.e., respectively before the relationship was initiated, at the *time the contract was signed*, and after the contract was signed) a research design in which each of the constructs is assessed at various points in time would offer more opportunities for disentangling the causality of the relationships between trust, control and understanding.

Beyond these opportunities, various other avenues for future research prevail. Researchers could ascertain which levels (e.g., detailed versus abstract) and domains of understanding (e.g., the partner's competences and constraints, the alliance environment) matter most for interorganizational performance. In additions, they could examine how members of collaborating organizations attempt to advance their understandings and how they make sure that these understandings become shared (Bechky, 2003, 2006; Bigley and Roberts, 2001), common (Davidson, 2002; Orlikowski and Gash, 1994), similar (Dougherty, 1992), congruent (Vlaar et al., 2006), mutual (Cramton, 2001), or collective (Grant, 1996) in the sense that they become sufficiently similar with understandings held by participants from other organizations so as to enable collaborative action. Another avenue for future research concerns investigating factors that affect the development of understanding between partners. One could, for example, think of cultural differences – both organizational and national - prior ties, and interorganizational structures, routines and processes. Such a study is likely to result in rich insights into the antecedents of understanding, something which has particularly high value for practitioners.

In addition, our results denote that focal actors' understandings of their partners and the alliances in which they are engaged can be ascertained by specifying particular conditions and processes at different points during the lifecycle of collaborative relationships (e.g., see Das and Teng, 2002; Doz, 1996; Van Fenema et al., 2007). Specifically, we propose that a distinction can be made between *ex-ante* conditions and processes (e.g., organizational compatibility, cultural differences and partner selection), *contractual* conditions and processes (e.g., information-asymmetry and negotiation efforts) and *post-formation* conditions and processes (e.g., degree of autonomy between partners and information processing) that are strongly associated with the understandings that members of focal organizations develop concerning their partner(s) and the alliances in which they are engaged.

Regarding *ex ante* condition facilitating or inhibiting understanding, one can think of the compatibility of and differences between partners in terms of, amongst other factors, structures, cultures, functional capabilities (Barkema and Vermeulen 1997; Doz 1996), cognitive frames (Nooteboom 1992), terminologies (Kaghan and Lounsbury 2006), management styles (Lane and Lubatkin 1998) and industry backgrounds (Sutcliffe and Huber 1998). Lui and Ngo (2005: 1145) offer example of a local architect, which stated that its Japanese contractor's working style and administrative procedures were very different from his own firm's, which made that both firms had a hard time in adjusting to each other. 'The dissimilarities between the two parties led to substantial misunderstandings and hostile actions between them in the beginning.'

An example of the *post-formation* processes used to increase understanding is provided by Akkermans et al. (2004: 453) who discuss a collaborative relationship where '[O]ne of the root causes for a lack of trust was [a] lack of understanding for each other's planning processes and, even more, for each other's businesses.' In this relationship, a high volatility in forecasts was initially suspected to be the result of 'playing games', whereas volatility was in fact the

consequence of market dynamics. Akkermans et al. (2004: 453) explain that ‘[O]nly after spending a number of workshops, focused on explaining businesses, processes, and systems, a mutual understanding for each other’s perceived volatility (or rigidity) did materialize’. Similarly, Paik (2005: 502) offers the example of Volkswagen, where a rotational program was deployed in for Skoda Auto Managers who were sent to Stuttgart, Germany, to learn the company’s overall operation. ‘This promoted cultural understanding and developed trust between Czech managers and German corporate headquarters.’

### **Conclusion**

In this article, we have introduced the concept of understanding in the debate on trust and control. Our findings, based on a survey of 76 joint European-based ventures, indicate that focal persons’ understandings of the alliances in which they are engaged and of the partners involved in these alliances act as a strong predictor of interorganizational performance. Results also indicate that understanding may account for performance effects that have previously been attributed to trust and control. This calls for a more prominent position of the construct of understanding in research on interorganizational relationships, while also encouraging researchers to revisit the debate on trust and control.

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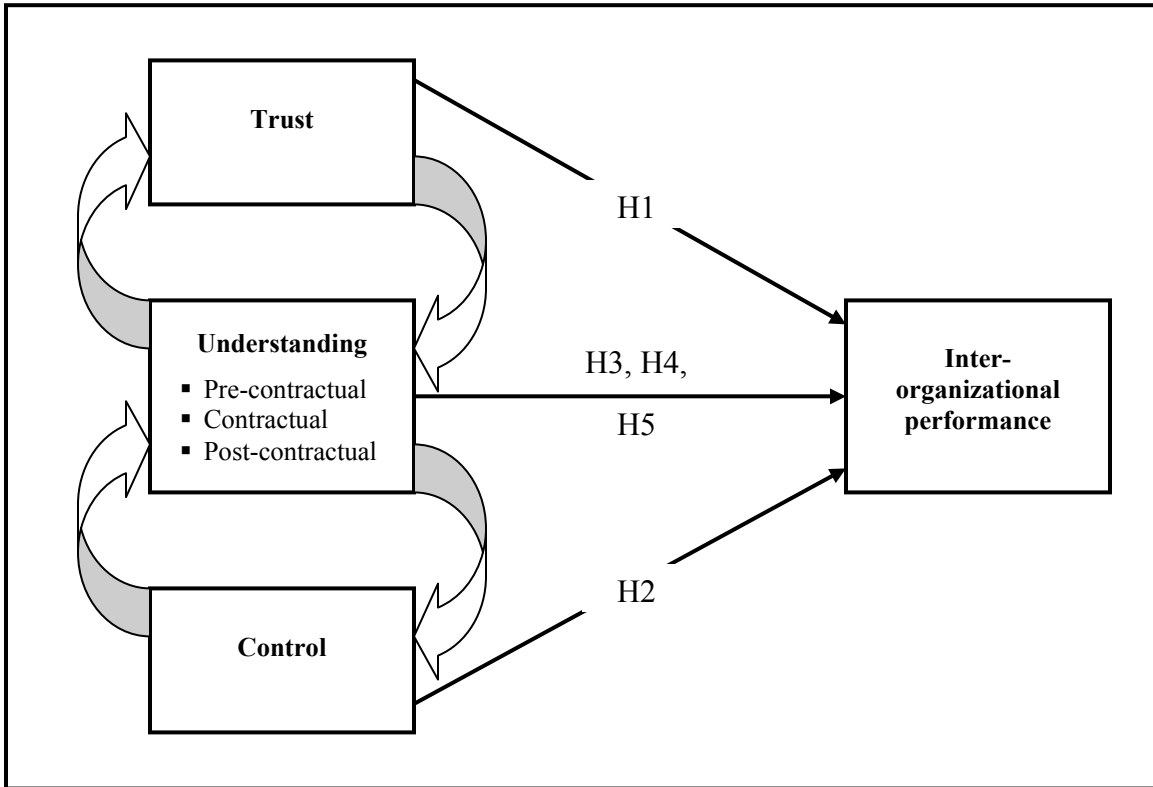
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**FIGURE 1**  
**Conceptual Framework**



**TABLE 1**  
**Overview of nationality and industry of respondents**

<b>Country</b>	<b>Service</b>	<b>Manufacturing</b>	<b>Total</b>
Austria	1	0	1
Belgium	6	2	8
Denmark	3	1	4
France	1	1	2
Germany	12	1	13
Greece	2	0	2
Hungary	1	1	2
Italy	6	1	7
Luxembourg	1	0	1
Norway	1	0	1
Poland	1	2	3
Portugal	0	1	1
Romania	1	0	1
Slovenia	1	0	1
Spain	3	2	5
Sweden	3	0	3
Switzerland	2	1	3
The Netherlands	5	2	7
UK	11	0	11
<b>Total</b>	<b>61</b>	<b>15</b>	<b>76</b>

**TABLE 2**  
**Measurement Scales**

<b>Construct</b>	<b>Cronbach <math>\alpha</math></b>	<b>Items</b>	<b>Valid N</b>	<b>Mean</b>	<b>S.D.</b>	<b>Skewness</b>	<b>Kurtosis</b>
(1) Performance	.93	4	68	17.99	5.32	-.755	-.026
(2) Information Processing	.86	2	75	10.32	2.28	-.637	.348
(3) Shared Understanding	.83	3	70	13.90	3.61	-.431	.170
(4) Trust	.91	3	75	16.22	3.43	-.635	-.011
(5) Control	.86	5	73	21.92	7.23	-.565	-.337
(6) Asset Specificity	.77	3	76	10.11	4.29	.655	-.219
(7) Compatibility Partners	.91	3	67	13.49	4.16	-.296	-.848

**TABLE 3**  
**Confirmatory Factor Analysis\***

	Loadings	R <sup>2</sup>
<b>TRUST</b>		
Trust 1	.80	.64
Trust 2	.92	.84
Trust 3	.90	.82
<b>CONTROL</b>		
Control 1	.60	.37
Control 2	.71	.51
Control 3	.76	.58
Control 4	.82	.67
Control 5	.77	.59
<b>INFORMATION PROCESSING</b>		
Information processing 1	.89	.79
Information processing 2	.85	.73
<b>SHARED UNDERSTANDING</b>		
Shared understanding 1	.88	.78
Shared understanding 2	.95	.91
Shared understanding 3	.59	.35
<b>COMPATIBILITY</b>		
Compatibility 1	.82	.67
Compatibility 2	.98	.97
Compatibility 3	.82	.68

$\chi^2 = 478.22^{***}$ ; df. 170; CFI .81; IFI .81

\* N = 76

**TABLE 4**  
**Pearson Correlation matrix (2-tailed) <sup>a</sup>**

	Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) Performance	17.99	5.32	1.00									
(2) Information processing	10.32	2.28	.56 **	1.00								
(3) Shared understanding	13.90	3.61	.54 **	.50 **	1.00							
(4) Trust	16.22	3.43	.41 **	.62 **	.39 **	1.00						
(5) Control	21.92	7.23	.28 *	.24 *	.22	.07	1.00					
(6) Asset specificity	10.11	4.29	.26 *	.34 **	.25 *	.15	.18	1.00				
(7) Compatibility partners	13.49	4.16	.52 **	.36 **	.48 **	.48 **	.30 *	.18	1.00			
(8) Firm size (log)	1.26	.93	-.10	-.12	-.15	.02	.10	.08	-.06	1.00		
(9) Familiarity partners	.30	.46	.21	.18	.17	.34 **	.19	-.06	.24 *	-.04	1.00	
(10) Equity/Non-equity	.61	.49	.08	-.01	-.01	.03	-.05	.05	.01	-.08	.01	1.00

\* Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed).

N = 76

a) A correlation coefficient of a score > .550 can indicate possible multicollinearity. We regressed the highest correlated independent variable (i.e., information processing) against the other variables in our analysis and performed a variance inflation factor analysis and a tolerance level analysis. Results show no existence of significant multicollinearity between the variables (Highest VIF score 1.715 and lowest tolerance level .583. Acceptable are scores for tolerance >.10 and VIF <10 (Hair et al, 1998). Average tolerance level was .783.

**TABLE 5**  
**Regression Analysis**

Dependent variable: Performance	Model (1) Std. $\beta$ (t-value)	Model (2) Std. $\beta$ (t-value)	Model (3) Std. $\beta$ (t-value)
<b>Understanding</b>			
Information Processing			.36 ** (2.808)
Shared Understanding Contract			.27 * (2.472)
Compatibility partners			.31 ** (2.883)
<b>Relational factors</b>			
Trust		.25 * (2.186)	-.17 (-1.346)
Control		.20 † (1.795)	.03 (.350)
<b>Control variables</b>			
Asset Specificity	.27 * (2.465)	.20 † (1.831)	.03 (.322)
Familiarity partners	.21 † (1.928)	.08 (.720)	.08 (.802)
Firm size	.06 (-.972)	-.13 (-1.220)	.00 (-.001)
Equity/Non-equity	.05 (.449)	.05 (.421)	.05 (.518)
R <sup>2</sup>	.13	.22	.47
Adjusted R <sup>2</sup>	.08	.15	.40
$\Delta$ Adjusted R <sup>2</sup>	-	.07	.25
F-value	2.61 *	3.23**	6.62***

† p < .10; \* p < .05; \*\* p < .01; \*\*\* p < .001  
N = 76