

EMPIRICAL MODELS OF RELATIONSHIP CHARACTERISTICS FOR ASSESSING INTER-ORGANIZATIONAL RELATIONSHIPS IN SUPPLY CHAINS

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Abstract. One of the main trends of companies' development is to focus on their core competencies. This increases the significance of well functioned relationships between buyers and sellers. This implies that buying and selling activities become more connected with the relationship management. The aim of this paper is to present some empirical models of relationship parameters that can be used successfully in the study of inter-organizational exchange and buyer-supplier relationships. The model of relationship constructs for distributor and manufacturer firms is based on the study of marketing-channels. Its research aim is to build a distributor and a manufacturer partnership model. The developed model is not positioned among other types of inter-organizational relationships. The principal objective of the IMP interaction model is to measure the relationship characteristics as exchange, co-operation and adaptation. The results suggest that information exchange and social exchange lead to co-operation as well as that co-operation between buyers and sellers acts upon their willingness to make adaptations. The model of relationship constructs assesses relationships from the perspective of relationship marketing. The model of relational orientation was developed based on study aimed at identifying the impact of relational orientation in buyer-supplier relationships in increased purchased-product quality. The results suggest that relational orientation is positively related to purchased-product quality. The results of studies on the inter-organization relationships between different relationship constructs have hardly reached an oneness. Some researchers argue that trust leads to communication, while others have pointed that communication leads to trust. Some authors claim that co-operation is the causal antecedent of trust, whereas others accept that commitment and trust are the prerequisites of co-operation. Similarly for some, trust and commitment are the key factors for working relationships, while others emphasize dependence and do not recognize commitment as a key variable.

Keywords: buyer-supplier relationship, relationship parameters, inter-organizational relationships

1. Introduction

One of the main trends of companies' development is to focus on their core competencies and to outsource non-core activities. This leads to a situation where a company's success depends on how well it is able to buy and manage its supplier base. This increases the importance of well-functioning relationships between buyers and sellers as purchased products become closely associated with its core competencies [1]. This implies that buying and selling activities become more associated with relationship management and involve more than just purchasing and marketing departments [2]. In this regard, in [3] the emphasis is not only on the direct participation of the customer in product design, but also to provoke the interest of suppliers and their direct involvement in the structuring of knowledge assets of the company in the Web environment. World globalization imposed solution on competitiveness problems through distributing of various production processes as a whole or as parts of given manufacturing among several states. An approach is to solve the problem of arranging objects using international information networks, as a pre-condition for optimal logistics system that makes use of the

advantages of the common economic system of the European Union [4].

The objective of the paper is to discuss some popular empirical models of relationship parameters for assessing inter-organizational relationships in supply chain. They can be used to develop a general set of criteria for investigation buyer-supplier relationship and to elaborate a successful inter-organizational exchange.

2. Empirical models of relationship characteristics

2.1. Model of relationship constructs for distributor and manufacturer firms

Based on the study of marketing-channels a model of distributor firm and manufacturer firm partnerships is constructed. This kind of partnership is defined as "the extent to which there is mutual recognition and understanding that the success of each firm depends in part on the other firm, with each firm consequently taking actions so as to provide a coordinated effort focused on jointly satisfying the requirements of the customer market place" [5, 6].

The study was consisted of two parts. At first a model was developed and after tested in the context

of the distributor and manufacturing firms in a cross-section of industries. The aim of the model was not to investigate manufacturer-distributor relationships themselves, but to assess the inter-relationships between different relationship characteristics as trust, communication and relationship satisfaction in the channel-relationship context.

The research constructs used to evaluate the manufacturer and distributor perceptions of the relationship were not identical, but very similar in

terms of both the relationship constructs and the measures. The study was performed in two separate questionnaires, one for the distributor firms and the other for the manufacturer firms. There is no detailed description of the way how to perform an empirical evaluation of each parameter of the relationship. Tables 1 and 2 gives a sample of the type of relationship measures used to assess the manufacturer and distributor firms' relationship constructs [6].

Table 1. Relationship constructs for distributor firms

Relationship construct	Example measure (evaluated on a seven-point scale)
Trust (scale: don't trust Manufacturer X - trust Manufacturer X completely)	Based upon your past and present experience, how would you characterize the level of trust your firm has in its working relationship with Manufacturer X?
Communication (scale: strongly disagree - strongly agree)	Manufacturer X lets our firm know as soon as possible of any unexpected problems with things such as lead time, delivery schedules, or product quality
Co-operation (scale: strongly disagree - strongly agree)	Computed as a sum of: a) Our firm helps out Manufacturer X in whatever ways they ask b) Manufacturer X helps our firm out in whatever ways we ask
Influence by partner firm (scale: strongly disagree - strongly agree)	Manufacturer X has considerable latitude in deciding how much field sales assistance and technology support they give to our firm for their product line
Influence over partner firm (scale: not at all - to a great extent)	To what extent does Manufacturer X follow whatever recommendations your firm makes regarding the marketing and selling of their product line?
Functionality of conflict (scale: considerable increased - considerably decreased)	Disagreements between Manufacturer X and our firm have the productivity of our working relationship. (This measure is evaluated on a five-point scale)
Satisfaction (scale: strongly disagree - strongly agree)	Our firm's working relationship with Manufacturer X has been an unhappy one.
Relative dependence (scale: prohibitive - negligible)	Computed as the difference between: (a) In your judgment, the total costs to your firm in switching to a competing manufacturer's product line would be. (b) In your judgment, the total costs to Manufacturer X in replacing your firm with another distributor in your trade area would be. (This measure is evaluated on a five-point scale)
Outcomes given comparison level (scale: greatly above - greatly below)	The financial returns our firm gets from Manufacturer X's product line are what we look for in distributing a product line. (This measure is evaluated on a five-point scale)

The study aim was to create a distributor and a manufacturer model of working partnership. The model contains various interconnections between the relationships' constructs described in the two tables. Both the distributor and the manufacturer models underline the significance of cooperation, trust and communication as the principal relationship constructs. This partnership model is not positioned among other types of inter-organizational relationships. The working partnership can classify as a long-term buyer-seller partnership [7].

This model looks rather rivaling in its approach to partnership relationships. This is particularly visible in the absence of the key variable commitment. Dependence and power, but not commitment, are seen as the key constructs ensuring relationship continuance. Inter-organizational communication is supposed only to

be linked to problem situations.

Instead of considering the perceived dependence on the working relationship [7], the model stresses the importance of investigating the firm's perception of its dependence relative to its partner's dependence on the relationship. One of the questions is whether the research could have adequately captured the nature of relative dependence given the methodology that was applied. The unit of analysis in this study was the firm, and the focus was on its perceptions of the relationship but not on the bilateral relationship between the manufacturer firm and the distributor firm. The relative dependence measure was based on one firm's perception of the other's dependence on this relationship. There is no guarantee that the distributor firm was able to precisely evaluate the manufacturer's dependence on itself.

Table 2. Relationship constructs for manufacturer firms

Relationship construct	Example measure (evaluated on a seven-point scale)
Trust (scale: don't trust Firm X - trust Firm X completely)	Based upon your past and present experience, how would you characterize the level of trust your firm has in its working relationship with Firm X?
Communication (scale: strongly disagree - strongly agree)	Firm X lets our firm know as soon as possible of any unexpected problems they are experiencing with such things as poor cash flow or other financial difficulties.
Co-operation (scale: strongly disagree - strongly agree)	Computed as a sum of: a) Our firm helps out Firm X in whatever ways they ask b) Firm X helps our firm out in whatever ways we ask
Influence by partner firm (scale: a great deal - next to none)	Firm X exerts influence over the way our company markets our product line through their firm. (This measure is evaluated on a five-point scale)
Conflict (scale: strongly disagree - strongly agree)	Firm X and our company have significant arguments in our working relationship.
Satisfaction (scale: strongly disagree - strongly agree)	Our company's working relationship with Firm X has been an unhappy one.
Relative dependence (scale: strongly disagree - strongly agree)	Computed as the difference between: (a) There are other manufacturers available to Firm X who sells product lines comparable to those of our company. (b) There are other distributors in Firm X's trading area that could provide comparable distribution for our company's products.
Outcomes given a comparison level (scale: it has fallen short of expectations - it has greatly exceeded our expectations)	Overall, how would you characterize the results of your company's working relationship with Firm X?

Despite of involvement of both manufacturer and distributor firms in the study, the researchers were not adequately able to capture the bidirectional nature of individual relationship constructs, such as dependence, co-operation and conflict. In this connection in order to right assess the nature of these constructs, it must be able to compare the perceptions of individual firms in a bilateral context.

2.2. Interaction model of IMP

Although sometimes it is usual the partners' chain to be formed without taking into account such considerations [6], the principal objective of this study is to measure the relationship constructs as exchange, co-operation and adaptation that are identified in the IMP Interaction Model, and after that to formulate some research hypotheses concerning the interrelationships among them [8].

The study was implemented in an environment involving both the buyers and the suppliers. The research was conducted using multiple respondents who gave their opinion about buyer-seller relationships as the unit of analysis. As purchases and sales are often associated with many other organization functions, staff from different functional areas involved in the process of buying and selling was interviewed.

The IMP Interaction Model research constructs used to evaluate buyer-supplier relationships were operationalized using between two and five

questions per construct. In most cases, a five-point scale was used in each question and construct - Table 3 [8].

The research hypothesis developed in this study concerned the interrelationships between the different relational constructs. The findings suggest, first of all, that information exchange and social exchange lead to cooperation. Second, co-operation between buyers and sellers affects their willingness to make adaptations. Moreover, perceived product importance encourages adaptations and investments on the part of either party. Finally, information exchange was also found to facilitate adaptation [8].

Although this study was not directed towards the evaluation of the characteristics and condition of the individual customer-supplier relationships, it can be use for this purpose. High levels of the parameters the IMP Interaction Model as sharing, cooperation and adaptation entails developed relationships, while low scores suggest distant standard buyer-seller relationship.

2.3. Model of relationship constructs

Relationships are assessed in this model from the perspective of relationship marketing [9]. According to the definition, "Relationship marketing refers to all marketing activities directed toward establishing, developing, and maintaining successful relational exchanges". It is not described in detail what is meant by successful relational exchange.

Table 3. Constructs and measures of the IMP Interaction Model

IMP Interaction model construct	Measure/Question (evaluated on a five-point scale)
Product importance (scale: neither important nor unimportant, important, very important, absolutely essential)	In terms of the success of the engine under consideration in this study, technical assistance (product quality, product service, product reliability, timely delivery) is... (NOTE: This measure is evaluated on a four-point scale)
	In terms of the success of the engine under consideration in this study, this casting is... (NOTE: This measure is evaluated on a four-point scale)
Information exchange (scale: strongly disagree/strongly agree)	The buyer/seller usually provides technical documentation in substantial detail.
	The technical information supplied by the buyer/seller is often inadequate.
Social exchange (scale: strongly disagree/strongly agree)	We like dealing with the buyer/seller.
	The buyer/seller has a good understanding of our problems as buyers/sellers.
	We have full confidence in the information provided to us by the buyer/seller.
	The buyer/seller generally has a poor understanding of how our company operates.
Co-operation (scale: strongly disagree/strongly agree)	It is difficult to make personal friends with purchasing people/salespersons and technical people from the buyer's/seller's company.
	Purchasing/marketing people from the buyer's/seller's company co-operate closely with us.
	Purchasing people/salespersons from the buyer's/seller's company frequently contact us.
	Purchasing people/salespersons quickly respond to our requests for a call.
Adaptation (scale: strongly disagree/strongly agree)	The buyer/seller is particularly interested in following up how the seller's products are used.
	The buyer/seller is often interested in joint product-development activities.
	The buyer/seller is often receptive to/offers us new technical solutions.
	The buyer/seller often suggests that we jointly co-ordinate our production plans.

The study was aimed to investigate the role of relationship commitment and trust as intermediate variables for successful relationships, rather than to assess individual inter-organizational relationships or to determine the different types of relationship. The unit of analysis was the manufacturer-retailer relationship and its relationship characteristics.

It is not provided a comprehensive set of the measures used to evaluate the relationship constructs. Instead, as illustrated in Table 4, it is only given a sample of the types of measures / questions used to evaluate different relationship characteristics [9].

The overall results of the research indicated that trust and commitment is the key for co-operative relationship success. In more specific terms, both commitment and trust are the key mediating constructs, and are an important aspect of the relationship-development process. Trust is assumed to lead to commitment, and both commitment and trust are antecedents of co-operation [9].

In this study, several limitations are met. First, the study involved only one respondent from an organization which is not enough to provide

sufficiently complete information on all the parameters of the relationship. Second, the relationship parameters are measured only from the side of the retailer. It should be noted that in order to make more detailed conclusions about the state of the individual relationship between a manufacturer and a retailer, it should be borne in mind that the parameters of the relationship are not one-sided. Third, the estimates of the parameters communication, cooperation and shared value from the manufacturer can bring additional information about the nature of retailers' perceived relationship parameters. Fourth, the lack of comprehensive list of parameters and applied questions does not allow for a thorough evaluation of this research and its application in another environment.

2.4. Model of relational orientation

The main objective of this study was to determine the impact of relational orientation in buyer-supplier relationships on increasing the quality of products purchased, on reducing the cost of acquisition and ownership, as well on satisfaction with the relationship.

Table 4. Relationship constructs

Relationship construct	Sample items (evaluated on a seven-point scale)
Trust and opportunistic behavior (scale: strongly agree - strongly disagree)	In our relationship, my major supplier cannot be trusted at times.
	In our relationship, my major supplier can be counted on to do what is right.
	In our relationship, my major supplier has high integrity.
	To accomplish his own objectives, sometimes my supplier alters the facts slightly.
	To accomplish his own objectives, sometimes my supplier promises to do things without actually doing them later.
Communication (scale: strongly agree - strongly disagree)	In our relationship, my major supplier keeps us informed of new developments.
	In our relationship, my major supplier communicates well his expectations for our firm's performance.
Co-operation, shared values, functional conflict (scale: Not at all co-operative - very co-operative)	How would you characterize the cooperation between you and your supplier regarding the following activities? 1. Local/Regional Cooperative Advertising 2. Inventory Levels
	Please indicate the degree to which you believe that (1) your supplier would agree with the following statements, and (2) you would agree with the following statements. 1. To succeed in this business, it is often necessary to compromise one's ethics. 2. If an employee is discovered to have engaged in unethical behavior that results primarily in personal gain (rather than corporate gain), he or she should be promptly reprimanded.
(scale: strongly agree - strongly disagree)	In the future, differences of opinion between my supplier and me will probably be viewed as "just a part of doing business" and will likely result in benefits to both of us.
Commitment and propensity to leave (scale: strongly agree - strongly disagree)	The relationship that my firm has with my major supplier is something we are committed to.
	The relationship that my firm has with my major supplier is something my firm intends to maintain indefinitely.
	The relationship that my firm has with my major supplier deserves our firm's maximum effort to maintain.
(scale: very high - very low)	What do you think are the chances of your firm terminating this relationship within the next six months?
	What do you think are the chances of your firm terminating this relationship within the next year?
	What do you think are the chances of your firm terminating this relationship within the next two years?

A relational orientation as an integrated construct comprising five key aspects: supplier flexibility, supplier assistance, information provided to the supplier, supplier monitoring, and expectations of continuity is defined [10]. A model and a set of research hypotheses on the basis of relational orientation, product quality, possession costs, acquisition costs and satisfaction constructs is developed.

The empirical investigation was conducted in the context of manufacturing firms. Only the buyer firms were represented, and only by a single informant (i.e. purchasing executive), in spite of the fact that the unit of analysis was the dyadic buyer-supplier relationship. The research method was survey-based [7]. In this study only a sample of the items used to measure each of the relational-

orientation constructs is provided. Table 5 shows only those of the model and sample measures [10].

The results of this study suggest that relational orientation is positively related to purchased-product quality. In addition, in light of the study increased relational orientation result in decreased acquisition and possession costs. Ultimately, all these constructs would appear to lead to relationship satisfaction.

This study also assesses the relationship only from the buyer side and only one person from the organization gives its opinion on the relationship parameters. As in other studies with similar characteristics better results could be achieved if the opinion of the seller is examined and if more different persons are involved.

Table 5. Relational-orientation elements

Element of relational orientation	Sample Measure/Question (evaluated on a seven-point scale)
Supplier flexibility (scale: strongly agree - strongly disagree)	This supplier is flexible in response to requests we make.
Supplier assistance (scale: strongly agree - strongly disagree)	The supplier makes an effort to help us during emergencies.
Information provided to supplier (scale: strongly agree - strongly disagree)	We keep our supplier informed of production plans.
Supplier monitoring (scale: strongly agree - strongly disagree)	We monitor suppliers' inventory levels.
Expectation of continuity (scale: strongly agree - strongly disagree)	We expect our relationship with this supplier to last a long time.

3. Conclusions

The most important details of the measurement of the relationship constructs are not discovered. Only sample questions for each relationship construct is provided. This vastly restricts the opportunity to assess the research.

The results of studies on the links between different relationship constructs of the inter-organizational relationship point a lack of unanimity. For some researchers trust leads to communication, while for others communication leads to trust. Some authors argue that cooperation is a prerequisite for trust, while others postulate that commitment and trust are causal antecedents of cooperation. For some, trust and commitment are key factors to create working relationships, while others believe that dependence is a major variable, while commitment is not key variable.

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