

THE INFLUENCE OF SUPPLIER DEVELOPMENT ON BUYER-SUPPLIER RELATIONSHIPS

Carol Prahinski, Michigan State University, Eli Broad College of Business, East Lansing, MI 48823, USA, carol@msu.edu, 517-432-6434

W.C. Benton, The Ohio State University, Fisher College of Business, Columbus, OH 43210, USA, benton.1@osu.edu, 614-292-8868

Ying Fan, University of Western Ontario, Ivey School of Business, London, ON N6A 3K7, Canada, yfan@ivey.ca, 519-438-9969

ABSTRACT

As a governance mechanism, supplier development programs (SDPs), which include competitive pressures, evaluations, incentives and direct involvement, represent a form of power exerted by the buying firm. SDPs, however, have had moderate success. In addition, little is understood about how SDPs influence the supplier's performance. Using structural equation modeling and data collected from 141 first-tier North American automotive suppliers, the results suggest that the relationship between SDP and performance is mediated by cooperation and commitment, and that SDP directly affects communication. Competitive pressure was found to have a negative or nonsignificant influence. Incentives were not significant.

Key words: Governance mechanisms, supplier development programs, power, buyer-supplier relationship, performance

INTRODUCTION

Governance mechanisms are the tools in which power and risk are stabilized in interorganizational relationships. These tools enable organizations to establish and structure the exchange relationship to manage and control the transactional processes and reduce opportunism. The behavioral research paradigm suggests that governance is a matter of employing power to directly control performance. Five types of power include: coercive, reward, legitimate, referent, and informational power. In contrast, the resource dependence theory suggests that governance is a strategic response to manage conditions of uncertainty and dependence (Pfeffer and Salancik 1978). Thus, managers will purposefully structure their interorganizational relationships by deliberately increasing their coordination mechanisms with their partner. According to this theory, the interorganizational relationship mediates the linkage between the governance mechanisms and performance.

The disparity in the theories makes it difficult to suggest the effectiveness of various governance strategies. To address this gap, we explicitly examine one form of governance mechanisms, supplier development programs (SDPs). SDPs are a means by which the buying firm attempts to exercise power to achieve organizational goals. If the SDPs directly affect performance, there would be support for the behavior research paradigm. If the buyer-supplier relationship mediates the link between SDPs and performance, we would expect that the resource dependence theory is supported. To evaluate this comparison, we analyze first tier automobile suppliers' perceptions of the implementation of these governance mechanisms.

LITERATURE REVIEW

Theories of Governance

A number of theories have been applied to the use of governance mechanisms. These include transactional cost theory, social exchange theory, resource dependence theory, and institutional theory. Both the behavioral research paradigm and resource dependence theory originate with social exchange theory. The behavioral research paradigm encapsulates the power literature and focuses on adaptive behavior associated with positive or negative reinforcements, such as rewards and punishments. The resource dependence theory is viewed as an organization's strategic response to conditions of uncertainty and dependence from the scarcity of resources in its environment (Pfeffer and Salancik, 1978). Managing external factors through purposeful development of the exchange relationships can have a significant effect on an organization.

Buyer-Supplier Relationships

The buyer-supplier relationship is composed of multiple dimensions, each of which reflects a continuum, such as between close and distant. Three dimensions of the relationship – communication, cooperation and commitment – were selected because the literature suggests a strong linkage with its reduction of risk and uncertainty. For this study, *communication* is a relational mechanism that reflects the perceived quality in terms of usefulness, clarity, thoroughness and timeliness associated with the communication exchange. *Cooperation* is defined as the degree that the two trading partners collaborate to solve problems, establish strategic directions, and strive to achieve their mutual goals. *Commitment* is defined as the degree to which the supplier feels loyalty, expects longevity and considers the relationship as a long-term partnership.

Power in the Supplier Development Programs

Four forms of SDP, each of which suggests different power, include evaluations, incentives, competitive pressure and direct involvement. The *evaluation* is the communication of the performance assessment to the supplier and represents a form of legitimate and informational power. *Incentives* are a type of reward power used to entice suppliers to improve their performance. *Competitive pressure* is the negative reinforcement mechanisms, or coercive power, used to pressure suppliers to improve their performance. *Direct involvement*, as a form of expert power, refers to the buying firm's assistance and sharing of knowledge, expertise or skills. Similar to the studies on mediated/non-mediated power, we expect that coercion and reward power will have a negative effect on relationship and performance, whereas referent, legitimate and expert power will have a positive effect.

Performance

The buying organization's ultimate goal in instituting SDPs is to improve the supplier's performance and capabilities to meet the organization's current and future needs (Prahinski and Benton, 2004). This study focuses on *performance* in terms of product quality, delivery performance, price, responsiveness to changes, service support and overall performance.

HYPOTHESIS DEVELOPMENT

The Direct Model

Due to the research interest of comparing the two theories – behavior research theory and resource dependence theory – two conceptual models are proposed. The behavior research theory reflects that governance mechanisms, such as SDPs have a direct effect on performance. We hypothesize that the use of evaluations (*H1a*) and direct involvement (*H1d*) will have a positive influence on supplier's performance, whereas incentives (*H1b*) and competitive pressure (*H1c*) will be seen as a negative influence on supplier's performance. Rewards, particularly in North America, can be interpreted as manipulative.

The Partial-Mediation Model

In contrast to the direct model, resource dependence theory suggests that components of the relationship are mediating variables in the success of the governance mechanisms. Because of the extensive resources (time, money and effort) necessary for the SDP initiative, the buying firm will focus their efforts only on the most critical suppliers. These critical suppliers may represent a significant volume, provide scarce resources, or have limited competition, and therefore must be managed sensibly. Development of a cooperative and committed relationship using effective communication is essential for these critical suppliers.

Although we were unable to find any studies that explicitly examined the linkage between SDPs and buyer-supplier relationship, there are a number of studies that examine the linkages between power and the buyer-supplier relationship. We hypothesize that the use of evaluations (*H2a*) and direct involvement (*H2d*) will positively affect communication effectiveness, whereas incentives (*H2b*) and competitive pressure (*H2c*) will negatively affect communication. We hypothesize that the use of evaluations (*H3a*) and direct involvement (*H3d*) will positively affect the cooperation between the two organizations, whereas incentives (*H3b*) and competitive pressure (*H3c*) will negatively affect it. In regards to commitment, we hypothesize that the use of evaluations (*H4a*) and direct involvement (*H4d*) will positively affect commitment and that competitive pressure (*H4c*) and incentives (*H4b*) will negatively affect commitment.

Rich theoretical and empirical evidence provides support that the buyer-supplier relationship influences performance. The level of uncertainty in the relationship, however, makes the performance outcome less obvious, and thus, both parties have incentives to improve the depth of communication, cooperative planning, and expectations of trustworthiness to reduce uncertainty and ambiguity. We hypothesize that communication (*H5a*), cooperation (*H5b*) and commitment (*H5c*) influence supplier's performance.

METHODOLOGY

First-tier automotive suppliers were selected as the focus of the study because the automotive industry has a long history with SDPs, using various types of power, and its suppliers represent a variety of industries such that the diversity should enhance the generalizability of the results.

The critical suppliers for the four largest North American automotive manufacturers — Ford Motor Company, General Motors, DaimlerChrysler and Honda — were selected as the sampling frame. The respondents typically held the position of CEO, COO, president or vice president. In their roles, these informants were able to provide substantial information related to the interorganizational relationship and the SDPs.

Whenever possible, previously validated scales were used within the survey (e.g., Anderson and Weitz, 1992; Cannon and Perreault, 1999; Krause, et al. 2000; Krause and Ellram 1997; Mohr and Spekman 1994; Mohr and Sohi 1995). Modifications were made and new items were developed based on the review of the literature, the preliminary survey and in-depth interviews. Based on a final sample size of 571, 142 first-tier suppliers completed and returned the survey for a response rate of 25 percent.

Confirmatory factor analysis was used to assess the eight constructs. The fit indices in terms of normed chi-square, TLI, CFI, RMSEA are within the acceptable range, which provided support for the measurement model fit. The post-hoc statistical power for the models ranged from 0.89 to 0.93, indicating a strong probability of repeatability for the empirical results.

Content validity and construct validity of the key constructs were thoroughly examined. Content validity was supported by an extensive literature review, in-depth interviews and feedback from three business executives and five experienced researchers. Construct validity assessed multiple aspects of unidimensionality, reliability, convergent and discriminant validity. The analyses, which include confirmatory factor analysis, Cronbach's alpha, composite reliability, AVE values, t-values, square root of AVE and the chi-square difference test, indicate strong support for the construct validity.

Based on the validity results, six structural models – three models for each of the two competing theories – were tested using Amos 7.0 software. Rather than including each of the relationship constructs in one model, they were tested separately to assess the distinct mediating effects. The fit statistics indicate that the partial mediation models exhibit reasonable fit, whereas the direct models exhibit poor fit. Control variables for the logarithms of age of the relationship and the size of the supplier were found to be not significant ($p > 0.10$). None of the tested hypotheses in the direct model were not statistically significant ($p > 0.10$). Table 1 summarizes the results of the partially mediated model.

Because the direct model is nested within the partial mediation model, a chi-squared difference test was conducted to assess if one model was statistically different from the other. The partial mediated model is statistically superior to the direct model ($p < 0.001$).

RESULTS AND MANAGERIAL IMPLICATIONS

This research contributes to the field of purchasing and supply management by investigating the significant role of the buyer-supplier relationship in the supplier development process. The objective of this study was to better understand the effect of governance mechanisms on performance. To achieve this objective, two competing theories were compared. To our knowledge, this study is the first attempt to empirically examine the linkages between supplier development programs, buyer-supplier relationship and the supplier's performance. In addition, this study examines the supplier's perspective of the SDPs.

In contrast with Krause et al. (2000), the results of the direct model reveal that SDPs are not directly related to performance, but rather indirectly related via the buyer-supplier relationship, as reflected by the partial mediation model. SDPs, as a governance mechanism, are more effective when the relationship factors are developed and supported.

TABLE 1
Summary of Partial Mediated Model Results

	Hypothesis	Path	Path Coefficient	t-value	Hypothesis supported?
Communication	2a	Evaluations → Communication	0.345	***	Yes
	2b	Incentives → Communication	0.143		No
	2c	Competitive Pressure → Communication	-0.291	***	Yes
	2d	Direct Involvement → Communication	0.199	*	Yes
	1a	Evaluations → Performance	0.027		No
	1b	Incentives → Performance	0.068		No
	1c	Competitive Pressure → Performance	0.025		No
	1d	Direct Involvement → Performance	-0.020		No
	5a	Communication → Performance	0.110		No
	Cooperation	3a	Evaluations → Cooperation	0.071	
3b		Incentives → Cooperation	0.076		No
3c		Competitive Pressure → Cooperation	-0.266	***	Yes
3d		Direct Involvement → Cooperation	0.224	**	Yes
1a		Evaluations → Performance	-0.006		No
1b		Incentives → Performance	0.073		No
1c		Competitive Pressure → Performance	0.009		No
1d		Direct Involvement → Performance	0.049		No
5b		Cooperation → Performance	0.227	**	Yes
Commitment		4a	Evaluations → Commitment	0.192	*
	4b	Incentives → Commitment	0.082		No
	4c	Competitive Pressure → Commitment	-0.070		No
	4d	Direct Involvement → Commitment	0.013		No
	1a	Evaluations → Performance	-0.032		No
	1b	Incentives → Performance	0.070		No
	1c	Competitive Pressure → Performance	-0.034		No
	1d	Direct Involvement → Performance	-0.018		No
	5c	Commitment → Performance	0.265	**	Yes

* Path significant at the 0.10 level; ** Path significant at the 0.05 level; *** Path significant at the 0.01 level

Interestingly, and in alignment with the hypotheses, the results indicate that from the supplier's perspective, competitive pressure has a negative or nonsignificant influence on the components of the relationship or performance. Krause et al. (2000) had found a positive relationship on performance from the buying firm's perspective, which might suggest that the buying firm does not perceive a negative effect when using coercive power, yet coercive power has a large negative effect on the supplier's perceptions.

In addition, incentives did not appear to affect either the buyer-supplier relationship or performance. Buying firms use incentives to directly acknowledge and reward suppliers for performance. In the literature, reward power has had a mixed effect on the buyer-supplier relationship (e.g., Maloni and Benton, 2000; Zhao et al., 2008) and it was suggested that reward power has a positive effect when the culture supports cooperative and supportive relationships; the automotive industry is not known for cooperative and supportive relationships. This group of suppliers, however, represents the critical suppliers. As such, the buying firms may develop strategic relationships to support an ongoing partnership. Thus, reward power may be interpreted neither as a negative influence, nor as a positive influence. A fruitful path of future research would be to further examine the role of incentives and reward power in SDPs and buyer-supplier relationships.

The automotive industry is characterized by established and powerful relationships. Future research could examine an industry other than the automotive sector to further understand governance mechanisms, and SDPs in particular, in newly developing relationships or in balanced relationships. The complex and rich connection between SDPs and buyer-supplier relationships deserves further study. For example, why does communication not directly affect performance whereas cooperation and commitment have a significant and positive influence? Finally, the role of BSR in improving supplier's performance may have mitigating factors, such as power asymmetry and product/service complexity, all of which warrant fruitful paths for further research.

In this study, the role of the buyer-supplier relationship as it mediates the linkage between SDPs and performance was assessed from the supplier's perspective. Because the buying organization plays an active role in designing and implementing the supplier development programs, additional investigation of the differences between the buying organization's perspective and the supplier's perspective is warranted.

In conclusion, our results provide insights regarding the pivotal role of the buyer-supplier relationship in developing effective governance mechanisms. SDPs can contribute to the positive enhancement of the relationship, characterized by clear and thorough communication, cooperative problem solving activities and the supplier's loyalty and commitment. This enhanced cooperative and committed relationship is instrumental in improving the supplier's performance – the ultimate goal of the SDP initiative.

REFERENCES

References available upon request from Carol Prahinski, carol@msu.edu, 517-432-6434.