

Developing a Customer-Supplier Partnership Survey

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Abstract

The purpose of this paper is to develop a customer-supplier partnership survey. To achieve this purpose, a customer-supplier partnership model is first proposed. And then, based on the partnership model proposed, each step that was taken to develop the customer-supplier partnership survey is described.

1. Introduction

Increasing international competition in many industries has required manufacturers and service providers to undertake strategic realignments of various kinds between customer and supplier organizations (Lyons, Krachenberg, & Henke, 1990). Many industry observers and quality experts describe these strategic realignments as becoming closer. Terms such as partnerships (Hendrick & Ellram, 1993; Stuart & Mueller, 1994) and alliances (Lamming, 1993) are being used to differentiate these relationships from the more traditional arm's length, transaction-oriented relationships. In the following section, a customer-supplier partnership model that is characterized by the two organizations' joint action and shared results of their joint action is described.

2. Customer-Supplier Joint Action: Independent Variables

The customer-supplier joint action has been one of the foci of marketing research. Some researchers (Lamming, 1993) have considered customer-supplier joint action as the desired outcome of customer-supplier partnerships that greatly influence the performance of customer and supplier organizations.

In this paper, customer-supplier joint action is assessed via two indicators: (1) joint use of specific tools and (2) joint practices. The customer-supplier joint action characterized by using specific tools is defined as the use of pre-determined or suggested steps or procedures to implement a given tool. Examples can be joint use of tools such as Quality Function Deployment (QFD) to design and develop new parts or products to meet the needs/wants of the final customer. In using the QFD, customer and supplier organizations may not need to develop new

mechanisms to implement and deploy them. This is because researchers and practitioners have already developed mechanisms and steps or procedures that have been widely adopted. On the other hand, the customer-supplier joint action categorized by joint practices refers to activities characterized by personal contacts rather than by using specific tools. Examples are meetings between customer and supplier personnel for joint planning and problem-solving or an exchange of strategic information. These practices do not involve specific tools.

3. Shared Results of Customer-Supplier Joint Action: Dependent Variables

Most joint activities used in customer-supplier partnerships require and encourage customer and supplier organizations to share the results of their joint action. However, the results of joint action may be anything from deteriorated customer-supplier relationships to an ideal situation where future joint action can be implemented and deployed in a more aligned environment. The four shared results dimensions introduced below are used in this paper to examine the broader scope of the results of customer-supplier joint action. As explained in greater depth in the following sections, these four shared results dimensions directly and indirectly encompass specific performance measures, as well as behavioral measures.

3.1 Role Integrity

Roles in the customer-supplier relationship have intricate interlinkings of habits, custom, internal principles and rules, social relationships, and expectations about the future. In other words, role integrity is the extent to which parties maintain highly complex and multi-dimensional roles. Moreover, as joint action develops, roles grow in duration, the extent of specific transactions, and the range of obligations. In such circumstances, role integrity is more than simply maintaining the responsibilities of each party (MacNeil, 1980).

3.2 Conflict Resolution

In the traditional arm's-length and isolated operating environment, conflict resolution is a formal and external process. The formal and external process can be viewed as institutionalized in that it represents policies implemented by the

customer and supplier organizations to address conflict in a systematic and ongoing manner. However, in customer-supplier partnerships, conflict resolution tends to be informal and internal. MacNeil (1980) indicates that the more relational an exchange becomes (in other words, the higher the level of joint action between customer and supplier), the more a separate and distinct (and also internal and informal) social order is created within the relationship itself. The informal and internal process is a mechanism consisting of activities or processes, rather than systematic policies that make conflict resolution more smooth and favorable to each party.

3.3 Flexibility

If change is to occur in the operations between two parties so that they conform to changes in the environment, it must either be envisioned and permitted within the existing relationship, or it must be possible for the existing operational specifications to be modified in an appropriately negotiated way. Flexibility involves smooth alterations in practices and policies by understanding each other's operations in the light of unforeseen or changing conditions. In customer-supplier partnerships, two organizations have opened attitudes in terms of requiring and accepting changes in their operations.

3.4 Mutuality

Mutuality implies the requirement of a positive incentive to cooperate with the partner. Under the traditional arm's-length and isolated operating environment, each party requires positive outcomes from each discrete transaction and envisions monitoring each transaction as if it were the last and only mechanism capable of delivering the desired outcomes. However, in a customer-supplier partnership, two parties expect generalized reciprocity emanating from their ongoing and indeterminate relationships. Mutuality also refers to equity in the distribution of surpluses (or benefits) and burdens over the course of the business transaction. Under a high level of mutuality, benefits are evaluated over a long period of time rather than on a transaction-by-transaction basis.

4. A Customer-Supplier Partnership Model

Using the major factors (independent and dependent variables) introduced in Sections 2 and 3, a customer-supplier partnership model is proposed in Figure 1 (RQ: Research Question).

In addition to the independent and dependent variables, and Research Question #1, three performance dimensions that are perceived by managers are used to measure the impact of customer-supplier joint action and shared results. In this paper, each of the three dimensions includes at least one sub-dimension, as described below, to measure the impact of customer-supplier joint action and shared results:

- Quality: supplier's defect rate, quality of final products, quality of customer's service quality of incoming purchased items;
- Cost: supplier's and customer's total cost, changes in product price; and
- Cycle time: time between order and delivery.

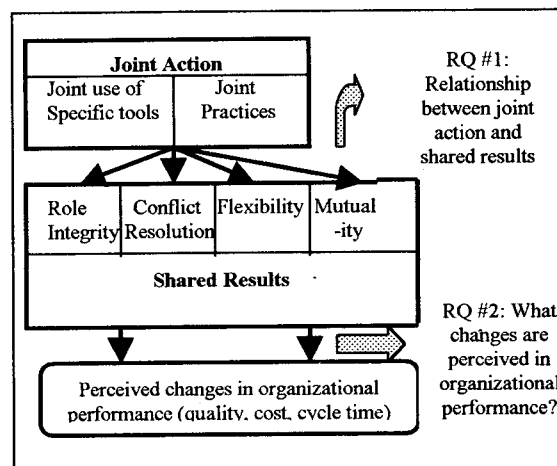


Figure 1. Customer-Supplier Partnership Model

5. Development of a Customer-Supplier Partnership Survey

Using the data/information in Figure 1, a customer-supplier partnership survey is developed to answer/address the two research questions by following the steps described below (only the final version full survey items are shown in Figure 2):

5.1 Specify Domain of Constructs (or Variables)

The first step for developing effective measures using a survey involves specifying the domain of the construct. For this paper, major constructs – joint action and the four shared result measures – are defined based on previous literature, which were already explained in Sections 2 and 3.

5.2 Generate Sample of Items

The second step is to generate items that measure or capture the domain as specified. For the survey items used in this paper, three sub-steps below were followed before the final survey was developed:

(1) *Initial survey development:* Using the constructs specified, the initial survey was developed by the

researcher based on previous research activities: readings and observation of literature on customer-supplier partnerships in disciplines such as marketing, purchasing, and industrial engineering. However, most items developed in this step were not directly adopted. This is because the constructs previously used by other researchers were treated differently (i.e., many researchers in marketing treated shared result measures separately or as a combination of the four measures as dependent variables of critical factors of customer-supplier joint action, such as commitment, communication, trust, and specific investment). Therefore significant changes were made to the initial survey items such that the final survey items (in Figure 2) are not identical to the initial survey items.

(2) *Pilot study*: The pilot study was conducted using 46 managers of previous Senate Productivity and Quality Award (of the state of Virginia in USA) applicant companies for their feedback on the appropriateness of each item of the initial survey. A 21.7% response rate (10/46) was obtained. To meet the generally accepted internal-consistency range (0.7 in general and 0.6 or 0.5 for exploratory work involving the use of newly developed scales [Nunnally, 1978]), continuous revisions were made to increase face and content validity.

(3) *Focus group interview*: There were two purposes for the focus group interview as used in this paper. The first was to gain a better appreciation for the practitioner's perspectives on customer-supplier partnerships, especially customer-supplier joint action and shared results, and second, to improve the overall quality of the survey initially developed by the researcher. Three American Society for Quality (ASQ) Radford-Roanoke Chapter members participated in the focus group interview.

5.3 Assess Reliability and Validity

After administering the survey to the prepared research sample (the result of survey administration is not shown in this paper due to a limited space), it is necessary for the researcher to assess the reliability and validity to determine the quality of the survey. For this step, two methods were used: reliability analysis using Cronbach's alpha and factor analysis.

(1) The primary purpose of a reliability assessment is to produce observed scores which approximate true scores as closely as possible. A highly reliable survey accurately measures the specified construct. Generally, a reliability (α) of 0.7 is a minimally acceptable level of reliability, and 0.8 or greater is preferable, although Nunnally (1978) states that a lower reliability, such as 0.6 or even 0.5, is acceptable for newly developed items. Although

some items, if deleted from the scale, would improve internal-consistency, they were not deleted in order to examine how items across scales related to each other.

(2) Factor analysis is used because it determined whether the survey items actually measures the concept in question. To conduct factor analysis, items in similar constructs – joint use of specific tools & joint practices, role integrity, conflict resolution & flexibility, mutuality – were first combined and entered into a factor analysis.

6. Final Version Customer-Supplier Partnership Survey

Based on the results of reliability analysis and factor analysis, changes were made to the survey items. Figure 2 shows the final version full survey items:

<p>[Part I: Individual demographics & organizations]</p> <p>(i) I am completing this survey as a major Customer (Buyer) _____ Supplier (Seller) _____ of our partner.</p> <p>(ii) What is your title?</p> <p>(iii) How many years' experience do you have in this job?</p> <p>(iv) How many years' experience do you have in this organization?</p> <p>(v) How long has your company been in business with this particular partner?</p> <p>(vi) What is your company's average total annual sales volume?</p> <p>(vii) What is the total number of employees in your company?</p> <p>(viii) Is your facility part of a larger parent organization?</p> <p>(ix) Is this partner the single source customer/supplier for parts or components? Yes _____ No _____</p> <p>(x) What percentage of sales (if you are the supplier) or purchasing (if you are the customer) are accounted for by this partner?</p> <p>(xi) What is the size of the customer or supplier that you have chosen as your partner in terms of the total number of employees?</p> <p>(xii) Of all your company's relationship with customers and suppliers, what proportion would you characterize as partnerships?</p> <p>[Part II: Joint action and shared results]</p> <p>Joint use of specific tools: 5 items; $\alpha=0.71$</p> <p>(1) We are using specific tools with our partner to jointly design new products.</p> <p>(2) People in the two companies use mechanisms or tools to design better quality systems.</p> <p>(3) The relationship with our partner involves the use of quality tools for longer term planning.</p> <p>(4) Our partner is involved in joint planning activities with us that traditionally were considered only one party's responsibility.</p> <p>(5) The relationship with our partner includes formal evaluation and assessment.</p> <p>Joint practices: 4 items; $\alpha=0.65$</p> <p>(6) In the relationship with our partner, there is an exchange of strategic information, such as cost and price structure.</p> <p>(7) The relationship with our partner involves frequent personal contacts for exchange of ideas and information.</p> <p>(8) We are willing to put aside contract terms in order to jointly work through difficult technical or quality problems that arise.</p> <p>(9) The relationship could be described as a 'long-term joint venture' or partnership.</p> <p>Informed partners: 9 items; $\alpha=0.81$</p> <p>(10) Our partner shares information to help our company increase quality and productivity.</p>
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- (11) We provide each other with technical support in substantial detail.
- (12) Our partner helps us identify cost reduction opportunities.
- (13) Both parties share information on performance in meeting the expectations and needs of the other.
- (14) Our partner offers specific suggestions to help us improve our processes and procedures.
- (15) Our partner is responsive in maintaining a cooperative relationship with us.
- (16) The relationship with our partner includes diverse expectations over many issues.
- (17) We keep each other informed about events or changes that may affect the other party.
- (18) We regularly provide our partner with long-range forecasts of supply capabilities or demand requirements.

Role integrity: 5 items ; $\alpha=0.69$

- (19) We have made financial investments in our company, such as tooling, equipment, and training employees, dedicated to the relationship with our partner.
- (20) If our relationship with our partner were discontinued, our sales would suffer.
- (21) From time to time, we are willing to make sacrifices to help our partner.
- (22) Both parties have multi-dimensional roles that go beyond the mere buying and selling of products.
- (23) We are responsive in maintaining a cooperative relationship with our partner.

Conflict resolution: 7 items ; $\alpha=0.84$

- (24) Problems that arise in the course of this relationship are treated as *joint* rather than *individual* responsibilities.
- (25) Each conflict is treated as a further improvement opportunity.
- (26) Neither party abuses its power over the other party.
- (27) Rather than relying on legal procedures to resolve conflicts (i.e., filing a suit), both parties rely on more informal means.
- (28) Temporary setbacks in our partner's performance commitment are accepted and resolved in an aligned and negotiated way.
- (29) The relationship with our partner can be characterized as flexible.
- (30) Our partner is flexible in response to requests we make.

Mutuality: 4 items ; $\alpha=0.85$

- (31) Our company gets a fair share of the financial rewards and cost savings from the relationship with our partner.
- (32) Benefits from problem solving with our partner are shared jointly.
- (33) Both parties are committed to improvement that benefits the relationship as a whole, not just the individual parties.
- (34) There is a strong spirit of fairness in the relationship with our partner.

[Part III: Perceive changes in organizational performance]

(35) *First*, identify the impact of using tools or joint practices by specifying a *percentage increase* or *decrease*. *Second*, identify only tools/practices that are predominantly responsible for the percentage increase/decrease in quality, cost, cycle time, and other performance dimensions.

Performance Dimensions	Impacts +: Increase -: Decrease	Tools/joint practices used
Quality	()% +/-
Costs	()% +/-
Cycle time	()% +/-
Overall	()% +/-

- (36) Overall, my level of satisfaction with this partner is very high.
- (37) Overall, the quality of the partnership with this partner is very high.

Figure 2. Customer-Supplier Partnership Survey
 [Survey items #1-34, 36, and 37 are answered using 6 point ordinal scales: 1 - Strongly disagree, 2 - Disagree, 3 - Somewhat Disagree, 4 - Mildly agree, 5 - Agree, and 6 - Strongly agree]

7. Discussions

In the course of developing the survey, three forms of validity are addressed: content validity, face validity, and construct validity. Content validity was addressed by the way in which survey items were developed – their linkage to existing literature and previous research. Face validity was addressed, and improved, through seeking feedback on item wording and hearing in the pilot study. Evidence of construct validity was provided by the factor analysis – how items were evaluated together to represent meaningful constructs. However, to further improve the overall quality of the survey, future research could improve the reliability and validity of the scales. Although Cronbach's alpha values were considered acceptable for newly developed scales – 0.6 or 0.5 at least, Nunnally (1978) suggests that frequently-used scales should have a minimum alpha value of 0.80. This can be accomplished by continuing to add and modify items, based on feedback obtained by testing the scales in various samples. It is important to test these scales using samples from other populations in order to enhance their generalizability.

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