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# Impact of relational norms, supplier development and trust on supplier performance

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**Abstract** Supplier relationship management and supplier development initiatives assume a fundamental role in enterprise supply chain management. An important aspect of effective supplier relationship management is the role of trust. This paper seeks to understand whether supplier relationship management or supplier development initiative should be emphasized as a firm strives to achieve superior supplier performance. The analysis and discussion draws upon sourcing strategy literature and is based on empirical survey-data of mid to upper level managers with responsibility for supply management initiatives in their respective organizations in Denmark and in the USA. It examines the interrelationships among "relational norms", "trust", "supplier development initiatives" and ensuing "supplier performance". The data analysis shows that firms must emphasize relation and trust building activities before investing in supplier development initiative. Supplier perception audits must be routinely performed to gauge the level of trust and strength of relational norms.

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## 1 Introduction

Firms are investing a substantial amount of resources in supplier development initiatives (Zsidisin and Ellram 2003). This trend is in place because current business models emphasize the "extended enterprise" view of value creation, wherein substantive value creation opportunity is dispersed throughout the supply chain. An outgrowth of the "extended enterprise" model is the need for and the emergence of the so called "enterprise supply chain management" perspective which seeks to achieve supply chain excellence through integration, collaboration and strategic alignment with suppliers (Chaudry and Schnieper 1999). Many authors have observed that there is still some "confusion over the ways and means to leverage supply chain initiatives across the enterprises successfully" (e.g., Chaudry and Schnieper 1999). A key concept in achieving supply chain excellence in an extended enterprise is the management of supplier relations and investing in supplier development initiatives for superior supplier performance. Relational orientation and trust are the key building blocks for successful implementation of these efforts (Rindfleisch and Moorman 2001, 2003). This article examines the interrelationships among "relational norms" in buyer–supplier relationships, "trust" in buyer–supplier relationships, "supplier development initiatives" and ensuing "supplier performance". The discussion draws upon sourcing strategy literature and is based on a survey of mid to upper level managers with responsibility for supply management initiatives in their respective organizations in Denmark and in the USA. Both surveys were carried out in 2006.

## 2 Literature review

Researchers broadly classify sourcing strategy into transactional and relational types (Ellram 1990; Dwyer 1997). While the former type has a short-term procurement cost minimization objective, the latter emphasizes long-term collaboration for sustained performance improvement. The approaches for managing the supplier relationships and supplier development efforts in the two strategies differ in terms of objectives, nature of investment, organizational mechanisms and practices.

Firms may engage in a variety of supplier development investments for improved supplier performance (Zsidisin and Ellram 2003). Extant studies have characterized these investments in terms of transaction specificity, the (expected) performance objectives and indirect nature of investments. Transaction-specific investments involve investments in machines, equipments, skills such that the benefits are exclusive to transactions with a specific transacting party. Such investments increase the potential for unique positive outcomes; however on the down side, these investments present risk of opportunistic behavior by the counterpart (Heide and John 1992; Anderson and Weitz 1992; Mudambi and Helper 1998). Investments that relate to improvements objectives may include training, technical assistance and/or financial assistance for capability building in an area that is of significance to either or both parties i.e., quality training, lean manufacturing etc. (Monczka et al. 1998; Krause 1999; Narasimhan et al. 2001; Liker and Choi 2004). The above types of investments directly influence specific performance outcomes and require active involvement of the transacting parties. Firms also often engage in indirect investments such as awards and recognitions in which a competitive mechanism is utilized to induce the suppliers to improve (Krause 1999; Das and Narasimhan 2000). It is observed that in addition to the positive performance outcomes, supplier development investments can lead to increased buyer's dependency and development of trust (Handfield and Bechtel 2002; Shelanski and Klein 1995).

The efficacy of a sourcing strategy is apparently driven by the control mechanisms that coordinate the behavior of transacting parties (Jap 2001; Zsidisin and Ellram 2003). These control mechanisms are complex outcomes of the structure of contracts and inter-organizational cultural contexts (Heide and Miner 1992). They provide the foundation for risk and reward sharing, trust, commitment, problem-solving and information exchange that are essential for successful transactions (Fink et al. 2006). The structure of contract is described in terms of the duration and degree of adaptability to changes in business context (Lusch and Brown 1996; Das and Narasimhan 2000); these studies observe that the greater the duration and adaptability to changes, the greater the scope for collaboration, trust and commitment. Several studies observe that efficient information exchange, supplier feedback and joint problem solving mechanisms are instrumental for successful relationship building (Heide and Miner 1992; Monczka et al. 1998; Krause 1999; Narasimhan et al. 2001). Studies also find relational practices to be positively associated with both transaction specific investments (Heide and Miner 1992; Krause 1999) and operational performance (Fink et al. 2006). The extant studies, however, do not answer, between relationship building and investments in supplier development, which one a buying firm should focus on in a given context for improved supplier performance. This is especially important when a firm has to operate under time and resource constraints.

In marketing and supply chain literature, both relational and operational performance objectives are observed to be of significance (Lusch and Brown 1996; Das and Narasimhan 2000). It is viewed that sustained improvement in quality, cost and responsiveness can be realized through trustworthy, durable relationships with a reduced set of suppliers over time. Trust and durability of relationships are however the outcomes of effective buyer–supplier relationship management. It is further argued that trust (Jap and Anderson 2003) and durable relationships (Lusch and Brown 1996) are elements of relationally oriented arrangements, which can be managed for superior operational performance. Thus, the role of trust in buyer–supplier relationship is interesting. It is therefore worthwhile to examine its role both as an outcome and as an element of relationship building. We attempt to examine the above unresolved issues in this study.

## 3 Research model

The research model in this study links supplier performance to relational norms, supplier development initiatives and the development of trust between the supplier and the buyer. We discuss these aspects of the research model in turn, identifying the main ideas that underpin each aspect. The discussion seeks to understand the most appropriate actions a firm must undertake as it strives to achieve superior supplier performance relative to its competitors. Towards this end we consider the following questions of theoretical interest which are also of relevance to practitioners:

- Given the limitations on resource availability and the pressure to increase resource productivity in most firms, where should available resources be invested? In supplier development initiatives? In building superior relational norms with suppliers? Or both?
- What is the role of "trust" in buyer–supplier relationship's effect on supplier performance? How effective

are "supplier development investments" and "relational practices" in building trust?
- How is performance influenced by these supplier management practices of the buyer?

In order to address these research questions of interest, first, we define the three key constructs that we focus on in this article, i.e., *supplier development initiative* (SDI), *relational norms* (RN), and *supplier performance* (SP). Supplier development initiative (SDI) refers to investments made by a buying firm to improve supplier's operational capabilities. Relational norms (RN) characterizes practices that focus on relation building for superior performance outcomes, and supplier performance (SP) refers to operational performance that are of significance to the buying firm. The items that are used to measure these constructs are listed in Table 1.

The construct "trust" is measured directly as respondent's perception about degree of trust between the firm and its supplier. Although trust is a multidimensional construct that may reflect reliability, openness, competence, solidarity, loyalty etc., prior studies have recognized the difficulty in measuring trust (Handfield and Bechtel 2004; Handfield and Nichols 2002). Consequently, in the interest of an initial exploration of the interrelationships among the key constructs, while avoiding the complexity of measurement, we chose to measure trust directly in a single item. The measurement items were measured on a seven-point Likert scale representing the extent to which respondents agreed with the applicability of the items in their respective organizations.

**Table 1** Measurement items for principal constructs

| Item | Description |
|---|---|
| Supplier development investments (SDI) | Investment in equipment, training etc. |
| | Financial and technical assistance |
| | Quality training |
| | Supplier rewards and incentives |
| Relational norms (RN) | Transaction specific investments by suppliers |
| | Long-term contracts |
| | Top management commitment |
| | Joint problem solving |
| | Buyer's concern for fair profit of suppliers |
| | Supplier evaluation and feedback |
| | Information sharing |
| Trust | Degree of trust between the buyer and supplier |
| Supplier performance (SP) | Cost reduction without compromising quality or service performance |
| | Volume flexibility without cost or time penalty |
| | Schedule flexibility without cost or time penalty |

Superior supplier performance is a requirement for supply chain excellence in the extended enterprise. It is well recognized that targeted supplier development initiatives can lead to superior supplier performance (Handfield et al. 2002). SDI improves supplier performance by developing and improving supplier capabilities to effectively meet the demands of the buyer. Similarly, it has been shown that practices aimed at improving relational norms (RN), such as long-term contracts, information sharing and joint problem solving can also improve supplier performance by: removing both buyer's and supplier's opportunism; encouraging transaction specific investments by the supplier; and by involving the supplier in continuous improvement initiatives aimed at capability development specifically useful to the buyer (Heidi and John 1992).

The issue of trust in buyer–supplier relationship has received considerable attention in the literature. Organization theories such as transaction cost theory, agency theory, resource based view and social exchange theory emphasize the significance of trust as an effective mechanism to prevent opportunism, reduce transaction governance costs, facilitate inimitable resource development, and ensure solidarity and fairness in transactions (Martin et al. 1998; Dwyer 1997; Gulati 1998; Sako 1997; Griffith et al. 2006). Given that the above mentioned positive and negative outcomes in transactions emerge over time, it can be conjectured that practices that provide the bases for repeated exchanges between the buyer and supplier must be in place before trust in the relationship is established. Consistent with this view, we measured trust as an "outcome" of relational practices and supplier development initiatives in our study. Furthermore, we consider trust as an antecedent to superior supplier performance. This conjecture is validated by the experience of a major US based multi-national in the aerospace industry, (name deleted to preserve anonymity). The firm is experiencing robust sales growth. However, its supplier's delivery performance is lagging the business growth, causing wide-spread concern within the firm. Analysis of the situation led to an examination of supplier perceptions of the firm. A supplier perception audit (SPA) was done to understand the level of trust among its suppliers. This audit revealed several concerns that the suppliers had towards the firm and the general level of satisfaction in doing business with the firm was lower compared to its major competitors. The supplier perception audit also revealed that the lower level of trust resulted in a reluctance to commit resources to the firm thus explaining less than satisfactory delivery performance from the suppliers. This case study serves to underscore the antecedent role of relational and supplier development practices in establishing trust and the influence of trust on supplier performance.

Although these relationships and influences are recognized by scholars and practitioners, what is not clear is how

a firm should *prioritize* the investments to be made in these supply management initiatives when resources are limited. Should a firm focus on SDI to achieve superior supplier performance? Should it focus on relational norms to achieve the same objective? Should efforts be made concurrently or sequentially? The answers to these questions are far from obvious. The extant literature has not considered the issue of the locus of investments in relational norms and supplier development initiatives.

It is also important to recognize that there *might* be synergies between relational norms and supplier development investments. If these are recognized and exploited appropriately, investments in either or both will yield higher payoffs than if potential synergies are ignored. The development of a clear understanding of the inter-relationships among SDI, RN and supplier performance will be very useful in identifying appropriate strategies (Rindfleisch and Moorman 2003). This can be a competitive advantage via superior value creation for the buyer. We summarize these ideas in the model shown in Fig. 1. Consistent with the above discussion we hypothesize positive relationships between the various constructs.

## 4 Data analysis

The study used perceptual data collected on supplier performance (SP) with respect to a key product from a key supplier, supplier development investments (SDI) by the buying firm, degree of trust and relational norms (RN) between the buying firm and the supplier. The questionnaire used in the study is shown in the Appendix. The respondents were participants in two separate executive seminars on supply chain management in the USA and Denmark. The sample data represents a pooling of the data from the two countries. Both samples were convenience samples. The respondents represent widely varying industrial sectors. The participants indicated their active involvement in strategic sourcing and supplier management activities within their firms. There were 35 USA, respondents and 53 respondents from Denmark for a total sample

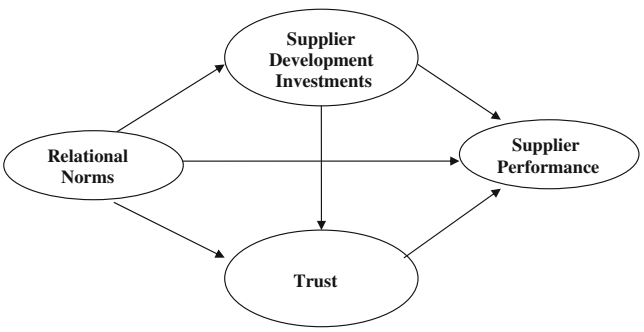


**Fig. 1** Research model of supplier performance

**Table 2** Correlation analysis of supplier management practices and supplier operational performance

| | | Supplier development investments | Trust | Relational norms |
|---|---|---|---|---|
| Trust | Correlation coefficient | 0.191 | | |
| | Sig. (2-tailed) | 0.075 | | |
| Relational norms | Correlation coefficient. | 0.524 | 0.585 | |
| | Sig. (2-tailed) | 0.000 | 0.000 | |
| Operational performance | Correlation coefficient | 0.338 | 0.650 | 0.584 |
| | Sig. (2-tailed) | 0.001 | 0.000 | 0.000 |

size of 88. It should be noted that this research is an initial attempt to understand the interrelationships among relational norms, trust, supplier development investments and supplier performance. Due to the nature and smallness of the sample size, we note that the results should be viewed as *exploratory* and *suggestive* rather than conclusive. Next, we discuss the data analysis that was carried out to understand the pattern of relationships among the four constructs of the research model.

In the data analysis that was performed, we used summated scores for the factors. The Cronbach alpha values for the constructs were: relational norms: 0.840, SDI: 0.821, and supplier performance: 0.865. Table 2 below shows the correlations among the constructs. All correlations except the one between SDI and trust are statistically significant at the 5% level. The correlation between SDI and trust is significant at 7.5% level. It can be seen from Table 2 that relational norms and trust have relatively higher correlations with performance than SDI. It can also be observed that RN and SDI are correlated. Since our sample size was too small to carry out an investigation of structural relationships among the constructs using structural equation modeling technique (SEM), which analyzes the covariance structure of the measurement variables and the structural variables, we opted to use the partial least-squares (PLS) technique to analyze the data.

The selection was motivated by several aspects of the sample data. The small size of the sample renders it unlikely that the assumptions of maximum likelihood estimation procedure will be satisfied if a SEM approach is used. PLS is a regression based technique that can be used to develop path models and it imposes substantially fewer conditions for its use. It is particularly useful when small sample size precludes the use of SEM for analyzing structural relationships. These advantages have led to an increase in the use of PLS to analyze structural relationships in economics (Apel 1977), in marketing (Zinkhan et al. 1987) and other fields. The data analysis was carried out

using visual PLS software. The results from PLS analysis are shown in Fig. 2. The path coefficients and *t* values in parenthesis are shown next to each path in the figure. The *t* statistics to test for the significance of the path coefficients are derived using the bootstrapping technique. For details of PLS and the bootstrapping technique the reader is referred to Hair et al. (2006).

It can be seen from Fig. 2 that all the paths except the ones from SDI are significant at the conventional 5% level. Figure 2 shows the path coefficients and the *t* statistic corresponding to the path coefficients. The *R*-square values for the regression equations corresponding to the significant paths are also shown in the figure. These are 0.274 for the regression linking RN and SDI, 0.360 for the regression linking RN and trust and 0.496 for the regression linking RN, trust and supplier performance. Comparison of the significant path coefficients shows that it is highest for the relationship between RN and trust, followed by that between trust and SP and RN and SP respectively. It is interesting to note that the indirect effect of RN on supplier performance through the mediating influence of trust ($0.327 = 0.668 \times 0.49$) is larger than the direct effect of RN on supplier performance (0.234). This underscores the pivotal role that trust plays in ensuring supplier performance. The *t* statistics indicate that the links between SDI and trust and between SDI and performance are weaker with associated *t* values of −1.923 and 1.708 respectively. Caution should be exercised in interpreting these results because of the exploratory nature of the study and the smallness of the sample size.

## 5 Discussion

The principal objective of the paper was to gain additional insights into the interrelationships among relational norms, supplier development investments, trust and the determinants of supplier performance. While the research model proposed in this study built on prior work, the results of the study represent a significant extension in several ways. First, the analysis shows that establishment of relational norms should have a higher priority and should be a precursor to investments in supplier development initiatives. The implication of this result is that firms focusing on supply chain management excellence must *first establish superior relational norms* by emphasizing exchange arrangements for reliability (through long-term contracts), appropriate allocation of risks and rewards (referred to as distributive justice in organization theory), supplier evaluation and feedback towards effective communication and for joint problem solving (relates to norm of reciprocity in organization theory), and by securing the commitment of top-management to developing superior supplier relations. These activities must become normal organizational routines in supply management before such SDI activities as technical and financial assistance to suppliers are contemplated. The dependence among the initiatives is suggestive of the conjecture that sound relational norms are *foundational* and that SDI builds on this foundation to deliver improved supplier performance (albeit, the path coefficient in our study from SDI to SP was only marginally significant). The results of our study also suggest that Supplier Relations Management (SRM), which has received attention in supply management is of greater importance in enterprise supply chain management.

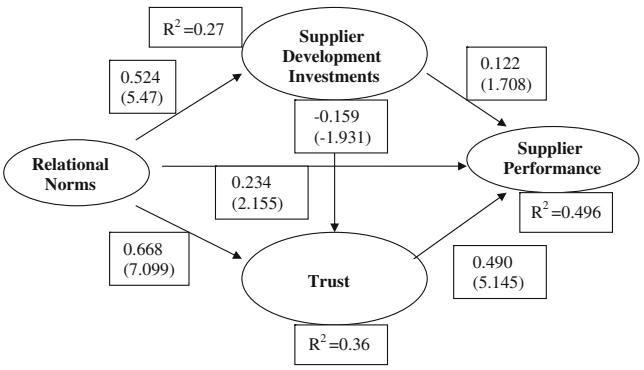


**Fig. 2** Results for path model using PLS. The path coefficients are indicated along the paths. The *t* statistics are indicated in parentheses below the path coefficients

Second, the study results further explicate the role of trust in buyer–supplier relationship and supplier performance by uncovering its mediating role between RN and supplier performance. It was found that trust plays a key role in determining performance gains from relational norms. As was observed in the data analysis section, the indirect effect of RN through the mediating variable trust on supplier performance is greater than its direct effect. This result is suggestive of the possibility that trust is the *generative* mechanism through which superior performance gains are achieved.

Third, in contrast to the most popular notion, the relationship between SDI and trust is found to be negative. Although the *t* statistic is less than the conventional five percent significance level, the indication of negative relationship is nonetheless interesting because several past studies have highlighted the positive association between asset specific investments and trust (Ring and Van de Ven 1994; Nishiguchi 1994). Although our findings are tentative due to small sample size, the negative relationship can be construed to reflect buyer's perception of risk of supplier opportunism, or, supplier's perception that short-term economic objectives through SDI are being pursued by the buyer. Thus, our results provide empirical support to the line of argument that "asset specificity has the possibility of becoming a liability in relationships where the more

powerful partner demonstrates a short-term philosophy," which has been proposed by Handfield and Bechtel (2004).

Fourth, our results suggest that, given the role of trust, supplier perception audits (SPA) should be done in conjunction with investments in relational norms building. Equivalently, use of supplier relations management should be accompanied by supplier perception audits. The research model can be extended to include the effect of SPA to the extant studies of buyer–supplier relationship in supply management. From a practitioner perspective, it is important for firms to benchmark themselves against competitors on key metrics incorporated into such supplier perception audits. Third party service bureaus or universities, under appropriate confidentiality agreements, can be helpful in performing SPA for benchmarking without concern over divulging proprietary information to competitors.

## 6 Conclusions

This paper described an initial, exploratory study of key factors that influence supplier performance. A path model depicting the structural relationships among relational norms, supplier development investments, trust and supplier performance was proposed and tested. The principal and foundational role of trust was demonstrated. The relative efficacy of relation building efforts vis-à-vis specific investments in supplier development for superior operational outcomes was revealed. The plausible negative relationship between SDI and trust is interesting and deserves further research on the contingencies that make the relationship between SDI and trust positive or negative. Several limitations of the study need to be recognized. First, the sample can be deemed a convenience sample rather than a large scale random sample. Although there was sufficient diversity among the firms included in the sample, a study incorporating a larger sample will be able to establish the robustness of the results that we have reported. Second, we have pooled the data from the small USA, sample with the Danish data. Although, this is consistent with our objective of carrying out an initial, exploratory study, analysis of a large sample from a survey would help build better theory. Third, the responses were collected from single respondents. Thus the survey instrument can be more comprehensive. We chose to use a simple questionnaire because of the data collection approach we used. Finally, even with the advantages of PLS, we need to note the smallness of our sample size. We hope that the results of our study spur further research into this topic which is gaining importance steadily due to globalization and strategic outsourcing.

## Appendix

*Sourcing strategy questionnaire* Please answer the following *brief* questionnaire on the souring strategy for *a major item* and the *key supplier* of the item in your firm.

Evaluate the following measures with respect to the *item* using the seven-point scale given below:

| 0 | 1 ----- 2 ----- 3 ----- 4 ----- 5 ----- 6 ----- 7 | |
|---|---|---|
| Not applicable | Very low | Medium | Very high |

| **Buying firm's investment in the major supplier** | **Level** |
|---|---|
| Transaction specific investment (in machine, training etc.) | 0 1–2–3–4–5–6–7 |
| Financial assistance to supplier | 0 1–2–3–4–5–6–7 |
| Technical assistance to supplier | 0 1–2–3–4–5–6–7 |
| Training in quality/other operational aspects to supplier | 0 1–2–3–4–5–6–7 |
| Incentives/awards to supplier | 0 1–2–3–4–5–6–7 |
| **Relational norms** | |
| Transaction specific investment by the supplier | 0 1–2–3–4–5–6–7 |
| Usage of long-term contractual arrangement | 0 1–2–3–4–5–6–7 |
| Top management's commitment to relationship development | 0 1–2–3–4–5–6–7 |
| Procurement manager's concern for supplier earning a fair profit | 0 1–2–3–4–5–6–7 |
| Joint problem solving with the supplier | 0 1–2–3–4–5–6–7 |
| Formal procedures for supplier evaluation and feedback | 0 1–2–3–4–5–6–7 |
| Cost/demand information sharing with the supplier | 0 1–2–3–4–5–6–7 |
| **Supplier performance** | |
| Degree of trust between the major supplier and buyer organization | 0 1–2–3–4–5–6–7 |
| Cost reduction performance without compromising on quality or service | 0 1–2–3–4–5–6–7 |
| Responsiveness to schedule changes without cost or time penalties | 0 1–2–3–4–5–6–7 |
| Responsiveness to volume changes without cost or time penalties | 0 1–2–3–4–5–6–7 |

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