Creativity in buyer–seller relationships: The role of governance

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A R T I C L E I N F O

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A B S T R A C T

This research proposes a framework for relating governance mechanisms (power, contracts, and trust) to the generation of creative approaches to business activities in buyer–seller relationships. The framework is tested with a survey of 262 purchasing agents. The results indicate that trust and contract affect the three facilitators of inter-organizational creativity: (1) knowledge-sharing routines (resources), (2) learning orientation (motivation), and (3) managerial support and open-mindedness (managerial practices). Also, the effects of trust and contract on the creativity in buyer–seller relationships are fully mediated by the above three facilitators. In particular, trust plays a more influential role in stimulating creativity. While power is not significantly associated with any of the facilitators, its overall effect on creativity is negative.

Business-to-business marketing practices and academic research are increasingly focusing on building and maintaining long-term, collaborative relationships between buyers and sellers (Kalwani & Narayandas, 1995; Narayandas & Rangan, 2004; Ulaga & Eggert, 2006). These inter-organizational relationships span firm boundaries and provide opportunities for businesses to develop valuable, rare and non-imitable relationship-specific assets (Dyer & Singh, 1998). To harness the potential strategic advantages embedded in inter-organizational relationships, the generation of creative approaches to business activities is a critical first step.

While creativity1 is the precursor for developing innovation and strategic advantage through relationships, research in marketing and management has focused on creativity in intra-firm rather than inter-organizational contexts (Amabile, Conti, Coon, Lazenby, & Herron 1996; Damanpour, 1987, 1991; Damanpour & Gopalakrishnan, 2001; Deshpande, Farley, & Webster, 1993; Hurley & Hult, 1998; Kim, Bridges, & Srivastava, 1999; Klein & Sorra, 1996; Pennings & Jairanto, 1992; Rogers, 1983), with only a few exceptions (Chandrashekaran, Mehta, Chandrashekaran, & Grewal, 1999; Roy, Sivakumar, & Wilkinson, 2004). But conditions facilitating creativity in intra- and inter-organizational contexts may differ. For example, because of the physical and psychological distance between the parties, knowledge-sharing routines might be more important for stimulating inter-organizational creativity.

Over the past decades, research has examined innovation (typically with respect to commercializing new products and technologies) with greater frequency than creativity in inter-organizational relationships, particularly in inter-firm alliances (Rindfleisch & Mooreman, 2001; Sampson, 2007; Srivadas & Dwyer, 2000; Wuyts, Stremersch, & Dutta, 2004). Yet the factors affecting the adoption and implementation of creative ideas may differ from those that affect the generation of those ideas. For example, informal structures may be more effective at generating creative ideas, while formal structures may be more effective for implementing them.

We propose that inter-organizational governance mechanisms stimulate inter-organizational creativity. As Dyer and Singh (1998, p. 669) point out, governance “plays a key role” in the creation of inter-organizational innovations “because it influences transaction costs, as well as the willingness of alliance partners to engage in value-creation initiatives.” Governance mechanisms can provide safeguards that encourage the parties in buyer–seller relationships to share proprietary knowledge and think creatively. Without the safeguards provided by

1 Some researchers (Deshpande et al., 1993; Sethi, Smith, & Park, 2001) use the terms creativity and innovation interchangeably. However, others (Amabile, 1997; Bassett-Jones, 2005; Im & Workman, 2004; Lus, 2000; Rogers, 1983; Scott & Bruce, 1994) distinguish between the terms, defining creativity as the generation of novel and useful ideas and innovation as creative ideas that have been adopted and implemented.

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governance mechanisms, the parties in relationships may be reluctant to invest in resources that produce creative ideas or approaches. They may be concerned that their firm will either not receive the rents generated by the innovation developed from a creative idea, or that the other firms will either expropriate the idea and develop the innovative assets internally or work with competitive suppliers to develop them. On the other hand, governance mechanisms are not as important in intra-firm creativity because the rents generated by creative ideas are necessarily captured by the firm.

Specifically, the novel contributions of this study, relative to prior research on creativity and innovation in intra- and inter-organizational contexts, are as follows. This study:

1. focuses on creativity (the generation of creative ideas or approaches) in inter-organizational relationships (prior research has largely focused on innovation: the adoption, implementation, and diffusion of creative ideas or approaches);
2. examines the effects of governance mechanisms (norms, contracts, and power) on inter-organizational creativity as a critical issue in managing relationships between independent parties (existing research on creativity and innovations primarily investigates the impacts of governance mechanisms on intra-organizational creativity); and
3. considers three factors (resources, motivation, and managerial practices) that mediate the governance–creativity relationship (these factors, suggested by Amabile (1997), have been examined as conditions for intra-organizational creativity but not as the factors that affect inter-organizational creativity).

In the theoretical framework that follows, we define inter-organizational creativity and develop hypotheses relating governance mechanisms to inter-organizational processes that affect creativity. We then describe an empirical study testing the framework and its hypotheses, report the findings, and discuss their implications for marketing theory and practice. We conclude by outlining this study’s limitations and areas for future research.

1. Framework

Our theoretical framework, illustrated in Fig. 1, proposes that governance mechanisms (power, contracts and trust) provide safeguards in buyer–seller relationships. These safeguards encourage investment in and provide conditions facilitating generation of creative approaches for dealing with business activities in inter-organizational as buyer–seller relationships.

Inter-organizational creativity, the ultimate dependent construct in this research, is defined as the frequency with which novel and useful ideas or approaches to business activities are generated in an inter-organizational (buyer–seller) context. Novelty implies that ideas and approaches differ from the conventional practices in inter-organizational relationships, while usefulness indicates that these creative ideas or approaches can potentially provide meaningful benefits to the parties concerned. This definition, stressing “meaningful uniqueness,” is consistent with definitions of individual creativity (Amabile, 1983) and intra-organizational creativity (Deshpande et al., 1993; Im & Workman, 2004).

In buyer–seller relationships, creative ideas or approaches can vary from small to radical adaptations in buyer–seller business processes. Some examples of the creative ideas in buyer–seller relationships we encountered during interviews with buyers are as follows: (1) the proposed development of a unique component made by the seller that will improve the performance of the buyers product; (2) the suggested adoption of an idiosyncratic interface to improve communications between the buyer and the seller; (3) the proposed development of a website for tracking the status of the buyer’s orders placed with the seller; or (4) a simple suggestion to change a shipping label so that shipments from the seller can be processed more efficiently by the buyer.

The framework in Fig. 1 proposes that governance mechanisms (trust, contracts and power) promote three conditions that foster creativity: (1) resources (complementary resources and knowledge-sharing routines), (2) motivation (learning orientation) and (3) managerial practices (management support and open-mindedness).

1.1. Governance mechanisms

Weitz and Jap (1995) draw a parallel between intra-organizational and inter-organizational governance and identify three basic mechanisms for governing relationships: normative, contractual and authoritative. The normative mechanism involves a shared set of implicit principles or norms. While the norms are the basis of this governance mechanism, in this research we focus on trust generated by these norms rather than the mutual acceptance of specific norms (Gencturk & Aulakh, 2007; Ploetner & Ehret, 2006). Thus, trust is the manifestation of
these norms. The contractual mechanism refers to governance by explicit, legally enforceable contractual terms. The authoritative mechanism involves one party in a buyer–seller relationship using its power to control the activities of the other party. These governance mechanisms provide safeguards that facilitate creativity by reducing uncertainty in the distribution of rents derived from the creative ideas.

1.2. Conditions facilitating creativity

According to research in organizational, as well as individual, creativity, three conditions fostering inter-organizational creativity are: (1) resources, (2) motivation, and (3) creative processes (Amabile et al., 1996; Amabile, 1997; Troy, Szymanski, & Varadarajan, 2001; Mathisen & Einarsen, 2004; Griffiths-Hemans & Grover, 2006; Hunter, Bedell, & Mumford, 2007). Resources are the knowledge embedded in the organization and its employees and the processes available for retrieving this knowledge. Motivation is provided by the organization’s support and rewards for creative thinking. Finally, the creative processes are management practices that foster creativity.

Translating intra-organizational perspectives on creativity into an inter-organizational context, we propose that the conditions affecting the generation of innovative ideas or approaches in a buyer–seller context are: (1) resources — complementary resource provide the parties with the necessary resources to be creative and knowledge-sharing routines between buyers and sellers that increase the availability and accessibility of these resources; (2) motivation — learning orientation represents an intrinsic interest in exploring new approaches, facilitates the consideration of different approaches, and values diverse opinions for undertaking business activities; and (3) managerial practices — top-management support and open-mindedness provide mechanisms for developing creative ideas.

1.3. The role of governance mechanisms in facilitating creativity

In this section, we propose our hypotheses concerning the impact of governance mechanisms on the conditions facilitating inter-organizational creativity.

1.3.1. Normative governance (trust)

Trust is defined as a belief that a trustor is concerned with a trustee’s welfare (benevolence); will reliably fulfill its commitments (integrity); and has the skills, competencies, and knowledge to fulfill its obligations (expertise) (Doney & Cannon, 1997; Morgan & Hunt, 1994; Schoorman, Mayer, & Davis, 2007). The existence of trust arising from normative governance provides an environment in which buyers and sellers can adopt a learning orientation. A learning orientation in buyer–seller relationships.

Hypothesis 1. Trust has direct, positive effects on (a) complementary resources, (b) knowledge-sharing routines, (c) learning orientation, (d) management support, and (e) open-mindedness in buyer–seller relationships.

1.3.2. Contractual governance (contracts)

Contractual governance explicitly outlines the activities buyers and sellers should undertake and the division of rewards derived from these activities. Contractual governance provides a clear definition of the safeguards for buyers and sellers in relationships. Contractual governance also explicitly defines the division of benefits arising from creative thinking and heightens the motivations for and interest in creating value (Ghosh & John, 1999).

The contractual mechanism, like trust, encourages relationship-specific investment in identifying complementary resources, developing knowledge-sharing systems, encouraging a learning orientation, and motivating top-management support and open-mindedness. Contractual mechanisms, through formal and explicit rights and responsibilities for the buyer and the seller, also decrease the uncertainty associated with carrying out management practices. Thus, we propose:

Hypothesis 2. Contractual governance has a positive effect on (a) complementary resources, (b) knowledge-sharing routines, (c) learning orientation, (d) management support, and (e) open-mindedness in buyer–seller relationships.

1.3.3. Authoritative governance (power)

While both authoritative and contractual governance mechanisms provide clear directions for the appropriate processes and activities to be undertaken by the parties, these mechanisms function differently and have different goals, depending on context. In relationships governed by an authoritative mechanism, the more powerful parties can and often do dictate the course of action. Considerable research in marketing finds that relationships governed by the use of power are characterized by limited communications, low cooperation, and high conflict — all conditions inhibiting creativity (Anderson & Weitz, 1989; Dwyer, Schurr, & Oh, 1987; Frazier, Grill, & Kale, 1989; Stern & Reve, 1980). Although power may ensure the allocation of the rents generated from buyer–seller relationships to a certain degree, power asymmetries in such relationships can also lead to opportunistic behaviors, creating uncertainties about the division of other benefits arising from creative thinking. Therefore the unilateral use of power as a governance mechanism may discourage the generation of creative ideas or approaches. Thus, we propose:

Hypothesis 3. Power has direct, negative effects on (a) complementary resources, (b) knowledge-sharing routines, (c) learning orientation, (d) management support, and (e) open-mindedness in buyer–seller relationships.

1.4. Conditions affecting creativity

Our conceptual framework suggests that governance mechanisms encourage creativity by providing incentives for investing in the three conditions stimulating creativity — resources, motivation, and managerial practices. The impact of each of these conditions on creativity is discussed in this section.
1.4.1. Resources

Two elements of resources considered in this research are: (1) complementary resources and (2) knowledge-sharing routines. By entering into relationships involving complementary resources, buyers and sellers are able to access a greater resource base from which to develop unique and useful ideas or approaches (Basadur & Gelade, 2006; Harrison, Hitt, Hoskisson, & Ireland, 1991).

Through knowledge-sharing routines, buyers and sellers in relationships are expected to “interact with each other extensively, to share everything from risk, responsibility, information, to decision making, and to acquire breadth of knowledge and skills” (Imai, Nonaka, & Takeuchi, 1985). Thus, establishing knowledge-sharing routines enables buyers and sellers to expand their firms’ resources by accessing and utilizing their partners’ knowledge (Grant, 1996a,b; Grant & Baden-Fuller, 2004).

As more knowledge is shared between buyers and sellers, however, the heterogeneity of knowledge among these organizations will decrease. The intra-organizational literature suggests that groups with similar values, information, or competencies are less capable of generating novel ideas or approaches (actions that deviate from their prior activities) compared to heterogeneous groups (Gigone & Hastie, 1993). Ironically, then, a high degree of knowledge-sharing can actually limit the number of ideas and competencies available for recombining and generating creative approaches (Moorman & Miner, 1993; Wuyts, Colombo, Dutta, & Nooteboom, 2005). Thus, we propose:

**Hypothesis 4.** (a) Complementary resources have positive effects on the generation of innovations in buyer–seller relationships and (b) knowledge-sharing routines have an inverted-U relationship with the generation of creative ideas in buyer–seller relationships.

1.4.2. Motivation

Learning orientation refers to both firms’ motivation to learn about each other’s problems and capabilities and use such information to explore opportunities to realize the benefits of a partnering relationship. At an intra-organizational level, learning orientation plays an important role in promoting creativity and innovation (Dodgson, 1993; Hurley & Hult, 1998; Stata, 1989). Similarly, at an inter-organizational level, learning orientation will stimulate the generation of creative ideas or approaches because firms are genuinely interested in mastering opportunities to exploit the potential of relationships with other firms. Thus, we propose:

**Hypothesis 5.** Learning orientation has a positive effect on the generation of creative ideas in buyer–seller relationships.

1.4.3. Managerial practices

As Amabile (1997) suggests, managerial practices associated with creativity involve establishing a cognitive style favorable to adopting new perspectives on problems; techniques (or “heuristics”) for the exploration of new cognitive pathways; and a working style conducive to persistent, energetic pursuit of tasks. These practices allow a considerable degree of freedom and autonomy in the generation of creative ideas.

Management support in buyer–seller relationships enhances the development of creative processes. Buyers and sellers are more likely to engage in processes that generate creative ideas or approaches when they perceive that these behaviors are supported and rewarded by their organizations (Amabile, 1997; Kimberly & Evanisko, 1981). Management support ensures clear planning and feedback as well as good communication in the relationship. Furthermore, it makes buyers and sellers realize that their unique inputs are welcome, meaningful, and influential (Amabile et al., 1996). Open-mindedness in buyer–seller relationships enables both parties to seek and generate diverse opinions and unlearn long-held routines, assumptions, and beliefs (Sinkula et al., 1997). Open-mindedness is essential to buyers and sellers identifying and replacing outdated beliefs and behaviors and thus becoming more innovative in relationship management. Thus, we propose:

**Hypothesis 6.** Both (a) management support and (b) open-mindedness have direct, positive effects on the generation of creativity in buyer–seller relationships.

Our framework, based on Amabile, Conti, Coon, Lazenby and Herron (1996) componential theory of creativity, suggests that the three factors facilitating inter-organizational creativity – resources, motivation, and managerial practices – mediate the effects of governance mechanisms on the level of inter-organizational creativity. Thus, we propose:

**Hypothesis 7.** Resources, motivation, and managerial practices mediate the effects of (a) trust, (b) contract, and (c) power on the generation of creative ideas in buyer–seller relationships.

1.5. Differential effects of governance mechanisms on creativity

While both trust and contractual mechanisms directly affect the three conditions facilitating creativity and indirectly influence levels of inter-organizational creativity, Dyer and Singh (1998) propose that trust has a greater impact than contracts do on cultivating inter-organizational competitive advantages, such as those arising from creativity. “The greater the alliance partners’ ability to employ self-enforcing safeguards (e.g. trust or hostages) rather than third-party safeguards (e.g. legal contracts), the greater the potential will be for relational rents, owing to (1) lower contracting costs, (2) lower monitoring costs, (3) lower adaptation costs, (4) lower re-contracting costs, and (5) superior incentives for value-creation initiatives (such as generating creative ideas or approaches)” (Dyer & Singh, 1998, p. 671).

In addition, trust encourages firms to not only exploit current resources and capabilities but also explore potential ones. In contrast, contracts only increase efficiency in the exploitation of current resources and capabilities. Nonetheless, empirical study shows that, in industries where asset specificity is low, contract manufacturing actually increases the rate of innovation (Sturgeon, 2003). Finally, power promotes neither exploration nor exploitation of resources or capabilities because it both creates an unstable environment subject to opportunistic behaviors and lowers the level of communication, cooperation, and commitment between the participating firms. Thus, we propose:

**Hypothesis 8.** Trust governance has the greatest impact on inter-organizational creativity, followed by contractual and power governance.

2. Method

2.1. Samples and data collection procedure

The framework in Fig. 1 was tested by collecting data through a web-based survey of 262 purchasing managers. These managers work in a wide range of industries, including manufacturing (electronics, instruments manufacturing, MRO supplies, OEM sub-assemblies) and non-manufacturing (service, transportation). Purchasing managers were selected as the key informants because they have extensive knowledge of their firm’s and their suppliers’ activities (Rooks, Raub, Selten, & Tazelaar, 2000).

A random sample of 2038 purchasing managers affiliated with the Institute for Supply Management were sent an e-mail asking them to participate in a research project examining buyer–seller relationships and directing them to a website containing a questionnaire. Several steps were taken to encourage a high response rate and response quality. First, an e-mail describing the purpose of the research and providing the link and password to the research website was sent to each purchasing manager. Second, the participants were assured that all responses were confidential and that only aggregated results would be presented. Third,
to encourage participation, each respondent to the survey was entered into a lottery with three $100 prizes. Finally, an e-mail account was created specifically for the participants to report possible ambiguities regarding the questionnaire. Two weeks after sending the initial e-mail, a reminder e-mail was sent to all the participants to encourage completion of the survey. A total of 262 participants returned a completed questionnaire (a 12.9% response rate) within a month of the initial contact.2

In the instructions for the questionnaire, purchasing agent participants were asked to answer the questions with respect to their relationship with a specific important supplier, one that they had worked with for more than one year. The average length of time with which the buyer’s firm had a relationship with the supplier’s firm was 12 years, indicating that the respondents’ firms had a meaningful relationship with the supplier and sufficient knowledge of both their own organizations and their counterpart suppliers (Larwood & Falbe, 1995).

2.2. Research design issues

Two important issues have been raised concerning the cross-sectional survey research methodology used in this study: (1) non-response bias might lead to a systematic exclusion of firms from the sample, distorting the estimations; and (2) common method variance might inflate the significance of the estimated relationships. According to Armstrong and Overton (1977), one indicator of potential response bias is a significant difference in the estimated coefficients for early and later respondents. To examine these indicators, we compared the estimated coefficients for early and later respondents for the six regression models. Five regression models predicting the factors facilitating creativity and one predicting the frequency with which creative ideas are generated) used to test the hypotheses. The Chow test for each of these six regression models indicates no difference in the estimated coefficients (p>0.20).

Several approaches suggested by prior literature (Malhotra, Kim, & Patil, 2006; Podsakoff, Mackenzie, Lee, & Podsakoff, 2003) were used to examine and mitigate a potential common method variance bias. To examine these indicators, we compared the estimated coefficients for early and later respondents for the six regression models. Five regression models predicting the factors facilitating creativity and one predicting the frequency with which creative ideas are generated) used to test the hypotheses. The Chow test for each of these six regression models indicates no difference in the estimated coefficients (p>0.20).

2.3. Measures

2.3.1. Development procedure

Following Churchill’s (1979) and Anderson and Gerbing’s (1988) recommendations, we developed new scales for the following new constructs: creativity in buyer–seller relationships, inter-organizational knowledge-sharing routines, inter-organizational learning orientation, open-mindedness, and inter-organizational top-management support. For the other constructs, we adapted scales from existing measures. Several steps were taken to ensure the content validity of the measures. First, the relevant literature was thoroughly reviewed to guide the scale development. An initial set of 83 items was developed for all the constructs in this step. Second, colleagues and experts in the relevant fields were consulted to evaluate these initial items for each construct. Some of the items were eliminated because of low face validity, leaving 36 items for use. Next, to further refine individual item content, and also to test the questionnaire instruction and response format, a pilot study (n=31) was conducted. Based on discussions with buyers participating in the pilot study, several items were modified or deleted to reduce ambiguity. The remaining 27 items were used in the final questionnaire with 5-point Likert-type scales anchored from 1 (strongly disagree) to 5 (strongly agree).

2.3.2. Measure descriptions

Inter-organizational creativity was operationalized as the rate of generating novel and useful approaches to buyer–seller relationships. The term “approaches” was used to encourage respondents to consider a broad range of innovations, including both relatively minor process changes and creative ideas leading to significant transaction-specific investments. Three items were developed to measure inter-organizational creativity.

Based on Jap (1999), we measured complementary resources using a three-item scale to assess the extent to which each party in a buyer–seller relationship possesses synergistic resources that the other party lacks. We dropped one of the items, however, because it did not converge with the other two. Drawing on the conceptual framework in Dyer and Singh (1998), we developed a three-item scale of inter-organizational knowledge-sharing routines to measure the extent to which a systematic pattern of buyer–seller interactions permitting transfer of knowledge and information between them was established. Three items were used to measure inter-organizational learning orientation, and two items were used to measure open-mindedness in buyer–seller relationships. We used a two-item scale to measure management support based on Amabile et al.’s (1996) conceptualization of this construct within organizations.

Five items were adapted from previous trust research (Doney & Cannon, 1997) to measure the extent to which the parties in buyer–seller relationships are benevolent and can rely on the promises made by other parties. Power was measured using two items adapted from the previous study by Jap and Ganesan (2000). These items assessed the degree to which the parties in buyer–seller relationships can influence their counterparts to engage in behaviors that the counterparts normally would not. Based on the research by Jap and Ganesan (2000), four items were used to measure the degree to which both parties in a buyer–seller relationship agree to regulate their conduct explicitly by legal enforcement. Lastly, we controlled for the effects of relationship length and industry type in our model. We used the logarithm of years in existence to represent the relationship length, and used dummy variables to represent a manufacturing industry and a non-manufacturing industry.

2.3.3. Measurement model estimation

Using confirmatory factor analysis in LISREL 8.80 (Jöreskog & Sörbom, 2006), the measurement model was estimated using all the items that were hypothesized to measure the nine underlying constructs. The results yielded satisfactory fit statistics: chi-square (df) = 501.30, degrees of freedom (df) = 324 (p<0.01), non-normed fit index (NNFI) = 0.96, comparative fit index (CFI) = 0.97, standardized Root Mean Square Residual (SRMR) = 0.05, and root mean
Table 1
Results of hypothesis testing

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Parameter estimate (standard error)</th>
<th>Standardized parameter estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Governance mechanisms → factors facilitating creativity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trust → complementary resources (H1a)</td>
<td>0.10* (0.05)</td>
<td>0.16*</td>
</tr>
<tr>
<td>Trust → knowledge-sharing routines (H1b)</td>
<td>0.11* (0.05)</td>
<td>0.15*</td>
</tr>
<tr>
<td>Trust → management support (H1d)</td>
<td>0.16* (0.08)</td>
<td>0.16*</td>
</tr>
<tr>
<td>Trust → open-mindedness (H1e)</td>
<td>0.31*** (0.07)</td>
<td>0.35***</td>
</tr>
<tr>
<td>Contract → complementary resources (H2a)</td>
<td>0.00 (0.05)</td>
<td>0.01</td>
</tr>
<tr>
<td>Contract → knowledge-sharing routines (H2b)</td>
<td>0.00 (0.06)</td>
<td>0.01</td>
</tr>
<tr>
<td>Contract → management support (H2d)</td>
<td>0.00 (0.06)</td>
<td>0.01</td>
</tr>
<tr>
<td>Contract → open-mindedness (H2e)</td>
<td>0.00 (0.06)</td>
<td>0.01</td>
</tr>
<tr>
<td>Power → complementary resources (H3a)</td>
<td>0.17 (0.09)</td>
<td>0.20</td>
</tr>
<tr>
<td>Power → knowledge-sharing routines (H3b)</td>
<td>0.09 (0.07)</td>
<td>0.09</td>
</tr>
<tr>
<td>Power → learning orientation (H3c)</td>
<td>0.07 (0.07)</td>
<td>0.09</td>
</tr>
<tr>
<td>Power → management support (H3d)</td>
<td>0.04 (0.04)</td>
<td>0.09</td>
</tr>
<tr>
<td>Power → open-mindedness (H3e)</td>
<td>0.04 (0.04)</td>
<td>0.09</td>
</tr>
</tbody>
</table>

Factors facilitating creativity → production creative ideas and approaches

Effects of resources
- Complementary resources → creativity production (H4a)

Effects of motivation
- Learning orientation → creativity production (H4b)
- Management support → creativity production (H4c)

Effects of managerial practices
- Open-mindedness → creativity production (H4d)

Test of mediation
- Trust → creativity production (H7)
- Contract → creativity production (H7)
- Power → creativity production (H7)

Control variables
- Relationship length → creativity production
- Manufacturer → creativity production

R²
- Complementary resources
- Knowledge-sharing routines
- Learning orientation
- Management support
- Open-mindedness
- Creativity production
- Minimum fit function chi-square
- Degrees of freedom
- CFI
- NNFI
- RMSEA
- Standardized root mean square residual

*p < 0.05 (T = 1.96), two-tailed test.
**p < 0.01 (T = 2.58), two-tailed test.
***p < 0.001 (T = 3.29), two-tailed test.

In support of H1, trust has significant positive effects on complementary resources ($β=0.16$, $p < 0.05$), knowledge-sharing routines ($β=0.15$, $p < 0.05$), learning orientation ($β=0.53$, $p < 0.001$), management support ($β=0.16$, $p < 0.05$), and open-mindedness ($β=0.34$, $p < 0.001$). In corroboration of H2, even though contract has no effect on complementary resources, it has a significant positive effect on knowledge-sharing routines ($β=0.64$, $p < 0.001$), learning orientation ($β=0.18$, $p < 0.01$), and management support ($β=0.35$, $p < 0.001$), but not on open-mindedness. H3 is not supported. No empirical evidence was found to validate the relationships between power and complementary resources, knowledge-sharing routines, learning orientation, management support, or open-mindedness.

3.2. The effects of conditions facilitating creativity

Hypotheses 4–6 were tested by estimating the relationships among the three conditions (resources, motivation, and managerial practices) and creativity in buyer–seller relationships. H4(a) suggests that complementary resources would have a positive effect on creativity. However, no empirical evidence is found for this hypothesis. H4(b) predicts a curvilinear relationship between knowledge-sharing routines and creativity. More specifically, it predicts that excessive levels of knowledge-sharing routines are detrimental to creativity in buyer–seller relationships. The results support this prediction: the linear term is significantly positive ($β=0.31$, $p < 0.01$). Following Ping’s (1995) guidelines to test the curvilinear effects of inter-organizational knowledge-sharing routines, we find the squared term of these routines has a significant negative effect on creativity ($β=-0.15$, $p < 0.05$). The nature of this curvilinear relationship is illustrated in Fig. 2.

Hypothesis 5 concerning the impact of motivation on creativity in buyer–seller relationships is supported. Learning orientation is positively related to creativity ($β=0.24$, $p < 0.001$). The two management practices in buyer–seller relationships also have positive effects on inter-organizational creativity. Management support ($β=0.31$, $p < 0.001$) and open-mindedness are positively related to creativity ($β=0.37$, $p < 0.001$), confirming Hypothesis 6.

3.3. Mediation analyses

Hypothesis 7 suggests that the direct paths between governance mechanisms and creativity are mediated by conditions that facilitate creativity. The coefficients for the direct effects of trust, contract, and power are not significant, yet indirect effects of trust and contract are significant, as shown in Table 1. Further, there is no significant difference (i.e., no significant effect on the mediators ($χ^2 = 8.26, p = 0.20$) in the fit of the model with and without the two direct paths from governance modes to creativity (trust and contract). Thus, the
three facilitators fully mediate the effects of trust and contract on creativity but not on power, partially supporting Hypothesis 7.

### 3.4. Differential effectiveness of governance mechanisms

Table 2 summarizes the direct, indirect, and total effects of trust, contract, and power on creativity. The indirect effects are calculated as a simple multiplicative sum of the magnitude of sequential beta weights, a procedure normally used in causal modeling and path analysis (Asher, 1976; Simon, 1957). Total effect is the sum of the magnitude of the direct and indirect effects. The total effect of trust has the greatest, positive effect on creativity (0.39), followed by contract (0.25). Power has the smallest and negative effects on creativity (-0.19), supporting H8.

In conclusion, the results indicate that the governance mechanisms (trust and contractual governance) significantly affect the conditions that facilitate inter-organizational creativity (resources, motivation, and management practices) in a buyer–seller relationship. The effects of trust, contractual governance, and power on creativity are fully mediated by the conditions for creativity. Furthermore, the results support the hypothesized curvilinear relationship between knowledge-sharing routines and creativity.

### 4. Discussion

#### 4.1. Theoretical implications

Prior studies of innovation have focused on the development of innovative products and technologies within an organization or between organizations involved in an alliance. This study extends previous organizational innovation development research to examine the effects of governance mechanisms on creativity between independent buyers and sellers, parties that do not interact in formal governance structures. In addition, this research provides insights into the effects of governance mechanisms on creativity by examining the mediating effects of resources, motivation, and managerial practices. It provides and tests a framework addressing the role of governance mechanisms in encouraging investment in relation-specific assets that provide the resources, motivation, and managerial practices stimulating creativity.

Besides broadening existing perspectives on inter-organizational creativity, this study also provides a new lens for examining a number of inter-organizational issues that have emerged recently, such as the generation of inter-organizational relational rents (Dyer & Singh, 1998), the dynamics of knowledge-sharing between organizations (Grant & Baden-Fuller, 2004; Young, Sapienza, & Baumer, 2003), and the utilization of inter-organizational resources by focal organizations (Harrison, Hitt, Hoskisson, & Ireland, 2001).

This research provides insights into the impact of a variety of inter-organizational governance mechanisms. First, the roles of trust, contract, and power in facilitating inter-organizational creativity are addressed. Both trust and contractual governance mechanisms affect the three conditions needed for creativity and ultimately increase creative ideas or approaches. However, trust has a greater total effect on innovation generation than does contract. On the other hand, power does not affect the facilitating conditions and has a negative total effect on creativity.

Thus, these governance mechanisms affect creativity in inter-organizational relationships differently. In particular, trust has a stronger effect on complementary resources, learning orientation, and open-mindedness, whereas contractual governance yields a greater impact on knowledge-sharing routines and management support. Power, however, is not found to be directly related to conditions for creativity. One explanation for these results is that trust provides greater safeguards than power does in stimulating the exploration of potential capabilities.

#### 4.2. Managerial implications

This research points to four managerial implications: (1) the importance of knowledge-sharing between organizations, (2) the need to encourage inter-organizational learning, (3) the significance of management support and open-mindedness for innovation in buyer–seller relationships, and (4) the use of plural inter-organizational governance mechanisms. Contrary to our predictions, complementary resources have no significant impact on inter-organizational creativity. By definition, complementary resources provide a larger resource base for the focal firms to access; however, they do not necessarily lead to the creation of uniquely valuable synergistic assets. Our results indicate that other factors beyond the simple existence of complementary resources are needed to foster creativity in buyer–seller relationships. This finding supports Buono and Bowditch’s (1989) contention that, in addition to complementary resources, “compatible operating systems, decision-making processes, and cultures” are needed to stimulate inter-organizational innovation.

As hypothesized, learning orientation positively affects levels of creativity. A learning orientation motivates focal organizations to adjust to changes in products, operations, and planning of relationships, especially when organizations detect a mismatch of outcome to expectation. Firms with a high learning orientation constantly question what happens in relationships (Sinkula, 1994; Sinkula et al., 1997) and are subsequently able to extract the most benefits from these relationships.

Management support and open-mindedness capture the “environmental” elements needed to increase inter-organizational creativity. By creating a supportive environment between organizations, management support and open-mindedness encourage the focal firms to maximally exploit more potential synergistic benefits from the relationships. Because of the difficulty and risks involved in the creative process, managers of different firms should work closely to mandate, negotiate, persuade, motivate, and support creativity. These actions legitimize innovations, signal management commitment to the generation of creative ideas, and convince firms to expend the effort conducive to creativity (Leonard-Barton & Deschamps, 1988; Purvis, Sambamurthy, & Zmud, 2001).

This research also indicates how firms can most effectively influence inter-organizational creativity through the employment of a combination of governance mechanisms. Although plural structures of governance mechanisms have received attention in the prior literature (Heide, 2003), the results presented here illustrate that power, trust, and contract work together to facilitate inter-organizational creativity. The effects of trust and contract positively influence conditions for creativity, and these effects on creativity in buyer–seller relationships are mediated by the conditions for stimulating the generation of creative ideas. On the other hand, power may have a detrimental effect on creativity in buyer–seller relationships.

#### 4.3. Alternative model

Our model proposes that governance mechanisms provide the safeguards that facilitate investment in activities that eventually lead to creativity. An alternative model proposes that the governance
mechanism moderates the effects of factors facilitating creativity and the generation of creative ideas and approaches. Our model suggests that safeguards provided by governance mechanisms must be in place before firms can undertake activities facilitating creativity, such as sharing knowledge and providing top-management support. The alternative model suggests that these facilitating factors are in place before the safeguards are available and that the safeguards, the governance mechanisms, simply make the facilitating factors more effective. While this alternative model is plausible, the empirical data do not support it. When we estimated the alternative model using multiple regression models or simple correlations, only one of the 15 (three governance mechanisms times five facilitating conditions) interaction terms capturing the moderating effects was significant.

4.4. Limitations

There are several limitations to our research. First, since the independent and dependent variables were both assessed using responses by the same person to a questionnaire, a potential for a bias towards significance due to common method variance exists. We attempted to minimize this problem through the stringent data collection procedures mentioned above, careful survey design (including a marker variable), and a series of statistical examinations. In particular, the curvilinear effect of the knowledge-sharing routine on innovation generation suggests that something other than – or at least in addition to – common method variance was at work.

The second limitation is that we have only focused on inter-organizational creativity. The effects of governance mechanisms and conditions facilitating creativity on the development, implementation, or diffusion of innovations – the outcomes that produce strategic advantage rents for the buyer–seller relationship – are not examined. Similarly, this research examines only the factors affecting the frequency of generating creative ideas or approaches; we do not consider the quality and potential benefits of the generated ideas. However, creativity remains important because it is the necessary first step in generating rents.

Thirdly, although our theory suggests the directional effects of governance mechanisms on conditions for inter-organizational creativity, our cross-sectional study cannot rule out the possibility that factors such as knowledge-sharing routines or open-mindedness can help to build trust over time (that is, reverse causality). In any model in which causality is suggested, longitudinal studies provide stronger inferences. Thus, the model developed and tested in this study could benefit from a longitudinal design.

4.5. Directions for further research

Further research might consider other mechanisms for governing relationships, such as the exchange of hostages – mutual transaction-specific investment, reputation (Bond, Walker, Hutt, & Reingen, 2004), and inter-organizational embeddedness (Rindfleisch & Moorman, 2001) – and other factors facilitating inter-organizational creativity. Future research might consider, in addition to inter-organizational resources, organizational resources such as slack and absorptive capacity that may affect creativity (cf. Cohen & Levinthal, 1990; Damanpour, 1991; Zahra & George, 2002).

Another interesting avenue for research is to explore the different impacts of governance mechanisms at different stages of the innovation process – idea generation (creativity), the focus of this research, and development and implement of innovations – the focus of much of the alliance research. For example, implementing innovative ideas requires more systematic efforts and planning by buyers and sellers than generating ideas does. Contractual and power governance may enhance the implementation of these ideas because there will be fewer ambiguities in implementation approaches and in the division of rewards arising from the innovations. On the other hand, the benefit allocation ambiguities associated with trust and power governance may inhibit innovation implementation.

Appendix A. Construct items and reliability

Creativity production in buyer–seller relationships (new scale) (**α**=0.85):

Both firms in the relationship have thought of a number of new ways of doing business together (CRE1).

Both firms have developed a lot of new ideas that are beneficial to our relationship (CRE2).

Both firms have created many new and useful solutions to improve the coordination between each other (CRE3).

Inter-organizational learning orientation (new scale) (**α**=0.88):

Creating, acquiring, and transferring knowledge are important activities in our relationship (LEO1).

Both firms agree that the ability of firms for creating, acquiring, and transferring knowledge in between is one of the key values in improving their relationship (LEO2).

Both firms agree that we need to invest in creating, acquiring, and transferring knowledge between us (LEO3).

Inter-organizational open-mindedness (new scale) (**α**=0.61):

Both firms are not afraid to reflect critically on the shared assumptions they have about their relationship (OPN1).

Original ideas are highly valued in maintaining the relationship (OPN2).

Inter-organizational complementary resources (adapted from Jap, 1999) (**α**=0.71):

Both firms possess the resources that the other party lacks (CPL1).

Each of the firms in this relationship has capabilities that the other party lacks (CPL2).

Inter-organizational knowledge-sharing routines (new scale) (**α**=0.76):

Budgets for information sharing are assigned in a regular basis (KSR1).

Both firms have set up rules for information sharing activities (KSR2).

Both firms have a procedure for sharing information (KSR3).

Inter-organizational management support (new scale) (**α**=0.74):

There are established reward and/or incentive systems in both firms to encourage people to be creative in dealing with the business in between (SUP1).

Both firms have incentive system to reward new business solution (SUP2).

Trust (adapted from Doney & Cannon, 1997) (**α**=0.89):

Both firms keep promises made to each other (TRU1).

Both firms are very honest in dealing with each other (TRU2).

Both firms would go out of our way to help each other out (TRU3).

Both firms consider each other’s interest when problems arise (TRU4).

Both firms can depend on each other (TRU5).

Power (adapted from Jap & Ganesan, 2000) (**α**=0.71):

One party in this partner relationship dominates the relationship (POW1).

The firm with higher power often dominates the final solution in the relationship (POW2).

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1 Thanks to an anonymous reviewer for suggesting this alternative model.

4 All the measure are based on 5-point Likert-type scale and are anchored from strongly disagree=1 to strongly agree=5.
Both firms have equal influence in the relationship ($R^2$) (POW3).

**Contract** (adapted from Jap & Ganesan, 2000) ($\alpha$ = 0.85):

Booth firms are careful in writing what each party's obligations are in this relationship (CON1).

The behaviors of both parties in this relationship are governed by written contract (CON2).

Booth firms resolve disagreements by referring back to the contract (CON3).

Both firms have contract precisely stating the activities to be performed by the parties in this relationship (CON4).

**Properties of measures**

Using confirmatory factor analysis in LISREL 8.80 (Jöreskog & Sörbom, 2006), the measurement model was estimated using all the items that were hypothesized to measure the nine underlying constructs. The chi-square statistic ($\chi^2 = 501.30$, df = 324, $p < 0.01$) was significant; however, this was most likely attributable to the large sample size ($n=262$) (Baggoli & Yi, 1988) in this study. A close examination of the fit indices revealed that the majority of indices were above the suggested 0.90 cutoff point (NFI = 0.92, NFI$^*$ = 0.96, CFI$^*$ = 0.97), thus providing evidence that the measurement model fit the data appropriately. Furthermore, the measurement model showed an acceptable level of error. The RMSEA index was 0.041, which was below 0.05 rule-of-thumb cutoff point, indicating an adequate fit (Jöreskog & Sörbom, 2006). In addition, the chi-square/degrees of freedom ($\chi^2$/d.f) ratio was 1.55, which represented an adequate fit, according to Byrne (1998).

**Table A1** reports the means, standard deviations, correlation matrix, and reliabilities for all the constructs in the model. In nine of the 11 constructs, the coefficient alpha levels all exceed the 0.70 level that Nunnally (1978) recommends, with the exception of open-mindedness (0.64). Moreover, all the factor loadings for the partially disaggregated multi-item scales are significant, and the composite reliabilities of nine out of 11 constructs exceed 0.70, indicating acceptable levels of reliability for the overall measurements (Fornell & Larcker, 1981).

Three tests were carried out to test the discriminant validity of the constructs. First, we did a series of different pair-wise chi-square tests. Changes in chi-square were significant in each case, suggesting discriminant validity. Given the fit results for the model, we also conducted a more stringent procedure outlined by Fornell and Larcker (1981). The average extracted variance for power and open-mindedness are above 0.40 but lower than 0.50, which suggests that there may be only modest support for these constructs (Fornell & Larcker, 1981). However, the other seven constructs’ average extract-