

Buyers' Perspective of Buyer-Supplier Relationship Development: Interaction of Key Variables

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Abstract

In this paper, we propose and test a three-stage model. A relationship begins at the *Pre-Deal Stage* (t-1), where, Buyer and Supplier Power are likely to impact Input Commitment. The relationship moves on to the *Deal Enactment Stage* (t), where the Input Commitment is likely to foster Low Relational Embeddedness. This, in turn, develops Contractual Trust that leads to a business deal and Attitudinal Commitment. Depending on requirements and mutual satisfaction, the relationship may then move to the *Continuation Stage* (t+1), where the developed Attitudinal Commitment enhances High Relational Embeddedness. From this comes Competence-based Trust and Temporal Commitment. Temporal Commitment and High Relational Embeddedness is likely to further produce Goodwill Trust and improved Overall Performance. This research study extends existing literature by empirically testing a cohesive model, which explains the different, multidimensional roles relational constructs can play in a relationship, and how these relationships evolve over time.

JEL Classifications: D23, L11, L22

Keywords: buyer-supplier relationships, relationship development, relationship stages

1. Introduction

In the business and industrial marketplace, all selling and buying transactions are effected by relationships of various types and duration between sellers (i.e. suppliers or marketers) and buyers. Some relationships exist for only one transaction while others may endure for years and include many transactions. To optimize the marketing and purchasing performance of their organizations, it is valuable for both marketing and buying personnel to understand the process through which relationships develop and are formed.

Since Dwyer, Schurr, and Oh's 1987 positing of a 5-phase process for buyer-seller relationship development, there have been a number of published studies related to this process, (e.g. Borys & Jamison, 1989; Wilson, 1995; Caniels & Gelderman, 2004; Ng, 2009; Khoja, Adams, & Kauffman, 2010), most of which have been conceptual in nature. Because of the critical role that relationship development plays in commercial business transactions, and the relative lack of empirical confirmation of conceptual proposals of how the development process takes place, we have undertaken the current study to empirically test the Khoja *et al.* (2010) conceptual study. We selected this model to test because it is a particularly cohesive one that encapsulates the sparse and spread-out relational view of vertical commercial relationships. The results from our empirical

study confirm many of the hypotheses presented for this model and provide implications for both marketing and purchasing managers involved in selling and buying activities.

Because of the complexity of buyer-supplier relationship development, we have chosen in this study to look at it from only the buyer's side. As a result, we collect data only from buyers. Also, because buyers are in general at any given time involved with different suppliers some of whom are in each of the phases of relationship development with the buyer, we collect data at only one point in time but ask the buyers to respond considering their current and past experience with suppliers in each phase of relationship development. We also feel that it is important to obtain an indication of buyers' interpretation of supplier attitudes as relationships develop. Therefore we asked buyers for information on this aspect of their relationship development. Future studies will examine the seller's point of view and buyers and suppliers together.

2. Motivation and Research Objectives

As indicated in the Introduction section, there is a relative lack of empirical tests of buyer-supplier relationship development process models. Therefore the primary reason for this study is to provide an empirical test of one model of this process. Our study focuses on development of buyer-supplier relationships through the three-phase process described in the model. In particular, we examine how buyer-supplier relationships can develop from the pre-relationship stage to a continuing relationship stage through interaction of a number of variables and constructs.

The objectives of the paper are to (1) empirically test an existing theoretical model; (2) enhance the ability of researchers and managers to comprehend particular dynamics of vertical relationships; (3) increase understanding of practical implications of relationship processes, and (4) provide managers an additional tool to gauge and forecast the fate of a relationship.

3. Contributions

To the best of our knowledge, this is one of the first empirical tests of a cohesive model developed to increase knowledge of the sparse and spread-out relational view of buyer-supplier relationships. There have been two relatively recent empirical studies published that involve the buyer-supplier relationship, but neither is primarily concerned with development of the relationship. One is focused on governance modes in enforcement of buyer-supplier agreements (Vazquez-Casielles, Iglesias, & Varela-Neira, 2013), and the other is focused on structural configuration and embeddedness in the buyer-supplier relationship (Kim, 2014). The empirical results developed in this paper provide comprehensive support for a theory of buyer-supplier relationships and how they evolve over time. Though previous research studies in this area have randomly analyzed most of the relational constructs relevant to this area of management and marketing, there is a lack of a cohesive model supported by empirical data that explicates the different roles and dimensions that relational constructs can play in a relationship, and how these change in time. This test provides support for theory of how the various related variables and constructs are tied together and for explanation of the different roles that each plays in previous empirical studies of the variables in the model (e.g. Miyamoto & Rexha, 2004; Paulraj & Chen, 2005); Gundlach, Achrol, and Mentzer (1995); and more recently, Zhuang, Xi, and Tsang (2010); and Zhuang and Zhang (2011) conducted studies highlighting reciprocity in relational relationships. By dissecting the relational constructs into dimensions and components, we test construct reciprocity, helping to increase understanding of this aspect of relationship development.

In the next section of the paper we review briefly the literature on the buyer-supplier relationship development process. Next we explicate the theory and hypotheses developed for the model we are testing, followed by presentation of methodology and results of the empirical test. Finally we draw conclusions from the empirical findings and discuss managerial implications.

4. Relationship Development Models

Development models in general take the view that relationships develop and evolve over time through a series of stages. Some examples of these include: Ford (1980), Dwyer *et al.* (1987), Ellram (1995), Wilson (1995), Caniëls and Gelderman (2004), Ng (2009), and Khoja *et al.*, (2010). Of these and other development studies, Caniëls and Gelderman (2004) is one of the few that includes an empirical test of its proposed model. In all of the non-empirical models, the various development stages are conceptual, based on literature and theoretical ideas.

5. Theoretical Model

We have chosen to test the model: 'A Temporal Model of Vertical Relationships' (Khoja *et al.*, 2010), because it presents buyer-supplier relationship development as a basic, relatively uncomplicated three-phase process. This should make managerial applications from the results of this study relatively easier for managers to understand and apply. A second reason for selection of this particular model is that it includes many of the key variables in the buyer-supplier development process that have been identified in the literature.

In general, all commercial buyer-supplier relationships, including one-time transactions, include the three phases depicted in the chosen model:

- Phase 1. Getting from no relationship to readiness to make a deal. We identify this as Pre-Deal, (or t-1).
- Phase 2. Agreement to an initial deal. We identify this as Deal Enactment, (or t).
- Phase 3. Agreement to continue to do business after the initial deal. Of course, depending on various factors, the relationship does not always proceed to this phase. We identify this phase as Deal Continuation, (or t+1).

The model is intended to indicate how such relationships begin and flow through the phases. A brief summary description of the model depicts the process thusly: A relationship begins at the Pre-Deal Stage (t-1), where, with sufficient Input Commitment, the relationship moves on to the Deal Enactment Stage (t), where the Input Commitment generates Low Relational Embeddedness. This, in turn, develops Contractual Trust that leads to a business deal and Attitudinal Commitment. Depending on requirements and mutual satisfaction, the relationship may then move to the Continuation Stage (t+1), where the developed Attitudinal Commitment leads to High Relational Embeddedness. From this comes Competence-based Trust and Temporal Commitment. Temporal Commitment and High Relational Embeddedness produce Goodwill Trust and improved Overall Performance. Of course, if a relationship encounters problems along the way, the necessary commitment, trust, and/or embeddedness may not develop and the relationship may not get to the second or third phase.

This 3-stage approach helps us understand the multidirectional and multidimensional interactions between variables drawn from transaction cost and relational theories, as they are the keys that have been most commonly used in previous research to explain vertical relationships. It is not the purpose of this paper to justify the model theoretically, but to empirically test it, from the buyer's perspective, with data collected from buyers in the marketplace, and draw from the test practical implications that may be useful to managers involved in the buyer-supplier relationship process. Therefore we do not present here a complete discussion of its development and theoretical justification. Readers who desire more information on the model may consult Khoja *et al.* (2010), and the references therein. Suffice it to say, the three stages of the model, the overall selection of variables, the assignment of variables to the stages, and the development of interactions among the variables at each stage are all based on existing previously-published theory as referenced in the 2010 article. The model is shown in figure 1.

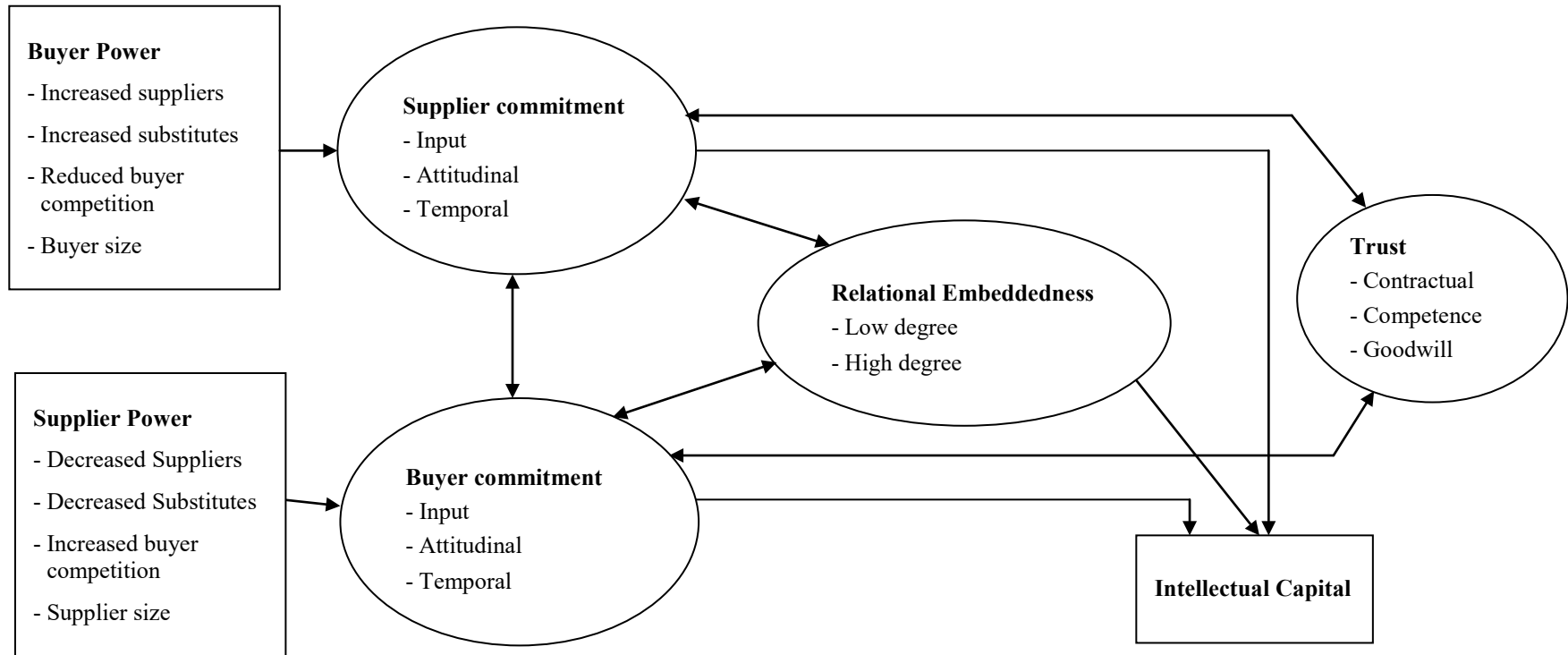


Figure 1. Comprehensive theoretical model of vertical relationships

5.1. Theoretical Basis of the Model and Background

Existing theoretical concepts that pertain to buyer-supplier vertical relationships were drawn from studies in the areas of strategy, knowledge management, supply chain management, and marketing (Gulati & Kettler, 2005; Shanley & Peteraf, 2004). In this section we present our working definitions of the dimensions of commitment, trust and relational embeddedness.

5.1.1. Commitment

In this paper, commitment is defined as “an implicit or explicit pledge of relational continuity with exchange partners” (Dwyer *et al.*, 1987, p. 19) Three components are commonly associated with this construct: input or behavioral, attitudinal or affective, and temporal or continuance. (1) Input or behavioral component is the action taken by partners to justify a self-interest stake in the relationship more than a mere promise, such as a written contract. (2) Attitudinal or affective component depicts a sense of unity among partners through goal congruence and operational linkages. (3) Temporal or continuance component signifies the enduring long-term relationship, for example by investing in specific assets (Gundlach *et al.*, 1995; Skarmeas, Katsikeas, & Schlegelmilch, 2002).

5.1.2. Embeddedness

The concept of embeddedness has been used by several scholars to analyze relationships among partners and has been found to be a source of firm’s future capability and expected performance, and is assumed to develop over time through adaptation and trust (e.g. Gulati, 1998; Hansen, 1999; McEvily & Zaheer, 1999; Uzzi & Lancaster, 2003). It should, therefore, be considered a continuous variable and not a dichotomy. One of the two dimensions that characterize embeddedness among business partners is relational embeddedness (Gulati, 1998; Uzzi, 1999) Relational embeddedness stresses the “role of direct cohesive ties as a mechanism for gaining fine-grained information” (Gulati, 1998, p. 296).

5.1.3. Trust

In this paper trust is defined as one’s confidence in another that the other behaves in a predictable and mutually acceptable manner (Morgan & Hunt, 1994; Sabel, 1993). Three dimensions of trust are focal to this paper, namely (1) contractual trust; partners’ expectation that contracts will be fulfilled, (2) competence trust; partners will professionally fulfill the contracts, and (3) goodwill trust; partners’ confidence in one another to support and continue a long-term relationship (Miyamoto & Rexha, 2004).

6. Development of Hypotheses

In this section we describe the basis for the hypotheses that will be empirically tested. The hypotheses are grouped by the combinations of variables tested and presented in the order of the three stages of the model, pre-deal (t-1), deal enactment (t), and deal continuation (t+1). Impact of Buyer and Supplier power on Commitment in period t-1 (Pre-Deal Enactment Stage).

Most previous research studies have hypothesized transactional and/or relational constructs such as trust, shared values, cooperation, etc., as antecedents to relationship commitment (e.g. Anderson & Weitz, 1992; Morgan & Hunt, 1994; Prahinski & Benton, 2004; Skarmeas *et al.*, 2002). However, Kim (2001) focused on both environmental factors of customer heterogeneity, volatility, and munificence, and dyad-specific factors of trust, specialized investment, and dependence on both supplier and distributor (buyer) commitment. The research found that both environmental and dyadic-specific factors impact supplier commitment, whereas only dyadic-specific factors impact distributor commitment. Cannon and Perreault Jr. (1999), focused on the market conditions of supply market dynamism and the availability of alternatives impacting behavioral aspects of relationship commitment.

Some research studies have identified the impact of industry factors on buyer/supplier relationships. For example, Cox (2004) and Cox, Lonsdale, Watson and Qiao (2003) suggest that

effective supplier relationships are a factor of buyer power and leverage with suppliers. Keep, Hollander, and Dickinson (1998) strongly supported application of the industrial organization (I/O) model to the buyer-supplier relationship.

To the best of our knowledge none of the researchers have studied the impact of the I/O model on buyer/supplier commitment. Drawing from the industrial organization model (Hitt, Ireland, & Hoskisson, 2005), it is posited that two primary or first-order industry factors that impact supplier and buyer commitment are buyer power and supplier power.

6.1. Buyer and Supplier Power in Period “t-1” (Pre-Deal Stage)

6.1.1. Buyer Power

Buyer power exists when there are increased number of suppliers and substitutes, and/or reduced buyer competition in the industry. The size of the buyer in percentage of individual supplier annual revenue can also add to buyer power.

The model proposes that in an industry where the buyer is a threat, suppliers are likely to be committed to the buyers, as buyers have the option to choose from different suppliers, and, if switching cost is low, buyers have less dependence on suppliers (Cannon & Perreault Jr., 1999).

Suppliers' vulnerability can be the victim of buyers' opportunism (Williamson, 1981) when suppliers are dependent on existing buyers for orders (Turner, LeMay, Hartley, & Wood, 2000). We propose that in order for suppliers to increase buyers' switching cost and block buyer opportunism at the pre-deal stage, suppliers need to initially show intentions to work together in harmony by input commitment such as willingness to sign written contracts, hence:

Hypothesis 1a: Increased buyer power is likely to foster supplier input commitment in period 't-1'.

6.1.2. Supplier Power

The second first-order or primary industry construct is supplier power. This can exist when a large number of buyers face a small number of suppliers and few or no available substitutes. This creates supplier power in the form of dependence, which Heide and John (1988) define as 'the extent to which there are no equivalents or better alternatives available in the market.' The size of the supplier in terms of high percentage of buyer's total annual purchases is also said to positively impact supplier power. Thus, when suppliers are a threat, buyers are likely to commit to the suppliers, as they have less options and alternatives available in the industry to place orders (Krajewski, Wei, & Tang, 2005) and in effect, buyers' dependence on the suppliers increases (Turner *et. al.*, 2000). Of course, buyer input commitment can also be triggered by other factors such as price, quality, and availability (Buvik & Haugland, 2005; Corsten & Felde, 2005). When dependency increases, chances of suppliers acting opportunistically increases at the pre-deal stage. To block supplier opportunism and reduce buyer vulnerability, buyers are likely to intensify input commitment to the relationship. An example of buyer input commitment would be indication of willingness to consider a multi-year contract with a supplier in order to stabilize prices. Thus:

Hypothesis 1b: Increased supplier power is likely to foster buyer input commitment in period 't-1'.

6.2. Commitment, Trust, and Relational Embeddedness in Period “t” (Deal Enactment Stage)

6.2.1. Input Commitment and Contractual Trust

If commitment is developed during time t-1, then trust and relational embeddedness may result at time 't'. If that is not the case the relationship will not progress to stage 't'. At the time of deal

enactment 't', both parties may commit to sign a written contract, hence building contractual trust through low degree of relational embeddedness. A few previous research studies have shown commitment as precursor to trust. For example, Gao, Sirgy, and Bird (2005) found that buyer perceived supplier commitment to indirectly reduce buyer's decision-making uncertainty by enhancing buyer's trust in supplier. Furthermore, Miyamoto and Rexha (2004) found that relationship commitment mediated the relationship between relation specific investment and trust (contractual and goodwill) and between relation specific interaction competence and trust (contractual, competence, and goodwill), hence, postulating relationship commitment to act as an antecedent to trust. In a few other studies, both trust and commitment are viewed as components, dimensions, or characteristics of relationship strength (Fynes & Voss, 2002) and relationship quality (Walter, Muller, Helfert, & Ritter, 2003). Willingness to invest in the relationship by one party of can generate expectations of reciprocal behavior, which can strengthen relationships (Palmatier, Dant, Grewal, & Evans, 2006). Once when both parties are willing to sign a written contractual agreement that depicts input commitment, contractual trust starts to foster. Hence, now both buyer's and supplier's simultaneous increased intention to commit to the relationship signals the validity of the relationship leading to the plausible expectation that contracts will be completed. Thus:

Hypothesis 2a(i): Increased supplier input commitment is likely to foster buyer contractual trust in period 't'.

Hypothesis 2a(ii): Increased buyer input commitment is likely to foster supplier contractual trust in period 't'.

6.2.2. Input commitment, Contractual Trust and Relational Embeddedness

Commitment and trust are two relational factors that are found to be desirable for information and knowledge exchange such that partners are at ease and confident that the knowledge shared will not be appropriated or misused (McEvily & Zaheer, 1999; Reagans & McEvily, 2003; Tsai 2001). Moreover, information and knowledge sharing between partners is shown to influence degree of relational embeddedness (Hansen, Mors, & Lovas, 2005; Moran, 2005). Weak ties that develop due to input commitment between the buyer and supplier, cultivate the sharing and exchange of explicit information (Hansen, 1999), opening up reciprocal dialogue between the partners, giving them the opportunity to know one other. This propagates relationship trust. However, at the deal enactment stage in time period 't', partners principally share limited, explicit information, as they are still at the rudimentary level of commitment and chances of opportunism from either the powerful supplier or buyer still exist. Only a low degree of relational embeddedness exists and dissemination of too much intricate knowledge may turn out to be fatal for either of the partners. Hence:

Hypothesis 2b(i): Low degree of relational embeddedness mediates the relationship between supplier input commitment and buyer contractual trust in period 't'.

Hypothesis 2b(ii): Low degree of relational embeddedness mediates the relationship between buyer input commitment and supplier contractual trust in period 't'.

6.2.3. Contractual Trust and Attitudinal Commitment

By sharing information about their technical and operational capabilities and managerial philosophies, the buyer or supplier indicates increased contractual trust and sets the stage for reciprocal behavior. A few researchers have analyzed these reciprocal relationships. For example, they found that each channel member's commitment to the relationship was based on the perception of the other party's commitment (Anderson & Weitz, 1992). Furthermore, continued collaboration and growing interest, propagates attitudinal commitment.

Hypothesis 2c(i): Increased supplier's contractual trust is likely to enhance buyer attitudinal commitment in period 't'.

Hypothesis 2c(ii): Increased buyer's contractual trust is likely to enhance supplier attitudinal commitment in period 't'.

Once the relationship has survived to the contractual point, it can then move to the deal continuation stage (period t+1).

6.3. Period t+1 (Deal Continuation Stage)

6.3.1. Attitudinal Commitment and Competence-based Trust in Period t+1

In the deal continuation stage, period 't+1', contractual trust and attitudinal commitment directly promote competence-based trust (since at period 't' we have deal enactment and actual performance) and indirectly do the same through a high degree of relational embeddedness. Also, in period 't+1', competence trust encourages temporal commitment for both parties. In a few relevant studies on trust-commitment, trust is found to act as an antecedent to temporal commitment. Morgan and Hunt (1994) empirically found relationship termination costs, shared values, and trust to be positively related to relationship commitment. In another study, Bennett and Gabriel (2001) found that trust and performance satisfaction facilitate continuance commitment; belief that the relationship will continue in the future. Kim (2001) also found trust as one of the dyadic specific factors to positively influence both supplier and distributor commitment. Contrary to conventional wisdom, a few researchers (Anderson & Narus, 1990; Dwyer *et al.*, 1987; Gundlach & Murphy, 1993) claim that in the early stages of a relationship, partners have no experience on which to estimate each other's trustworthiness, and therefore, trust plays a relatively unimportant role. We explicate this controversy by advocating that at the deal enactment stage in period 't', input commitment fosters contractual trust and in turn, the latter facilitates/increases attitudinal commitment.

The model posits that both contractual trust and attitudinal commitment initialize feelings of comfort and partner credibility, and that contracts will be well accomplished (Jap & Anderson, 2003). Contracts in time 't' specify the minimum performance levels required of each party and as such contracts limit opportunism and sets the stage for further deal continuation and relationship development. This is likely to instigate goal congruity and operational linkages between the stronger partner (Skarmeas *et al.*, 2002), promulgating attitudinal commitment and in turn, conserving timely and professional completion of contracts, and hence, building competence-based trust between partners. Thus:

Hypothesis 3a(i): Increased supplier attitudinal commitment is likely to increase buyer competence-based trust in time period 't+1'.

Hypothesis 3a(ii): Increased buyer attitudinal commitment is likely to increase supplier competence-based trust in time period 't+1'.

6.3.2. Attitudinal Commitment, Competence-based Trust and High Relational Embeddedness

The model further posits that the mechanisms used to operationalize attitudinal commitment, help build strong relationships between buyer and supplier by assuring them that they can uninterruptedly and candidly share confidential information and tacit know-how, and develop capacities for mutual problem solving to complete the contract (Dyer & Chu, 2003; Hansen *et al.*, 2005; McEvily & Marcus, 2005). Tacit knowledge requires specific motivation and effort to be transferred, which can only be achieved when partners have developed high level of relational embeddedness (Rindfleisch & Moorman, 2001; Uzzi, 1999), where strong ties prevail to assist in the transfer of such knowledge (Szulanski, 1996). More recently, Hansen (1999) found that frequent contacts and emotional closeness among internal product development team members enhance the

amount of complex knowledge transferred among team members. As such, integrated product teams where key suppliers are closely involved and work side by side with manufacturers in the development of new products has proven to be successful in many industries. Reagans and McEvily (2003) found that tie strength is positively associated with knowledge transfer, which further increases with exchange of tacit knowledge. Thus:

Hypothesis 3b(i): High degree of relational embeddedness mediates the relationship between supplier attitudinal commitment and buyer competence trust in period 't+1'.

Hypothesis 3b(ii): High degree of relational embeddedness mediates the relationship between buyer attitudinal commitment and supplier competence trust in period 't+1'.

6.3.3. *Competence- Based Trust and Temporal Commitment*

When buyer and supplier live up to their expectations and diligently fulfill the contract, they are likely to pursue a long-term relationship, for which they commit to relation-specific investments in deal continuation stage in time period 't+1'. Relationship specific investments may include technology, procedural knowledge, establishment of working relationship and routines, and idiosyncratic investments on equipment (Bennett & Gabriel, 2001; Lai, Cheng, & Yeung, 2005; Liu, Leach, & Bernhardt, 2005; Miyamoto & Rexha, 2004). Specific investments are a strong signal of a partner's intentions to establish a long term relationship with the other party and have a positive relationship to commitment (Jap & Ganesan, 2000). Thus it is less likely that, with successful completion of the contract, either buyer or supplier will incur transaction costs or appropriation and coordination costs (Gulati & Singh, 1998) to look for other partners in the arena. Thus:

Hypothesis 3c(i): Increased supplier competence trust is likely to increase buyer temporal commitment in period 't+1'.

Hypothesis 3c(ii): Increased buyer competence trust is likely to increase supplier temporal commitment in period 't+1'.

6.3.4. *Commitment, Goodwill Trust and Performance*

Buyer and supplier input, attitudinal, and temporal commitment depicted through intentions, operational linkages, and specific investments in time period 't-1', 't', and 't+1', act as building blocks to foster goodwill trust, which gives the partners confidence in one another's capabilities, legitimacy, and sustainability of a working relationship (Gundlach *et al.*, 1995). Thus:

Hypothesis 4a(i): Increased supplier commitment is likely to increase buyer goodwill trust in period 't+1'.

Hypothesis 4a(ii): Increased buyer commitment is likely to increase supplier goodwill trust in period 't+1'.

Empirical research suggests that commitment influences several different factors besides trust as explained earlier. For example, Morgan and Hunt (1994) found that commitment positively influences acquiescence (partner's adherence to each other's requests or policies) and cooperation, and negatively impacts partner's propensity to leave. A cross-cultural study by Skarmas *et al.* (2002) showed that commitment enhances importer's performance in terms of productivity and rewards. Furthermore, buyer-perceived supplier commitment is shown to directly, and indirectly through trust and dependence, reduce buyer's decision-making uncertainty (Gao *et al.*, 2005). Hence, increased commitment and trust allows both buyers and suppliers to share information, processes and competencies to improve effectiveness and efficiencies along the supply chain.

Hypothesis 4b(i): Increased supplier commitment is likely to improve overall performance in period 't+1'.

Hypothesis 4b(ii): Increased buyer commitment is likely to improve overall performance in period 't+1'.

We further posit that high degree of relational embeddedness acts a catalyst in information and resource exchange between both the parties (Hansen, 1999; Rindfleisch & Moorman, 2001), in turn improving their performance.

Hypothesis 4c(i): High degree of relational embeddedness mediates the relationship between supplier commitment and performance in period 't+1'.

Hypothesis 4c(ii): High degree of relational embeddedness mediates the relationship between buyer commitment and performance in period 't+1'.

7. Research Methodology

7.1. Survey Instrument Development

We used a multi-stage method for the accurate development of the survey instrument. In the first step, an extensive literature review resulted in the development of questions for the survey. As not every empirical study measured each construct using the same items, we collected items most commonly used. In the next step, both academics and practitioners reviewed the proposed survey. The final step in the development of the survey instrument was pre-testing by purchasing professionals, who validated the significance of the variables being addressed at each stage. No major problems with the survey were detected by the pre-test.

7.1.1. Sample and Data Collection

Although we are analyzing interactions of variables from the buyer's point of view over three phases or stages of relationships, data is not collected in different time periods. Rather, we divided our survey into three parts, providing a scenario for each of the three stages. Because buyers are at any given time typically involved with various suppliers, some of whom are in each of the three stages of relationship development posited by the model, we were able to obtain, from a single data collection, data that pertained to each stage of the model. Note that throughout the paper the terms "buyer" and "supplier" are referring to firms and not to individuals employed by them. Although by necessity the data was collected from individuals, it represents firm-level practices and experiences.

Data were collected by survey method from buyers from a cross-section of industries at buyers' professional society meetings and other professional venues. All respondents were professional buyers who had buying responsibilities that involved interaction with suppliers sufficient to qualify them to complete the survey. Questions on the survey questionnaires were answered using a 7-point Likert scale ranging from "Strongly Agree" to "Strongly Disagree". A total of 124 usable completed surveys were obtained. Authors closely monitored all data collection activities.

8. Statistical Analysis

The partial least squares (PLS) technique was used to test the hypotheses. Please refer to the APPENDIX for a discussion of the PLS technique.

8.1. Statistical Analysis Results

In this section, we analyze the correlation matrix, composite reliability, AVEs, discriminant validity, and measurement models determined by the PLS technique. Table 1 shows the correlation

Table 1. Correlation matrix^a

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1- Supplier power	(0.86)															
2- Buyer power	0.109	(0.88)														
3- Supplier input commitment	-0.08	-0.254**	(0.83)													
4- Buyer input commitment	0.049	-0.216**	0.414***	(0.78)												
5- Supplier contractual trust	0.076	-0.249**	0.384***	0.115	(0.94)											
6- Buyer contractual trust	0.051	0.02	0.279**	0.214**	0.43***	(0.83)										
7- Low relational embeddedness	0.04	0.153	0.342***	0.302***	0.248**	0.110	(0.82)									
8- Supplier attitudinal commitment	0.09	-0.139	0.369***	0.175	0.549***	0.265**	0.302***	(0.77)								
9- Buyer attitudinal commitment	-0.056	-0.172	0.172	0.156	0.406***	0.228**	0.23**	0.745***	(0.81)							
10- Supplier competence trust	-0.039	-0.205**	0.455***	0.292***	0.577***	0.347***	0.405***	0.584***	0.497***	(0.83)						
11- Buyer competence trust	-0.029	-0.047	0.372***	0.395***	0.361***	0.394***	0.334***	0.511***	0.369***	0.488***	(0.84)					
12- Supplier temporal commitment	-0.088	-0.032	0.266**	0.275**	0.357***	0.26**	0.345***	0.488***	0.434***	0.541***	0.421***	(0.84)				
13- Buyer temporal commitment	-0.11	-0.144	0.53***	0.28**	0.689***	0.389***	0.331***	0.608***	0.407***	0.619***	0.521***	0.531***	(0.89)			
14- Supplier goodwill trust	-0.086	-0.134	0.556***	0.25**	0.657***	0.311**	0.267**	0.517***	0.334***	0.688***	0.418***	0.448***	0.734***	(0.83)		
15- Buyer goodwill trust	0.021	-0.182	0.402***	0.59***	0.362***	0.459***	0.365***	0.415***	0.347***	0.538***	0.486***	0.363***	0.539***	0.522***	(0.8)	
16- High relational embeddedness	-0.047	-0.101	0.53***	0.28**	0.689***	0.389***	0.331***	0.343***	0.162	0.437***	0.476***	0.35***	0.488***	0.462***	0.271**	(0.89)
17- Performance	-0.027	-0.136	0.262**	0.25**	0.195*	0.282**	0.283**	0.432***	0.305***	0.415***	0.326***	0.261**	0.288**	0.265**	0.495***	0.255** (0.94)

^an= 124. The diagonals in parentheses indicate square root of AVE.

*p< 0.05

**p< 0.01

***p< 0.005

matrix with the diagonals indicating the square root of average variance extracted (AVE) to check for discriminant validity. Correlations of 0.5 and above are found among the variables of buyer and supplier commitment and trust and relational embeddedness, which is as expected as previous research have theorized and identified relationships among the same (Donaldson & O'Toole, 2000; Fynes & Voss, 2002; Heide & John, 1990). Discriminant validity is stated in the diagonals of the correlation matrix and ranges from 0.77-0.94. It is found to be more than the correlations of the latent variables, indicating that the variables are seen to be distinct from each other, as they share more variance with their own block of indicators than with another component representing a different block of indicators.

Table 2 highlights the composite reliabilities and AVEs of independent latent variables. In general, the composite reliabilities range from 0.808-0.961, indicating internal consistency of latent variables. AVE scores range from 0.587-0.886, which explain reasonable variance shared among the latent variables and their respective block of indicators.

To test the model, we posited 20 hypotheses: Two in the first phase of the model (Pre-Deal or (t-1) Stage), 6 in the second phase (Deal Enactment or (t) Stage), and 12 in the third phase (Deal Continuation or (t+1) Stage). Overall, 14 were supported by the analysis, 5 were not supported, and 1 was partially supported. Table 3 indicates the results in detail.

Table 2. Composite reliabilities and average variance extracted (AVEs) of latent variables

Variables	Composite Reliabilities	AVE
Supplier power	0.854	0.745
Buyer power	0.877	0.781
Supplier input commitment	0.896	0.684
Buyer input commitment	0.859	0.605
Supplier contractual trust	0.961	0.893
Buyer contractual trust	0.873	0.697
Low relational embeddedness	0.808	0.677
Supplier attitudinal commitment	0.808	0.587
Buyer attitudinal commitment	0.842	0.641
Supplier competence trust	0.881	0.711
Buyer competence trust	0.833	0.714
Supplier temporal commitment	0.882	0.714
Buyer temporal commitment	0.922	0.797
Supplier goodwill trust	0.917	0.689
Buyer goodwill trust	0.874	0.636
High relational embeddedness	0.917	0.786
Performance	0.959	0.886

Modest composite reliability = 0.7

Modest AVE score = 0.5

Table 3. Hypothesis test results

Relationship Development Phase	Hypothesis Number	Hypothesis*	S. or N.S.	Beta	P<	R ² %	f
t-1 (pre-deal)	1a	+Buyer Power -> +Supplier Input Commitment	S.	-0.244	0.01	6.0	
	1b	+Supplier Power -> + Buyer Input Commitment	N.S.	0.11		1.2	
t (deal enactment)	2a(i)	+Supplier Input Commit -> +Buyer Comp Trust	S.	0.338	0.005	8.1	
	2a(ii)	+Buyer Input Commit -> +Supplier Comp Trust	N.S.	0.166		2.8	
	2b(i)	Low Relational Embeddedness moderates Supplier Input Commit and Buyer Comp Trust	N.S.	0.346 0.047	0.01	12.0 8.4	0
	2b(ii)	Low Relational Embeddedness moderates Buyer Input Commit and Supplier Comp Trust	S.	0.325 0.258	0.005 0.01	10.5 7.7	0.05
	2c(i)	+Supplier Comp Trust -> +Buyer Attitud Commit	S.	0.43	0.005	18.5	
	2c(ii)	+Buyer Comp Trust -> +Supplier Attitud Commit	S.	0.289	0.01	8.4	
t+1 (deal continuation)	3a(i)	+Supplier Attitud Commit -> +Buyer Comp Trust	S	0.541	0.005	28.7	
	3a(ii)	+Buyer Attitud Commit -> +Supplier Comp Trust	S.	0.524	0.005	26.1	
	3b(i)	High Rel Embed moderates Supplier Attitudinal Commitment and Buyer Competence Trust	Partial S.	0.355 0.344	0.01 0.01	12.6 39.3	0.17
	3b(ii)	High Rel Embed moderates Buyer Attitudinal Commitment and Supplier Competence Trust	N.S.	0.176 0.364	0.005	3.0 40.0	0.23
	3c(i)	+Supplier Comp Trust -> +Buyer Temp Commit	S.	0.439	0.005	18.8	
	3c(ii)	+Buyer Comp Trust -> +Supplier Temp Commit	S.	0.639	0.005	39.5	
	4a(i)	+Supplier Commit -> +Buyer Goodwill Trust	S.	0.37	0.01	14.2	
	4a(ii)	+Buyer Commit-> +Supplier Goodwill Trust	S.	0.765	0.005	54.6	
	4b(i)	+Supplier Commitment -> +Overall Performance	S.	0.262	0.05	7.2	
	4b(ii)	+Buyer Commitment -> +Overall Performance	S.	0.373	0.01	13.9	
	4c(i)	High Relational Embeddedness moderates Supplier Commitment and Performance	S.	0.43 0.203	0.005 0.05	18.5 8.5	0.014
	4c(ii)	High Relational Embeddedness moderates Buyer Commitment and Performance	N.S.	0.439 0.088	0.005	24.3 14.4	0.005

*Comp = Competence; Attitud = Attitudinal; Commit = Commitment; Rel = Relational; Embed = Embeddedness

9. Discussion

The results of statistical analysis of empirical data were presented in the preceding section of the paper and in Table 3. Here, in the Discussion section, we summarize and discuss the extent to which the empirical results did or did not support the theoretical model and whether or not the study objectives were achieved. Our sub-objectives, i.e. interpretation of what the results mean for researchers and managers who are concerned with exploring and/or managing vertical buyer-supplier relationships in the commercial marketplace, are discussed in the Managerial Implications section of the paper.

9.1. Pre-Deal Stage (t-1)

The statistical analysis of empirical data indicated that the model correctly predicted that, in the Pre-deal Stage, increased buyer power is likely to positively influence suppliers to participate in relationships (generate input commitment). However, the analysis also indicated that reduced buyer power is also likely to foster supplier participation. Thus, suppliers' interest in beginning a relationship appears to be independent of relative buyer power. However, a buyer, facing a relatively more powerful supplier is not positively influenced by that to pursue a relationship and, perhaps feeling at a disadvantage, may seek a less powerful supplier. Suppliers can, of course, counter this situation by offering inducements such as lower price or higher quality sufficient to overcome the power disadvantage perceived by the buyer.

9.2. Deal Enactment Stage (t)

At the Deal Enactment Stage the empirical analysis supported the prediction of the model that increased supplier interest in doing business positively affects buyer expectation that the supplier will perform as promised (contractual trust). However, we found no empirical support for the model's prediction that increased buyer interest in a deal would increase supplier expectation of buyer performance. Also at this stage, contrary to the model, we found that a low degree of direct ties between the parties (relational embeddedness) has no mediating effect on the relationship between supplier interest in a deal and buyer expectation of supplier performance. However, as expected, we found that a low degree of direct ties does mediate the relationship between buyer interest in a deal and supplier expectation of buyer performance. Thus, increased supplier expression of interest in doing business can increase a buyer's confidence in the supplier independent of direct ties with the supplier. However increased expression of interest by the buyer does not significantly affect the supplier's confidence in the buyer, but direct ties with the buyer can affect this. Also at this stage, and as expected, the model correctly predicted that increased expectation of performance by either party would enhance the sense of unity (attitudinal commitment) of the other party. In other words, the more positive the expectation that the other party will deliver what they promise, the higher the sense of unity, i.e. "we are in this together," on the part of either party.

9.3. Deal Continuation Stage (t+1)

In the Deal Continuation Stage, the empirical analysis found that, as expected, increased sense of unity by either party is likely to increase the other party's competence-based trust, i.e. a higher sense of unity between the parties increases the expectation that the other party will professionally fulfill the business agreement. However, contrary to expectations, a high degree of direct ties at this stage only partially mediates the relationship between supplier sense of unity and buyer expectation of supplier performance, and does not mediate the relationship between buyer sense of unity and supplier expectation of buyer performance. Thus, increased direct cohesive ties between the parties do not necessarily support increased trust in the other party's competence stemming from an increased sense of unity between them.

The empirical results supported the model's prediction that increased trust by either party in the other party's professionalism would increase interest in a longer-term relationship (generate goodwill trust). Also at this stage, the model indicated that increased expectation of professionalism by either party is likely to increase interest in a longer-term relationship by the other party, and increased commitment by either party is likely to increase confidence in one another to continue a long-term relationship, and improve overall performance of both parties. At this stage too, the model's prediction that a high degree of relational embeddedness, as evidenced by direct cohesive ties and the exchange of fine-grained information by either party, mediates the relationship between supplier commitment and performance was supported. However, mediation of the relationship between buyer commitment and performance was not supported. This may be because once the buyer is committed to the relationship, it implements internal measures that benefit performance but do not depend on detailed ties and information exchange with suppliers.

10. Summary

It appears evident that the Temporal Model in general is mostly supported by the empirical analysis of the hypotheses. The relatively few areas where it is not supported may involve situations where special circumstances not provided for in the model influenced the empirical outcome. Additional study of the model will be devoted to these areas in future research.

11. Theoretical Implications

The theory and empirical results developed in this paper provide a comprehensive model of buyer-supplier relationships as they evolve over time. Though previous research studies have randomly analyzed most of the relational constructs relevant to this area of management and marketing, there is a lack of a cohesive model explicating the different roles dimensions of relational constructs can play in a relationship, and how these change in time. We tie in all the relational constructs to explain the different roles that each one plays in previous empirical studies (e.g. Miyamoto & Rexha, 2004; Paulraj & Chen, 2005). By dissecting the relational constructs into dimensions and components, we propose temporal reciprocity that helps us add new information to existing literature. Previously, Gundlach *et al.* (1995) conducted a temporal study highlighting reciprocity in relational relationships, but our study is more detailed and concise.

12. Managerial Implications

While collection of data only from buying persons prevented direct analysis of the suppliers' perspective, the results should nevertheless provide valuable insights, particularly to marketing managers. There are several implications. First, because the model looks at relationships at different stages of development, it provides a means for managers to holistically comprehend the long-term ramifications of buyer-supplier relationships. The gradual intensification of vertical relationships over three time horizons is explained. It has been argued previously that some buyer firms do not want or find the need to develop close ties with their suppliers (Cannon & Perreault Jr., 1999). They only want to do so when specific assets or uncertainty evoke a need to protect (Heide & John, 1990). This paper suggests that relationships don't build overnight and buyers and suppliers can manage their level of closeness and relational proximity with the type of information they want to share.

In this paper, we hypothesized the influence of industry factors on buyer and supplier commitment. The results of this study counter-intuitively indicate that increased supplier power of in a relationship is not likely to foster buyer input commitment at the pre-deal stage but in fact,

reduced buyer power may actually increase the level of supplier commitment of the corresponding party as they do not fear opportunistic behavior and only want to invest in a relationship that may materialize in the future.

When sufficient supplier commitment occurs at the pre-deal stage, then buyer contractual trust will likely develop at the deal enactment stage and its degree is not mediated by low degree of relational embeddedness. However, it is seen that as buyer input commitment is not initiated at the pre-deal stage, it does not directly build supplier contractual trust, but does so through low relational embeddedness, where perhaps repeated contact, builds up that level of confidence. Either way, sufficient contractual trust fosters attitudinal commitment of both parties similar to the interaction model developed by the IMP Group (1982), the model supports the position that where ongoing relationships between parties exist, transactions between them often have to be viewed in the context of that relationship. For practitioners, our model demonstrates some long-term implications of short-term actions. For example, effects of the levels of input and attitudinal commitment and low and high level of relational embeddedness on contractual and competence trust and the effect of competence trust on temporal commitment. The model thus helps bring practitioners to the full realization of potential long term consequences of particular decisions. While this may seem obvious, this model enables putting these decisions into the context of development of a business relationship. The model provides a framework for the progression of the relationship, indicating what are the likely results of particular actions, beginning with a new relationship at the pre-deal stage, and continuing to the deal continuation (if desired) stage. For example, the model can be used to develop “what-if” scenarios considering different degrees of commitment (up to and including investment in assets specific to the deal) and embeddedness (e.g. type and extent of knowledge exchanged) that could be applied.

In addition, the model shows that commitment has a major impact on whether buyers and suppliers develop long-term buyer-supplier relationships. Firms interested in commodity-type market (or one-time) transactions are not likely to invest in reciprocal commitment and/or in building long-term relationships. For them arms-length relationships are most appropriate (Cox *et al.*, 2003). However, in low, infrequent, and non-standardized demand situations, long-term relationships are likely to be most appropriate. For situations where long-term relationships are desirable, our model provides additional indication of positive effects of buyer and supplier commitment and relational embeddedness on development of goodwill trust and performance.

Finally, the model can be applied at any stage of a relationship. For new relationships it would seem obvious to apply the model beginning with the pre-deal stage. However, for relationships that are already in the deal enactment or deal continuation stage, the implications of the model are no less useful when applied at those stages than if they had been applied beginning with the pre-deal stage. For example, for an existing relationship that is in the deal continuation stage, the model suggests that increased commitment, mediated by a high degree of relational embeddedness, by one or both parties, may result in greater goodwill and improved performance. In other words, reaching the deal continuation stage is not the end of the relationship journey. Additional mutual benefits can result from tangible or intangible investments (such as facilities, machines, technology, or capability) in the relationship.

13. Achievement of Research Objectives

In short, the following objectives were achieved through this research study: (1) empirically test an existing theoretical model; (2) enhance the ability of researchers and managers to comprehend particular dynamics of vertical relationships; (3) increase understanding of practical implications of relationship processes, and (4) provide managers an additional tool to gauge and forecast the fate of a relationship.

14. Limitations and Future Research

This study is limited to self-reported data from purchasing professionals in several cities in Texas and Georgia. Self-reporting and common method biases are prominent limitations of survey research methodology. A major drawback of this type of methodology is that it does not provide detailed background information about the organizations surveyed. The survey data was gathered from buyers and does not take into account the supplier's point of view. A future study would include data from suppliers and could use multiple case study methodology to triangulate the research results and conclusion of this paper. Although the data is gathered at one period, the survey asked about relationships in all three periods of time. (However, buyers, at any given time, are typically involved with a number of suppliers, some of which are at each of the three stages of relationship development). To further test the results of this paper, a future true longitudinal study could be used to gather data at three points in time.

APPENDIX

The partial least squares (PLS) technique is used to test the hypotheses. This is a second-generation method of path analysis with minimal demands on measurement scales PLS consists of a series of ordinary least-square analyses (Chin, 1998). The PLS technique focuses on predictor specification and on the variance of dependent variables. No assumptions are made regarding the joint distribution of the indicators or the independence of the sample cases. Because of PLS's orientation to prediction, factors are determinate, and the unique case values of the latent variables are estimated. We use this technique, as it has minimum sample size requirements, models are easily tested using path analysis model and reflective measures (Chin, 1998; Chin & Newsted, 1999).

The number of indicators present determines the PLS estimates to a certain extent because with an increasing number of indicators, the estimates tend to become more stable as they converge to the true parameter values. The unique element of this second-generation technique is that it calculates weights and factor loadings of the outer model (i.e., parameters of the indicators leading to the latent variable) in the context of the theoretical model.

Composite Reliability. To assess the internal consistency for a given block of indicators, we calculated composite reliability. In comparison to Cronbach's alpha, this measure does not assume tau equivalency, which means that in a calculation of composite reliabilities (Pc), the indicators are not assumed to weigh equally. Therefore, alpha tends to be the lower bound estimate of reliability and Pc a closer approximation. A modest reliability of 0.7 has been set as the standard for this analysis (Nunnally & Bernstein, 1994).

Average Variance Extracted (AVE). Average variance attempts to measure the amount of variance that a latent variable component captures from its indicators, relative to the amount due to measurement error. This measure is also interpreted as a reliability measure for the latent variable component score and is more conservative than the composite reliability measure. It is recommended that AVE should be greater than 0.5 (Chin, 1998), meaning that 50% or more variance of the indicators should be accounted for. The AVEs of the latent variables should be greater than the square of the correlation among the latent variables. Alternatively, discriminant validity, the square root of the AVEs of latent variables should be greater than the correlations among the latent variables, indicating that more variance is shared between the latent variable components and its block of indicators than is shared with another component representing a different block of indicators (Chin, 1998).

To assess the PLS model, we examined and interpreted effect size (f) for the endogenous variables of the measurement model and corresponding standardized path estimates in the same manner as a regression model. We used a bootstrapping technique to estimate the t-statistics for the

weights and loadings of the indicators of the latent variables and the path coefficients of the measurement model. Bootstrapping can be implemented by constructing a number of resamples of the observed dataset (and of equal size to the observed dataset), each of which is obtained by random sampling with replacement from the original dataset.

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