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AN INVESTIGATION INTO THE ANTECEDENTS OF TRUST IN COOPERATIVE BUYER-SUPPLIER RELATIONSHIPS

by

Christian Bechtel

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ABSTRACT

AN INVESTIGATION INTO THE ANTECEDENTS OF TRUST IN COOPERATIVE BUYER-SUPPLIER RELATIONSHIPS

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Prior research on cooperative buyer-supplier relationships has largely focused on supplier identification and initial relationship development. The balance of power in many industries, however, between buyers and supplier is changing as supplier take on more responsibility. This study will analyze the increasingly important dynamics of interorganizational trust development in buyer-supplier relationships.

To develop a better understanding of the importance of trust and the antecedents to trust in buyer-supplier, an empirical study was performed. Three different types of trust were identified and their antecedents were modeled and tested. Data was collected from 344 purchasing executives, who were members of the National Association of Purchasing Management, through a mail survey instrument. A response rate of 23.8% was achieved.

The study found statistically significant support for the existence of three different types of trust which all have high significant relationships with performance. The results also show a strong positive association of non-coercive power with trust and strong negative association of coercive power with trust. In addition to non-coercive power dedicated assets were also found to have a significant impact on trust but it is unclear whether trust or dedicated assets come first.

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INTRODUCTION

A search of the literature (chapter 2) on cooperative buyer-supplier relationships across the disciplines of organizational theory, sourcing management, marketing, and economics reveals a body of knowledge which provides managers with general guidelines in each of the following areas:

1. When cooperative buyer-supplier relationships are appropriate.
2. Why cooperative buyer-supplier relationships are important.
3. The benefits that can accrue as a result of cooperative buyer-supplier relationships.
4. The risks associated with cooperative buyer-supplier relationships.
5. Appropriate supplier selection techniques.

While this information has provided value to managers, it does not address what is arguably the most important and most difficult task in relationship management: how to develop and maintain trust after the initial "honeymoon" period.

Three research questions that guide this investigation are:

1. What are the different types of trust experienced by purchasing executives in cooperative buyer-supplier relationships?
2. What are the key antecedents that affect the level of trust experienced by cooperative buyer-supplier relationships?
3. Are there significant differences between the three different types of trust and cooperative buyer-supplier relationship performance?

Chapter 1

Overview of the Research

1.1 Problem Statement

An increasing body of research in operations and sourcing management, economics, corporate strategy, and marketing has noted that firms are moving away from traditional transaction based relationships to more cooperative buyer-supplier relationships (Landeros 1988; Anderson and Narus 1991; Ring and Van de Ven 1992; and Lewis 1996; Kumar 1996). A cooperative buyer-supplier relationship is defined as a buyer and supplier uniting to pursue agreed upon goals, share benefits, management of tasks and contribute to the relationship on a continuing basis (Yoshino & Rangan 1995). This fundamental change in how buyers and suppliers communicate and work together has resulted in a radical shift in the purchasing management and marketing paradigms applied in managing interorganizational relationships.

Both the academic and practitioner literature discuss the need for more cooperative interorganizational relationships in the United States. Firms in Japan have been shown to significantly outperform European and North American firms in areas of cost and technology through stronger buyer-supplier communication and interorganizational coordination (Dyer 1994; Nishiguchi 1994). A common explanation is that performance differences among countries is due to cultural differences, but

Nishiguchi (1994) has collected empirical evidence stating this is not the case. Although evidence of a significant performance advantage with cooperative buyer-supplier relationships exists, in depth investigations must be made into the specific processes firms must apply to maximize benefits in cooperative buyer-supplier relationships. For example, studies have shown that firms applying human asset specificity (dedicated engineer to engineer interaction) to achieve higher levels of trust benefit from better cost, quality, and delivery performance (Handfield, Bechtel, and Stimpert 1996; Monczka, Petersen, Handfield and Ragatz 1996). Although these studies found that companies benefit from human asset specificity and trust in cooperative buyer-supplier relationships, they fail to specify the processes underlying the development of trust. In-depth studies which delineate the actions leading to the development of trust are needed to help managers develop successful relationships.

This dissertation seeks to investigate the interorganizational dynamics of trust development encountered in established, ongoing buyer-supplier relationships. In particular, the dissertation targets those buying and selling firms which are already involved in viable, long-term cooperative relationships with their exchange counterparts. While trust has been acknowledged to be a key component to effective buyer-supplier cooperative relationships (Lewis 1990; Handfield et al... 1995), a clear understanding of what trust is or how it can be fostered is not defined (Hosmer 1995; Barber 1983).

A search of the literature (chapter 2) on cooperative buyer-supplier relationships across the disciplines of organizational theory, sourcing management, marketing, and economics reveals a body of knowledge which provides managers with general guidelines in each of the following areas:

1. When cooperative buyer-supplier relationships are appropriate.
2. Why cooperative buyer-supplier relationships are important.
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4. The risks associated with cooperative buyer-supplier relationships.
5. Appropriate supplier/customer selection techniques.

While this information has provided value to managers, it does not address what is arguably the most important and most difficult task in relationship management: how to develop and maintain trust after the initial "honeymoon" period.

The research reviewed will be shown to focus primarily on the conditions when a cooperative relationship may be appropriate, as well as the potential benefits and risks inherent in cooperative buyer-supplier relationships. This research is helpful to managers in organizations that are beginning the cooperative relationship development process, but disregards those organizations that have been involved in cooperative relationships for some period of time (Lewis 1990). This dissertation will test organizations that have been involved in cooperative buyer-supplier relationships for at least one year, so that trust development and trust management processes can be studied. Research is needed to address the key linkages between risks/results and the actual process of relationship development because the literature largely ignores the fact that relationships are dynamic and changing in nature. Cooperative buyer-supplier relationships take considerable time and personal involvement to manage (Hart et al. 1986; Good 1988; Kamath & Liker 1994; Nishiguchi 1994), yet there is little theoretical or empirical work addressing how managers handle these processes. Ring and Van de Ven (1994) point out that the manner

in which managers involved in interorganizational relationships handle the interaction with their supplier can have a positive, neutral, or negative impact on the relationship. This perspective is supported by the work in marketing on channel relationships (Heide and John 1992), the work in strategy on cooperative interorganizational relationships (Ring and Van de Ven 1994), and the work in sourcing management on supplier development (Kamath & Liker 1994; Handfield et al. 1995) which will all be discussed in detail in chapter II.

This dissertation research is designed to reduce the knowledge gap discussed above through an investigation of the dynamic nature of ongoing buyer-supplier cooperative relationships. It identifies the key drivers of trust as well as the different types of trust that are crucial to buyer-supplier relationship performance. The dissertation will seek to address how managers can effectively develop different types of trust in their day to day efforts as they try to maximize performance of their cooperative buyer-supplier relationships.

1.2 Background

1.2.1 Cooperative versus traditional buyer-supplier relationships

Traditional buyer-supplier relationships exhibit a number of properties including:

- Minimal communication beyond contract negotiations.
- Bargaining rather than problem solving between firms (Nishiguchi 1994).
- A constant threat of changing suppliers or multiple sourcing.
- No long-term commitment to the supplier.
- Fully developed bidding specifications

A key buyer objective is to obtain the lowest possible price with little regard to other competitive priorities (quality, delivery, etc..) . The short term nature of the relationship does not allow either buyer or supplier to invest any significant resources into the relationship which may provide significant long term benefits.

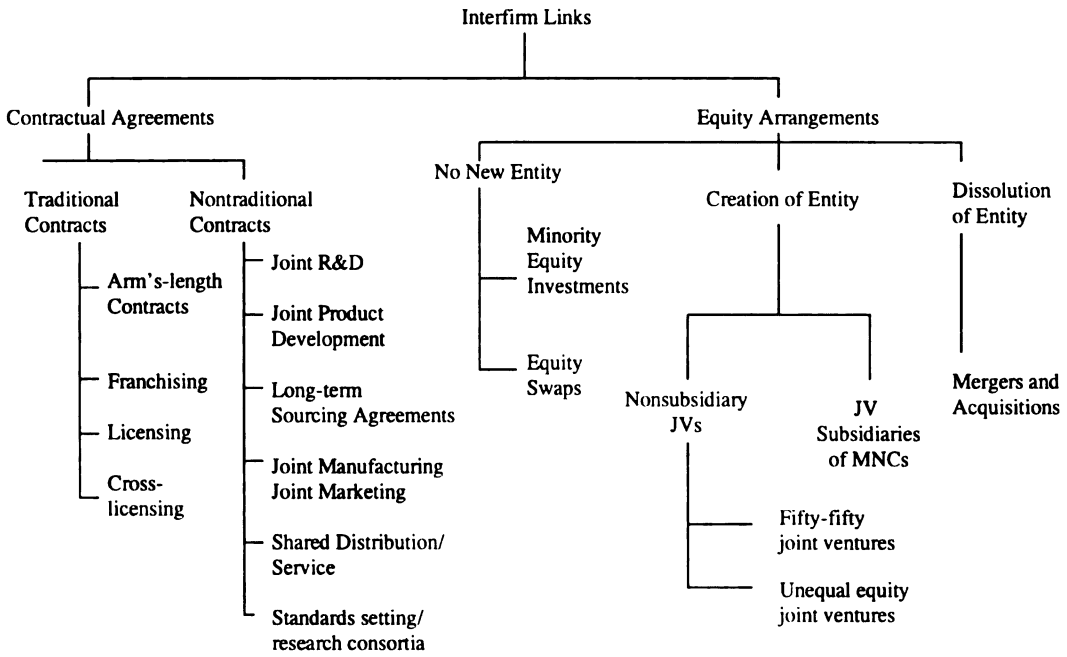
Trust is often not a critical issue in traditional relationships because if a supplier proves untrustworthy the buyer only loses immediate inconveniences caused by switching suppliers. Since the buyer has not invested resources into the relationship, the cost of switching and level of trust is generally low. In certain instances, however, where a buyer and supplier are at the beginning of what they both hope will become a cooperative relationship the investment by both parties in trust built to that point can also be lost. Traditional relationships often use detailed contracts and controls as a replacement for trust (Gulati 1995). The detailed contracts provide motivation to each party to perform through the threat of legal retribution. While this threat forces the short-term compliance of the other party it does so with a loss in trust between parties (Aguayo 1991; Whitney 1995).

1.2.2 Cooperative Buyer-Supplier Relationships

Writers in many areas including marketing channels, organizational theory, and purchasing have provided a variety of normative managerial guidelines instructing managers on how to create and establish cooperative interorganizational relationships (Dwyer, Schurr, & Oh 1987; Ring & Van deVen 1992; Nishiguchi 1994). Cooperative buyer-supplier relationships are characterized by involvement of a buyer and a supplier in a strategic long-term relationship. It is important in making a contribution to the buyer-

supplier relationship literature to understand that buyer-supplier relationships can range from traditional contracts to joint equity ventures, as discussed by Yoshino and Rangan (1995) (see Figure 1-1). While Figure 1-1 does an effective job of giving a detailed description of the breadth of buyer-supplier relationships that can occur the figure does not make clear distinctions between the various relationships.

Figure 1-1

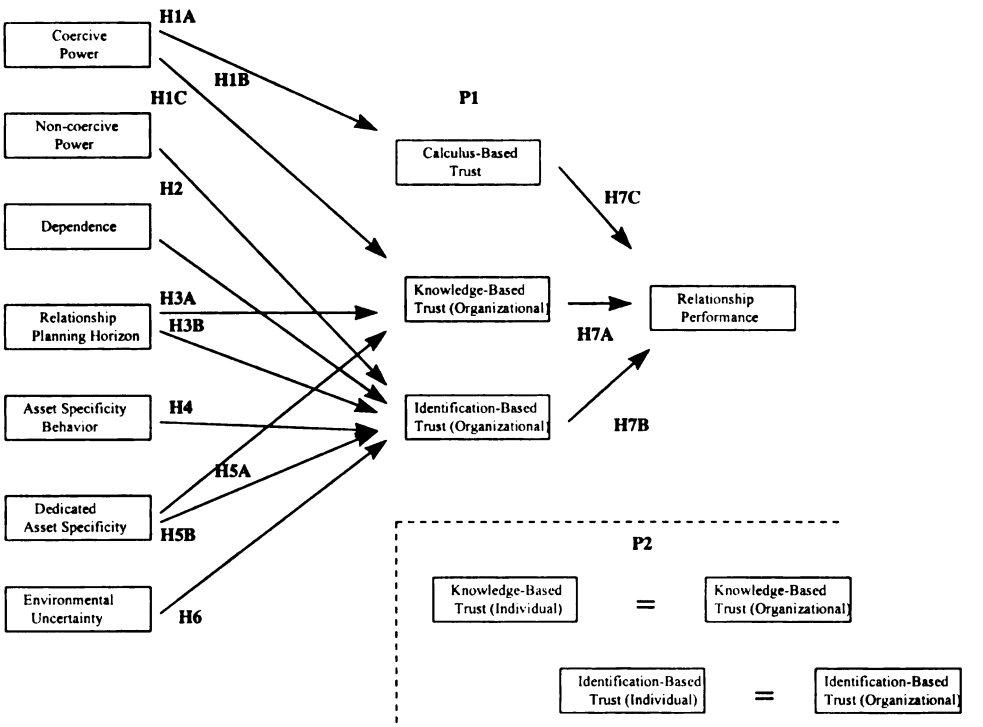


Traditional contracts are used for commodity and irregular transactions that include purchases of non-production or non-essential items. Traditional contracts are based heavily on price and usually have low asset specificity. Traditional contracts are appropriate for spot purchases or non-critical repetitive purchase items where little trust or exchange of information is needed among parties.

On the other end of the taxonomy, strategic alliance and equity relationships exist. These alliances and equity relationships differ from contracts in two respects. First, buying firms typically purchase not only their suppliers' products or services but also their suppliers' systems and capabilities. Second, buying firms provide more than just financial compensation to their suppliers. Buyers must share information with their suppliers if alliances are to be successful for both parties (Ellram, 1991; Handfield, 1993; 1994), and they must also provide suppliers with guarantees of future volumes and prices which may be tied to suppliers' cost reduction and quality improvement efforts. As a result, buyers and suppliers may become actively involved in the joint development of new products, which involves co-location and cross-functional and cross-organizational teaming (Trent, 1993). Such relationships are thus characterized by mutual interdependence, close organizational cooperation, increased levels of trust, and a strong tendency towards information sharing. Firms are currently moving to more cooperative buyer-supplier relationships (non-equity relationships) to avoid the costs and inflexibility of equity relationships (Lewis 1990). Equity ventures move relationships into a separate category (Pisano 1989) and involve either the creation of a new and independent jointly owned entity or a supplier taking a minority equity position in the relationship. Such relationships provide financial hostages or ownership (Yoshino & Rangan 1995) which provide a level of control which can substitute for trust. This dissertation focuses on non-equity relationships only, since equity is often used under conditions of a lack of trust.

The explanatory model for this dissertation in Figure 1-2 draws on prior research in the fields of marketing, purchasing, organizational theory, and industrial economics. The level of analysis will be most closely aligned with the marketing literature.

Figure 1-2



1.3 Research Questions and Constructs

1.3.1 Research Questions

An investigation that tries to uncover and discuss every factor influencing trust in cooperative buyer-supplier relationships would require resources and time beyond the

scope of this project. Therefore, after an exhaustive review of the literature on trust and cooperative buyer-supplier relationships, three research questions were selected.

Three research questions that guide this investigation are:

1. What are the different types of trust experienced by purchasing executives in cooperative buyer-supplier relationships?

2. What are the key antecedents that affect the level of trust experienced by cooperative buyer-supplier relationships?
3. Are there significant differences between the three different types of trust and cooperative buyer-supplier relationship performance?

The answers to these research questions will be addressed by conducting a survey of a large sample of purchasing executives and statistical analysis of the data from those executives. A conceptual model of the relationships between trust, performance, and eight key antecedent conditions will be used to explain how trust is developed in cooperative buyer-supplier relationships.

1.3.2 Types of Trust

The trust literature is beginning to recognize the existence of three types of interorganizational trust. The three types of trust are calculus, knowledge, and identification-based trust and are defined in detail below (Sheppard & Tuchinsky 1995, Lewicki & Bunker 1995).

Calculus-based Trust

> Trust based on control or assuring that the other party will do what they say. Trust is sustained through a clear deterrent (punishment) and likely to occur if trust is violated. The threat of punishment is likely to be a more significant motivator than promise of a reward. Calculus-based trust often involves a high degree of monitoring to assess whether a party is being opportunistic.

Knowledge-based Trust

Knowledge-based trust is grounded in the predictability - knowing the other party sufficiently well so that the other's behavior is anticipatable. Knowledge-based trust relies on information rather than deterrence as a motivator.

Identification-based Trust

Identification-based trust is based on identification with the other party's desires and intentions. Trust exists because the parties effectively understand and appreciate the other's wants. A mutual understanding develops as each side clearly understands the motivations and problems of the other side.

Knowledge and identification-based trust are similar to the concepts of cognition (reliability and competence) and affective-based (faith and openness) trust recently tested by McAllister (1993).

There exists only two known studies analyzing the concepts of calculus, knowledge and identification-based trust. Lewicki and Bunker (1995) provide a model of trust development in organizational relationships. Sheppard and Tuchinsky (1995) suggest that the study of calculus, knowledge, and identification-based trust are needed if the field of organizational behavior is going to be able to effectively help in the description and theory development of new organizational forms.

1.3.3 Organizational versus Individual-based Trust

Does trust exist at the individual or organizational level or both? Work in the areas of marketing (Anderson and Weitz 1989; Dwyer Schurr & Oh 1987) purchasing (Nishiguchi 1994; Lewis 1990) have adopted primarily and organizational unit of analysis while organizational behavior (McAllister 1993; Rotter 1967) are has adopted primarily an interpersonal unit of analysis. This dissertation will investigate whether individual and organizational trust are unique constructs.

1.4 Antecedents to Trust

1.4.1 Power/Dependence

Emerson (1962) was the first to establish a relationships between power and dependence. Emerson stated that power and dependence had a reciprocal relationship. Because of this reciprocal relationship this dissertation will analyze both dependence and power. Specifically, this dissertation will analyze dependence of both firms or interdependence. In the area of power there are five types of power according to French and Raven (1959) and two of these types of power will be analyzed. Coercive and non-coercive (referent power) powers will be analyzed.

1.4.2 Cooperative Buyer-Supplier Relationship Planning Horizon

Buyer-supplier planning horizons can be characterized as either adopting an economic based (short term) paradigm or a mutually shared (long term) paradigm. For many years, a short-term economic paradigm dominated the interorganizational literature (Williamson 1975; Gulati & Nohria 1992). The economic paradigm was based on two assumptions. The first assumption was that interorganizational relationships can be accurately represented by the prisoner's dilemma. In the prisoner's dilemma, two prisoners are given their choice of pleas without knowing what the plea of the other party is. By analyzing the responses of people put in the prisoner's dilemma, the optimal strategy for a prisoner is "tit for tat" or do to the other party what they just did to you (Gulati & Nohria 1992; Axelrod 1984). Serious concerns have arisen about the accuracy of the prisoner's dilemma in modeling cooperative relations (Fisher & Brown 1989; Gulati & Nohria 1992). The concerns relate to whether the prisoner's dilemma provides

a large enough "payout" to parties which cooperate. A large cooperation payout may change the optimal strategy from tit for tat to long-term cooperation.

The second major short-term economic concept is transaction cost economics (TCE) (Williamson 1975). Transaction cost analysis states that there exists transaction and production costs of doing business between firms. Transaction costs are caused by market inefficiencies in the form of opportunism, small number games, and bounded rationality in individuals, while production costs are costs associated with business transactions containing no inefficiencies. The problem with transaction cost analysis is that it ignores organizations that work with each other repeatedly (Zajac & Olsen 1993; Ring & Van de Ven 1992; Gulati 1995). TCE treats each transaction independently and also assumes all parties are opportunistic.

The assumptions of opportunism and independent transactions are appropriate when discussing markets versus hierarchies (Hirschman 1982), but the emergence of more cooperative hybrid relationships such as strategic alliances are not accurately depicted by this approach. In fact, recent studies (Ghoshal & Moran 1996) challenge the effectiveness of TCE in any capacity. TCE's assumption of transaction independence ignores key factors such as trust (Lorenz 1988) which is developed when each transaction is not seen as independent.

Over the past eight years, alternative paradigms to the economic paradigm have emerged. One of these paradigms is referred to as mutually shared alliances (Gulati & Nohria 1992). In mutually shared alliances, the payoff scheme in the prisoner's dilemma is challenged. Specifically, Gulati and Nohria (1992) feel that the payoff for the two parties working together is substantially more than is assumed in the prisoner's dilemma.

A key omission in the economic model is the assumption of independence between party transactions (Gulati & Nohria 1992). This omission is significant because experience can engender trust among parties, and trust can limit the transaction costs associated with future alliances (Granovetter 1985, 1992; Marsden 1981).

In the new mutually shared paradigm, a key underlying factor is the expected time frame of the relationship. Parties see the relationship as long term (Nohria & Gulati 1992). In fact, Lorenz (1988) points out that trust is not necessarily a by-product of other means but can be created intentionally. Lorenz (1988: 209) states that "The key in partnerships is to sacrifice short-term gains for the long-term benefits of mutual cooperation." Empirical work by Heide and John (1992) found significant support for a long term orientation impacting the ability of firms to work together.

While the short term economic paradigm ignores the role of trust in cooperative buyer-supplier relationships, the long term paradigm posits that trust in a mutually shared alliance can be a solution to transaction costs described by Williamson (1975). Lorenz (1988) points out that transaction costs are directly linked to the possibility that actors will behave opportunistically (Gulati 1995). The presence of trust can avoid the expense of drafting comprehensive agreements for contingencies. Lorenz (1988) uses the metaphor of trust as a lubricant and transaction costs as the economic friction. Trust can also act as a response to opportunism and increase social bonds over time (Luhmann 1988). This proposition has been empirically tested by Campbell (1993) and partially confirmed.

While many researchers are addressing the presence of a mutually shared philosophy, no existing empirical evidence testing this philosophy exists.

1.4.3 Asset Specificity

In this dissertation, three antecedents are posited to have an effect on the level of trust present in cooperative buyer-supplier relationships: asset specificity, relationship philosophy, and trustworthiness. Each construct will now briefly be described.

The argument of whether trust or asset specificity comes first is complex. There is evidence that supports the notion of trust as a precursor to asset specificity (Lorenz 1988; Ring and Van de Ven 1994; Gulati 1995; Kamath & Liker 1994) and vice versa (Handfield et al. 1995). Nishiguchi (1994:170) states that " a strategy that points to asset specific contractual relations cannot by itself guarantee that it will work. There must be inter-firm relational mechanisms that enable them to function." Nishiguchi implies that some degree of trust or relational mechanisms must take place for effective asset specificity to take place. This could explain the results obtained by authors such as Joshi (1993), Campbell (1992) and Zaheer & Venkatraman (1995) which directly contradict Nishiguchi's results. Joshi interestingly found that relations with high dependence (asset specificity with high switching costs) were more likely to see opportunism. This dissertation seeks to establish a temporal order between trust and asset specificity.

1.4.4 Risk/Environmental Uncertainty

The relationship between risk (uncertainty) and trust draws discussion and speculation but little empirical testing. Two theories on the relationship between risk and trust have emerged. The first can be summarized by the statement "trust is a substitute for risk" (Lorenz 1988; Lewis 1990; Williamson 1985). This theory is similar to Gulati's ideas on contracts as a mitigating factor to risk. Then as parties become familiar with

each other trust becomes more prevalent and contracts less prevalent. Therefore, we would expect to see high levels of risk associated with low levels of trust.

A second theory looks at trust and risk developing together. Trust can only develop with risk because an agreement without risk is a rational decision and does not require trust (Luhmann 1988; Ring and Van de Ven 1992). In relationships then we would expect to see high levels of both risk and trust because buyers would develop high trust suppliers in parts or commodities where risk is high. This dissertation will only survey cooperative buyer-supplier relationships where it is hypothesized there will be high levels of risk and trust.

Similar to risk is the concept of uncertainty developed by Williamson (1975). Williamson states that uncertainty is a contributing factor to information impactedness (inefficient allocation of information) which creates situations of opportunism. Environmental uncertainty involves areas including change in pricing, product features, technology, and customer demand (Williamson 1975; Zaheer and Venkatraman 1994).

Risk can be broken down into two types of trust. First, is perceived risk which is the risk that a party perceive in a situation. Second is actual risk which is the risk taken in a situation. Actual risk can differ from perceived risk depending on the propensity of a party to risk. Parties with a higher propensity to risk may take more risk than is warranted in a situation. This dissertation will investigate actual risk and its impact on trust.

1.5 Scope of this Dissertation

This dissertation is focused on investigating existing and on-going cooperative buyer-supplier strategic relationships. Prior research has largely focused on supplier

identification and initial relationship development. This study will extend this body of research by analyzing the dynamics of interorganizational trust development by providing industry professionals with specific actions they can incorporate into current cooperative relationship practice.

Prior studies have adopted a channel relationships view of trust (Heide and John 1988; Anderson and Weitz 1992), a transaction cost perspective (Nishiguchi 1994), or explained trust as a cognitive artifact (Mohr and Spekman 1994), but no investigation has analyzed the antecedents to trust. This study sets out to integrate:

- The four key antecedents to development of trust.
- The three different types of trust that exist in interorganizational relationships.
- The impact of the three different types of trust on cooperative buyer-supplier relationship performance.

The explanatory model guiding the research is presented in Figure 1-2. This model argues that three antecedent conditions influence trust development in cooperative buyer-supplier relationships: buyer-supplier trustworthiness, buyer-supplier planning horizons, and asset specificity. Several interorganizational studies (Mohr and Spekman 1994; Gulati 1995) and buyer-supplier studies (Heide and John 1988) have tested the existence of trust in buyer-supplier relationships or impact of trust on performance, but no studies examine how buyers or suppliers can develop trust. This study will resolve a gap in the literature between the positive impact on cooperative buyer-supplier relationship performance and how a firm can develop trust.

1.6 Proposition/Hypotheses

Research on trust has left major unresolved theoretical and empirical issues regarding the model in Figure 1-2. Based on the literature review in chapter two the following proposition has been generated addressing the three different types of trust that will be tested.

P1. Three types of trust exist which are calculus-based, knowledge-based, and identification-based trust which have a hierarchical relationship.

P2. Organization trust and individual trust are not unique.

Testing of this proposition and hypotheses below will help to bring theory and empirical research closer together on the study of trust. The following specific hypotheses have been generated:

H1A. Use of coercive power will be positively associated with calculus-based trust.

H1B. Use of non-coercive power will be positively associated with knowledge-based trust.

H1C. Use of non-coercive power will be positively associated with Identification-based trust.

H2. Dependence between buyer and supplier will be positively associated with the level of identification-based trust in a supplier.

H3A. A long-term buyer-supplier relationship planning horizon will be positively associated with the level knowledge-based trust in a supplier.

H3B. A long-term buyer-supplier relationship alliance planning horizon will be positively associated with the level of identification-based trust in a supplier.

H4. Asset specificity behavior focusing on information sharing and synergy will be positively associated with identification-based trust in a supplier.

H5A. The overall level of asset specificity will be positively associated with the level of knowledge-based trust in a supplier.

H5B. The overall level of asset specificity will be positively associated with the level of identification-based trust in a supplier.

H6. Environmental uncertainty will be positively associated with the level of identification-based trust.

H7A. Cooperative buyer-supplier relationship performance will be positively associated with the level of knowledge-based trust in a supplier.

H7B. Cooperative buyer-supplier relationship performance will be positively associated with the level of identification-based trust in a supplier.

1.7 Level of Analysis

The unit of analysis employed in the study of trust is the interpersonal and organizational buyer-supplier relationship in analyzing trust and organizational in analyzing the antecedents and performance. The interpersonal level and organizational levels are appropriate given recent results from Zaheer et al. 1996 which indicates that both levels are present.

1.8 Structure of Dissertation

The following chapters of the dissertation reviews the relevant literature, develops hypotheses and models, and discusses the research design and methods. Chapter II will review the literature on trust and cooperative buyer-supplier relationships and identifies three antecedents to trust development. Chapter 3 will develop hypotheses, models and measures, and explain data collection and data analysis methods to be used. The dichotomy between a reliability-based trust and a faith goodwill-based trust which is not new (Pennings & Woiceshyn 1987; Johnson-George & Swap 1982; Rempel et al. 1985).

Cognition-based trust recognizes that actors make a cognitive assessment of how much trust and under what circumstance trust will be given (Lewis & Weigert 1985).

The two key areas of cognitive based trust are competence, (the ability and resources to carry out a task) and reliability of supplier's performance over a period of time. Competence is essentially the perception of the ability of party B to meet B's commitments set forth/promised to party A. The issues of trust and competence have been addressed by several authors (Gabarro 1978; Butler 1991; Luhmann 1979; Ghoshal & Bartlett 1995). Gabarro breaks competence-based trust into three key areas. First, "specific competence" which is trust in the other's specific function or area. Second, "interpersonal competence" is the ability of a person to work with people or people skills. Finally, "business sense" addresses a person's experience, wisdom, and common sense.

Reliability can be broken down into requisite elements. Reliability is dependent on prior contact with a party or experience. Several authors (Gabarro 1978; Lorenz 1988; Fairholm 1994) mention time as a key element to reliability-based trust. A second related major element is repeated interaction among the firms (Gabarro 1978; Good 1988; Gulati 1995; Ring & Van de Ven 1992). Repeated interaction and time (Lorenz 1988) then leads to levels of confidence, consistency (Fairholm 1988) and finally trust (Zucker 1986; Lewis 1990). Reliability can then lead to predictability which is confidence in future actions (Fairholm 1988). Reliability must be based on integrity or honesty (Fisher and Brown 1989) to be effective. Reliability based coercion or stress eventually creates a sub-optimal relationship or total breakdown in the relationship.

Identification-based trust is proposed to consist of two elements. First, openness with the other party (Gabarro 1978; Farris et al... 1973; Hart et al... 1986), and concern. Openness is characterized by the perception on the part of the other party that the they can share problems or information with confidence in the actions of the other party.

Second, affect based trust is characterized by concern for the other party (Mishra 1995). The concept of concern is new but the similar concept of benevolence has been used previously in describing trust and antecedents to trust (Mayer et al. 1995, Barber 1983, Rempel & Holmes 1986, Butler 1991). Hosmer (1995: 392) points out that trust "generally is accompanied by an assumption of an acknowledged or accepted duty to protect the rights and interests of others."

Chapter 2

Review of the Literature

2.1 Introduction

Chapter two will review the literature on trust and strategic supplier alliance development. Figure 2-1 is a map of how the literature in trust and strategic supplier alliance development was analyzed. Sections 2.1 through 2.6 analyze the trust literature. Section 2.2 fits the trust literature into eight different conceptual paradigms that have emerged over the years. Beyond conceptual paradigms the issue of context is addressed in section 2.3. Section 2.3 analyzes the various circumstances under which trust occurs. Section 2.4 clarifies the differences between trust and similar concepts such as confidence or cooperation. Section 2.5 analyzes the trust literature theory on antecedents to trust development and the final section summarizes the trust literature review.

2.2 Conceptual Paradigms of Trust

Inter-organizational trust is not a well-defined concept and defining it is problematic (Zucker 1986:58). Other researchers note that there are many definitions of trust, and the increasing interest and importance of trust warrants more consistent use of the term (Hosmer 1995; Mayer et al. 1995; Lewicki & Bunker 1995). A problem with creating a consistent use of the term is that trust is often discussed in a flippant manner.

Figure 2-1

2.1 Introduction

2.2 Conceptual Paradigms of Trust
- 2.2.1 Reliability
- 2.2.2 Competence
- 2.2.3 Goodwill
- 2.2.4 Vulnerability
- 2.2.5 Loyalty-based trust
- 2.2.6 Multiple forms of trust exist
- 2.2.7 Combining Affect and Cognition-based trust with Vulnerability
- 2.2.8 Non-partisan-based trust

2.3 Context

2.4 Differentiating Trust from Similar Constructs
- 2.4.1 Trust vs. Risk
- 2.4.2 Trust vs. Commitments
- 2.4.3 Trust vs. Cooperation
- 2.4.4 Trust vs. Confidence
- 2.4.5 Trust vs. Predictability

2.5. Antecedents to Trust
- 2.5.1 Power
- 2.5.2 Dependence
- 2.5.3 Alliance planning horizon
- 2.5.4 Asset Specificity
- 2.5.5 Risk
- 2.5.6 Communication
- 2.5.7 Contracts
- 2.5.8 Formal trust building process
- 2.5.9 Integrity/moral philosophy

2.6 Summary of Trust Literature

2.7 Strategic Alliances

2.8 Theory Development
- 2.8.1 General Systems Theory
- 2.8.2 The IMP Interaction Model
- 2.8.3 Transaction Cost Economics
- 2.8.4 Exchange/Bargaining Power
- 2.8.5 Channel Relationships
- 2.8.6 Markets and Contracts

2.9 Summary of Strategic Alliance Literature Review

2.10 Summary of Literature Review

Barber notes that:

> **"In both serious social thought and everyday discourse, it is assumed that the meaning of trust and of its many apparent synonyms is so well known that it can be left undefined or to contextual implications." Barber (1983:7) Hosmer (op cit 380)**

This observation is corroborated by the evolution of trust in the fields of industrial economics, organizational behavior, marketing, and organizational theory. A comparison of the various definitions of trust across fields shows that trust can be grouped into eight conceptual paradigms (shown in Table 2-1). In paradigm one, authors posit that trust is a cognitive predictability or *reliability* of another party. The second paradigm addresses the *competence* of a party as a component of trust. In the third paradigm, a recognition of trust as an altruistic faith or *goodwill* felt toward another party is proposed. The fourth paradigm relates the concept of *vulnerability* to trust. Paradigm number five specifies that loyalty-based trust exists when a partner consistently goes *beyond the call of duty.* The sixth conceptual paradigm realizes that multiple components of trust exist, which are defined by *cognitive* (reliability or task) trust and *affective* (altruistic) faith trust. The seventh body of theory adopts some of the most recent definitions of trust which combine vulnerability and the notion of affect and cognition-based trust. The final conceptual paradigm combines these different perspectives into a concept we define as *non-partisan trust.* Non-partisan trust assumes that the actors do not focus solely on the trustworthiness of the other party, but consider their relative vulnerability, as well as the cognition and affect-based trust demonstrated by themselves and the other party. In the following section, we identify each of these representative paradigms that are drawn from the marketing, organization theory, sourcing, and organization behavior literature streams.

Table 2-1

Body of Theory	Definition	Authors
1. Reliability	Time and experience are critical elements in evaluating trust	Rossiter and Pearch 1975 Deutsch 1958 Rotter 1967 Gambetta 1988 Fairholm 1994 Lorenz 1988 Zucker 1995 Lewis 1990 Gulati 1995 Good 1988
2. Competence	Experience and wisdom displayed by partner	Ghoshal and Bartlett 1994 Luhmann 1988 Butler 1991
3A. Goodwill (openness)	Confidence you can share information or problems with the other party	Pennings and Woiceshyn 1987 Granovetter 1985 Johnson Georges & Swap 1982 Ring and Van de Ven 1994 Farris et al.. 1973 Hart et al.. 1986
3B. Goodwill (Benevolence)	Accepted duty to protect the rights of your partner	Mayer et al... 1995 Barber 1983 Rempel & Holmes 1986 Butler 1991 Hosmer 1995
4. Vulnerability	Being unprotected or exposed while including an element of uncertainty or risk	Deutsch 1958 Akerlof 1970 Barney & Hansen 1994 Klein, Crawford & Alchian 1978 Zand 1972 Holmstrom 1979 Sabel 1993 Lorenz 1988 Gambetta 1988
5. Loyalty	A partner is not just reliable but performs well in extraordinary situations	Rempel & Holmes 1986 Larson 1990 Friedland 1990
6. Multiple Forms of Trust	There are more than one type of trust	McAllister 1993 Mishra 1996 Gabarro 1979 Bromiley & Cummings 1996 Rempel & Holmes 1986 Ghoshal & Bartlett 1995
7. Combining Trust with Vulnerability	Cognition and Affect -based trust are combined with vulnerability	Mayer et al..... 1995 Hosmer 1995
8. The Future of Trust (Non-Partisan proactive-Based Trust)	Trust is the primary attention to your own trustworthiness and secondary attention to your partner's trustworthiness	Sabel 1993 Mishra 1995

2.2.1 Reliability

Reliability can be broken down into requisite elements. Reliability is dependent on prior contact with a party or experience. Several authors (Gabarro 1978; Lorenz 1988; Fairholm 1994) mention time as a key element to reliable trust. A second related major element is repeated interaction among the firms (Gabarro 1978; Good 1988; Gulati 1995; Ring & Van de Ven 1992). Repeated interaction and time (Lorenz 1988) leads to levels of confidence, consistency (Fairholm 1988), and finally trust (Zucker 1995; Lewis 1990). Reliability then leads to predictability which is confidence in future actions (Fairholm 1988). While reliability is important, what motivates reliability is often more important. Reliability must be based on integrity or honesty (Fisher and Brown 1989) to be effective. Reliability based coercion or stress eventually creates a suboptimal relationship or total breakdown.

A series of definitions define trust in terms of a firm or person's reliability or expectation of performance. Deutsch (1958) created one of the first definitions of trust which accepted the extreme position that for trust to be present, expected loss must be greater than expected gain. Authors after Deutsch extended trust as an expectation to include situations where expected gain are greater than loss (Rotter 1967; Gambetta 1988). Reliability can often be confused with predictability. Reliability primarily addresses a party's past behavior while predictability actually takes past behavior and other information to address probabilities of future performance (Rossiter & Pearch 1975). Reliability and predictability are closely related terms and definitions addressing either term fall into this body of theory. Firms or people who meet a threshold level of

predictability can by definition be trusted. This paradigm is best described by the following definition:

> **Trust is a range of observable behaviors and a cognitive state that encompasses predictability (Rossiter and Pearch 1975).**

2.2.2 Competence

Competence is one's perception of the ability of a party to meet commitments. The issues of trust and competence have been addressed by several authors (Gabarro 1978; Butler 1991; Luhmann 1980; Ghoshal & Bartlett 1995). Gabarro breaks competence based trust into three key areas. First, specific competence which is trust in the other's specific function or area. Second, interpersonal competence is the ability of a person to work with people or people skills. Finally, business sense which addresses a person's experience, wisdom, and common sense. Ghoshal and Bartlett (1995) analyze specific competence in technology or functional areas, which is similar to Gabarro's second type of competence. Other authors address competence and trust in more general terms linked closely to a person or firm's specific business experience or wisdom (Luhmann 1980; Lewis 1990). This dissertation is primarily concerned with specific functional and technological competence and interpersonal competence. Both of these competencies must be in place for maximum effectiveness.

2.2.3 Goodwill

This was first defined by McAllister (1993), and is identified with a heavy dependence on openness between people and emotional investment in the relationship. Affect based trust could almost be confused with interpersonal or personal trust because personal issues creep into the relationship in terms of problem solving, listening, and

sharing. A key distinction between cognitive and affect-based trust is that while cognitive based trust may or may not exist at the interpersonal level, affect-based trust almost always exists only at the interpersonal level. The importance of interpersonal relations is recognized to be an important element of trust (McAllister 1993; Granovetter 1985).

The move towards an affect-based trust construct was driven by Granovetter (1985) who recognized that economic relations occur within social relations. In fact, organizations can be seen as fertile soil for the growth of interpersonal relationships grounded in faith and dependability (Pennings & Woiceshyn 1987; Johnson Georges & Swap 1982).

While interpersonal relations are important, it is critical to break these relationships down into their key elements. Authors describe the shift to affect-based trust as ranging from an economic focused reliance on contracts to a psychological reliance on relationship building (Ring & Van de Ven 1994). Affect-based trust is proposed to consist of two elements. First, openness with the other party (Gabarro 1978; Farris et. al. 1973; Hart et. al. 1986). Openness centers on both parties feeling that the they can share problems or information with confidence in the actions of the other party. Openness is closely related to the interdependence between the parties which is addressed in more detail later in this dissertation. Second, affect based trust considers the concept of benevolence (Mayer et. al. 1995; Barber 1983; Rempel & Holmes 1986; Butler 1991). Hosmer (1995: 392) points out that trust "generally is accompanied by an assumption of an acknowledged or accepted duty to protect the rights and interests of others."

One of the few empirical tests of affect-based trust is by Handfield et al. (1995), which found significant relationships between asset specificity and affect-based trust and

also between supplier responsiveness and affect-based trust. This study lends empirical support to the concept of affect-based trust and its role in buyer-supplier relations.

Beyond reliability or predictability, trust can also be defined in terms of a faith in the goodwill of others. This faith or goodwill recognizes the importance of interpersonal relations as an important element of trust (McAllister 1993; Granovetter 1985). This new type of goodwill trust evolved from discussion and research on benevolence (Solomon 1960; Strickland 1958), integrity (Lieberman 1981; Ring & Van de Ven 1992), and honesty (Larzelere & Huston 1980) as antecedents to trust. For instance:

> **Trust is a faith in the moral integrity or goodwill of others, which is produced through interpersonal interactions that lead to social-psychological bonds of mutual norms, sentiments and friendships (Homans 1962) in dealing with uncertainty (Ring & Van de Ven 1994).**
>
> **Faith enables people to go beyond the available evidence and feel secure that a partner will continue to be responsive and caring. Feelings of faith begin with past experiences that show how much our partner cares" (Rempel and Holmes 1986)**

2.2.4 Vulnerability

A key breakthrough in the use of the term trust is the relationship between vulnerability and trust. Vulnerability is a key issue, because trust without some kind of vulnerability simply cannot exist. If a party chooses a course of action that involves no vulnerability then the firm has simply made a rational decision. One of the first definitions to include vulnerability was provided by Deutsch (1958), who stated that trust involved choosing a course of action even if the probability of failure was greater than 50%.

There are three types of vulnerability which include adverse selection, moral hazard, and hold up vulnerability. These three types of vulnerability range from inability

to accurately evaluate the quality of assets a partner says they will bring (adverse selection) (1979 op cite Barney & Hansen 1994:176 Akerlof 1970), to the ability to evaluate assets committed when a relationship exists (moral hazard) (op cite Barney & Hansen 1994:176 Homstrom), to asymmetric investment by one party (op cite Barney & Hansen 1994:176 Klein, Crawford, and Alchian, 1978). Zand (1972) believed that trust goes beyond expectation outcomes under uncertainty to expectation outcomes under vulnerability. Zand's definition is broader, in that he identifies two dimensions of trust vulnerability. Vulnerability projects a feeling of being unprotected or exposed while including an element of uncertainty or risk. If there is no uncertainty or risk, then the party is freely giving the other party something. If there is no exposure by both sides, then the firms are simply making a rational decision based on probabilities.

> **Sabel (1993:1133) Trust is the mutual confidence that no party to an exchange will exploit another's vulnerabilities.**
>
> **Zand (1972) Trust is a risk relationship which increases the trustor's vulnerability.**
>
> **Gambetta (1988: 217) Trust is a particular level of the subjective probability with which an agent assesses that another agent or group will perform an action, both before he can monitor such an action and in a context in which it affects his won action. For trust to be present there must be the possibility for disappointment or betrayal.**

The discussion on vulnerability uncovers a key distinction that must be made between trust and trusting behavior. Trust can exist without action, but trusting behavior is the action taken, based on trust in another party. Lorenz discusses how vulnerability is a key component of trusting action:

> **Lorenz (1988: 197) trusting behavior consists of action that (1) increases one's vulnerability to another whose behavior is not under one's control, and (2) takes place in a situation where the penalty suffered if the trust is abused would lead one to regret the action.**

A paradox which exists in was uncovered by Rempel and Holmes (1986), who wrote that to be able to trust you must be willing to take the risk of trusting another party. To be a party to trust, you must take this risk.

2.2.5 Loyalty-Based Trust

Loyalty based trust occurs when after a period of reliable performance, goodwill or faith is developed in the other party (Rempel and Holmes 1986). This good will motivates a party to take altruistic actions in the relationship that they would not take in other relationships. "Loyalty" based trust often occurs when a firm is not just reliable but performs well in extraordinary situations.

> **"the first aspect of trust is predictability .... the second aspect of trust is dependability. The feeling that your partner is a dependable person is based on the emerging sense that he or she can be relied on when it counts. Paradoxically, we can only be certain someone genuinely cares when a situation makes it possible for that person not to care..... dependability grows out of a special set of circumstances that involve risk and personal vulnerability." (Rempel and Holmes 1986:30)**

Loyalty based trust also occurs when individuals in both firms create strong interpersonal bonds beyond just their business relationship.

> **Trust is "confidence the other party could be relied on and confidence that extra effort would be consistently made." (Larson 1988:117)**
>
> **"Trust is most typically promoted when a party to an interaction shows genuine responsiveness to the needs of its partner" (Friedland 1990:317)**

2.2.6 Multiple Forms of Trust Exist

Another group of authors realized that both altruistic based trust and reliability based trust exist (McAllister, 1993). For instance:

> **There are two types of trust which are a business risk view which hedges against moral hazards and advance selection and involves the predictability of one's expectations (op cite Ring & Van de Ven 1994: 93 Luhmann 79, Zucker 86) and Confidence in another's good will (op cite Ring & Van de Ven 1994: 93 Dore 1983, Ring & Van de Ven 1992).**

Holmes and Rempel et al.. identify two different types of trust that are similar to cognitive and affect-based trust, but also state there are three dimensions which each type of trust. Holmes (1981, 1991) and Rempel, Holmes, and Zanna (1985) look at interpersonal and task trust. Both interpersonal trust and task trust is made up of three dimensions: reputational, reciprocal, and accommodation trust. Reciprocal and accommodation trust are emergent forms of trust. Other authors talk about calculative and altruistic trust. Calculative-based trust is fostered by mutual hostages and built on reputation (Op cite Zaheer and Venkatraman 1995, Kreps 1990, Williamson 1993). Williamson (1993) believes in only one type of trust which is altruistic trust.

Gabarro (1978) goes beyond these two types of trust and also identifies character, judgment and competence as dimensions of trust. While character is similar to affect-based trust and competence is similar to cognition-based trust, judgment is a new dimension. However, judgment serves as a context for the other two types of trust rather than a unique construct itself. Ghoshal and Bartlett (1995) describe the three keys to developing trust from a neutral situation, in terms of:

1. A higher level of perceived fairness and equity in the company decision making process
2. The broader level of involvement in core activities
3. An increase in the overall level of personal competence at all levels of the organization.

Again, perceived fairness is similar to affect-based trust and competence is a component of cognition-based trust, but involvement is a new construct. Ghoshal and Bartlett are the only authors to discuss involvement, defined as the involvement of individuals affected by the outcome of the decision-making process. While it is difficult to argue that this is

not an important point, participation may not qualify as an actual dimension of trust. For the purpose of this dissertation involvement will not be used as a type of trust but rather will be referred to as involvement or empowerment.

Rempel and Holmes (1986) describe three key components of trust as shown below.

> **"Predictability, dependability and faith: each offers a different basis which feelings of confidence in a partner can be built." (Rempel and Holmes 1986)**

Rempel and Holmes describe relationships as evolving through a continuum where predictability is achieved first, then dependability and then faith. Finally, Mishra (1995) discusses four dimensions of trust which include openness, competence, concern and reliability. Competence addresses whether a manager will make the right decision. Openness addresses whether a manager will give a straightforward account of events. Concern discusses whether a manager acts in ways which benefit employees and reliability involves a verification that actions and words are consistent. Mishra (1995) believes that trust plays a key role in crises by allowing decentralization of decisions, undistorted communication and collaboration. Lewicki and Bunker (1995) and Sheppard and Tuchinsky (1995) describe three types of trust:

> **Calculus-based Trust** Trust based on control or assuring that the other party will do what they say. Trust is sustained through a clear deterrent (punishment) and likely to occur if trust is violated. The threat of punishment is likely to be a more significant motivator than promise of a reward. Calculus-based trust often involves a high degree of monitoring to assess whether a party is being opportunistic. Calculus-based trust is fragile and therefore any violation of trust has potential to significantly alter or even end a relationship.
>
> **Knowledge-based Trust** Knowledge-based trust is grounded in the predictability - knowing the other party sufficiently well so that the other's behavior is anticipatable. Knowledge-based trust relies on information rather than deterrence as a motivator. Knowledge-based trust develops over time as the

parties develop confidence in the trustworthiness of the other party. In knowledge-based trust regular communication and courtship are key processes.

Identification-based Trust Identification-based trust is based on identification with the other party's desires and intentions. Trust exists because the parties effectively understand and appreciate the other's wants. A mutual understanding develops as each side clearly understands the motivations and problems of the other side. Each party comes to understand what they must do to sustain the other's trust. Identification-based trust is also characterized as having: collective identity, colocation of personnel, creating joint products or goals, and commonly shared values.

If we take a look of the bodies of literature to this point we can split definitions into who they impact the primary party (me) versus the other party (them) in Table 2-2. Recent definitions attempt to incorporate the affect and cognition-based elements together into one definition. Table 2-2 indicates that recent theory in trust is beginning to emphasize bilateral trust not just trust of the "the other party." There is an emerging realization that trustworthiness of yourself as well as the trustworthiness of the partner have significant impact on the partnership.

Table 2-2

Emphasis Primarily on Yourself and Partner	**Emphasis almost entirely on Partner**
Area 4: Willingness to be Vulnerable	Area 1: Reliability of the other party
Area 7: Cognition & Affect trust with Vuln.	Area 2: Competence of the other party
Area 8: Non-Partisan Trust	Area 3: Goodwill of the other party
	Area 5: Loyalty of the other party
	Area 6: Multiple forms of trust

2.2.7 Combining Affect and Cognition-based trust with Vulnerability

Two of the most recent definitions on trust come from articles attempting to connect theoretical and ethical views of trust (Hosmer 1995) and the creation of a model of organizational trust (Mayer et al. 1995).

> **"The willingness of one party to be vulnerable to the actions of another party based on the expectation that the other party will perform a particular action." (Mayer et al. pp. 712: 1995)**
>
> **"Trust is the reliance by one person, group, or firm upon a voluntary accepted duty on the part of another person, group, or firm to recognize and protect the rights and interests of all others engaged in a joint endeavor or economic exchange. " (Hosmer pp. 393: 1995)**

Both definitions are similar in that they emphasize a reliance or willingness on the part of one party to be vulnerable to another to fulfill their commitment. The definitions differ slightly because Mayer et al. use the term vulnerability which differentiates trust primarily from a trustor's point of view. Hosmer takes a different course where his definition emphasizes a reliance of one party or another. This "reliance" is similar to vulnerability because the reliance implies that the actor will incur costs if the other party does not meet their obligations.

From these definitions several other consistencies between the definitions can be observed. In order for trust to exist between organizations or individuals, antecedent conditions exist which can have a positive, negative or no impact on trust. First, trust exists across organizational levels from interpersonal trust to interorganizational trust. Second, both definitions contain a cognitive and an affective element. Both address cognitive trust, in stating that there is an expectation or predictability which addresses the importance of reliability in the relationships. Both definitions also address the need of a party to perform an action or protect the interest of the other party. Hosmer's definition is much clearer on this point. Third, trust is seen as an optimistic expectation that the other party will perform. Trust does not assume the worst in people but instead takes an optimistic view. Fourth, vulnerability is a key issue in discussing trust. Without vulnerability, two parties are not risking anything and simply acting rationally. For

instance, consider the situation where two people have resources that they cannot use and are going to throw away, yet they decide to combine these resources into a potentially useful tool. Since neither party is vulnerable in this situation, there is no trust. If we take the same situation and the parties are using very valuable resources, then trust will be present. Finally, trust is not easy to identify or evaluate. It often takes parties several iterations of contact before significant trust can be built. Trust is not something that is immediately apparent in relations.

2.2.8 Non-partisan Trust

As Table 2-2 shows, theories of trust to this point have been constrained to a focus primarily on the behaviors of the "other" party. All definitions to this point are focused on the actions either cognitively or affectively of the "other" party. One question which emerges from this discussion is whether trust is a function of thoughts about the other party or a balance of actions by both parties? This dissertation will take a view of trust similar to Sabel (1993). Sabel's view is more objective and includes the perceptions of both the primary party (me) and the other party (them). Finally, Sabel (1993) makes a significant contribution by stating that a lack of opportunism by both parties in a relationship where both parties are vulnerable constitutes a state of trust. There is a tendency in relationships for each party to fixate on the behaviors of the other party while overlooking their own behaviors. Parties eventually begin to require their partners to embody ideals that they themselves do not embody. This lack of congruence among word and action quickly leads to degradation of the relationship.

2.3 Context

Trust is a concept that exists in a wide variety of literature bases. A recent review of the various definitions of trust by Hosmer (1995) found that to effectively analyze the various definitions of trust it was necessary to look at the different contexts in which authors defined trust. The following are the four major contexts which organizational theorists have employed in defining and analyzing trust.

> ***Individual Expectations***: Trust reflects expectations of the individual in the areas of competence, persistence and moral correctness (Barber 1983). This is the context that this dissertation will adopt.
>
> ***Interpersonal Relations***: Trust is seen as a condition for cooperation and makes a significant contribution to interpersonal relations.
>
> ***Economic Transactions***: Views trust as transactions among groups, companies, or individuals primarily through distrust, taking a pessimistic view of people.
>
> ***Social Structures***: Trust is based on formal and informal rules in societies which help to create cooperation among diverse elements in society.

Context is important to any discussion on trust because trust is not a clearly defined term. Most authors explain how interpersonal relations eventually lead to agreed upon expectancies and norms between firms. Larson (1988), for example, describes interpersonal relations and expectancies as leading to social structures of norms in firms. Similar to Larson, Gulati describes the concept of trust emerging from a series of prior contacts or familiarity between firms, so that trust is built on certain norms and equity. Macaulay (1963) takes a slightly different road than Gulati by stating that interpersonal relations don't just create familiarity but create pressure on interfirm expectancies and norms. While Gulati, Macauley, and Larson state that interpersonal trust precedes social

structures, Zucker (1986) argues that trust can be an interfirm phenomena, (not just between individuals) with no causality present.

While there are relations among the individual expectations, interpersonal relations, and social systems contexts, the economics context is not linked to the others. In the economics context, trust is of secondary importance or is used as a lubricant for the primary area of importance (transactions).

Economics sees trust as a public good a social lubricant which makes possible production and exchange (Akerlof 1970; Arrow 1974; Op cit Dasgupta 1988)

Since the economics context assumes opportunism in other parties', trust must be developed through alternative mechanisms (hostages, contracts, and negative consequences). Another way to develop trust is through the use of bilateral hostages which provide incentives for parties to remain in the relationship (Borys and Jemison 1989; Kamath & Liker 1994). Economists look at trust from the other side (distrust) and see how alternative control mechanisms or costly sanctions can deter distrustful behavior.

Trust can substitute for hierarchical contracts in many exchanges and serve as an alternative control mechanism (Bardach & Eccles, 1989)

Gulati (1995) brings up the idea of deterrence based trust also discussed by Shapiro et al., 1992. This perspective emphasizes utilitarian considerations when the partner realizes that untrustworthy behavior will lead to costly sanctions. A universal definition of trust does not currently exist so the context in which trust is used provides vital information about a relationship. The list of contexts stated above is helpful in understanding the various conceptualizations of trust which are discussed in this section. While definitions could have been broken down by context, definitions were instead broken down by a combination of contexts and content. Several content areas were added

to the context areas to provide a richer understanding of the key issues surrounding trust. While the main focus of this dissertation is not a study of the different contexts of trust, context must play a role in any study looking at trust. This dissertation will concern itself primarily with the interpersonal and individual expectancies and how they play a role in forming social structures in organizations. The definitions and explanation on context show that research to date has not taken a partisan look at trust. The emphasis has been on what the "other" party has done and their trustworthiness. Contexts in research to date has also been constrained to economic transactions that affect individual expectations. Research has represented trust as an expectation on the part of one party, with trust playing a small role in economic transactions because the threat of opportunism by the other party is so high. This dissertation will argue that this pessimistic view of people has stifled the use of trust (Ghoshal & Moran 1995) and that a new viewpoint based on interpersonal relations is needed.

Bromily and Cummings make an interesting distinction between trust as a dimension and as a component or belief shown in Table 2-3 below. The authors use the matrix below to test nine different combinations of trust dimensions and beliefs.

The Y axis identifies areas very similar to honesty, reliability, and opportunism which are closely tied to the different concepts and paradigms of trust discussed prior in section 2.2. The X axis shows the three contexts of trust: a feeling, cognition or intention. This matrix then is able to simultaneously classify three different types and three different contexts of trust. Empirical testing of these dimensions and contexts showed significant differences among the three dimensions.

Table 2-3

	Affective	Cognition	Intended Behavior
Keep Commitments			
Negotiate Honestly			
Avoid taking excessive advantage			

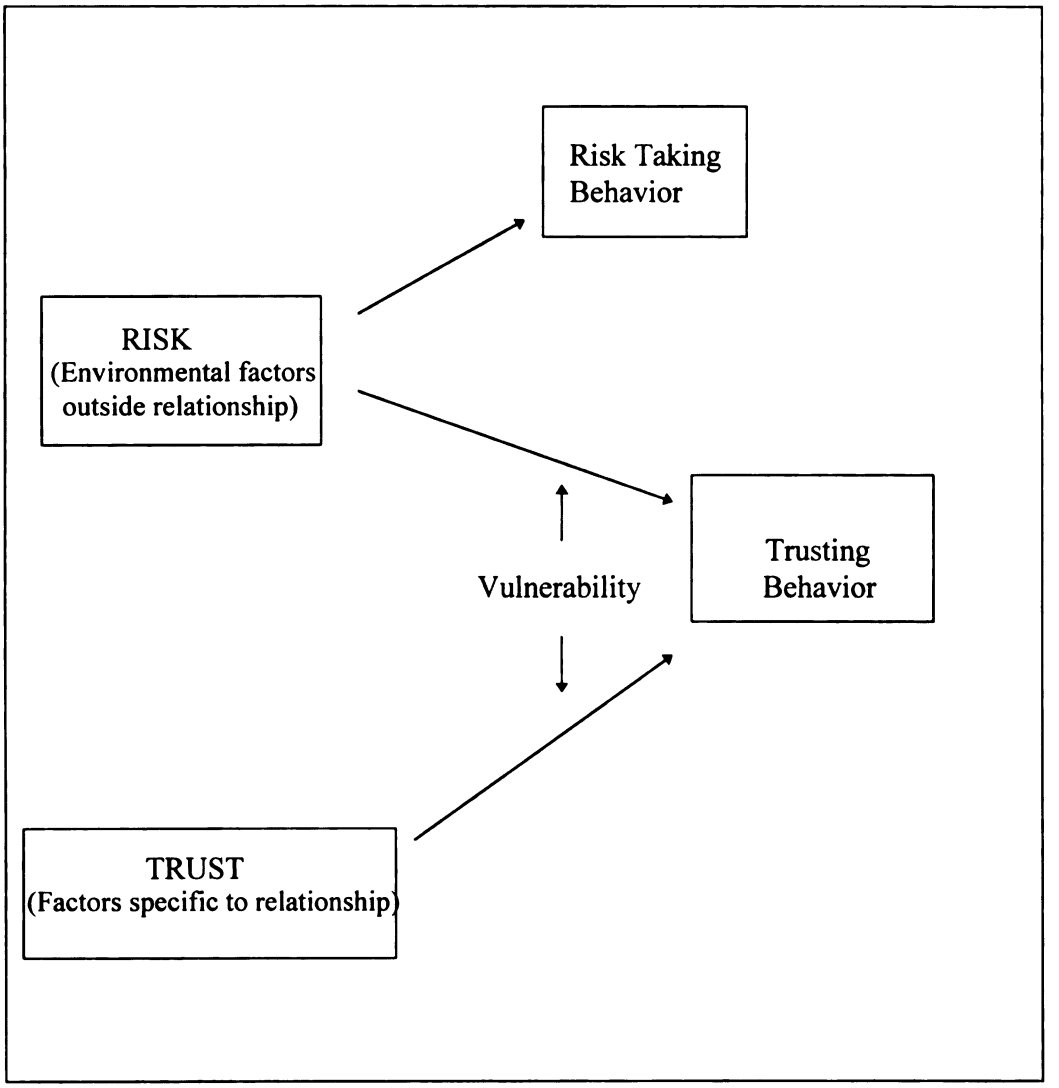
2.4 Differentiating Trust

In addition to describing what trust is, it is also important to identify what trust is not.

2.4.1 Risk

The relationship between risk and trust is a subject of debate. Trust can be a solution to risk (Luhmann 1988) or risk can combine with trust to determine firm governance structure (Ring and Van de Ven 1992). Mayer et al (1995) provide the most accurate relationship between risk and trust as depicted in Figure 2-2 below. Risk need not be taken to trust another party, but risk must be taken if trusting action is to occur (Mayer et al. 1995). In discussing risk, it is important to draw a distinction between risk, trust, risk taking behavior, and trusting behavior. Risk is similar to trust in that it can exist without any associated action. For example, the risk involved in developing a new product can exist whether the firm actually decides to make the product or not. Trusting behavior, on the other hand, must involve trust, risk, and vulnerability. If vulnerability to a specific party is absent and only risk is present, then the party is involved in risk taking

Figure 2-2



action as shown in Figure 2-2. An example is the decision to leave for work without an umbrella hoping that it will not rain. While the person has clearly taken a risk there is no other party that the person is depending on and he/she bears all the risk. If that same person watches the news and decides to not carry an umbrella because the weather person said the weather will be sunny, then the person trusts the weatherperson because they are acting on their advice, and further, they are performing a trusting behavior in the action of

not carrying an umbrella. Mayer et al. (1995) make a key distinction between trust and risk. Trust takes into account the specific vulnerabilities involving the partner which a firm is possibly going to enter into a trusting relationship with. Risk involves the vulnerabilities that exist in the environment outside of the knowledge known about the other party. Using the same example, not carrying an umbrella is a risk because there is environmental vulnerability. If the person asks a coworker to bring an extra umbrella to work (believing it may rain on the way home) then both trust and risk are involved. There is still the risk due to the environment (whether it rains or not), but in this situation trust exists (the person relies on the other party to bring an extra umbrella).

2.4.2 Commitments

Commitment according to Dasgupta (1988) is similar to asset specificity. Dasgupta states that commitments (exchange of contracts, people of honor, a promise) are resources put forth by a party and are compared to expected 'gain' in order to decide whether commitments should be entered into. Commitment is the physical, verbal, or written manifestation of trusting behavior. Commitment and trust are often associated with each other, but either can occur without the other. A party can make a commitment to another without any trust in the other party. Similarly, trust can exist without commitment. For instance, an individual can trust the president of the United States without making any kind of commitment to him. However, trusting behavior must involve a vulnerability or exposure which involves some type of commitment. The relationship between trust and commitment is discussed in-depth later in this dissertation.

2.4.3 Cooperation

Trust is easily confused with other words such as cooperation. While trust often leads to cooperation, cooperation can exist without trust (Mayer et al. 1995). A party may even cooperate with another party because they actually do not trust the other party and want to avoid possible detrimental consequences. The relationship between trust and cooperation has also been described as symbiotic with increased trust and cooperation feeding off of each other (Ghoshal & Bartlett 1994).

Cooperation with trust by definition involves risk and vulnerability. Cooperation without risk(Johnson-George and Swap 1982) or vulnerability (Zand 1972) is simply a rational decision. Because confidence is closely related to cooperation, it is a concept often confused with trust.

2.4.4 Confidence

The distinction between trust and confidence is not clear in the literature, but Luhmann (1988) attempts to make a distinction. The author states that both confidence and trust center on future expectations (Fairholm 1993) by a party, but in trust there is at least one previous encounter on which feelings are based. A person who chooses among alternatives is simply behaving rationally; however, if one of those alternatives is chosen with the actor being aware of the risk of this choice relative to other choices, trust is present (op cit Mayer et al. p. 713: 1995; Luhmann 1988; 102). With confidence, there may be no previous experience with the other party to draw on. Without prior knowledge of the other party, the party is acting on probabilities and making a rational decision. Trust is a risk associated wherein the other party is known.

2.4.5 Predictability

Finally, trust can be compared to predictability. Clearly trust goes beyond predictability (Deutsch 1958). A person can consistently be dishonest (which is predictable) but not worthy of trust. It is possible to have no trust in a person who is very predictable. Predictability is actually a component of a specific kind of trust called cognitive trust that will be discussed in detail in later pages.

2.5 Antecedent Conditions for Trust

2.5.1 Power

The area of power has similarities to the area of trust if you compare the types of power from French and Raven (1959) referent, legitimate, and coercive power with the three types of trust discussed prior. If we compare these three types of power (French & Raven 1959) with calculus-based, knowledge-based and identification-based trust (Lewicki & Bunker 1995) there appears to be some similarities as shown below.

Coercive Power Expectation that the other party will punish in situation of nonconformance	**Calculus-Based Trust** Trust sustained through deterrence punishment
Expert Power Power due to Knowledge of perception of knowledge in a given area	**Knowledge-based Trust** Knowing the other party so that their behavior is anticipatable
Referent Power Basis of referent power is in identification of one party with the other, a feeling of oneness	**Identification-based Trust** Identification with the other party's desires and intentions

The definitions above reveal a link between the areas of power and trust. Perhaps the judicious use of power or even restraint from power use as discussed by Gaski and Nevin (1985) can lead to the various types of trust discussed. This dissertation will analyze

coercive versus non-coercive power. Coercive power is the expectation of punishment from another party unless there is compliance. Non-coercive power involves referent, expert, legitimate, and reward power.

Power

(1959) French Jr. & Raven	There are different types of power including referent, legitimate and coercive.
Gaski (1984)	There is not a strong relationship between power and dependence. Coercive versus non-coercive power usage has not been effectively tested yet
Gaski & Nevin (1985)	Exercise of power has an effect on satisfaction and conflict beyond the mere presence of power
Venkatesh et al.. (1995)	Found significance between use of a particular influence strategy and type of power in a relationship.
Heide (1994)	The more unilateral power is in a buyer-supplier relationship the higher the use of explicit contracts.
Lusch & Brown (1996)	The higher the level of dependence of the supplier or buyer on the other the higher the higher the use of explicit contracting.

2.5.2 Dependence

Dependence has been observed two ways. First, the dependence of a party (usually supplier) on another party (usually buyer). Second, the power one party has over another usually due to a high percentage of a supplier's output going to one buyer. Several authors including Lascelles and Dale (1989), Dwyer Schurr and Oh (1987) and Krause (1995) have addressed the issue of dependence from a volume perspective. They hypothesize that the more a buyer buys from a supplier the more likely the buyer will be

Dependence

Treleven (1987)	In situations with fewer suppliers buyers have fewer opportunities to exploit suppliers
Mohr & Spekman (1994)	Interdependence is correlated with relationship performance
Emerson (1962)	Power and dependence have a reciprocal relationship
Cadotte & Stern (1979)	The power dependence relationship determines the amount of interdependence between parties
Lascelles and Dale (1989)	The volume of business with a supplier impacts the ability of a buyer to impact a supplier
Frazier, Spekman and O'Neal (1988)	Coercive use of power can damage a relationship
Dwyer, Schurr and Oh (1987)	Power is a function of dependence of parties on one another
Noorweir, John and Nevin (1990)	Voluntary restraint from the use of power improves the relational exchange norms of a relationship
Williamson (1975)	Power assymetries will always be exploited
Heide (1994)	The more dependent a supplier is the higher the use of explicit contracts is.
Etgar & Valency (1983)	The more dependence that is present the more vulnerable the weaker member is to the other.
Heide (1994)	The higher the degree of interdependence the more commitment exhibited by both parties.
Lusch & Brown (1996)	The more dependence a buyer has on a supplier the more likely the buyer is to have a long-term orientation.

able to influence the supplier. Williamson (1975) first noted in transaction cost analysis that in market advantages (based on power or dependence) lead to opportunistic behavior. Empirical testing, however, has not supported these ideas.

Dependence of a party on another means that one party will have power over another. Treleven (1987) notes that in markets with limited numbers of suppliers there is less leverage for buyers in negotiating with suppliers. Resource dependence theory also notes that when power between parties is in relative balance (high uncertainty) organizations will attempt to create negotiated environments.

Beyond Williamson a growing number of authors assert that power can exist without opportunism (Frazier et al... 1988; Noordeweir et al... 1990). Buyer's do not automatcially exploit power opportunities but may limit the use of power to strengthen a relationship (Noordeweir 1990). Similarly, a buyer may refrain from using power to avoid the negative consequences associated with exploiting a dependent supplier (Frazier et al.. 1988). Beyond dependence is the concept of interdependence between two firms. This interdependence is likely the product of a relationship between power and dependence (Codotte and Stern 1979) which was first hypothesized by Emerson in 1962. Emerson stated that power and dependence have a reciprocal relationship. In one of the few empirical analyses of interdependence Mohr and Spekman tested the relationship between interdependence and relationship performance however, a relationship was not proven.

2.5.3 Alliance Planning Horizon

2.5.3.1 Economic (short-term) Planning Horizon For many years, an economic paradigm dominated the interorganizational relationship (IOR) literature (Williamson 1975; Gulati & Nohria 1992). The economic paradigm relied on two concepts: 1) The prisoner's dilemma and 2) Transaction cost analysis. In the prisoner's dilemma, two prisoners are given their choice of pleas without knowing what the plea of the other party

is. By analyzing the responses of people put in the prisoner's dilemma, the optimal strategy for a prisoner is "tit for tat", (or do to the other party what they just did to you) (Gulati & Nohria 1992; Axelrod 1984). Serious concerns have arisen about the accuracy of the prisoner's dilemma in modeling cooperative relations (Fisher & Brown 1989; Gulati & Nohria 1992). These concerns focus on whether the prisoner's dilemma provides a large enough payout to parties which cooperate. A large cooperation payout may change the optimal strategy from "tit for tat" to cooperation.

The second key economic concept relevant to the IOR literature is transaction cost economics (TCE), put forth by Williamson (1975). Transaction cost economics states that there are transaction and production costs of doing business between firms. Transaction costs are caused market inefficiencies which are in the form of opportunism, small number games, and bounded rationality in individuals. A problem associated with transaction cost analysis is that it ignores organizations that work with each other repeatedly (Zajac & Olsen 1993; Ring & Van de Ven 1992; Gulati 1995) and treats each transaction independently. TCE also assumes all parties are opportunistic and in this respect TCE is a "flat" paradigm. The assumptions of opportunism and independent transactions may be appropriate in a discussion of markets versus hierarchies (Hirschmann 1982), but the emergence of hybrid relationships such as strategic alliances do not mesh with the TCE framework. The assumption of transaction independence ignores key factors such as trust (Lorenz 1988) which is developed when each transaction is not seen as independent. Economic theory is now taking into consideration the area of game theory in looking at interorganizational relationships (Dasgupta 1988; Dixit and Nalebuff 1991). Game theory adopts a less stagnant approach towards relationships than

TCE because each party begins to look at possible moves by the other party before taking action. Game theory, however, still does not recognize the full payoff firms can attain by cooperating, assuming parties are opportunistic.

Not all areas of economics ignore trust. Trust can occur incidentally in a relationship. Several authors state (Axelrod 1984; Gambetta 1988; Bateson 1988) that trust seems to evolve as firms cooperate over a period of time, but that initial cooperation occurs at random. While incidental trust is possible, this dissertation recognizes and is more concerned with trust that is proactively developed because proactive trust is under the control of partnership participants and, therefore, can be controlled.

In the research performed by Hamel, Doz, and Prahalad (1989) and Hamel and Prahalad (1994), the emphasis in alliances is on one party winning and losing. As Hamel, Doz, and Prahalad (1989: 138) state " too much collegiality should set off warning bells to senior managers. Gulati and Nohria (1992) point out that the thinking of Hamel, Doz, and Prahalad is an extended version of the prisoner's dilemma where the firm that learns the most wins. Hamel, Doz, & Prahalad argue that alliances should be seen as learning races. CEOs or division presidents should expect occasional complaints from their counterparts about reluctance of lower level employees to share information." The major emphasis in this paradigm is controlling the flow of information so that the "other side" does not get unintended information. The problem with this view is that one must adopt by definition security measures against opportunistic behavior like other economic theories such as TCE. Hamel et al. treat each relationship independently, assume opportunistic partners and try to maximize the benefits to a party often at the expense of any further business with the other company. Their emphasis on preventative measures

contrasts with the notions of trust and commitment that are necessary for benefits to be achieved, as noted in Lewis (1990), Gulati and Nohria (1992) and Barber (1983).

The assumption that parties are opportunistic underlies the short term economic perspective. The solution to opportunism involves taking bilateral hostages, who provide manufactured vulnerability of both parties in the relationship. A hostage induced vulnerability must be distinguished from a synergistic driven vulnerability. Hostage vulnerability usually has tangential value to the alliance. The key to effectiveness in using hostages is the value of the asset to the donating party. From strategic vulnerability perspectives assets are donated because they are valuable to the alliance. The asset may also be valuable to the donator but the primary reason the donation is made is because of the value of the asset to the relationship. Beyond hostages, Tesler (1980) argues that self enforcing agreements are the answer to opportunism in situations of asset specificity and argues that the threat to terminate the agreement is enough to deter opportunism. Tesler (1980) provides three assumptions underlying his argument including:

1. The sequence of transactions are open ended
2. One off gains from cheating must always result in less than expected benefits from cooperating
3. Players share knowledge in the ranking of respective gains to be had from violating or upholding the agreement.

Lorenz (1988) points out two key flaws in this argument including:

1. If information is shared, trust is still involved because you must trust that the information being provided is accurate.
2. Unexpected events do occur but are ignored in this model, and trust will be essential in forming adaptations to contingencies in a jointly optimal way.

Economic/Short Term Perspective

Dasgupta (1988)	Looks at the impact of credibility, commitment, and reputation on trust in a game theory environment.
Hirschman (1982)	An ideal market rests on large numbers of price taking buyers and sellers with perfect information. Trust and alliances have no place.
Lorenz (1988)	Trust is an economic lubricant which can reduce the cost of friction caused by transaction costs.
Gulati (1995)	Transaction cost analysis is flawed because it looks at each relationship independently ignoring repeat relationships.
Ring & Van de Ven (1992)	Transaction cost analysis is flawed because it looks at each relationship independently ignoring repeat relationships.
Zajac & Olsen (1993)	Transaction cost analysis is flawed because it looks at each relationship independently ignoring repeat relationships.
Axelrod (1984)	Cooperation and trust can be attained through a tit for tat strategy in the prisoner's dilemma.
Fisher & Brown (1989)	The prisoner's dilemma is a poor model of interorganizational cooperation.
Gulati & Nohria (1992)	The payoff of alliances is not represented well in prisoner's dilemma. Actually working together has highest payoff not one cheating and other trusting.
Williamson (1975)	Transaction cost analysis can provide a framework for explaining why firms engage in markets or hierarchies.

Schmitz et al.. (1995), Hart et al.. (1986) and Gabarro (1978) also found that reactions in unexpected events are critical to trust failure or development. The economics point of

view highlights vulnerability of alliance partners (Gulati 1995) and assumes that all partners are opportunistic.

2.5.3.2 Mutually Shared/Long Term Philosophy Over the past eight years alternative paradigms to the economic paradigm have emerged. One of these paradigms is referred to as mutually shared alliances (Gulati & Nohria 1992). In mutually shared alliances, the payoff scheme in the prisoner's dilemma is challenged. Specifically, Gulati and Nohria (1992) feel that the payoff for the two parties working together is substantially more than what is reflected in the prisoners dilemma. In mutually shared alliances greater emphasis is placed on ongoing managerial practices. Trust, generosity, feedback and repair are the guiding principles in mutually shared alliances. A key omission in the economic model is the assumption of independence between party transactions (Gulati & Nohria 1992). This omission is significant because experience can engender trust among partners, and trust can limit the transaction costs associated with future alliances (Granovetter, 1985, 1992; Marsden 1981). The economic theory, specifically TCE is unraveled by Fisher and Brown (1989) who argue that in relationships the game theory approach as depicted in the prisoner's dilemma (Axelrod 1984) is not representative of relationships (strategic alliances) as a whole. *The fatal flaw of transaction cost economics is that it treats each alliance as independent ignoring the possibility of repeat alliances* (Ring & Van de Ven 1992; Zajac & Olsen 1993). Gulati (op cit. 1995: 86) argues that:

> **"This is because 1. in an area such as understanding , a party is better off understanding the other regardless if the other party is malicious because information is gained. In the prisoner's dilemma, if I am cooperative and the other party stingy, I clearly am worse off. Second, in real life it is difficult to measure the impact of a decision on another party. Can we measure an action by another party as clearly equal to ours in cooperativeness?"**

In the prisoner's dilemma, payoffs are clear. Also, a strong bias enters into perceptions of equity in actions by both sides. Often these relations lead to downward spiraling substantive (results based) actions.

In the new mutually shared paradigm, a key underlying factor is the expected time frame of the relationship. Partners see the relationship as long term (Gulati & Nohria 1992). In fact, Lorenz (1988) points out that trust is not necessarily a by product of other means but can be created intentionally. Lorenz (1988: 209) states that "The key in partnerships is to sacrifice short-term gains for the long-term benefits of mutual cooperation." The new hypothesized prisoner's dilemma payoff that considers a mutually shared paradigm, more accurately indicates the benefits that can accrue from synergies between firms when they work together. Firms today must pay more attention to mutually shared alliances incorporating a long term outlook, trust, generosity, feedback and repair (Gulati & Nohria 1992).

A major component of the new relationship centered paradigm is congruence. Congruence ensures that actions match words (Fisher and Brown 1989; Sinatar 1988, Anderson & Weitz 1989; Schmitz et al. 1995). In fact, actions and not reputation are the foundations of trust in a relationship (Fairholm 1994), and congruence between actions and words are identified as an antecedent to trust (Sinatar 1988). Congruence is also a problem in relationships when firms want the benefits of long term relationships yet their behaviors are the same ones they had in their short term relationships (Fisher and Brown 1988).

While short term economic paradigms embodied in TCE ignore the role of trust, an evolving long term paradigm identifies trust in mutually shared alliance as a mediating

Mutually Shared Long Term Paradigm

Campbell(1992)	Trust mitigates opportunism and increases social bonds over time.
Heide & John (1990)	Firms with a long term orientation were found to be better at long term relationships.
Gulati & Nohria (1992)	Trust, generosity and feedback, and repair should be the guiding principles of an alliance.
Granovetter (1985,1992)	Trust can limit transaction costs with future alliances.
Marsden (1981)	Trust can limit transaction costs with future alliances.
Luhmann (1988)	Trust can increase social bonds over time.
Fisher and Brown (1989)	The optimal behavior in relationships is to be unconditionally constructive.
Lorenz (1988)	Trust can be proactively developed.
Fisher & Brown (1988)	Statements and actions must be congruent to build trust.
Anderson & Weitz (1989)	Pledges must be followed by enactment and reciprocity by the other party for strong relations to develop.
Sinatar (1988)	Statements and actions must be congruent to build trust.
Fairholm (1994)	Actions and not reputation build trust in a relationship. Congruence of corporate culture and actions impacts trust.
Schmitz, Frankel, Frayer (1995)	Partners continuously evaluate the consistency of promises and statements of credibility and behavior over the life of the alliance.
Fisher & Brown (1989)	Often firms behave differently in short term relations or will behave as though their goals from relations are short term which leads to incongruent behavior to satisfy short term needs.
Ganesan (1996)	Benevolence, dependence & trust impact long-term orientation.
Lewis (1990)	Certain firms have a more cooperative philosophy which is an advantage yet avoid coercion. Know that it is in your best interest to help a key partner and avoid coercion.

factor in reducing transaction costs as described by Williamson (1975). Lorenz (1988) points out that transaction costs are directly linked to the possibility that actors will behave opportunistically (Gulati 1995). The presence of trust can avoid the expense of drafting comprehensive agreements for contingencies. Lorenz uses the metaphor of trust as a lubricant and transaction costs as the economic friction. Trust can also act as a response to opportunism and increase social bonds over time (Luhmann 1988). This proposition was empirically tested by Campbell (1993). Finally, in the area of problem solving the new relationship paradigm emphasizes an unconditionally cooperative and proactive stance (Lewis 1990; Fisher and Brown 1988). For example, Lewis (1990) proposes that firms should be as open to persuasion, while Fisher and Brown (1988) advocate an unconditional constructiveness in relations (i.e. a party should give trust conditionally but be unconditionally trustworthy.) Gulati and Nohria (1992) argue that in a mutually assured paradigm it is best for partners to demonstrate continued commitment to the relationship even if the other party is not pulling their weight. Trust, generosity, and repair are the guiding principles as opposed to retaliation and restoration.

Similar to the mutually shared paradigm Anderson and Weitz in 1992 and Krause in 1995 tested a construct called supplier commitment. Both Anderson and Weitz and Krause define commitment as the willingness to make short-term sacrifices for long-term benefits. Krause (1995) found supplier commitment to be an important antecedent to supplier development efforts. Anderson and Weitz looked at the perception of commitment of distributors from the manufacturer's perspective. Anderson and Weitz depict commitment as a never ending cycle beginning with the buyer's perception of

commitment from the distributor. Based on the perception the buyer may make short term sacrifices to realize long-term benefits.

2.5.4 Asset Specificity- Suppliers Perspective

Nishiguchi (1994) discussed four different types of asset specificity. These four types are:

> ***Dedicated asset specificity*** represents discrete and/or additional investment in generalized (as opposed to specific) production capacity in the expectation of making a significant sale of a product to a particular customer.
>
> ***Human asset specificity*** arises in a learning-by-doing fashion through long-standing customer specific operations.
>
> ***Site asset specificity*** refers to the successive stages that are immobile and are located in close proximity to one another so as to economize on inventory and transportation expenses. The fact that set-up and/or relocation costs are great usually necessitates a bilateral exchange relationship between the parties over the useful life of the assets.
>
> ***Physical asset specificity*** refers to specific equipment such as molds or dies specific to a relationship.

Several researchers have explored the types of asset specific investments made by firms. In contrasting Japanese and unsuccessful partnership agreements, Nishiguchi (1994) found that successful buyer-supplier relationships had greater levels of site asset specificity and three times as much human asset specificity as their less successful counterparts in the U.K and U.S.

Another study addressing this issues was recently published by Dyer (1994), who found that successful Japanese buyer-supplier relations invested substantially more in site, dedicated, and human asset specificity. These results concur with Nishiguchi (1994), but Dyer went one step further and suggested that site and dedicated asset specificity

actually drive human asset specificity. Dyer states that the most successful automotive firms during the years 1982-1991 had suppliers who invested site asset specificity that provided proximity to plants. This proximity helped facilitate human asset specificity in the form of greater information and personnel exchange, leading eventually to superior firm performance, and more responsive suppliers. The big advantages of asset specificity according to Dyer are low transportation and inventory costs and improved product development coordination through people swapping, close plant location, and investment in customized assets (Dyer 1994: 174). Dyer makes the sweeping conclusion, however, that the more interdependence between two firms the more dedicated assets should be applied. He posits that dedicated assets or asset specificity is dependent on interdependence. Dyer's argument states that U.S. firms fall below the optimum level of dedicated asset specificity involving human, site, and physical asset specificity. Kamath and Liker (1994), however, describe a situation where suppliers earn more responsibility by volunteering more asset specificity.

In sorting out the issue of trust and asset specificity, Nishiguchi (1994:170) states that " a strategy that points to asset specific contractual relations cannot by itself guarantee that it will work. There must be interfirm relational mechanisms that enable them to function." Nishiguchi implies that some degree of trust or relational mechanisms must take place for effective asset specificity to take place. This does not mean that trust prior to the asset specificity decision is not also crucial.

Qualitative research by Nishiguchi points out that a firm with a problem solving orientation performs better than firms with a bargaining orientation. Problem solving involves a more long term perspective by the contractor and devotion to subcontractor

improvement programs and time with the subcontractor. Nishiguchi found that British and U.S. supplier relations tend to be short-term and more likely to end if the automotive industry incurs problems. Ring and Van de Ven (1992) identify a different process of trust development and asset specificity than either of the above primarily automotive examples. Ring and Van de Ven (1992) state that most firms use contracts initially in relations and after time asset specificity and performance become primarily important.

Asset specificity can also serve as a signal to partner firms. Gulati and Nohria (1992) discuss the concept of unilateral commitments, in which a firm makes a significant commitment to the alliance to signal their support for the long time relationship. This relationship is born out in work by Cooper, DeJong, Forsythe, & Ross, (1990) who found a relationship between unilateral commitments and length of relationship.

While asset specificity can be seen as an opportunity for synergy among firms (Dyer 1994; Nishiguchi 1994; Kamath & Liker 1994), it can also be seen as inhibiting because inflexible investments by parties have been made. Borys and Jemison (1989) raise the issue of how collaborators can use asset specificity or what they call "bilateral hostages" in a cooperative or hybrid relationship. Williamson(1983) calls hostages "credible commitments." Kamath and Liker (1994), instead of using the term hostages, describe asset specificity as "mutual entanglements which bind important suppliers and their customers." A key question then arises in the use of asset specificity is whether asset specificity builds trust or creates inflexibility which narrows the strategic options of both firms and makes both firms more sensitive or self conscious of the other's trust breaking maneuvers.

While there is significant support for the use of asset specificity, there is growing evidence that asset specificity can be harmful to interorganizational relationships. Asset specificity can create a situation where the ability to change directions is now limited. This could explain the mixed results obtained by authors such as Joshi (1993), Campbell (1992) and Zaheer & Venkatraman (1995). Joshi interestingly found that relations with high dependence (asset specificity with high switching costs) were more likely to see opportunism. This result was supported by Handfield et al. (1995) who found that power asymmetries may overshadow asset specificity in buyer supplier alliances. Further evidence of the complicated role played by asset specificity is provided by Campbell who found that high asset specificity is the rule, not the exception, and that asset specificity cannot uniquely explain integration. One possible solution to the problem above is pointed out by authors who challenge the argument that asset specificity leads to trust. In fact, it may be that trust must be in place for asset specific investment to occur (Lorenz 1988; Ring and Van de Ven 1994; Gulati 1995; Kamath & Liker 1994). Handfield et al. (1995) found that human asset specificity had no impact on trust or supplier responsiveness, which conflicts with studies by Nishiguchi and Dyer. However, it should be noted that Handfield et al.. used a random sample of North American firms while both Nishiguchi and Dyer found differences among Japanese firms versus U.S. and U.K. firms. While culture may be a moderating factor in these relations (Newman 1988, Prescutti 1992), Nishiguchi (1994) points out that Japan for many years had an exploitive subcontracting paradigm which did not change without significant Japanese government intervention on behalf of subcontractors in the 1950's. Therefore, the trusting

relationships that the Japanese have developed are not culturally based as Dore (1983) argues, but rather related to regulation.

The argument of whether trust or asset specificity comes first is complex. As Kamath and Liker (1994) and Nishiguchi (1994) point out, asset specificity is a process between firms that grows over time and likewise, trust is also a process that grows over time (Dasgupta 1988; Hirschmann 1982; Gambetta 1988). A possible explanation for the mixed results regarding asset specificity and trust is that a moderating influence may be present. As discussed in the section above on the economic short-term philosophy toward interorganizational relationships, asset specificity can be seen as an instrument to mitigate opportunism. This type of application would have no relation to trust. In other instances asset specificity is used because a certain amount of trust is already present and firms see an opportunity to mutually benefit as Japanese firms studied by Nishiguchi (1994) and Dyer (1995) have. In a specific example, human asset specificity can be applied for a variety of reasons. Visits by the author to a big three automotive assembly plant reveal that suppliers provide on-site support to the plants, but the support is required only by poorly performing suppliers. This use of human asset specificity is a far cry from the use of an on-site technical representative used by steel and electronics manufacturers whose emphasis is on creating new technical solutions to problems and not ensuring base quality and contract adherence issues.

In summary, the relationship between trust and asset specificity is complex. The philosophy of the firms involved is a moderating factor as well as the presence or absence of trust before implementation of asset specificity. A simple causal relationship between asset specificity and trust is not an accurate reflection of current industry practice. It

Asset Specificity

Author	Constructs/Relationships
Kamath & Liker (1994)	Suppliers are on a continuum of four levels where depth of involvement and responsibility are increased at each level. Successful partnerships depend on the right balance of supplier's technological capabilities, a customer's willingness to share information, and both partner's strategic requirements.
Nishiguchi (1994)	A strategy precedes asset specificity. Relational mechanisms must accompany asset specificity.
Dyer (1994)	Interdependence of firms (strategy) drives dedicated asset specificity. Asset specificity reduces cycle time, increases quality, and increases profitability.
Ring & Van de Ven (1994)	Contracts facilitate trust initially, but later asset specificity and performance become important.
Handfield et al. (1995)	Dedicated and site asset specificity lead to better supplier responsiveness and human asset specificity.
Lorenz (1988)	Trust is expedient and must be used because comprehensive contracting is impossible. Trust is particularly critical in asset specific investment. This is an empirical investigation. Trust is costly, but lack of trust is more costly.
Zaheer & Venkatraman (1995)	Mixed results in analyzing the relationship between trust and asset specificity. More business to a carrier to develop dependence led to more not less trust.
Joshi (1993)	High levels of dependence (difficulty of switching partners) lead to more opportunism in a relationship while high levels of relational norms (shared expectations) lead to less opportunism.
Campbell (1992)	Asset specificity in interorganizational relationships is the rule not the exception and alone cannot explain high levels of interfirm integration.
Hostages	
Borys & Jemison (1989)	"Bilateral hostages" can be an important part of hybrid relationships.
Williamson (1983)	Firms make "credible commitments in relationships."

Kamath & Liker(1994)	Asset specificity provides "mutual entanglements" of between parties.
Gulati & Nohria (1992)	Asset specificity can be used to signal commitment between parties.
Cooper et al. (1990)	Unilateral commitments can be made to signal support.
Gulati & Nohria (1992)	Unilateral commitments can be made to signal support.

appears that asset specificity has the possibility of becoming a liability in relationships where the more powerful partner demonstrates a short-term philosophy. If that same party demonstrates a long-term philosophy, asset specificity may be a positive influence.

2.5.5 Risk

Butler (1991: 647) and Hosmer (Op cit 1995: 380) believed that it would be more useful to study the conditions or determinants of trust than attempt further definition of what he called a "global attitude" of the concept. Authors on trust address a variety of antecedent conditions to trust in both individual and interorganizational relationships. One area closely related to trust is the area of risk. Authors take one of three positions in looking at risk in organizations. First, risk leads to trust (Lorenz 1988) or is an element of trust (Fairholm 1994). If a firm performs well in a high risk situation, trust is influenced. Second, trust leads to risk (Luhmann 1988; Lewis 1990) or risk taking behavior (Mayer et al. 1995). A proven performer can be trusted over time in increasingly risky situations. Third, trust and risk occur simultaneously in a complex relationship where morality must be absent (Fisher and Brown 1989) and determine

governance structure (Ring & Van de Ven 1992;). Varying levels of trust and risk may be present at different stages of a relationship with risk and trust affecting each other.

Risk

Luhmann (1988)	Trust leads to risk taking behavior; trust and confidence have a complex relationship.
Lorenz (1988)	Trust is a solution to risk.
Lewis (1990)	Key to trust is being able to rely on your partner in tough situations (more risk).
Fairholm (1994)	Willingness to risk close relations with others is an element of trust.
Mayer et al.. (1995)	The fundamental difference between trust and trusting behaviors is between a willingness to risk and actually assuming risk.
Gulati (1995)	Contracts lower risk.
Williamson (1985)	Contracts or vertical integration lower opportunism or risk.
Ring & Van de Ven (1992)	Risk increases with time. Risk and trust determine governance structure (contract, alliance, vertical integration).
Williamson (1985)	Use of hostages can reduce risk in high risk situations.
Ring & Van de Ven (1992)	Use of hostages can reduce risk in high risk situations.
Fisher and Brown (1989)	Determining how much you should trust another party depends on a risk analysis of the situation and not the morality.
Kogut (1986)	Mutual hostage positions in joint ventures provide alignment of incentives.

From the literature, we can break the risk antecedent literature into two philosophies which involve trust and distrust. We discuss the trust literature above where trust can mitigate risk. First, trust and risk occur simultaneously as a relationship prospers and higher trust and risk combined with satisfactory performance by both parties lead to synergies. In cases where distrust is present, trust is achieved through costly means such as contracts or asset (hostage) exchange. The hostage stream uses asset specificity and control mechanisms such as contracts to mitigate opportunism. Some of the believed benefits to using control mechanisms are better alignment of incentives of both parties (Kogut 1986) and clear consequences to breach of duties (Gulati 1995). Finally, risk is discussed in situations where distrust exists and contracts or mutual exchange asset specificity can be used to mitigate short term opportunism (Gulati 1995; Williamson 1985; Ring & Van de Ven).

2.5.6 Communication

2.5.6.1 Clarity Firms must not only exploit opportunities to learn in alliances but must also monitor information flows (Yoshino & Rangan 1995; Lewis 1990; Hamel Doz & Prahalad 1989). Firms must clarify of what information will be shared and not shared (Lewis 1990; Hamel Doz & Prahalad 1989). High levels of trust require clarity on disclosure, specifying levels of access as opposed to deception (Fisher and Brown 1989, Lewis 1990). Through clarity of information, trust will be developed. When "touchy" issues are raised constructively, a party can be confident that the response will also be constructive (Lewis 1990).

Communication

Zaheer & Venkatraman (1995)	Trust impacts the joint action of firms (planning and forecasting together).
Perceived Openness & Fairness	Good communication increases trust which increases predictability and reduces surprises.
Lewis (1990)	Informal meetings are the best communication tool for expectations, not formal meetings.
Gabarro (1979)	Communication openness was positively correlated with partnership performance.
Spekman & Mohr (1994)	Proactive communication by both sides at the beginning of the relationship is key.
Gabarro (1979)	Subordinate openness or candor are key as and symbolic gestures at the beginning of the relationship are key.
Disclosure	
Altman & Taylor(1979)	Trust is a critical antecedent to disclosure and reciprocity trust.
Stephens (1993)	Trust and disclosure are positive significant antecedent conditions for relational acceptance (partially supported).
Clarification	
Lewis (1990)	It is critical to clarify technologies, information, and other resources that will participate in the alliance and which will not.
Hamel, Doz & Prahalad (1989)	It is critical to clarify technologies, information, and other resources that will participate in the alliance and which will not.
Yoshino & Rangan (1995)	You must monitor going out into an alliance.
Perceptions	
Gulati & Nohria (1992)	The perceptions of both parties are important and the perceptions of your partner need to be managed.

2.5.6.2 Communication Openness Open communication and understanding of the other side's interests is an important component of a healthy relationship (Fisher & Brown 1989). Openness has been consistently found to be an antecedent to strong relationship performance (Gabarro 1978; Mohr & Spekman 1994).

2.5.6.3 Disclosure Altman and Taylor (1973) contend that trust is a critical antecedent to disclosure and to reciprocal trust. Stephens (1993) performed one of the first empirical studies partially supporting trust and disclosure as positive significant antecedent conditions for relational acceptance. Empirical testing of this proposition has only identified the impact of communication on trust (Mohr & Spekman 1994; Gabarro 1978), but Altman and Taylor(1973) and Stephens (1993) suggest that trust leads to increased disclosure. Overall, firms in an alliance must use communication, clarity, openness, and disclosure to actively manage the perceptions of other parties (Gulati & Nohria 1992).

2.5.7 Contracts

The use of contracting in alliances tends to decrease as familiarization among the firms increases (Gulati 1995). The term contract can be used to cover a multitude of costs associated with alliances including: negotiating, monitoring, and enforcing contracts (Yoshino and Rangan 1995). Contracts must also cover a multitude of contingencies or accommodate disagreements between partners in terms of the contributions that partners make (Williamson 1975; Arrow 1971). A variety of different types of contracts exist including contingent claims contracts, short-term contracts, long-term contracts, spot contracts, sales contracts, blanket contracts, and systems contracts. Support exists that

contracting does not build trust (Handfield et al. 1995; Van de Ven & Walker 1984); however, there is empirical support that contracts can lower risk (Gulati 1995). There is no argument in the contracting literature stating that contracting is not a solution to risk in relationships (Gulati 1995). The literature also shows that contracts do not positively impact trust (Handfield et al 1995) and may negatively impact trust development (Van de Ven & Walker 1984; Shapiro 1987). What is missing in the contract literature is a discussion of the different types of contracts that can exist. Possibly the lack of distinction in the contract literature between the different types of contracts has led to the unspectacular results of researchers. The size of the contract can also significantly impact trust. On the Global Procurement and Supply Chain Benchmarking Initiative several companies operate their supplier alliances without contracts while others choose to still have a one or two page signed document. A clear benefit of alliances is the significant reduction in work, size, and scope of contracts or in extreme cases elimination of contracts altogether.

Contracts

Handfield et al... (1995)	Contracting does not impact affect based trust.
Gulati (1995)	Familiarization reduces need for extensive contracting
Van de Ven & Walker (1984)	Excessive contracting and formalization leads to conflict, distrust, and inhibition of affect based trust.
Shapiro (1987)	Impersonal institutions used to controlling trust increase the opportunities for abuse by agents.
Gulati (1995)	Contracts lower risk
Rouseau (1995)	Four different types of contracts exist

The most recent research on contracts is beginning to explore the existence of four different types of soft or indirect of contracts. Psychological contracts are viewed from within the individual's perspective. Normative contracts are group oriented and viewed from within. Implied contracts are individual oriented and viewed from outside (society) and social contracts are group oriented and viewed from outside. Lusch and Brown (1996) and Ring & Van De Ven (1994) make the distinction between discrete exchange which involves explicit contracts and relational exchange which involves normative contracts.

2.5.8 Formal Trust Building Process

2.5.8.1 Does trust grow in stages? Trust does not appear quickly but takes time to grow (Fairholm 1994). In the same manner, trust grows as it is used more and more, (Gambetta 1988; Hirschman 1982; Dasgupta 1988) but without increasing responsibility or a constant use and expansion of the trust in a relationship, trust will dissipate (Hirsch 1978; Hirschman 1984a; Bateson 1986; Dasgupta 1988).

Trust cannot be demanded or coerced but must be earned and developed over time (Fairholm 1994; Gabarro 1979) and is built as firms interact repeatedly (Good 1988). Lorenz (1988) found that clients determine the trustworthiness of a subcontractor not only through reputation but also through his/her own experience (cognition). While time plays a role in building trust, it is important that suppliers move through stages with levels of trust and responsibility changing at each stage (Good 1988; Kamath & Liker 1994). Stages are carefully managed, so that the buyer can simultaneously reduce exposure to risk while developing the supplier.

The importance of exceeding and not just meeting the minimum customer requirements is also important for firms moving to trusted or preferred status (Kamath &

Formal Trust Building Process

Author	Construct/Relationship
Gambetta (1988)	Trust grows with use.
Hirschmann (1984a)	Trust grows with use.
Dasgupta (1988)	Trust grows with use.
Fairholm (1994)	Trust can't be demanded but must be earned over time.
Gabarro (1978)	Trust can't be demanded but must be earned over time.
Bateson (1986	Trust is depleted if not used.
Hirsch (1977)	Trust is depleted if not used.
Kamath & Liker (1994)	Suppliers move through stages of trust which involve specific behaviors and investments by buyer and supplier. Suppliers that move up exceed expectations.
Nishiguchi (1994)	Suppliers are tiered and trust plays a crucial role.
Hart et al..... (1986)	Trust develops through a process similar to Maslow's hierarchy as seen through the inferior partner's eyes.
Good (1988)	Trust is built through stages.

Liker 1994). Kamath and Liker (1994) and Nishiguchi (1994) describe a continuum between the supplier and buyer. The involvement of the buyer as an intermediary between the customer and supplier dissipates as the relationship progresses through the four stages. However, the buyer must be careful to control the amount of responsibility also called to the supplier as they move through the stages. Up to this point, we have reviewed literature on formal trust development primarily through the buyer's eyes.

Just as important is the perception of development through the eyes of the supplier. Hart et al (1986) argue that suppliers use a framework similar to Maslow's hierarchy as a framework of seeing how trust develops with a buyer. As suppliers gain more commitment from the buyer, trust moves from simply meeting physical needs of survival to higher order psychological and actualization needs.

2.5.9 Integrity/Moral Philosophy (antecedent and component of trust)

Integrity, honesty, benevolence and other areas discussed in this section have been discussed as components as well as antecedents of trust. The integrity based perspective of trust identifies honesty, integrity, and benevolence as key components of trust. Fairholm (1994) covers all three areas in positing that trust is equivalent to integrity which embodies honesty, authenticity, and truthfulness.

2.5.9.1 Benevolence Benevolence is a key antecedent to trust (Rosen & Jardee 1981; Mayer et al. 1994). Benevolence is the degree to which the trustee wants to benefit to the trustor (Mayer et al 1995). Benevolence can be applied to resources where a party helps another to attain more from their resources (Rogers 1964). Benevolence can also be a reliance on another party to act in both of the parties' best interest, especially if it is difficult to monitor the actions of the other party (Lewis 1990). Finally, benevolence can be seen as the opposite of opportunism (Hovland 1953). Firms or individuals foregoing the opportunity to put themselves ahead of the organization or partnership are perceived as being benevolent.

2.5.9.2 Integrity Integrity is a key antecedent to trust (Butler & Cantrell 1984; Butler 1984; Mayer et al 1995; Gabarro 1978). Mayer et al. (1995) define integrity as the

MORAL PHILOSOPHY

Honesty	
Gabarro (1978)	Honesty is critical to a healthy relationship.
Lewis (1990)	Trust grows from honest conduct (1990).
Hovland (1953)	Willingness to lie impacts trust.
Integrity	
Butler & Cantrell (1984)	Integrity is an antecedent to trust.
Butler (1991)	Consistency, integrity, and fairness are antecedents to trust.
Gabarro (1978)	Character (including integrity) is a basis of trust.
Lieberman (1981)	Integrity is an antecedent factor to trust.
Mayer et al. (1995)	Integrity is the perception of the trustor that the trustee adheres to a set of principles that the trustor finds acceptable.
Benevolence	
Rosen & Jardee (1981)	Benevolence (willingness to put organizational goals ahead of individual goals) is antecedent to trust.
Rogers (1964)	One participant intends that another attain more appreciation of and use of his or her personal resources.
Mayer et al. (1995)	Benevolence is the extent to which the trustee is believed to want to do good to the trustor.

perception of the trustor that the trustee adheres to a set of principles that the trustor finds acceptable. McFall (1987) made the critical distinction between personal and moral integrity. Personal integrity means a trustee adheres to a set of their own principles while moral integrity implies that the trustor believes that the principles that the trustee follows are acceptable.

2.5.9.3 Honesty Honesty is really the manifestation of congruent actions. Honesty can be seen primarily as a term to further describe the presence or absence of integrity. Honesty is the perception of that the other party is telling the truth. Honesty is critical to the proper functioning of relationships (Lewis 1990; Gabarro 1978). This perception is heavily dependent on the consistency or congruence of actions by the other party.

2.6 Summary of Literature on Trust

This section reviewed the major conceptual and empirical findings and models relating to effective working relationships. The literature has focused primarily on interpersonal relationships between individuals although these exists a sizable body of literature on interorganizational trust. The primary focus of this work is on understanding the different types of trust and antecedents to trust, including communication, formal trust development, organizational philosophy, trustworthiness, moral philosophy, and asset specificity. The literature review also traces the development of the term "trust" through the past four decades to its present context. While the literature provides useful insights into important determinants of trust in relationships, key antecedents and consequences of these factors have not been examined (especially in an interorganizational buyer-supplier context).

In addition, several new conceptual antecedents including relationship philosophy and formal trust building process have been identified but are not yet empirically tested. While there is ample conceptual support for these antecedents (Nishiguchi 1994; Kamath and Liker 1994; Gulati & Nohria 1992), they have failed to undergo theory testing.

Extant research has recognized the importance of trust in interaction between parties in close relationships but has typically focused on one party's perspective. Future research needs to consider both buyer and supplier perspectives when analyzing trust. While there has been investigation into the importance of trust and different types of trust, further clarification of the antecedents of trust need to be made.

2.7 Strategic Alliances

A second literature base relevant to the study of trust in buyer-supplier alliances is the research on buyer-supplier alliances. Writers in many areas including industrial marketing , organizational theory, and purchasing have provided a variety of normative managerial guidelines instructing managers on how to create and establish cooperative interorganizational relationships. The primary focus of this dissertation is the role of trust in strategic buyer-seller alliances. These alliances are characterized by the involvement of a buyer and a supplier in a strategic long term relationship. It is important in making a contribution to the strategic alliance literature to consider a framework or continuum that compares and contrasts various types of interorganizational relationships. At one end of the continuum in Figure 1-1 are traditional contractual relationships, which are irregular transactions that include purchases of non-production or non-essential items. Traditional contracts are used in buying items that are heavily price competitive. Transaction cost theory predicts a high degree of opportunism to be present in traditional contracts (Williamson, 1975; 1979; 1985). Because of the infrequent nature of such purchases, the amount of information shared between parties is minimal, and the level of trust that the buyer places in the supplier is similarly very low.

Beyond contracts on the continuum in Figure 1-1 are partnerships, strategic alliances, and equity relationships. These alliances and equity relationships differ from contracts in two respects. First, buying firms typically purchase not only their suppliers' products or services, but also their suppliers' systems and capabilities. Second, buying firms provide more than just financial compensation to their suppliers. Buyers must share information with their suppliers if alliances are to be successful for both parties (Ellram, 1991; Handfield, 1993; 1994), and they must also provide suppliers with guarantees of future volumes and prices which may be tied to suppliers' cost reduction and quality improvement efforts. As a result, buyers and suppliers may become actively involved in the joint development of new products, involving co-location and cross-functional and cross-organizational teaming (Monczka and Trent, 1993). Such relationships are thus characterized by mutual interdependence, close organizational cooperation, increased levels of trust, and a strong tendency towards information sharing. Equity alliances move relationships into a separate category (Pisano 1989). Equity alliances involve either the creation of a new and independent jointly owned entity or a partner taking a minority equity positions in the other partner. Equity alliances provide financial hostages or ownership, which provide a level of control that substitute for trust. This dissertation is not concerned with equity relationships. Firms are currently moving to strategic alliances (non-equity relationships) to avoid the costs of equity relationships and avoid the inflexibility of equity relationships (Lewis 1990).

2.8 Theory Development - Strategic Buyer-Seller Relationships

Several theories have emerged to explain the phenomena of strategic buyer-supplier relationships.

2.8.1 General Systems Theory

General systems theory suggests that strategic , long term collaborative buyer-supplier relationships will deteriorate if not maintained because of internal and external environmental change. Over time, collaborative relationships will become more stressful unless either side takes action. The amount of stress in the system will depend heavily on the nature of the competitive environment or the entropy (van Gigch 1978) in the environment. While most of the systems theory literature looks at the uncertainty and variety in a system, a different model employs the levels as a factor explaining the ability of a system to handle different levels of entropy. Trust can provide a degree of certainty by both parties as to what the other party's actions will be when confronted with uncertainty.

2.8.2 The IMP Interaction Model

Based on research in five European countries including France, Italy, Sweden, West Germany, and Great Britain a purchasing interaction model was created (Hakaansson 1982). The project emphasizes the importance of relational factors in buyer-supplier relationships as they become longer and more complex. Four different sets of variables are presented. The first set of variables describe the parties involved. The second set looks at the specific elements involved with the interaction process. The third set analyzes the environment in which the relationship takes place, and the final set looks at the atmosphere affecting and affected by buyer-supplier interaction (Hakansson 1982). While the IMP research describes the relationship of factors to performance, no specific hypotheses were generated.

The IMP project characterizes long term buyer-supplier relations as a series of episodes occurring between parties. These episodes may include the exchange of products or services (information, financial or social). The project goes on to test a variety of interactions, environments, atmospheres, and elements. The IMP model suggests that trust may be a key factor in ongoing relations, and that the relations are influenced by both individual and organizational characteristics (Smith 1993).

Ford (1980, 1982) takes the IMP model and actually proposes several testable hypotheses on the subject of relationship development. Ford's model like the IMP model examines how industrial buyer/seller relationships develop over time. Ford identifies five stages of the relationship: the pre-relationship stage, the early stage, the development stage, the long-term stage, and the final stage. The key finding of Ford is that buyer perceptions of seller technical and commercial skills are related to their perception of the closeness between firms. Ford also suggests that key factors may vary across stages of a relationship. The key implication from this research is again that trust is a key relationship element, and further, that trust plays a different role depending on the stage of the relationship.

2.8.3 Exchange Bargaining/ Power

Dwyer, Schurr and Oh developed a framework of relationship development based primarily on exchange bargaining and power theories. The authors propose five progressive stages of relationship development, but unlike Ford recognize dissolution as a stage requiring management. The four other stages are the awareness, exploration, expansion, and commitment stages. During the expansion stage, five sub-processes

occur including: attraction , communication and bargaining, development and exercise of power, norm development, and expectation development. These subprocesses deepen the interdependence among firms and allow them to gauge interfirm compatibility and integrity. Dwyer, Schurr and Oh's framework includes the development of trust and satisfaction at the exploration phase, creating the opportunity for greater risk taking and motivation. The commitment stage results in the partners ignoring opportunities to commit with other partners. Dwyer, Schurr and Oh's framework is useful in that it suggests research is needed to understand the development of trust in buyer seller relations.

2.8.4 Channel Relationships

Anderson and Narus (1984) looked at the relationship between manufacturer and distributor from the distributor's perspective. They develop a model based on the social exchange theory from Homans (1961) and Thibaut and Kelley (1959). The model states that outcomes of interaction are evaluated against both expectations based on prior experience. The model then examines the interaction of knowledge of similar relationships against the average quality of outcomes available from the next exchange partner. Anderson and Narus hypothesized that distributor satisfaction is a function of the level of conflict and communication in the relationship as well as outcomes given experience with similar prior relationships. While the model incurred measurement problems, it was key in showing how social exchange concepts are important in predicting behaviors in working relationships.

Anderson and Narus (1990) went on to develop a more comprehensive model of distributor-manufacturer working partnerships based on exchange theory. The constructs used included: relative dependence, communications, outcome given expectations, trust, cooperation, functionality of conflict resolution, conflict, influence over the partner firm, and influence by the partner firm. The constructs were hypothesized to directly or indirectly affect both manufacturer and distributor satisfaction. The authors again ran into some measurement problems despite using multiple informants from both distributors and manufacturers. Anderson and Narus re-specified the model and cooperation was shown to be an antecedent to trust. This result demonstrates that trust needs to be earned (Holden 1990). Also, significant in this study is that trust was found to be a key construct in Anderson and Narus' model.

Anderson and Weitz (1989) empirically tested a model which also draws on the social exchange literature. They posit that to develop effective long term relationships the parties must expect the relationship to last. The authors found that continuity of a channel relationship was determined by trust between parties, the age of the relationship, stakes in the relationship, the imbalance of power, and the reputation of the parties. Communication was found to be an important determinant of trust but not of continuity. Other determinants of trust include the: age of the relationship, the reputations of the parties, cultural similarity, support by partners, and goal congruence. Anderson and Weitz looked at dyads and found the better relationships were based on trust and that communication played a key role in building trusting relationships. The authors also found a non-recursive relationship between trust and communication indicating constant growth and change in a relationships. Anderson and Weitz analyzed each party's

perceptions in detail. They were specifically interested in the roles of pledges (verbal commitments) and how other parties react to commitments made and then how perceptions change based on actions taken on pledges. They found that pledges made and enactment on the pledges followed by reciprocation play a key role in relationship trust and development.

Heide and John (1988) tested a model of partner dependence based upon institutional economics and dependence theory. The premise of their model is that small channel members protect themselves from exploitation by making investments in customer relationships. The authors found that joint action (the degree of cross over into each firm's boundaries) is a function of continuity expectations, supplier verification, and supplier and buyer investments. Like Anderson and Narus, Heide and John found that if the relationship is expected to continue, there is greater motivation for joint action especially in uncertain and ambiguous tasks. The implication is that trust is significantly impacted by a long term form by both firms.

Heide (1994) created the term interorganizational governance in analyzing channel relationships. Heide created a typology consisting of three different governance dimensions (relationship initiation, relationship maintenance, and relationship termination) on the Y axis and three governance forms (market governance, unilateral/hierarchical and bilateral) on the X axis. Heide goes on to empirically test the governance structures.

2.8.5 Markets and Contracts

Ring and Van de Ven (1992) move beyond the discussion of TCE to a typology that takes into account the recurrent nature of today's interorganizational relations. The

Figure 2-3 below depicts Ring and Van de Ven's hypotheses regarding the relationship of trust, risk, and governance mechanisms in interorganizational relationships. Ring and Van de Ven posit that as trust grows, a relationship can tolerate larger relative levels of

Figure 2-3

Risk of Deal

Reliance on Trust	Low	High
Low	MARKETS	HIERARCHIES
High	RECURRENT CONTRACTS	RELATIONAL CONTRACTS

risk. Without trust, companies can tolerate higher levels of risk but high cost monitoring and contracting mechanisms must be used. The framework states if trust is present, organizations should strive for recurrent contracts in low risk situations and relational contracts in high risk situations. In the absence of trust (i.e. opportunism may exist - Williamson), firms should use markets with low risk and hierarchies in high risk relations. This dissertation, however, is concerned with Ring and Van de Ven's high trust/high risk situation where strategic alliances occur. Inherent in Ring and Van de Ven's argument is that trust and risk are separate and both play a key role in relationship

governance. The authors also do not argue for a sequential causal relationship between risk and trust but rather a simultaneous development.

2.9 Summary of Alliance Literature

This sections has reviewed the major models and theories involving interorganizational relationships. This work has focused primarily on buyer-supplier relationships, between organizations. While the theories and models provide useful insights into factors that may be important determinants of effective buyer-suppliers relationships key antecedents to these factors have not been examined. Relationships among these factors have also not been examined.

Existing literature recognizes the importance of interaction among parties in buyer-supplier alliances but has typically focused on only one party's perspective. Future research needs to consider the dyad as a unit of analysis. Finally, while attempts have been made to understand how close relationships form and develop over time, further clarification and substantiation of this process is required.

Many of these gaps in the buyer-supplier alliance literature are addressed in this dissertation. The conceptual model developed in this chapter incorporates many of the key constructs identified by previous empirical research, as well as others, thus expanding the nomological network of previous works. The research methodology detailed in Chapter 3 is consistent with the examination of dyadic relationships as the unit of analysis. The study does not address the gap of understanding how relationships develop over time. However, the research will suggest management interventions which may facilitate the development of trust.

2.10 Summary of the Entire Literature Review

The literature reviewed in this dissertation provides some consensus on the role of trust in interorganizational relationships, but large gaps in the literature exist. While there is literature directed at the antecedents of trust, there is little empirical testing of these antecedents and in some areas such as asset specificity there are conflicting results. The strategic alliance literature offers some models from the channels, purchasing, and organizational theory literature, but the role of trust is not clear in these models, even though each of these literature streams mentions that trust is a key element to successful buyer-supplier or channel relations. The shift away from economic based interorganizational transaction based theory towards long term relationship based theory further emphasizes the need for clarification of the role of trust. This dissertation attempts to bridge this gap through a detailed analysis of trust in strategic buyer-supplier alliances. This dissertation will investigate the specific antecedents to trust development which then impacts firm performance. The research methodology to accomplish this task is introduced in the next chapter.

Chapter 3

Pre-Research and Research Design

As presented in chapter 1, the overarching goal of this research study is to reduce the knowledge gap existing in the literature by investigating the antecedents to trust in cooperative buyer-supplier relationships. Several of these factors have been selected based on existing literature addressing interorganizational relationships, especially those considering buyers and sellers. The scholarly contribution, in addition to narrowing the existing knowledge gap concerning cooperative long-term buyer-supplier relationships in the literature, is to synthesize the organizational behavior, marketing, and purchasing theories regarding trust and the strategic management and policy theories of interorganizational relationships.

3.1 Proposed Levels of Trust Model

An analysis of the trust and buyer-supplier relationship literature indicates that there is a hierarchy of actions which can develop or dissolve trust between parties in relationships. Categorization of the various antecedents to trust has been attempted by several authors (Hosmer 1995, Mayer et al. 1995). Authors have also developed models looking at how organizational trust is formed (Mayer et al. 1995), and several authors have tried to explain the different kinds of trust that exist (McAllister 1993, Barber 1986,

Lewicki & Bunker 1995, Sheppard & Tuchinsky 1995, Williamson 1991) primarily in an interpersonal context. A study of the antecedents to different types of interorganizational trust that exist is clearly missing in the literature.

There is agreement that different types of trust exist, but precisely what these different types are is under debate. Empirical evidence supports the notion that a goodwill or faith-based affect trust exists and a cognition-based (reliability and competence) trust exists (McAllister 1993). Hosmer (1995) has brought the significant issue of context to the forefront by stating that to develop trust it is imperative that both sides in a relationship look internally as well as externally. The dominant stance in research and literature on trust is to take the perspective of one side in a relationship and identify how they trust or distrust the "other" side. The sides are generally represented in an interpersonal context (between individual persons). This context will be employed as the unit of analysis in this dissertation. To effectively study trust, however, a more objective approach must be taken which combines the perceptions of the both parties in analyzing trust.

Mayer et al. (1995) present a model of interorganizational trust which begins to look at both internal and external perceptions and actions. Their model, contains three antecedents to the development to trust: benevolence, integrity, and ability. These three areas make up the perceived trustworthiness of the other party.

Similarly This dissertation will investigate three antecedents to trust.
This trust then leads to a risk taking behavior on behalf of the primary party. The first antecedent will take Mayer et al.'s trustworthiness concept and instead of applying it to a partner apply it to the trustor. This dissertation will investigate whether a partner can

inspire trust in a relationship through their own example. Second, a variable specific to cooperative buyer-seller relationships is the time orientation of partners. Time orientation can be short-term, long-term or somewhere in between. The short-term orientation is best described in the economics literature where partners will engage in relations until they feel taken advantage of or a better opportunity is found. A similar short-term philosophy suggests that cooperative buyer-supplier relationships are learning races, where parties learn as much as they can as quickly as they can and move on. The long-term orientation suggests that relations are based on mutual loyalty and respect. A partner experiencing problems is not abandoned but rather offered assistance and every effort is made to propagate and enrich the relationship. Third, asset specificity is a key antecedent in interorganizational relationships in the creation of trust. While the role of asset specificity is not clear from previous research, this dissertation will be the first to explore varying degrees of asset specificity as well as the philosophy behind asset specificity.

The list of antecedents under study in this dissertation is not meant to be exhaustive. Other attributes studied previously such as use of contracts, information sharing, commitment, and communication are important in trust formation. The reason the three antecedents of this study were chosen was because of their hypothesized critical importance in the move today towards more cooperative buyer-supplier relationships. These antecedents were also selected based on their discussion in many conceptual articles concerning trust, but a corresponding lack of empirical support for their effect as discussed in chapter 2.

3.2 Exploratory Research

In order to locate critical success factors in cooperative buyer-supplier relationships a survey of firms participating in the Global Procurement and Supply Chain Benchmarking Initiative was carried out in 1994. This survey was sent to over 200 companies as part of an on-going benchmarking initiative in supply chain management. Of a sample of 205 firms, 77 responded to the questionnaire (a 38% response rate). Non-response bias was tested and the reason most commonly given by non-responding firms was their lack of development of a cooperative buyer-supplier relationship program. Respondents were located in the United States, Canada, Mexico, Western Europe, and Australia. Industries represented include industrial products, consumer goods, capital goods, and service. Average annual sales in 1994 for respondents was $7 billion. The primary respondent of this survey was the executive responsible for managing buyer-supplier relationships at each firm. The results of this survey created a model of factors leading to successful cooperative buyer-supplier relationships. Several of the factors tested in this study included commitment, information sharing, interdependence, trust and coordination. Of these four factors the most important attribute in creating successful cooperative buyer-supplier relationships which emerged was the need to foster and nurture a sense of trust with a partner (Monczka, Petersen, Handfield and Ragatz 1996).

While trust was found to significantly correlate with relationship success, the trust construct was measured very broadly (similar to Mohr and Spekman's 1994 work) as follows:

- the feeling of equity towards the deal with the partner

- a feeling that the relationship will be beneficial, and
- the degree of harmony in the relationship

These results all test an affective (feeling) dimension of trust which is important but not comprehensive. The results of this GEBN study corroborate the results of Mohr and Spekman, and provide further empirical support for the relationship between affective-based trust and relationship performance. The GEBN study found that trust, coordination, and interdependence explained 82% of the variance in perceptual measures of success between least and most successful cooperative buyer-supplier relationships.

The results from this survey further support the findings from the literature review in Chapter 2. Trust is a critical element of cooperative buyer-supplier relationships, yet there exists no details regarding the actions that lead to the development of trust. The next section describes the model used in this dissertation to analyze several key antecedents to the development of trust in cooperative buyer-supplier relationships.

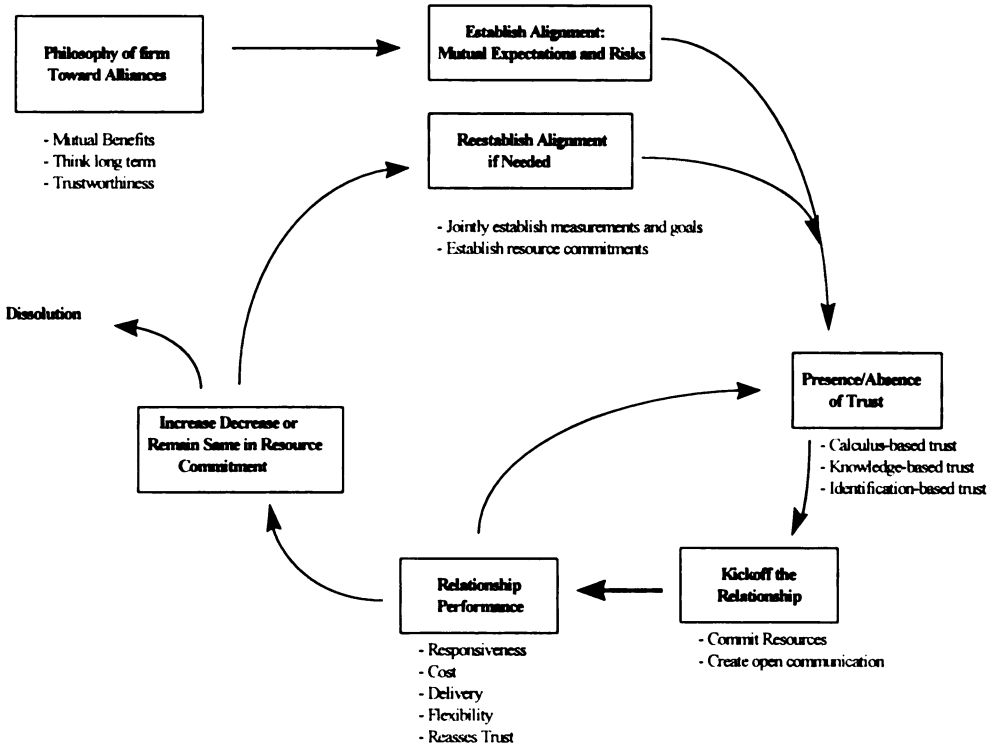
3.3 Trust Development Model

The GEBN study completed on cooperative buyer-supplier relationships along with the literature review in Chapter 2 were used to create a model of trust development. This framework suggests that three antecedents are critical to the development of trust. Trust is then hypothesized to significantly impact relationship performance.

Figure 3-1 shows a complete model for trust development in cooperative buyer-supplier relationships. The model in Figure 3-1 addresses many of the antecedents to trust covered in chapter 2. This model is far too large to be tested and many of the factors

such as communication have already been tested and retested. While many technical issues such as electronic communication, information quality, and coordination are

Figure 3-1



important, they have already been studied. This study will address antecedents recognized as important to trust development by practitioners and researchers but untested empirically.

This study is primarily concerned with discerning new critical elements which significantly impact trust development. The model to be tested is shown in Figure 1-2. Trustworthiness and relationship planning horizon are new constructs in the study of cooperative buyer-supplier relationships. The constructs of trustworthiness and

relationship planning horizon go beyond describing attributes of relationships such as information sharing and actually elicit an important philosophy (a system of principles for conduct) potentially underlying successful relationships. Trustworthiness and relationship planning horizon are more closely related to principles than asset specificity. Asset specificity, unlike relationship planning horizon and trustworthiness, is an attribute (characteristic) of cooperative buyer-supplier relationships. An attribute is defined as a characteristic of a person or thing while a principle is a doctrine used as a basis for reasoning or to guide action or behavior (Oxford 1995). A firm would not operate buyer-supplier relationships on the principle of asset specificity, since asset specificity is an attribute of relationships. On the other hand, taking a long-term mutually shared view of relationships is a principle which is a guide for the use of attributes such as asset specificity. Asset specificity was chosen as a variable for study, however, because prior studies of asset specificity have yielded mixed results possibly due to the misunderstanding that asset specificity is not a principle.

Asset specificity is an attribute which can be employed for a variety of reasons. For instance firms may co-locate personnel so that a new product development initiative can be improved, or to improve the performance of their worst suppliers. Prior research on asset specificity shows a distinct difference between the American version of asset specificity and the Japanese version known as "dedicated" asset specificity. Empirical research has shown that while Japanese firms and United States firms use co-location, Japanese firms use it up to seven times more often throughout a year (Dyer 1994). This dissertation will explore this difference to see if trust plays a role in the impact of asset specificity in cooperative buyer-supplier relationships.

3.4 Definition of Factors in Figure 1-2

3.4.1 Trust

There are different types or dimensions of trust tested and used in research. An early distinction in the trust literature is made between reliability-based trust (Deutsch 1958) and a good-will or faith-based trust (Granovetter 1985). Later, the issue of vulnerability (Akerlof 1973) developed as part of trust. The evolution of trust has incorporated additional dimensions including loyalty, competence, and character. Beyond these different dimensions of trust, researchers suggest that not one type but multiple types of trust exist.

The issue of context was first addressed by Hosmer (1995) who suggests that there are also multiple contexts of trust. These contexts include interpersonal relations, individual expectations, economic transactions, and social structures. The introduction of context creates a matrix of different trust dimensions on one axis with different contexts on another axis similar to the breakdown of trust described by Cummings and Bromily (1995) in Table 2-3. The trust construct used in this study will build on the work of Cummings and Bromily (1995) and Lewicki and Bunker (1995). These two studies were chosen because of their combination of empirical rigor with strong support for multiple dimensions of trust. Lewicki and Bunker's trust dimensions were selected because their study is one of the first studies to suggest that different types of trust build on one another over time.

Beyond the work of McAllister (1993) and Cummings and Bromily (1995), Lewicki and Bunker (1995) and (Tuchinsky & Sheppard (1995) discuss the progression

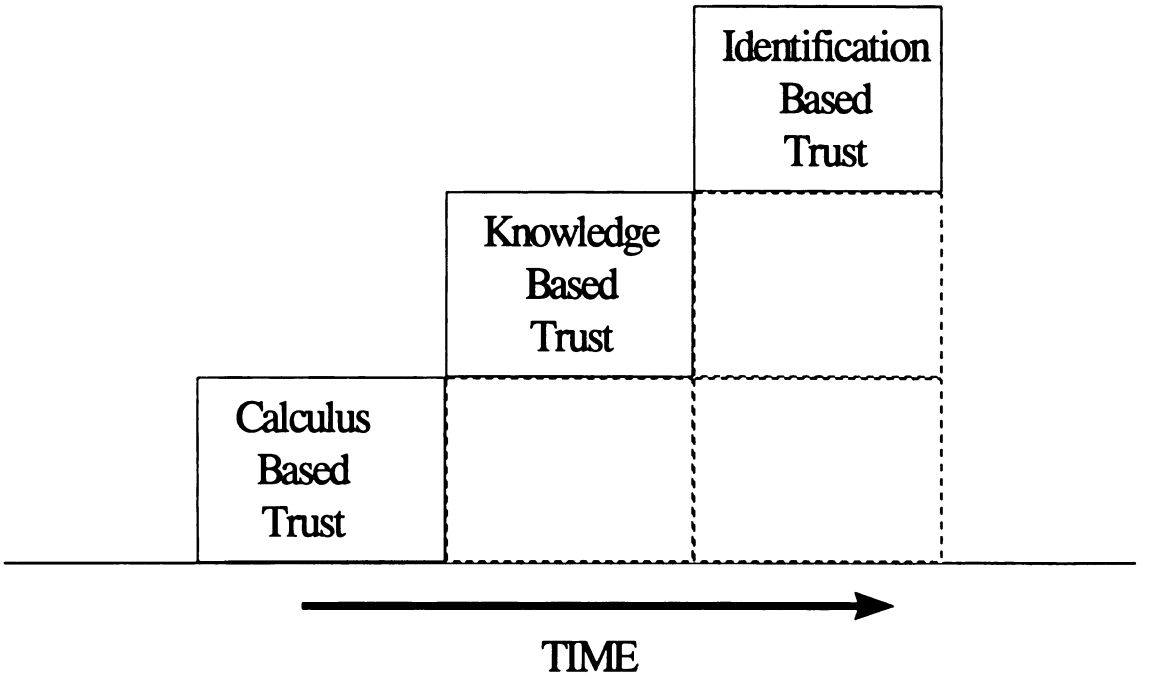
over time of trust through three stages including calculus, knowledge, and identification-based trust which are defined below:

> **Calculus-based Trust** Trust based on control or assuring that the other party will do what they say. Trust is sustained through a clear deterrent (punishment) and likely to occur if trust is violated. The threat of punishment is likely to be a more significant motivator than promise of a reward. Calculus-based trust often involves a high degree of monitoring to assess whether a party is being opportunistic. Calculus-based trust is fragile and therefore any violation of trust has potential to significantly alter or even end a relationship.
>
> **Knowledge-based Trust** Knowledge-based trust is grounded in the predictability - knowing the other party sufficiently well so that the other's behavior is anticipatable. Knowledge-based trust relies on information rather than deterrence as a motivator. Knowledge-based trust develops over time as the parties develop confidence in the trustworthiness of the other party. In knowledge-based trust regular communication and courtship are key processes.
>
> **Identification-based Trust** Identification-based trust is based on identification with the other party's desires and intentions. Trust exists because the parties effectively understand and appreciate the other's wants. A mutual understanding develops as each side clearly understands the motivations and problems of the other side. Each party comes to understand what they must do to sustain the other's trust. Identification-based trust is also characterized as having: collective identity, colocation of personnel, creating joint products or goals, and commonly shared values.

Figure 3-2 depicts Lewicki and Bunker's model of how these three types of trust develop and build on each other over time. The sample of this study is high performing cooperative buyer-supplier relationships within firms. Prior work on the GEBN reveals that identification-based trust appears infrequently in relationships whereas, calculus-based trust appears more frequently because many firms are in the beginning stages of implementing cooperative buyer-supplier relationships. Knowledge-based trust is the most frequently seen type of trust seen in relationships analyzed by the GEBN.

Beyond different types of trust there is the issue whether trust is an individual or organizational construct. Rather than investigate if trust is an organizational or individual

Figure 3-2 Lewicki and Bunker's Model



construct this dissertation will seek to prove that trust is whether measured individually or at the organization level will load on the same construct. Prior theory by Ring and Van de Ven (1992) suggest that buyer-supplier relationships outlast the tenure of the persons involved which would suggest that organizational trust exists. Does this organizational trust differ from the trust between individuals? This dissertation will seek to answer this question. Recent work by Zaheer et al. (1996) using a prior instrument by Rempel and Holmes (1986) indicates that individual and organizational trust are different constructs. The key difference between Zaheer et al.'s individual and organization level trust constructs differ only in their reference to the other party as a contact person or supplier.

Trust Antecedents

3.4.2 Power and Dependence

Emerson (1962) was the first to note that power and dependence share a reciprocal relationship. A look at channel and sourcing literature over the past 15 years shows a movement from analysis of power to dependence. Beyond the area of dependence this dissertation will look at the interdependence between the buyer and supplier. More interdependence is hypothesized to increase trust. Power was first described by French and Raven as existing in five difference forms (referent, expert, coercive, legitimate and reward). Two of these types of power (coercive, reward and legitimate and expert power are hypothesized to correlate with knowledge-based and identification-based trust.

3.4.3 Relationship Time Horizon

Ring (1996) describes two types of trust which depict two different underlying philosophies toward interorganizational relationships. Fragile trust (short-term perspective) is based on the economist's perspective which sees trust as an avoidance of opportunism (Williamson 1993). Fragile trust as its name implies is easily broken. The other type of trust is resilient trust which is based on loyalty and openness. The economic perspective of trust takes a short-term perspective toward relationships and is based on transactions cost analysis (Williamson 1975) and the Prisoner's Dilemma. It is no surprise then that at the first sign of trouble or misunderstanding, firms with a short-term planning horizon tend to abandon relationships or adopt the "tit for tat" strategy (Gulati & Nohria 1992).

Resilient trust takes a long-term outlook at relationships. The long-term perspective is best articulated by Gulati and Nohrias' (1992) concept of a mutually shared relationship where the relationship is built on faith, respect, and trust. A key to the long-term horizon is the ability to forego short-term benefits for more important and lasting long-term gains through stronger trust. This construct will capture a firm's relationship planning horizon and determine if a firm has a predominately short-term or long-term relationship planning horizon.

3.4.4 Asset Specificity

Significant research (Nishiguchi 1994, Dyer 1994, Kamath & Liker 1994, Handfield Bechtel & Stimpert 1996, Monczka, Petersen, Handfield & Ragatz 1996) and theory development (Williamson 1975) has been done in the area of asset specificity in interorganizational relationships. Despite this work the relationship between asset specificity and trust is unclear. Several authors have found a positive correlation between asset specificity and trust (Kamath & Liker 1994, Lorenz 1988, Dyer 1994) while other authors have been unable to find a positive relationship (Campbell 1992, Handfield, Bechtel, & Stimpert 1995). Some research has even found a negative effect between asset specificity and trust (Zaheer & Venkatraman 1995, Joshi 1993). Asset specificity is similar to trust in that there are different types of asset specificity and varying degrees of each type. Most previous research on asset specificity assumes one type of asset specificity (usually equipment or co-location) and one level of asset specificity. Recent work by Kamath and Liker (1994), Dyer (1994), and Nishiguchi (1994) offer a significant finding in the asset specificity area. Although Japanese and U. S. auto firms use co-

location Japan uses it up to seven times more often. Consequently , while U.S. firms and Japanese firms report using asset specific investment there is likely a key difference in degree of usage. This dissertation will investigate the possible role of trust in success with the use of dedicated asset specificity. A second issue of interest is the purpose behind the use of asset specificity. Asset specificity can be used for a variety of reasons from collateral to a genuine contribution to genuine learning and problem solving. While dedicated asset specificity has been shown to impact performance the question of whether trust also plays a role in that relationship has not been investigated. Must there be knowledge-based trust for dedicated asset specificity to occur? This dissertation will seek to answer this question.

3.4.5 Risk/Environmental Uncertainty

Risk has been incorporated into several explanatory models (Mayer et al. 1995; Zaheer and Venkataraman) of trust and theory-based discussions of trust (Fairholm 1994; Lorenz 1988) but actual empirical investigation of risk is sparse. The similar concept of uncertainty has been tested (Zaheer and Venkataraman 1994) but risk uncertainty was not found to create more organization structure or higher levels of trust.

There are two predominant theories on the relationship between risk and trust. The first states that trust works as a counter to risk (Lorenz 1988; Williamson; 1985) and the response of most firms to risk is use of contracts or punitive arrangements. In other words where there is low risk there is likely high trust. The other theory states that to create trust risk must be present (Lewis 1990; Ring and Van de Ven 1992; Luhmann 1988). Here we would find high levels of both risk and trust in relationships. This

dissertation will test cooperative buyer-supplier relationships where high levels of trust may exist. Therefore, we expect high levels of trust and risk to be simultaneously present.

3.4.6 Trust and Performance

The final factor to be examined is cooperative buyer-supplier relationship performance. Anderson and Narus (1990) used satisfaction with various parts of a working relationship among partners as a proxy for partnership success which will also be used in this dissertation. Satisfaction or dissatisfaction will look at the adequacy of rewards received through the relationship (e.g. Frazier 1983). Performance is best measured by items tied to financial, operational and effectiveness dimensions (Venkatraman and Ramanujam 1986). All three of these dimensions will be part of the performance measurement in this study.

3.5 Hypotheses

The model of trust development in cooperative buyer-supplier relationships in Figure 1-2 was developed from the pre-dissertation research and literature. This study will address the gap in the literature between trust and performance and identify specific antecedents to trust development.

P1. Three types of trust exist which are calculus-based, knowledge-based, and identification-based trust which have a hierarchical relationship.

Figure 3-2 from Lewicki and Bunker shows that over time trust moves from calculus to knowledge-based over time and eventually to identification-based trust. Hypothesis one states that knowledge-based trust cannot exist unless calculus-based trust

exists and identification-based trust cannot exist unless both calculus and knowledge-based trust exists.

P2. Organization trust and individual trust are not unique.

Trust has been tested in both individual and organizational units of analysis but there has yet to be an analysis of whether these units are different. This dissertation will test to see if these two units of analysis are unique.

H1A. Use of coercive power will be positively associated with calculus-based trust.

H1B. Use of non-coercive power will be positively associated with knowledge-based trust.

H1C. Use of non-coercive power will be positively associated with Identification-based trust.

H2. Dependence between buyer and supplier will be positively associated with the level of identification-based trust in a supplier.

Interdependence is hypothesized to correlate with identification-based trust because the firms need each other and therefore have motivation to invest in the relationship. Mohr and Spekman (1994) found a positive relationship between interdependence and buyer supplier relationship performance. This dissertation seeks to prove that interdependence can effect performance but this effect happens through increased trust.

H3A. A long-term buyer-supplier relationship planning horizon will be positively associated with the level of knowledge-based trust in a supplier.

H3B. A long-term buyer-supplier relationship planning horizon will be positively associated with the level of identification-based trust in a supplier.

While traditional economic theory had been used to describe interoganizational relationships it contains three assumptions which are not reflected in cooperative buyer-supplier relationship practice including the following:

- Assumption of no advantages to repeat interactions
- Assumption of Prisoner's Dilemma payoff scheme
- Assumption of Opportunism in all participants

New theory by Gulati & Nohria (1992) suggest that interorganizational relations be governed by a mutually shared relationship philosophy guided by principles of trust, generosity, and faith. Gulati and Nohria's mutually shared paradigm takes a long-term approach to relations but is yet to be empirically tested. On the other side, firms adopting the economic short-term relationship planning horizon model will see lower levels of trust because there is no willingness to forego short-term benefits for long-run gains because all partners are assumed to be opportunistic. Knowledge and identification-based trust are hypothesized to have a relationship with planning horizon and not calculus-based trust because calculus-based trust is likely due to either a short-term economic perspective or a cooperative relationship that is in its beginning stages.

H4. Asset specificity behavior focusing on information sharing and synergy will be positively associated with identification-based trust in a supplier.

As discussed earlier, asset specificity can be used for a variety of reasons. Asset specificity can be a "hostage," a penalty, or asset specificity can be a genuine commitment to solving problems in a relationship. Firms using asset specificity as a hostage (rather than using genuine trust) will not create trust or reap relationship performance benefits of firms using asset specificity to solve problems (exchange information and create synergies). Therefore, use of asset specificity to address problems will produce better results than asset specificity used as a hostage when there is no trust. Knowledge and identification-based trust are hypothesized to have a relationship with

asset specificity and not calculus-based trust because calculus-based trust is likely due to either a short-term economic perspective or a cooperative relationship that is in its beginning stages.

H5A. The overall level of asset specificity will be positively associated with the level of knowledge-based trust in a supplier.

H5B. The overall level of asset specificity will be positively associated with the level of identification-based trust in a supplier.

As mentioned previously the measurement of asset specificity has not recognized the existence of varying levels of trust and varying levels of asset specificity. Varying levels of trust (calculus, knowledge and identification-base) have already been discussed, but the idea of different levels of asset specificity is relatively new. Recent work by Dyer (1994), Kamath & Liker (1994), and Nishiguchi (1994) suggest that Japanese firms make significant investment in "dedicated" asset specificity. In dedicated asset specificity, suppliers send engineers to work at a customer's site, locate plants near the customer, or invest in customized physical assets. The U.S. has failed to appreciate the benefits of dedicated asset specificity (Dyer 1994; Nishiguchi 1994). Firms in the United States report the exchange of personnel and other assets similar to Japanese firms. The difference however, between typical U.S. asset specificity and Japanese "dedicated" asset specificity is degree. Japanese automakers average 7,000 face days with suppliers per year while the average U.S. automaker averages only 1,000 face days (Dyer 1994). So there is a key difference between traditional asset specificity and the Japanese version of asset specificity. This dissertation will seek to make this distinction.

H6. Uncertainty will be positively associated with the level of identification-based trust.

Uncertainty or risk will correlate with the levels of knowledge-based and identification-based trust. Since respondents will be asked to answer questions about a cooperative buyer-supplier relationships we expect high levels of trust and risk to exist. Firms are assumed to create cooperative relationships with suppliers in situations where cooperative relationships will be beneficial (high risk). Situations where there is low risk don't warrant a cooperative relationship and will require less trust.

H7A. Alliance performance will be positively associated with the level of knowledge-based trust in a supplier.

H7B. Alliance performance will be positively associated with the level of identification-based trust in a supplier.

Knowledge and identification-based trust will correlate with relationship performance. Firms with high amounts of openness and concern will have higher relationship performance. Past empirical research has shown a relationship between trust and performance (Mohr & Spekman 1994, Monczka, Petersen, Handfield, and Ragatz 1996), but in both cases only a very general type of affect-based trust was tested.

3.6 Details of Measures to be Used

This study analyzes the gap in research linking the concept of trust development and performance in cooperative buyer-supplier relationships. While several studies and theorists have linked higher levels of trust to better relationship performance, trust remains a fuzzy concept and clear actions or antecedents to trust are untested. Some of the dimensions and antecedents of trust in this dissertation have been previously examined in the literature including calculus-based trust, knowledge-based trust, and identification-based trust along with asset specificity, but measures of these concepts are

not well developed. The other constructs in this dissertation which are relationship planning horizon, trustworthiness, and components of identification-based trust and concern-based trust are new constructs or elements with little or no empirical testing. One of the purposes of this dissertation is to attempt to establish valid measures for these untested constructs. The next sections define measures for calculative, knowledge, and identification-based trust along with asset specificity, trustworthiness, relationship planning horizon, and performance. A copy of the actual survey to be used is in Appendix A.

3.6.1 Trust

There are a number of different ways of measuring trust. (McAllister 1993; Rotter 1967; Lazelere & Huston 1980). Studies on trust can be described as falling on a continuum. On one end of the continuum are studies which ask one party to assess their feeling of trust with another party. These studies may even break trust down into different types of trust (McAllister 1993; Barber 1986: Lewicki & Bunker 1995; Sheppard & Tuchinsky 1995; Williamson 1991). These studies take a unidimensional perspective where one party looks only at the amount of trust they have with another party. At the other end of the continuum are studies which take a dyadic or inductive approach to the study of trust. These studies look at trust in how it exists in a relationship. The perception of trust by both parties is important in these studies (Lazelere & Huston 1980; Gabarro 1978). In these studies, parties begin the process of self realization and begin to look at their own trustworthiness as well as the trust involved with another party.

3.6.2 Types of Trust

This study looks at five hypotheses centering around the concepts of calculus, knowledge and identification-based trust. Below are the sources of questions used for the calculus-based trust construct.

* **indicates questions used in questionnaire to measure calculus-based trust**

** **indicates questions used in questionnaire to measure knowledge-based trust**

*** **indicates questions used in questionnaire to measure identification-based trust**

**** **Item of individual trust**

Parkhe (1993) developed several measures of opportunism in cooperative relationships which attained an alpha of .828.

Avoid Opportunism

Questionnaire Item

Our partner always provided us a completely truthful picture of their business
*Complete honesty does not pay when dealing with our partner
*Sometimes my partner alters the facts slightly in order to get what they need
My partner carries out their duties even if we do not check up on them
*My partner has sometimes promised to do things without actually doing them later
*They seem to feel that it is OK to do anything within their means that will help further their firm's interest

The two key areas of knowledge-based trust are competence (the ability and resources to carry out a task) and reliability of supplier's performance over a period of time.

Competence is essentially the perception of the ability of party B to meet their commitments set forth and promised to party A. The issues of trust and competence have been addressed by several authors (Gabarro 1978; Butler 1991; Luhmann 1980; Ghoshal

& Bartlett 1995). Gabarro breaks competence-based trust into three key areas. First, "specific competence" which is trust in the other's specific function or area. Second, "interpersonal competence" is the ability of a person to work with people or people skills. Finally, "business sense" addresses a person's experience, wisdom, and common sense.

Reliability can be broken down into requisite elements. Reliability is dependent on prior contact with a party or experience. Several authors (Gabarro 1978; Lorenz 1988; Fairholm 1994) mention time as a key element to reliability-based trust. A second related major element is repeated interaction among the firms (Gabarro 1978; Good 1988; Gulati 1995; Ring & Van de Ven 1992). Repeated interaction and time (Lorenz 1988) then leads to levels of confidence, consistency (Fairholm 1988), and finally trust (Zucker 1995; Lewis 1990). Reliability can then lead to predictability which is confidence in future actions (Fairholm 1988). Reliability must be based on integrity or honesty (Fisher and Brown 1989) to be effective. Reliability based on coercion or stress eventually creates a suboptimal relationship or total breakdown in the relationship.

Cummings and Bromily describe consistency more as a comfort one party has for the ability of the other party to complete actions without worry over their performance. Cummings and Bromily found high reliability on their OTI scale for their consistency based measures.

For the purpose of this study Cummings and Bromily short version of their OTI scale will be used. The short OTI version was chosen because the long version contains over 100 items which is not suitable for the sample of this study. Second, Cummings and Bromily contend that the short form predictability is just as strong as the long form predictability. The short form eliminates the intended behaviors in terms of questions

which had the lowest item to factor correlations in comparison to the cognitive and affective elements. Second, the authors chose the affective and cognitive elements with

1. ** I think the people in our partner firm tell the truth in negotiations
2. I think that our partner meets its negotiated obligations to our department
3. ** In my opinion this partner is reliable
4. I think that the people in our partner firm succeed by stepping on other people
5. ** I feel that our partner firm tries to get the upper hand
6. ** I think that our partner takes advantage of our problems
7. ** I feel that our partner negotiates honestly
8. ** I feel that our partner will keep their word
9. ** I think that our partner does not mislead us
10. ** I feel that our partner does not try to get out of commitments
11. ** I feel that our partner negotiates joint expectations fairly
12. ** I feel that our partner takes advantage of people who are vulnerable

the highest item to factor correlations and use .70 as their minimum cut-off point. The twelve questions that make up the short form produced a better model fit than the long form and reliabilities all above .9. In addition the predictability of the short form was found to be almost identical to the long form. Below is Bromily & Cummings 12 question short OTI form.

Of the twelve questions above, six of the questions tap calculus-based trust including questions 4, 5, 6, 9 and 12. These questions analyze whether the other party is opportunistic or not but does not analyze the other parties' honesty or integrity. The other questions: 1, 2, 3, 7, 8, 10, and 11 are knowledge-based. Questions 1 and 7 top into the character of the partner (whether or not they are honest). Questions 2, 3, 8, and 10 tap into a partner's reliability and integrity and question 11 addresses fairness. Integrity addresses whether the partner does what they say they will (keep commitments) and reliability addresses consistency in performance over time. These seven items look at

characteristics that can only be attained through knowledge of the other party. Whether a partner meets commitments, is honest, or fair are impressions that can only be attained by having previous experience or knowledge of a partner.

The following seven questions come from an instrument developed by Sheppard and Tuchinsky (1995) representing trust in buyer-supplier relationships. The construct had 20 items and achieved an alpha of .86.

1. **** We know this supplier will consider our concerns when making a decision.
2. ***This supplier views the world the same way as us.
3. ** We have frequent fact to face contact this supplier.
4. ** We have frequent phone conversations with this supplier
5. **** The confront issues effectively with this supplier.
6. I understand well the bases on which this supplier is rewarded and compensated.
7. Our supplier understands well the bases on which we are rewarded and compensated.

The following questions come from McAllister's construct of affect-based trust and will be used to create an identification-based trust construct for this dissertation.

Questionnaire Item	**Factor Loading**
This person approaches his/her job with professionalism and dedication.	.846
**Given this person's track record, I see no reason to doubt his/her competence and preparation for the job.	.825
I can relay on this person not to make my job more difficult by careless work.	.736
Most people even those who are not close friends of this individual trust and respect him/her as a coworker.	.725
****Other work associates of mine who must interact with this individual consider him/her to be trustworthy.	.659
If people knew more about this individual and his/her background, they would be more concerned and monitor his/her performance more closely (reversed).	.643

The work of Cummings and Bromily also provides factor analysis results and reliabilities in the discussion of various types of trust.

Affect-Based Trust

Questionnaire Item	Factor Loading
****We have a sharing relationship. We can both freely share our ideas feelings and hopes.	.812
****I can talk freely to this individual about difficulties I am having at work and know that he/she will want to listen.	.722
****If I shared my problems with this person, I know he/she would respond constructively and caringly.	.720
We would both feel a sense of loss if one of us was transferred, and we could no longer work together.	.712
****I would have to say that we have both made considerable emotional investments in our working relationship.	.666

Two questions were derived from the recent writings of Ring (1995) addressing integrity and loyalty as components of resilient trust.

1. ****Our partner acts with integrity.
2. *** Our partner is loyal to our alliance.

Finally, the following 9 questions were developed by the writer of this dissertation based on the literature review from chapter 2. Questions 7, 8, and 9 are loosely developed from an instrument used Kumar (1996) to assess trust in manufacturer-retailer relationships.

** We jointly establish goals for our relationship with this supplier.
**** We interact with this supplier in informal as well as formal settings.
**** We regularly communicate with this supplier.
**** This supplier regularly communicates with us.
** This supplier is predictable.
** We will take quick action if this supplier does not perform satisfactorily.
** We regularly share information with this supplier.
** We occasionally use fear to motivate this supplier.
** We pass on new information that may be useful to this supplier.

3.7 Antecedents to trust

Not all antecedents to trust development in buyer-supplier relationships will be addressed by this study. From a purely theoretical consideration, a comprehensive examination of the antecedents to trust between industrial buyers and suppliers in cooperative buyer-supplier relationships would have to include all factors which impact trust. Such a descriptive model would be very difficult to test statistically. The prohibitively large sample size required to test such a model would likely be unduly complex, unwieldy, and difficult to explain in a rational and parsimonious manner. Third, since many of these antecedents might display significant overlap due to definitional and descriptional incongruities, significant auto-correlation would likely exist between similar factors which might confound the trust, underlying relationships between the variables involved.

3.7.1 Power

Coercive power was first coined by Hunt and Nevin (1974) as power based on anticipation of the part of possible punishment if there is not compliance. The three questions below were developed from Kumar (1996).

We will take quick action if this supplier does not perform satisfactorily.
We occasionally threaten this supplier to motivate them
We occasionally use fear to motivate this supplier.

Non-coercive power is described by Hunt and Nevin as encompassing legitimate, referent, reward and expert power (French and Raven 1959). This dissertation will

question referent power (questions 1-4), and legitimate and exptert power in questions 5-8.

Our supplier feels that we identify strongly with their needs.
Our supplier feels that we have a strong sense of oneness with them.
Our supplier feels that we have become closely associated with them.
We have few problems influencing this key supplier
This key supplier is highly receptive to our ideas
This key supplier respects our industry knowledge
Our key supplier recognizes us as an expert in the industry
This supplier is not receptive to our suggestions

3.7.2 Dependence

Ganesan (1996) and Lusch and Brown (1994) have measured dependence from both sides of a relationship leading to interdependence. Below are two constructs used by Lusch and Brown (1994).

1. We are dependent on this key supplier.
2. Our major supplier would be difficult to replace.
3. Our major supplier would be costly to lose.

Alpha = .872

1. Our key supplier is dependent on us.
2. Our major supplier would find it difficult to replace us.
3. Our major supplier would find it costly to lose us.

Alpha = .878

3.7.3 Relationship Time Horizon

3.7.3.1 Length of Relationships The construct of Relationship Time Horizon is a new construct that has been discussed by several authors (Gulati & Nohria 1992) but remains untested. There are three components which make up this construct. First, several questions address the key issue of time. Empirical evidence shows a clear

relationship between length of relations and time (Gulati 1995). This dissertation asks two questions about time based on the work of Parkhe in 1993 where the alpha = .64.

1. What was the intended duration of this alliance? (1= short-term 1-3 years 3= long-term over 5 years)
2. Perceived likelihood that the likelihood that the alliance will actually last for the intended duration (1=low, 5=high)

3.7.3.2 Learning Races A second but related issue to time orientation is the concept of cooperative relationships as learning races as discussed by Prahalad & Hamel (1989) and Khanna, Gulati, and Nohria (1994). Firms in learning races strive to learn as much as they can as fast as they can while being very careful to set limits on information they divulge. Khanna et al... (1994) look at learning races from a payoff perspective and found that the ratio of private benefits to common benefits is what is critical in learning races.

1. Alliances are a competition between partners to see who can learn more from the other.
2. Once, I have gotten what we need from an alliance we move on.
3. My primary goal in an alliance is to learn as much from my partner as possible.
4. I have several controls in place to limit the information a partner can get from us.
5. Partners will take non alliance information from me if I do not monitor them.

3.7.3.3 Mutually shared paradigm (continued commitment even in adversity)

Gulati & Nohria (1992:2) discuss an idea of mutually shared relationships where a partner's best strategy may be "Continued Commitment to the relationship even in the face of perceived cheating by another partner, in order to repair the relationship and restore mutual assurance." Trust, generosity, feedback, and repair serve as guiding principles in mutual assurance games as opposed to retaliation and restoration, the

guiding principles in prisoner's dilemma situations." Relationship Time Horizon is computed from three elements above. Relationship Time Horizon forms a short term economic paradigm if the typical expectations and actual time a firm is in a cooperative relationship is short, the firm is primarily interested in a learning race where they can extract as much information as possible while giving up as little information as possible and the firm sees the relationship as having winners and losers and is unwilling to expend any effort into fixing a troubled relationship.

1. I reap unexpected benefits from my alliances.
2. If my partner is gaining more from the alliance than I am I always take steps to end or alter the agreement.
3. If a partner takes advantage of me, we immediately terminate the alliance.
4. In some of our alliances my partner's benefit more than we do but it is still in my best interest to maintain the alliance.
5. I provide significant training or assistance to suppliers whose performance slips.

The mutually shared paradigm that Gulati and Nohria (1992) and Ring's concept of resilient trust are based on a firm's ability to stick with a partner during the tough times. The questions above were created to elicit respondent's attitudes toward working through problems with a partner as opposed to abandoning them.

Finally, Krause (1995) based on the work of Anderson and Weitz (1992) created a construct for supplier commitment. Anderson and Weitz (1992) define supplier commitment is the willingness of a supplier to make short-term sacrifices in expectation of long-term benefits. The only way suppliers will be willing to make commitments is if they have prior knowledge (knowledge-based trust) in the predictability of the other party. The four questions below achieved an alpha of .854.

1. The Supplier has a strong sense of loyalty to us.
2. This supplier is quite willing to make a long-term investment in helping us.
3. This supplier sees our relationship as a long-term alliance.
4. This supplier is willing to dedicate whatever people and resources it takes to make us a satisfied customer.

3.7.4 Asset Specificity

Knowledge, human and dedicated asset specificity are hypothesized to impact trust. Handfield, Bechtel, and Stimpert (1996) developed the following questions on human and dedicated asset specificity which will be used.

Human Asset Specificity (Alpha of .76)

1. We share our weekly, daily, or hourly production schedules with this supplier.
2. Non-sales personnel from this supplier have visited our plant to see how their product is used in our process.
3. The supplier works closely with our engineering and design area for new product development.
4. We share a great deal of sensitive information with this supplier.
5. Our manufacturing personnel regularly visit this supplier's facility.

Dedicated Asset Specificity (Alpha of .78)

1. This supplier has dedicated and reserved equipment and reserved capacity specifically to maintain our purchasing relationship.
2. This supplier has dedicated personnel specifically to maintain our purchasing relationship.
3. This supplier has purchased specialized equipment to meet our needs for this key-input material.

Dyer (1994) also developed the following questions on asset specificity which will be used in a modified form. The reason for using asset specificity is just as important as the use of asset specificity itself. U.S. automakers use co-location as a penalty to suppliers that are having quality or delivery problems while Japanese manufacturers use co-location primarily as a synergistic problem solving and learning forum. Japanese firms also use asset specific investment substantially more than U.S.

firms which leads to better performance but does trust play a role in this relationship?

This dissertation will explore the role of trust in asset specificity.

1. Total annual man days of face to face contact between supplier salesmen and engineers and our purchasing personnel and engineers.
2. The average number of co-located or guest engineers.
3. The extent to which the partner trusts us with confidential (i.e.) technical information (Likert scale).
4. The extent to which the partner shares detailed information on their production costs (Likert scale).
5. The extent to which the I share information with the partner to assist them in cost reduction (Likert scale).
6. The extent to which I share information with the partner to assist them in quality improvement (reduce defects) (Likert scale).
7. The extent to which I share information with the partner to assist them in improving their delivery and inventory management systems (Likert Scale).

The pre-dissertation research also surveyed firms on asset specificity in terms of information. Two questions will be used from this study.

GEBN Questions

1. In this relationship, it is expected that any information which might help the other party will be provided.
2. The parties are expected to keep each other informed about events or changes that may affect the other party.

The pre-dissertation research also surveyed firms on asset specificity in terms of information sharing. Two questions will be used from this study

GEBN Questions

1. I require our partner to contribute significant resources so they have less incentive to leave the relationship
2. The primary reason personnel from our partner visit our facility is to learn more about our products and processes
3. I do not require significant asset contributions by our partner because we want the ability to change partners quickly if need be
4. I only require our partner to put personnel in our facilities when they have a significant performance problem

3.7.5 Uncertainty

Risk is hypothesized to play a role in the development of trust in interorganizational relationships (Luhmann 1988; Ring & Van de Ven 1992). Risk can fall into several different areas including product risk and pricing risk (Zaheer & Venkatraman 1994). Alpha for this construct was marginal at .61.

1. Pricing changes occur often in the area that this cooperative supplier works in
2. New products are introduced often in the industry this cooperative supplier is in.

In addition to these types of risk three new questions will be used addressing risk specific to the part or service provided by the cooperative supplier in question. These questions will address the areas technology, supplier switching and overall degree of risk.

1. Switching from our cooperative supplier to another supplier would be very costly.
2. Technological change is rapid in the industry this cooperative supplier works in
3. We have taken a high degree of risk with this cooperative supplier.

3.8 Performance

Good performance measures will analyze financial, operational, and effectiveness dimensions as recommended by Venkatraman and Ramanujam (1986). Parkhe (1993) identified two factors that were important to relationship performance. Fulfillment of strategic need and indirect performance indicators are reflected below.

GEBN questions

1. In this strategic supplier alliance/partnership relationship, the parties work together to solve problems.
2. Do you plan on continuing this relationship.
3. Please indicate the overall degree of results satisfaction with your most/least successful strategic supplier alliance/partnership.

Please indicate the percentage improvements in the following areas attributable to your partnership.

Cycle-time Reduction (from order placement to receipt inclusive) _____%

Shared Price Reduction (cost savings due to improvement) _____%

Quality Improvement (reduction in PPM, warranties) _____%

On-time Delivery (ability to deliver within buyer-specified delivery window) _____%

Access to new technologies _____%

New product development time (from concept to production) _____%

1-4 from Krause 1995

5-6 from GEBN 1996

Handfield, Bechtel, and Stimpert 1996 (Alpha of .83)

1. There is a short lead time between the time that the order is placed with this supplier and when it is received.

The following factors affected the buyer's decision to use this supplier (strongly agree/strongly disagree):

1. Short lead-times
2. Outstanding on-time delivery record
3. Ability to modify their product to meet our requirements

Finally the respondents will be asked to comment as to whether their firm's ROA ROI and profitability have increased since the relationship has started or decreased. These responses will then be checked against Dun and Bradstreet statistics to corroborate the respondent's data.

3.9 Proposed Research Design

The target sample for this research will be 1,500 National Association of Purchasing Management (NAPM) members. 1,500 members was chosen based on Cohen's power formula of sample size required to obtain a specified power, effect size and confidence level. Based on Cohen's (1992) power analysis table a minimum sample size of 84 must be obtained to obtain an effect size of .30 at the .05 confidence level. 1,250 members were chosen because an estimated 20 - 30% response rate will yield a sample of 200 to 300 responses which is adequate for running the statistical testing for this dissertation. Titles of the target sample will be Purchasing Manager, Director of Purchasing, Vice President of Purchasing, and Vice President of Materials Management. These high level purchasing executives comprise the NAPM Title 1 members. Title 1 members were chosen as the respondent group because they were thought to be informed about the key issues in the survey instrument.

Several different methodologies could be used in this study including: surveys, case studies, or interviews. Case studies are often difficult to generalize (Kerlinger 1986). Surveys are useful because standardized measures (that are a necessity for making comparisons (Fowler and Mangione 1990) can be used across a broad population in order to make generalizable conclusions. However, if surveys are not conducted properly, they can miss the depths of many relationships (Brewer & Hunter 1989). For the purpose of this dissertation, a survey will be used. The reason for a survey is that many of the problems associated with the use of a survey instrument including: response rate, correct company contact, sample size - can be avoided by using a sample of Title 1 NAPM members. The level of analysis for this study will be the interpersonal level. Buyer-

supplier relationships are between organizations but organizational relationships are comprised of a series of interpersonal relationships at the heart of a cooperative buyer-supplier relationship.

3.9.1 Data Collection

Data collection will proceed in two stages. Stage one is a preliminary investigation into the role of trust within cooperative buyer-supplier relationships. This preliminary stage will consist of constructing a survey instrument to effectively gather data on the relevant variables. Stage two is to conduct a mail survey of NAPM firms that have cooperative buyer-supplier relationships.

Stage 1.

Stage one is construction of the survey instrument which will address several key antecedents to trust developments. The questionnaire will provide the actual investigation into the strategies of managers and firms; therefore, it is important that the instrument is constructed properly.

Experts agree that measurement items, should be developed: literature searches, experience surveys, focus groups involving executives, and analysis of critical incidents (Nunnally, 1978). Construction of the survey instrument of this study started with a detailed study and analysis of the trust literature detailed in Chapter Two. The goal of the literature review was to identify key constructs to trust development that have not been tested. To test the face validity of the selected items, business school faculty and doctoral candidates with familiarity in the area of cooperative relationships will be used as expert judges. This will be done because three of the four antecedent variables have little

empirical work to draw on from the past. After several iterations of refining the survey items, a content analysis performed on the items remaining to determine the overlap of the remaining items with the conceptual domain of the constructs. The resulting instrument will then be used to conduct pre-test interviews with cooperative relationship experienced executives in the Lansing, Jackson, and Detroit area. To identify any problems with question wording or layout, the interviews will range from one hour to two and a half hours, which will hopefully yield good suggestions to strengthen the validity and content of the instrument. A final step to further purify measures is the use of a Q-sort. A Q-sort involves giving respondents the list of questions and descriptions of each construct and having them put each question with the construct they feel it represents. The results of the Q-sort were used to change and delete questions the respondents did not agree on (Results of the Q-sort are in Appendices A and B). Results from the Q-sort indicate a clear difference between calculus-based trust and the other two types of trust. There is not a clear difference between knowledge-based and identification-based trust.

Stage 2.

Stage two is to take the modified instrument and mail it to 1,250 NAPM (National Association of Purchasing Management) title 1 members. The strategy will be to send 1,250 packets including a cover letter, survey and a postage-paid return envelope. Two weeks after the initial mailing reminder postcards will be mailed to those who have not responded. Non-response bias will be examined comparing the demographic characteristics of the respondents with the non-respondents and executives returning

unusable responses. A one way between groups analysis of variance will determine if statistical significance exists between the two groups. Chi square differences between the groups looking at product categories and primary geographic markets can also be tested for significance.

According to Cook and Campbell, the most representative samples will be those that are randomly chosen from the population. This sampling strategy is referred to as the random sampling for representativeness model. A random sample will be drawn from the total number of title 1 members which is approximately 3,000.

The focus of this study will be the correlated antecedents to trust and a look at whether trust impacts relationship performance. For this reason, this study is cross sectional in design and does not attempt to explain the longitudinal development of buyer-supplier relationships. Rather, this study will show what tools are effectively correlated with high levels of trust and whether trust impacts relationship performance.

3.9.2 Validity Issues

A high response rate from key executives involved with relationships is the optimal outcome, but even a high response rate will not address several key issues including common method variance (Campbell & Fiske 1959) or the social desirability problem (Podsakoff & Organ 1986: 534-536). Using self report data from one source opens the data to contamination from correlations among variables. Sometimes, however, key informants provide the only avenue for information desired (Huber & Power 1985), and "the practical utility of same source self-report measures makes them

virtually indispensable in many research contexts (op cit Parkhe 1993: 810, Podsakoff & Organ 1986: 540).

Cook and Campbell note that there are four types of validity which all research should be judged upon: statistical conclusion validity, construct validity, internal validity, and external validity. Statistical conclusion validity is a potential problem for this study since the power will not be high. Cook and Campbell note that when the sample size is small it is dangerous to rely solely on statistical significance.

Construct validity is a major problem with case studies, but the statistical procedures and design of this study should limit construct validity problems. Most of the measures used will have been previously tested except relationship time horizon, trustworthiness and asset specificity behavior. This sample will be large enough (Schwab 1980) to perform factor analysis to be sure that all items load on the same underlying construct. In addition, the design of the study will combat construct validity by the following: having pre-specified relationships based on an exhaustive search of the literature, pre-testing and refining of the measures, and collecting information from multiple sources. This combination of strategies should mitigate some construct validity problems (Devellis 1991; Yin 1994). This sample will be large enough (Schwab 1980) to perform factor analysis to be sure that all items load on the same underlying construct. The construct for knowledge -based trust along with performance and asset specificity should have some degree of validity because they will be based on prior work. Relationship time horizon and trustworthiness are new constructs where construct validity will be an issue. To address this issue, pre-testing field interviews will be performed

prior to the study to refine these three measures. In addition, these constructs will be tested for construct validity using factor analysis.

Internal validity concerns deal with establishing causal relationships between variables and non-randomized designs Cook and Campbell(1976) suggest that the researcher must explicitly rule out all possible threats one by one. Many of the possible threats are not of concern to this study because the design is not interested in the changes that occur when trust is present but rather is there a strong correlation between specific antecedent conditions and trust in buyer-supplier relationships. Therefore, problems such as history, maturation, instrumentation, and statistical regression to the mean may not be a problem.

The final validity issue is external validity the ability to generalize beyond the present study. The survey and field studies will cover a wide range of industries and technologies. Given the variety of firms surveyed and visited this dissertation should have strong generalizability.

3.9.3 Reliability Issues

Reliability will be addressed in several ways. Initial pre-test visits can be used to refine the survey instrument. Questions that are unclear or that measure constructs other than those of interest can be changed or adjusted, reducing ambiguity and increasing reliability (Kerlinger 1986).

The methods addressed above will aid in increasing reliability; however, they are not measures of reliability and will not guarantee statistical conclusions. In order to

ensure that the measures are reliable, reliability will be statistically analyzed using Cronbach's alpha.

3.10 Statistics

Structural equations modeling (SEM) will be used to analyze the data. SEM consists of two parts which are a measurement model and structural equation model. The measurement model specifies how latent variables and hypothesized constructs are observed (measured) and describe their measurement properties (reliabilities and validity) (Schumacker and Lomax 1996). The structural equation model specifies direct and indirect relationships among latent variables and describes the amount of explained and unexplained variance (Schumacker and Lomax 1996).

Confirmatory factor analysis will yield the measurement model to assess latent variables. Convergent validity of the constructs will be determined through the use of confirmatory factor analysis. This method tests a priori hypotheses regarding the qualitative and qualitative distinctions underlying each domain. Fit statistics will be analyzed in creating the measurement model (confirmatory factor analysis). Fit criteria to be used will include an adjusted goodness of fit index, Bentler and Bonnett's normal fit index and Bentler's comparative fit index. All three of these statistics need to be above .90 level (Bagozzi and Yi 1988; Byrne 1994). Bentler and Bonnett's normed fit index tests the proportionate reduction in fitting function when moving the baseline model (assumes no factors underlie observed variables) to the hypothesized model. Bentler's comparative fit index takes into account the means of the sampling distributions in

comparing fit. Fit statistics can be compared between the comfirmatory factor analysis and a-priori model to indicate if relationships were left out of the a-priori model. Figure 3-3 shows the a-priori path relationships specified in the hypotheses.

COERPOW = construct for coercive power

NCOERPOW = construct for non-coercive power

DEPEN = construct for dependence

TIMHOR = construct for relationship time horizon

SPECBEH = construct asset specificity behavior

SPECDED = construct for dedicated asset specficity

RISK = construct for risk

CALCU = construct for calculus-based trust

KNOWL = construct for knowledge-based trust

IDENTI = construct for identificaiton-based trust

RELPERF = construct for relationship performance

$\beta 1$ = path coefficient relating coercive power to calculus-based trust

$\beta 2$ = path coefficient relating non-coercive power to knowledge-based trust

$\beta 3$ = path coefficient relating non-coercive to identification-based trust

$\beta 4$ = path coefficient relating interdependence to identification-based trust

$\beta 5$ = path coefficient relating alliance time horizon to knowledge-based trust

$\beta 6$ = path coefficient relating alliance time horizon to identification-based trust

$\beta 7$ = path coefficient relating asset specificity behavior to identification-based trust

β8 = path coefficient relating dedicated asset specificity to knowledge-based trust

β9 = path coefficient relating dedicated asset specificity to identification-based

β10 = path coefficient relating risk to identification-based trust

β11 = path coefficient relating knowledge-based trust to relationships performance

β12 = path coefficient relating identification-based trust to relationship performance

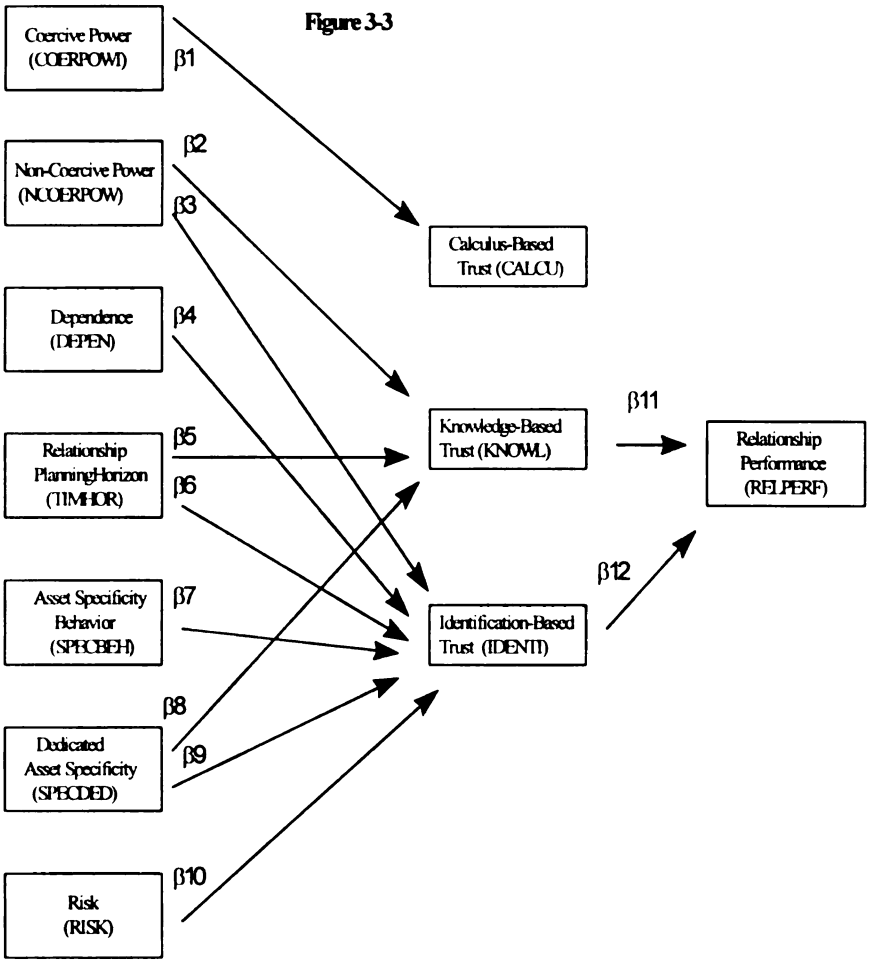


Figure 3-3

Finally, the significance of each path coefficient is tested using the critical ration which is the ration of regression weight to standard error. Under assumptions of independent

observations and multivariate normal distributions this ration approximates the standard normal distribution and is used to test significance (Bollen 1989).

After a measurement model has been specified and indicates that the latent variables are measured well (valid and reliable) by observed variables it is time to specify a structural model. A structural model allows for relationships among the latent variables depicted by lines of arrows. Since we do not have a measurement model yet there is not structural model.

3.11 Limitations of This Research

There are several potential limitations to this dissertation. First, the population is drawing its sample from the National Association of Purchasing Management (NAPM) which has a purchasing specific membership. The conclusions will be from a purchasing perspective which may include inherent power asymmetries not found in all cooperative relationships. Future studies may benefit from studying trust in relationships from perspectives other than purchasing. Second, the sample size used to collect the data from the target population may adversely affect the statistical analyses used to assess the data. The marginal cost of increasing the sample size is extremely high , which limits the number of cooperative buyer-supplier relationships that can be used.

Third, non respondent bias may be a problem. No data will be collected from non-respondents so it will be impossible to detect this potential bias. However, it is expected that most respondent firms that agree to participate in this study will have favorable attitudes regarding cooperative buyer-supplier relationships since they already

engage in at least one of these relationships. Conversely, non-respondents may be negative or neutral towards the use of cooperative buyer-supplier relationships.

A fourth source of potential bias could be introduced through the buying firm's choice of a cooperative buyer-supplier relationship on which they will base their response. No constraints will be placed on the selection criteria other than the supplier "partner" chosen to participate must have been involved with this particular buying firm in a cooperative, buyer-supplier relationship as defined here for at least one year. We will ask the buying firms to choose their best supplier and outline clearly what is meant by "best". Even by outlining these criteria of what the best supplier is firms may choose their best supplier based on their emotions or feelings towards who their best supplier is. Other factors including personal relationships with members of the supplier firm and length of relationship with the supplier firm may impose bias on this study.

Chapter IV

Analysis of Data

4.1 Overview

The research findings are categorized into four general sets of results that are consistent with the methodological plan described in chapter III. First, the results of a general analysis of company profiles and frequency information is examined, including a look at normality. Second, the results of propositions investigating whether different types of trust exist is examined through a confirmatory factor analysis. Third, Individual versus Organizational dimensions of trust are analyzed by assessing a set of paired t-tests. Finally, the full structural model specifying the antecedents to different types of trust (discovered in propositions 1 and 2) is tested.

4.1.1 Description of the Sample

Respondents at 1,445 organizations were mailed surveys and 359 usable surveys were received, resulting in a 24.8% response rate. Fourteen surveys were not included in the final sample in order to improve multivariate kurtosis problems (discussed later in this chapter).

Title one members of NAPM (the National Association of Purchasing Management) were identified as the sampling frame. Title one members include purchasing managers and all other higher ranking purchasing executives including, vice

president of procurement, vice presidents of materials management, and director of purchasing. Approximately 3,000 title one members exist. This study focuses on industrial respondents and did not include non-industrial members. Industries represented in the sample included: chemicals & related products, electrical/electronic equipment, fabricated metal products, food and related products, furniture, miscellaneous manufacturing, paper and related products, primary metal, printing and allied industries, rubber and plastics products and textile mill products.

As shown below in Table 4-1, the respondents were primarily high ranking purchasing executives, including: 150 directors of purchasing, 49 Vice-Presidents of Purchasing, 45 Purchasing Managers, 30 Vice-Presidents of Materials Management and 70 respondents falling in the other category. Of these 70, 37 respondents were in ownership, president or similar roles at their firms. Nineteen of the respondents were

Table 4-1 Respondent's Titles

Title	Frequency	Percentage
Director of Purchasing	150	44%
Vice-President of Purchasing	49	14%
Purchasing Manager	45	13%
Vice-President of Materials Management	30	9%
Other	70	20%
TOTAL	344	100%

buyers and the remaining 14 were in middle management roles such as director of systems or vice-president in charge of operations. Respondents had an average of 12 years of experience with their companies.

Table 4-2 presents the frequencies and percentages of respondent's companies' gross annual sales. The three largest categories, which include companies with gross annual sales over $100 million and above, comprise 65% of the sample. Thus, the respondent group was comprised primarily of medium to large firms.

Table 4-2 Respondent Companies' Gross Annual Sales

	Frequency	Percentage
Less than $5 Million	11	3%
$5 million to $10 million	8	2%
$10 million to $50 million	48	14%
$50 million to $100 million	50	15%
$100 million to $500 million	77	22%
$500 million to $1 billion	42	12%
Over $1 billion	108	31%
TOTAL	344	Approx. 100%

4.2 Non-Response Bias

The best method to minimize non-response bias is to increase response rates. As noted in chapter III, the Dillman method, (requiring three separate mailings to the target sample,) was used in an effort to maximize the response rate. One way of testing for non-response bias is to test for statistically significant differences in the responses of early and

late waves of returned surveys (Armstrong & Overton 1977). The non-response bias test used ten randomly selected survey items, and t-tests were performed on the two groups of 50 respondents each. The groups represented the first 50 respondents and last 50 respondents of the 346 responses used. The t-tests yielded no statistically significant differences among the ten survey items tested. Thus, the data analysis proceeded with analysis of the measurement and structural models as discussed in chapter III.

4.3 Missing Data

There are several different strategies for dealing with missing data including listwise deletion, pairwise deletion (Wilks 1932), mean replacement (Afifi & Elashoff 1966), regression replacement (Gleason & Staelin, 1975), maximum likelihood estimation (Alison 1987) and similar response pattern imputation (Joreskog & Sorbom, 1993). In using structural equation modeling it is crucial that there be no missing data be handled appropriately (Bentler 1993).

Listwise deletion was used to handle missing data on the dependent variable. Listwise deletion was appropriate because a large percentage of the cases with missing data on the dependent variable were missing a substantial portion of the dependent variable data. Several respondents failed to fill out the final page of the questionnaire which included all the information on individual level trust. Mean replacement was used for replacement of data on the independent variable. Mean replacement was selected for two reasons. First, mean replacement on the independent variable avoids contaminating the correlation between independent and dependent variable error terms in the phi matrix. Second, in this sample the number of missing data point for the independent variables is

much less than for the dependent variable. Only 22 missing data points were replaced on the independent variable.

4.4 Initial data analysis

4.4.1 Univariate Distributions

After the initial data collection was completed, the univariate distributions were examined to detect non-normality. One of the assumptions necessary for the use of maximum likelihood (ML) function is that the variables are normally distributed. Excessive kurtosis usually eliminates asymptotic efficiency and renders the estimated asymptotic covariance matrix and chi-squared estimator potentially inaccurate (Browne, 1982). When nonnormality or excessive kurtosis threatens the validity of the ML significance tests, Bollen (1989) recommends using transformations of the variables that approximate multinormality or that remove excessive kurtosis. Table 4-3 below shows the univariate distributions for all variables in this study.

Table 4-3 - Univariate Distributions of all Variables

	Mean	Std Dev.	Kurtosis	Skewness
Coercive Power V1	**4.887**	**1.617**	**-.743**	**-.492**
Coercive Power V2	**5.364**	**1.531**	**-.260**	**-.796**
Non-Coercive Power V7	**2.991**	**1.362**	**.023**	**.757**
Non-Coercive Power V8	**2.555**	**1.157**	**.887**	**.889**
Dependence V15	**3.787**	**1.700**	**-.896**	**.164**
Dependence V17	**2.828**	**1.459**	**-.072**	**.785**
Time Horizon V25	**4.773**	**1.373**	**-.504**	**-.283**

Table 4-3 -Continued

	Mean	Std Dev.	Kurtosis	Skewness
Human Asset Spec. V37	**2.458**	**1.698**	**.987**	**1.342**
Human Asset Spec. V38	**2.708**	**1.554**	**.203**	**.886**
Dedicated Asset Spec. V43	**2.808**	**1.657**	**-.227**	**.804**
Dedicated Asset Spec V45	**3.581**	**1.931**	**-1.091**	**.336**
Uncertainty V49	**4.395**	**1.643**	**-.899**	**-.131**
Calculus-Based Trust V57	**5.930**	**1.253**	**1.827**	**-1.407**
Calculus-Based Trust V58	**5.724**	**1.398**	**.429**	**-1.108**
Calculus-Based Trust V60	**5.852**	**1.295**	**2.310**	**-1.511**
Knowledge-Based Trust V66	**2.099**	**1.141**	**2.779**	**1.487**
Knowledge-Based Trust V67	**2.224**	**1.195**	**2.617**	**1.468**
Identification-Based Trust V78	**2.590**	**1.216**	**.106**	**.676**
Identification-Based Trust V79	**2.462**	**.842**	**.106**	**.676**
Identification-Based Trust V80	**2.430**	**1.099**	**1.023**	**.923**
Performance V85	**2.015**	**1.017**	**2.209**	**1.208**
Performance V86	**2.541**	**1.157**	**1.040**	**.935**

Some of the variables display excessive kurtosis and/or skewness. In particular, the coefficients of skewness and kurtosis were large for variables 57, 60, 66, 67, and 85. For variables that are negatively skewed (variables 66, and 67) a log transformation is recommended (West, Finch and Curran 1996) and was applied. Variables that are positively skewed should be raised to a power greater than one in their transformation

(West, Finch and Curran 1996) which was done (to variables 57 and 60). Below are the descriptive statistics for the transformed variables.

Table 4-4 - Transformed Univariate Distributions of all Variables

	Mean	Std Dev.	Kurtosis	Skewness
Calculus-Based Trust V57	**36.733**	**12.839**	**-.222**	**-.819**
Calculus-Based Trust V60	**35.916**	**12.858**	**-.064**	**-.815**
Knowledge-Based Trust V66	**.266**	**.218**	**-.697**	**.246**
Knowledge-Based Trust V67	**.292**	**.218**	**-.571**	**.164**
Dependence V15	**3.787**	**1.700**	**-.896**	**.164**
Identification-Based Trust V85	**.253**	**.212**	**-.994**	**.137**

Another problem that can be encountered in data analysis is a lack of multivariate normality. Kurtosis is a statistic that describes peakedness of a frequency distribution compared to a normal distribution (Hair et al. 1992). Mardia's coefficient and normalized estimates are statistical indicators of multivariate normality. Mardia's coefficient for this set of data was 78 and the normalized estimate was 49 which were quite high. Ideally Mardia's coefficient normalized estimate should be as low as possible. EQS indicates which cases should be removed to lower kurtosis. Based on these suggestions 15 cases were eliminated and Mardia's coefficient was lowered to 38.74 or nearly 50% and a normalized estimate of 23.19, a 52% decrease.

The preceding analyses served to meet preliminary assumptions of normality required to use the structural equation methodology. In the next section the measurement

properties of the latent constructs are examined to demonstrate evidence of convergent, discriminant and nomological validity.

4.5 Confirmatory Factor Analysis

Before embarking upon further analysis the measurement properties of the four latent variable constructs were examined. In the analysis the propositions regarding differences among the three different types of trust (proposition 1) and differences

Table 4-5 Statistics for Manifest Variables of Trust (Measurement Model)

Latent Variables and Their Manifest Variables	Factor Loadings	Standard Errors	t-Value	r^2
Calculus-Based Trust				
Question # 57: We feel that this key supplier takes advantage of us.	0.928	0.539	22.099	0.373
Question # 58: We feel that this key supplier tries to get the upper hand.	0.896	0.060	20.853	0.445
Question #60: I think this key supplier takes advantage of our vulnerabilities	0.798	0.591	17.146	0.615
Knowledge-Based Trust				
Question #66: I feel that this key supplier will keep its word.	0.917	0.009	21.681	0.582
Question #67: I think that this key supplier does not mislead us.	0.917	0.009	21.703	0.526
Identification-Based Trust				
Question #78: We think this key supplier is open in describing their strengths and weaknesses in negotiating joint projects.	0.863	0.053	19.849	0.505
Question #79: We know this key supplier will consider our concerns when making a decision.	0.896	0.047	21.110	0.444
Question #80: I feel that our key supplier negotiates joint expectations fairly.	0.945	0.045	23.113	0.328
Performance				
Question #85: In this relationship, the parties work together to solve problems.	0.766	0.011	14.934	0.643
Question #86: This relationship has met our profitability projections thus far.	0.594	0.061	11.339	0.805

* All loadings significant at $p<.01$

between individual and organizational trust (proposition 2) were also examined. These analyses were done to ensure consistency and reliability among each of the measures. A short discussion of the practical significance of the changes to the measurement model is also included with each analysis.

Based upon these results, several modifications to the original structural model were made. These respecifications were substantively based on the two measurement models subsequently discussed.

4.5.1 Trust Measurement Model

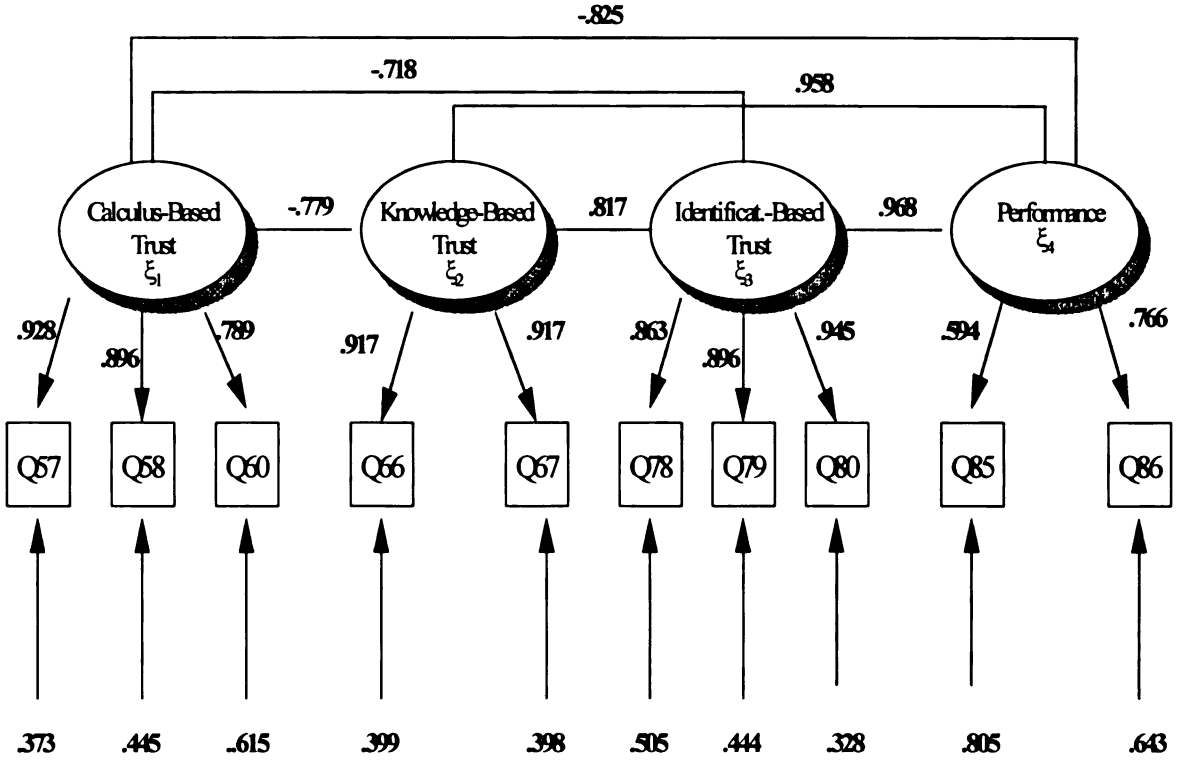
The first measurement model tested proposition 1 stating that three different types of trust exist (calculus, knowledge and identification-based). Figure 4.1 below shows the model tested in proposition one as well as the results. Initially the model with all of the hypothesized indicators was tested but because of significant crossloadings among manifest variables a more parsimonious model was used.

An important criteria in supporting a strong measurement model are indicators of convergent and discriminant validity (Anderson & Gerbing 1988) among the latent variables. Bagozzi, Yi, and Phillips add that a test for convergent validity iinvolves testing the significance of all factor loadings. T-values will indicate whether factor loadings are significantly different from zero. In the measurement model in Figure 4-1, all factor loadings were found to be significant providing evidence of convergent validity.

Discriminant validity can be established in two ways. First, examining the phi matrix can help to determine if the exogenous latent variables are correlated strongly with each other. Large significant correlations may indicate a lack of discriminant validity in

the model. The high correlation between knowledge-based and identification-based trust (Φ_{23}= .817), however, does not support discriminant validity between those two latent

Figure 4.1 Trust Measurement Model



variables. The high correlation between knowledge-based and identification-based trust would suggest the possibility of these two constructs having a common second order construct underlying them. One way to test for this possibility is to run a second order factor model and a single factor model and compare the results with a two factor model. The results are shown in Table 4-6.

Table 4-6 Trust Measurement Model Fit Statistics

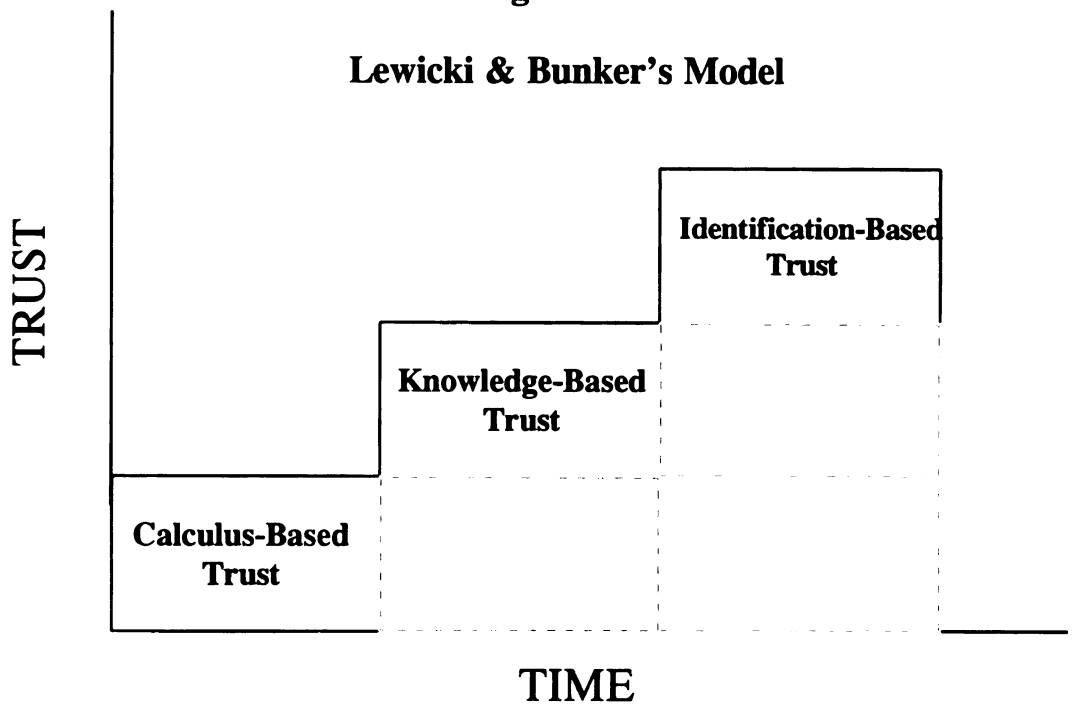
Criterion	One Factor	Two Factor	2nd Order
Bentler & Bonett Nonnormed Fit Index	.764	.996	.992
Bentler and Bonett's Normed Fit Index	.855	.994	.994
Bentler's Comparative Fit Index	.858	.998	.997
Chi-Square (χ^2)	279	11.84	11.840
Degrees of Freedom	9	8	6
Probability of a > Chi-Square	p<.001	.15849	.06563

A comparison of the chi-squared fit statistics suggest the nature of the relationship between knowledge-based and identification-based trust. Table 4-6 above compares the fit statistic among the three different models run. The fit statistics for the one factor model's (combination of knowledge-based and identification-based variables into one factor) are all substantially below the threshold value (.90) so that option is eliminated. The fit statistics for the second order and two factor models show an excellent fit in both cases suggesting the existence of a second order factor.

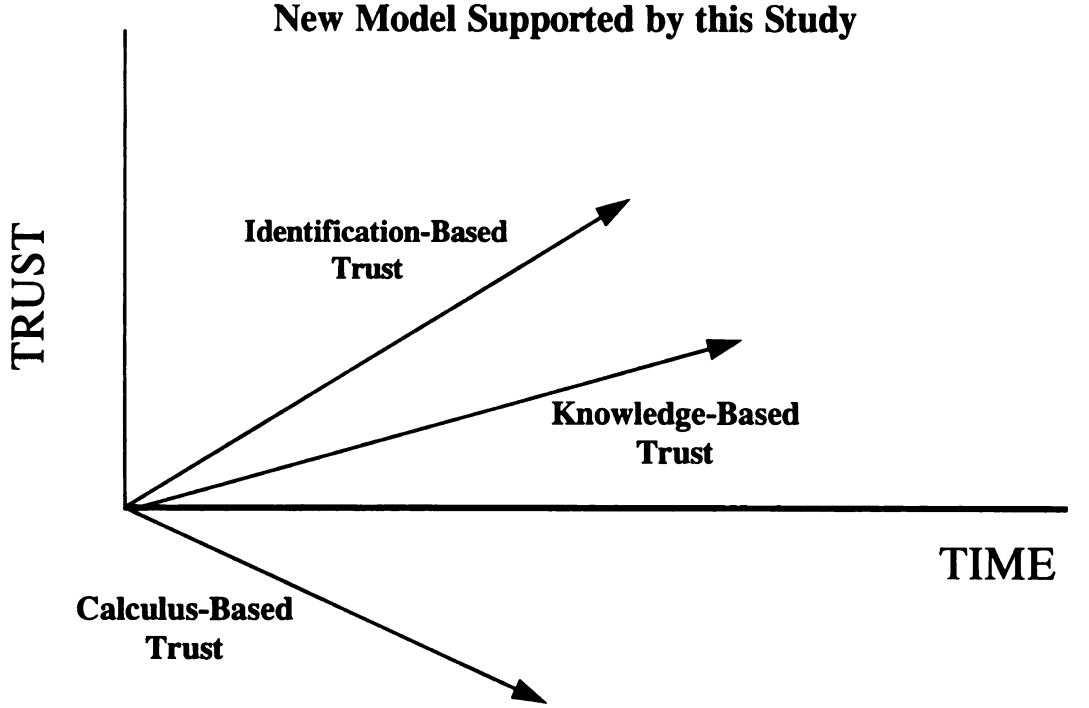
Nomological validity of a construct exists when a latent variable relates to other constructs in a way that is consistent with underlying theory. In chapter II, our theoretical model predicted a hierarchy of correlation between the three types of trust (Lewicki & Bunker 1995) and performance. The deeper or stronger the level of trust the stronger the relationship to performance. The factor loadings from Figure 4-1 indeed support this theory. The correlations are -.825 for calculus-based trust, .958 for knowledge-based trust and .968 for identification-based trust. The negative correlations between calculus-based trust and knowledge-based trust (-.779) and identification-based trust (-.718)

Figure 4-2

Lewicki & Bunker's Model



New Model Supported by this Study



suggest a major modification to Lewicki and Bunker's model of trust development as shown below in Figure 4-2. Rather than knowledge-based and identification-based trust building on it appears that calculus-based trust should be avoided altogether. The avoidance of calculus-based trust possibly provides a foundation for knowledge and identification-based trust. Moreover, out model suggests that organizations establishing new relationships with suppliers can "jump" into a strong relationship by establishing stronger ties immediately. The new model in Figure 4-2 shows this new relationship between the three types of trust which only partially supports Proposition 1 stating that three unique types of trust exist(it appears that only two forms of trust exist). The implications of this model will be discussed further in chapter V.

Nomological validity is also supported in analyzing the difference in discriminant validity between the three types of trust. As mentioned above the difference between knowledge-based and identification-based trust is not strongly supported through the discriminant validity analysis. This is not surprising because at both of these levels of trust a significant investment is made by both parties in the form of information sharing and emotional investment in the relationship. Sorting out the knowledge-based components from the emotional or identification-based components may not be possible because both types of trust occur simultaneously. A more detailed description of the theoretical implications of this issue are addressed in chapter V. In conclusion, all relationships in the model support nomological validity.

Table 4-7 shows the goodness of fit indices and the chi-squared statistic for the confirmatory factor analysis of the trust measurement model. As can be seen in Table 4-7, all three fit indices indicate an acceptable fit of the measurement part of the model.

Table 4-7 Trust Measurement Model Fit Statistics

Criterion	Value	Desirable Ranges
Bentler & Bonett Nonnormed Fit Index	.984	>0.90
Bentler and Bonett's Normed Fit Index	.981	>0.90
Bentler's Comparative Fit Index	.990	>0.90
Chi-Square (χ^2)	58	
Degrees of Freedom	29	
Probability of a > Chi-Square	p<.001	>0.05
Largest Standardized Residual	.053	<2.00

Each of the fit indices is well above the desired minimum value of .90. The largest standardized residual was .053 which is lower than the 2.00 standard espoused by Bagozzi and Yi (1988) and is not unacceptably large. Table 4-5 shows the factor loadings, standard errors, t-test, and R^2 statistics for the four latent variables tested in the trust measurement model.

4.5.2 Individual versus Organizational Trust

Proposition 2 states that no significant difference between individual and organizational trust is expected. With an acceptable trust measurement model in place proposition two was analyzed which tests whether individual and organizational trust are unique. A search of the literature on trust in chapter II revealed that there is little research analyzing potential differences between individual and organizational trust. This proposition is tested using paired t-tests of the means of similar questions on calculus, knowledge, and identification-based trust at the organizational and individual level.

Table 4-8 Analysis of Individual versus Organizational Trust

Questions	t-test	p-value	Significance
1a. We have a sharing relationship, where my primary contact and I can both freely share ideas, concepts, or information. 85. In this relationship, the parties work together to solve problems.	-1.7022	.0896	No
2a. I can talk freely to this person about difficulties we are having to know that he/she will listen. 78. We think this supplier is open in describing their strengths and weaknesses in negotiating joint project.	-12.0944	.0000	Yes
6a. This primary contact acts with integrity. 73. I feel our key supplier does not try to get out of commitments.	-6.5281	.0000	Yes
7a. I regularly communicate with the communicates with us. 65. We have frequent fact to face contact with this supplier.	2.1342	.0335	Yes
10a. The quality of work obtained from this primary contact is only maintained by diligent monitoring. 59. We monitor this key supplier closely, so that they cannot take advantage of us.	4.3334	.0000	Yes
2a. I have faith in my contact person to look out for my best interest even when it is costly to do so. 88. This key supplier is genuinely concerned about our company's welfare.	4.5492	.0000	Yes

Table 4-8 above summarizes the t-test results. Seven of the eight t-tests were found to be significant at the 0.05 alpha level. Only the t-test between questions 1a and 78 were not found to be significant (This result is actually significant at the $p<.10$ level). These results do not support proposition 2 and imply that respondents perceived a difference between individual and organizational trust. This result has important

implications for research on trust, as it counters previous theory described by Ring and Van deVen. This will be discussed further in chapter V.

4.6 Measurement and Structural Model Testing of Trust Antecedents

Then next step of this analysis involved testing hypotheses 1 through 7 which posits associations between a set of antecedents and the three types of trust. The factor loadings, standard errors, t-values and r^2 statistics for the trust antecedents are shown in Table 4-9 below. Each of the individual items remaining in the analysis were significant indicators of their respective factors with t-values greater than 1.96, $p < 0.05$ and the coefficient signs were all positive as expected. The overall fit of the antecedent measurement model which is summarized below shows fit indices all above the acceptable fit of the measurement model with the exception of the Adjusted Goodness-of-Fit index. However, the AGI was only slightly below the threshold value of 0.90 judged acceptable enough to proceed with a test of the structural model.

4.7 Testing of Structural Models

The difference between confirmatory and structural equation modeling is that the latter employs structural equations to test relationships among the latent factors in the model. The relationships between the observed or manifest variables and their corresponding constructs that constitute the measurement model of this study is brought out through an analysis of structural relationships.

Structural equation modeling combines multiple regression and factor analysis to simultaneously test a series of dependent relationships (Hair et al 1992). Hypotheses 1 to

Table 4-9 Statistics for Manifest Variables of Trust Measurement Model

Latent Variables and Their Manifest Variables	Factor Loadings	Standard Errors	t-Value	r^2
Coercive Power				
Question #2: We will take quick punitive measures (e.g. reduce volumes) if this key supplier does not meet our performance expectations.	0.868	0.129	6.322	0.864
Question #3: We occasionally use fear to motivate this key supplier.	0.504	0.175	7.599	0.496
Non-Coercive Power				
Question #7: We have few problems influencing this key supplier.	0.742	0.057	17.488	0.670
Question #8: This key supplier is highly receptive to our ideas.	0.803	0.056	18.656	0.596
Supplier Dependence				
Question #15: This key supplier is dependent on us.	0.811	0.080	17.441	0.585
Question #17: This key supplier would find it costly to lose us	0.760	0.076	19.565	0.650
Planning Horizon				
Question #25: If our key supplier is gaining more from the relationship than we are, we always take steps to end or alter the agreement.	1.000	0.055	16.764	0.000
Human Asset Specificity				
Question #37: Non-sales personnel from our key supplier have visited our plant to see how their product is used in our process.	0.659	0.079	16.125	0.752
Question #38: Personnel from our key supplier work closely with our engineering and design area in developing new products.	0.798	0.080	15.596	0.603
Dedicated Asset Specificity				
Question #43: Our key supplier has dedicated equipment or capacity specifically to maintain our relationship.	0.869	0.080	17.246	0.496
Question #45: Our key supplier has purchased specialized equipment to meet our needs of this key-input material.	0.791	0.075	13.345	0.612
Uncertainty				
Question #47: Technological change is rapid in the industry this key supplier works in.	0.613	0.112	14.394	0.790

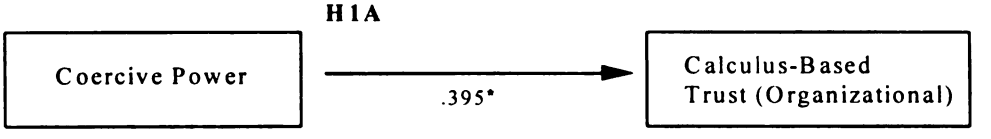
6 involve the testing of three separate structural models (one for each type of trust). Figures 4-3 to 4-5 below depict the three structural models tested.

Table 4-10 Calculus-Based Trust

Criterion	Value	Desirable Ranges
Bentler & Bonett Nonnormed Fit Index	.983	>0.90
Bentler and Bonett's Normed Fit Index	.994	>0.90
Bentler's Comparative Fit Index	.997	>0.90
Chi-Square (χ^2)	4.722	
Degrees of Freedom	2	
Probability of a > Chi-Square	.09434	>0.05

The first model analyzes calculus-based trust which was hypothesized to be positively associated with coercive power. Fit statistics for the model are in Table 4-10 below. All three fit indices are above the .90 level which shows a good fit. The Chi-square statistic is significant at the $\alpha = .05$ level which supports Hypothesis 1a.

Figure 4-3

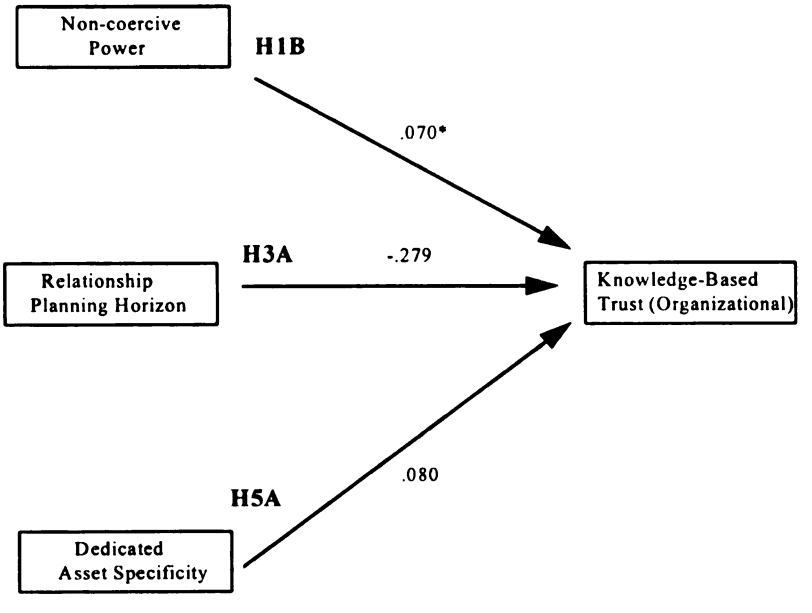


* Indicates significant at p<.01

Figure 4-3 above shows the relationship between coercive power and calculus-based trust. The equation below indicates the structural equation model for calculus-based trust. The top number is the unstandardized beta weight, the second number is the standardized beta weight, the third number the standard error and the final number the t-value. Hypothesis 1A postulated an association between calculus-based trust and coercive power. The structural equation below shows a significant relationships between these two constructs.

Calculus-Based Trust = **.714 Coercive + 1.0D**
.714 Power + .919D
.133
5.360

Figure 4-4 Knowledge-Based Trust



* Indicates significant at p<.01 level

The second structural model in Figure 4-4 analyzes the antecedents of knowledge-based trust. All three fit indices as seen in Table 4-11 below are above the .90 accepted cutoff level.

Analysis of the structural model indicates support for hypotheses H1B, however hypotheses H3A and H5A are not supported. Moreover, there is evidence to support that the use of non-coercive power leads to knowledge-based trust, but that asset specificity behavior and dedicated asset specificity do not. These results will be discussed in chapter V.

Table 4-11 Knowledge-Based Trust

Criterion	Value	Desirable Ranges
Bentler & Bonett Nonnormed Fit Index	.952	>0.90
Bentler and Bonett's Normed Fit Index	.927	>0.90
Bentler's Comparative Fit Index	.962	>0.90
Chi-Square (χ^2)	48	
Degrees of Freedom	11	
Probability of a > Chi-Square	p<.001	>0.05
Largest Standardized Residual		<2.00

The equation below indicates the structural equation model for knowledge-based trust. The top number is the unstandardized beta weight, the second number is the standardized beta weight, the third number the standard error and the final number the t-value. Only Non-coercive power was found to have a significant relationship with knowledge-based trust. Both dedicated asset specificity and relationship planning horizon while close to the 1.96 t-statistic cutoff are not statistically significant.

Knowledge-Based Trust	**= .010**	**Dedicated Asset Specificity**	**+ .156**	**Non-Coercive Power**	**+ -.145**	**Planning Horizon**	**+ 1.0D**	
	.080		**.702**		**-.279**		**.650**	
	.006		**.015**		**.084**			
	1.757		**10.297**		**-1.724**			

Table 4-12 Identification-Based Trust

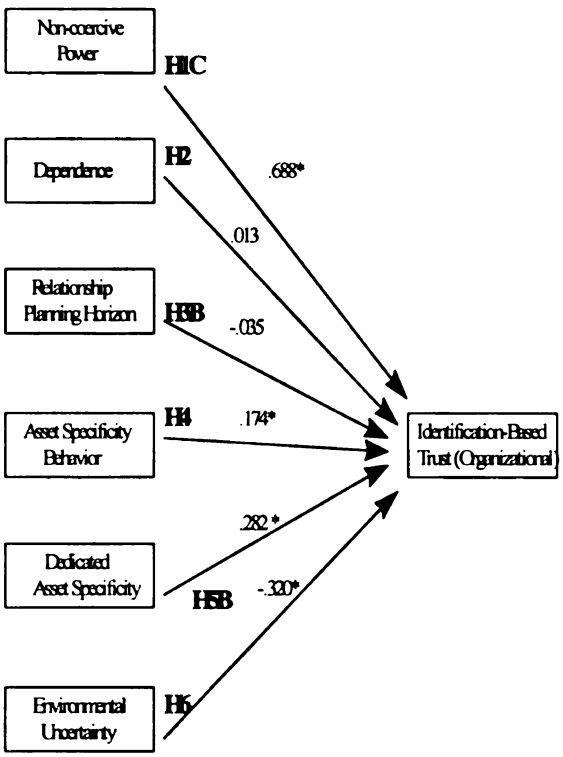
Criterion	Value	DesirableRanges
Bentler & Bonett Nonnormed Fit Index	.758	>0.90
Bentler and Bonett's Normed Fit Index	.800	>0.90
Bentler's Comparative Fit Index	.824	>0.90
Chi-Square (χ^2)	299	
Degrees of Freedom	48	
Probability of a > Chi-Square	P<.001	>0.05

The final structural model tested relationships between six different antecedents and identification-based trust. Table 4-12 above lists the fit indices for the identification-based structural model. The fit indices indicate a poor fit. All three indices are substantially below the .90 cutoff level.

A comparison of the identification-based structural model fit indices with the measurement model fit statistics which were all above .90 indicate the presence of relationships not specified in the identification-based trust model.

Figure 4-5 above shows the relationships among identification-based trust and its antecedents. The equation below indicates the structural equation model for Identification-based trust. The top number is the unstandardized beta weight, the second number the standardized beta weight, the third number is the standard error, and the final number the t-value. Dedicated asset specificity (H5B), non-coercive power (H1C), human asset specificity (H4), and uncertainty (H6, negative relationship) were found to

Figure 4-5 Identification-Based Trust



*** Indicates significant at p<.01 level**

have significant associations with identification-based trust. Dependence (H2) and relationship planning horizon (H3B) were not found to have significant associations.

Identification-Based Trust	**=**	**.182**	**Dedicated Asset Specificity**	**+**	**.632**	**Non-Coercive Power**	**+**	**.009**	**Dependence**	**+**
		.282			**.688**			**.013**		
		.037			**.067**		**.039**			
		4.922			**9.438**		**.234**			

.144	**Human Asset Specificity**	**+**	**-.297**	**Uncertainty**	**+**	**-.024**	**Time Horizon**	**+**	**.559**	**D**
.174			**-.320**			**-.035**			**.560**	
.047			**.077**			**.029**				
3.073			**-3.833**			**-.809**				

Table 4-13 Additional Lagrangian Pathways Identified

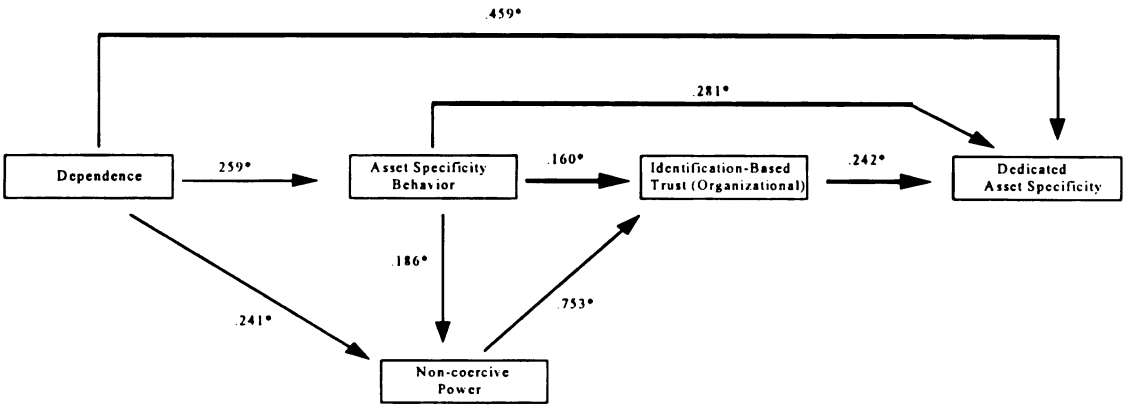
Parameter	Parameter	Lagrangian Multiplier
Dependence	Dedicated Asset Specificity	74.263
Human Asset Specificity	Dedicated Asset Specificity	46.010
Non-Coercive Power	Dedicated Asset Specificity	34.578
Uncertainty	Dedicated Asset Specificity	21.584
Dependence	Non-Coercive Power	17.398
Uncertainty	Dependence	14.133
Human Asset Specificity	Dependence	13.895
Uncertainty	Non-Coercive Power	12.428
Human Asset Specificity	Non-Coercive Power	11.404
Uncertainty	Human Asset Specificity	8.851
Time Horizon	Human Asset Specificity	4.800

EQS output provides a list of Lagrangian Multipliers chi squared statistics which tests whether fixed relationships in the model are in fact nonzero in the population and would be better treated as free parameters in the future. Table 4-13 shows the following additional paths were statistically significant in the Lagrangian Multiplier test of the identification-based trust model.

Figure 4-6 below shows a modified model of identification-based trust and its antecedents. Several paths were added and removed based on the results of the Lagrangian multiplier test.

The fit indices for this modified model are all above .95 indicating a strong fitting model. The implications of Figure 4-7 below will be discussed in chapter VI. Table 4-14 summarizes the findings among all of the propositions and hypotheses tested.

Figure 4-6 Modified Identification-Based Trust Model



* Indicates significant at p<.01 level

Table 4-14 Propositions and Hypotheses

P1. Three types of trust exist which are calculus-based, knowledge-based, and identification-based trust.	Supported
P2. Organization trust and individual trust are not unique	Not Supported
H1A. Use of coercive power will be positively associated with calculus-based trust. H1B. Use of non-coercive power will be positively associated with knowledge-based trust. H1C. Use of non-coercive power will be positively associated with identification-based trust.	Supported Supported Supported
H2. Dependence between buyer and supplier will be positively associated with the level of identification-based trust in a supplier.	Not Supported
H3A. A short-term cooperative buyer-supplier relationship planning horizon will be associated with the level of knowledge-based trust in a supplier. H3B. A short-term cooperative buyer-supplier relationship planning horizon will be associated with the level of Identification-based trust in a supplier.	Not Supported Not Supported
H4. Asset Specificity behavior focusing on information sharing and synergy will be positively associated with identification-based trust in a supplier	Supported

Table 4-14 (Continued)

H5A. The level of dedicated asset specificity will be positively associated with the level of knowledge-based trust.	Not Supported
H5B. The level of dedicated asset specificity will be positively associated with the level of Identification-based trust.	Supported
H6. Environmental uncertainty will be positively associated with the level of identification-based trust	Supported
H7A. Cooperative buyer-supplier relationship performance will be positively associated with the level of knowledge-based trust in a supplier.	Supported
H7B. Cooperative buyer-supplier relationship performance will be positively associated with the level of Identification-based trust in a supplier.	Supported

4.8 Summary and Conclusions

The goal of this study was to investigate the interorganizational dynamics of trust in ongoing buyers-supplier relationships. The outcomes of the data analysis reported in this chapter are measures for three different types of trust, performance, and the key antecedents to trust.

A second contribution of this research is the validation of existing factor scales and development of new factor scales. Table 4-15 lists the final sets of items for each factor and includes the coefficient alpha for each purified scale.

Finally, many of the a-priori relationships were found to be positive and significant. Key findings include establishment of measures for the three types of trust and strong relationships between the three types of trust and performance. In testing the trust measures the possibility of identification and knowledge-based trust also being components of a second order trust construct was established. Key results include:

- Coercive power positively associated with calculus-based trust
- Non-coercive power positively associated with identification-based trust

- Asset specificity behavior positively associated with identification-based trust
- Dedicated asset specificity is positively associated with identification-based trust
- Uncertainty is negatively associated with identification-based trust.

Chapter V will provide an overview of the research and discussion of the findings in this chapter.

Table 4-15 Statistics for Manifest Variables of Trust Measurement Model

Standardized Latent Variables and Their Manifest Variables	**Coefficient Alpha**
Calculus-Based Trust Question # 57: We feel that this key supplier takes advantage of us. Question # 58: We feel that this key supplier tries to get the upper hand. Question #60: I think this key supplier takes advantage of our vulnerabilities	**.842**
Knowledge-Based Trust Question #66: I feel that this key supplier will keep its word. Question #67: I think that this key supplier does not mislead us.	**.914**
Identification-Based Trust Question #78: We think this key supplier is open in describing their strengths and weaknesses in negotiating joint projects. Question #79: We know this key supplier will consider our concerns when making a decision. Question #80: I feel that our key supplier negotiates joint expectations fairly.	**.902**
Performance Question #85: In this relationship, the parties work together to solve problems. Question #86: This relationship has met our profitability projections thus far.	**.605**
Coercive Power Question #2: We will take quick punitive measures (e.g. reduce volumes) if this key supplier does not meet our performance expectations. Question #3: We occasionally use fear to motivate this key supplier.	**.608**
Non-Coercive Power Question #7: We have few problems influencing this key supplier. Question #8: This key supplier is highly receptive to our ideas.	**.758**

Table 4-15 (Continued)

Standardized Latent Variables and Their Manifest Variables	Coefficient Alpha
Supplier Dependence Question #15: This key supplier is dependent on us. Question #17: This key supplier would find it costly to lose us	**.866**
Planning Horizon Question #25: If our key supplier is gaining more from the relationship than we are, we always take steps to end or alter the agreement.	-
Human Asset Specificity Question #37: Non-sales personnel from our key supplier have visited our plant to see how their product is used in our process. Question #38: Personnel from our key supplier work closely with our engineering and design area in developing new products.	**.687**
Dedicated Asset Specificity Question #43: Our key supplier has dedicated equipment or capacity specifically to maintain our relationship. Question #45: Our key supplier has purchased specialized equipment to meet our needs of this key-input material.	**.809**
Uncertainty Question #47: Technological change is rapid in the industry this key supplier works in.	-

* All loadings significant at $p<.01$

CHAPTER V

SUMMARY AND DISCUSSION

In this chapter, the results of the measurement and structural model analyses are interpreted and summarized. This chapter will also discuss implications of this study in relation to previous research and suggest directions for future research. Finally, the limitations of this current study are outlined. This chapter is organized into six sections. Section one provides an overview of the findings of the study. It reviews the results regarding the research questions, propositions, and hypotheses. Section two discusses the research findings among each proposition and hypothesis tested. Section three discusses the contributions of this study to prior theory in the areas of trust and interorganizational relationships, and section four looks at the implications of this study on professional practice. Section five presents limitations of the study, and section six provides directions for future research.

5.1 Overview of Research

This section provides an overview of the methodology, research questions, propositions, and hypotheses. This study involved an empirical investigation into the definition of trust and identification of the key antecedents that develop trust. In this study, three different types of trust were tested including: calculus, knowledge, and identification-based trust. Factors that were potentially important antecedents to trust

development were identified through a thorough search of the trust and buyer-supplier relationship literature. Based on the literature, a model of the significant antecedent factors to trust development was constructed. This model (Figure 1-3) was tested using data from a written survey instrument.

A survey methodology was used because prior research on trust was done primarily in other disciplines such as economics or organizational behavior, and in order to generalize these finding to buyer-supplier relationships, the rigorous use of statistical testing from a large population of firms was required. A pretest of the survey instrument was done to help ensure clarity, reliability, and validity of questions. Title one members of the NAPM (National Association of Purchasing Management) membership database were used because these upper level purchasing executives would have access to the data sought on the questionnaire.

The research questions were developed with the a-priori model in Figure 1-3. Three research questions that guide this investigation as follows:

1. What are the different types of trust experienced by purchasing executives in cooperative buyer-supplier relationships?

2. What are the key antecedents that affect the level of trust experienced by cooperative buyer-supplier relationships?

3. Are there significant differences between the three different types of trust and cooperative buyer-supplier relationship performance?

The research questions above address specific relationships among factors that were identified in the literature as important to the development of trust in buyer-supplier relationships. The first two research questions explore the definition of trust in the realm of buyer-supplier relationships and the relationship of trust to key antecedents. The final

research question addresses the relationship between different types of trust and performance.

5.2 Discussion of Research Findings and the Theoretical Implications of Findings

As noted in chapter two, the study of trust has been long and rich (Deutsch 1958; Solomon 1960; Strickland 1958). While many studies on trust have been done (Mayer et al. 1995; Hosmer 1995), the use of the term remains inconsistent (Barber 1983; Hosmer 1995; Zucker 1986). Trust has been associated with concepts including: reliability, competence, goodwill, vulnerability, loyalty, and honesty, yet has never been specifically measured and assessed within the context of buyer-supplier relationships. Recent literature has explored the existence of multiple forms of trust which may or may not be a function of time (McAllister 1993; Bromiley & Cummings 1996; Ghoshal & Bartlett 1995). These multiple forms of trust help to explain the wide range of terms or concepts associated with trust.

A recent theory on trust from Lewicki & Bunker (1995) states that three types of trust exist that have a hierarchical relationship as they develop as shown in Figure 3-2. This dissertation is one of the first to test the existence of calculus-based, knowledge-based, and identification-based trust theorized by Lewicki and Bunker. In addition, this study is one of the first to explore the key antecedents associated with these three different types of trust. The contributions of this study as they apply to previous studies are presented in the following paragraphs. The following sections address the areas of trust, power, dependence, asset specificity, uncertainty, relationship time horizon, and performance against the existing literature on trust and trust development.

5.2.1 Calculus-based, Knowledge-based, and Identification-based Trust

Proposition 1 addresses the different types of trust present in key buyer-supplier relationships and the results of proposition 1 are summarized in Table 5-1 below. The three types of trust tested were calculus, knowledge, and identification-based trust. Prior theory suggests that these three types of trust exist in a hierarchical relationship progressing from calculus to knowledge and finally to identification-based trust. However, not all relationships will make it to the knowledge or identification-based stages. This study sought to verify the presence of the three types of trust, but because this study is cross-sectional, the temporal relationships among the types of trust were not tested.

Table 5-1 Propositions

Propositions/Hypotheses	Result	Implications
P1. Three types of trust exist which are calculus-based, knowledge-based, and identification-based trust.	Confirmed	Three different types of trust exist: Calculus, Knowledge and Identification based trust.
P2. Organizational trust and individual trust are not unique	Not Supported	No support for proposition P2. A significant difference between organizational and individual-based trust exists.
H1A. Use of coercive power will be positively associated with calculus-based trust.	Supported	Coercive power is positively associated with calculus-based trust.
H1B. Use of non-coercive power will be positively associated with knowledge-based trust.	Supported	Non-coercive power is positively associated with both knowledge and identification-based trust.
H1C. Use of non-coercive power will be positively associated with identification-based trust.	Supported	

Proposition 1 was tested by running a confirmatory factor analysis among the three different types of trust and performance in an attempt to establish convergent, discriminant, and nomological validity. Convergent and nomological validity were established between the three types of trust and performance; however, discriminant validity between knowledge-based and identification-based trust was questionable. A phi value between identification and knowledge-based trust of over .80 indicated the possibility that knowledge-based and identification-based trust are part of a second order construct.

The high correlation between knowledge-based and identification-based trust is not totally unexpected. Table 5-2 shows that knowledge-based trust addresses the areas

Table 5-2: Comparison of theory with results of this study

Type of Trust	**Lewicki & Bunker**	**This Study**
Calculus-Based	• Fear • Punishment • Monitoring • Opportunistic	• Fear • Punishment
Knowledge-Based	• Predictability • Information • Regular Communication	• Honesty • Not misleading
Identification-Based	• Empathy • Mutual Understanding • Shared values • Joint goals	• Openness • Empathic • Fair

of honesty (keeping your word) and being straightforward in representing facts, while identification-based trust addresses being open, fair, and empathetic. These two types of trust address areas that are very similar. It would not be surprising to find respondents simultaneously feeling that trust includes being honest, straightforward, open, fair, and empathetic. The plausibility of this explanation led to investigation of identification and knowledge-based trust possibly being components of a second order factor. A second order factor occurs when two latent independent variables define a third latent variable. A second order factor analysis was performed to indicate whether knowledge-based and identification-based trust are two independent latent variables that make up a third latent variable possibly called character-based trust. The second order factor analysis yielded strong fit statistics indicating the possibility of a second order factor being present.

An alternative explanation to the high correlation between knowledge and identification-based trust is the nature of the relationships surveyed. Respondents were asked to direct their thoughts in responding to a key supplier providing a high expenditure and strategic service or part. Since respondents commented on key suppliers, it is possible that many respondents described a relationship that is mature. Results from Question #23 of the survey which asked how many years the respondent has bought from the key supplier supports this possible explanation. The average age of the relationship used by respondents to answer the survey was just under 13 years. This indicates that most respondents are looking at well established relationships that are deep into the knowledge and identification-based trust stages. The lack of short or mid-term length relationships in the sample could possibly explain why there is not strong discriminant validity between knowledge and identification-based trust.

While the sample was slanted toward long and mid term length relationships the relationship between length of relationship and trust was tested. Despite the bias of the sample toward long-term relationships which would make it more difficult to see a relationship between length of relationship and trust, t-tests found a significant relationships. These results suggest that trust does not plateau after 10 years but actually can continue to grow and develop as relationships become 15, 25 or even 35 years old.

The scale items used for these measures were developed from previous studies by McAllister 1995, Bromiley and Cummings 1995, and Kumar 1996. In studies by McAllister and Bromily and Cummings, multiple forms of trust were found. In McAllister's case, different antecedents were associated with two different types of trust. McAllister's study investigated the existence of three types of trust on an interorganizational level. The three types of trust studied are different from any of the multiple trust types developed in prior theory.

Calculus-based trust is similar to a construct tested by Bromily and Cummings called "avoid taking excessive advantage of." Calculus-based trust, however, goes beyond Bromily and Cumming's concept and is centered on conformance through threat of punishment or fear. The fact that calculus-based trust emerged as a latent variable is important, but maybe an even more significant finding was the impact of calculus-based trust on performance. Recent work by Kumar 1996 shows empirical support for the negative effects of fear on a buyer-supplier relationship, and this study supports Kumar's theory and findings. Threats and fear have been part of the buyer supplier landscape for many years, but partnership and Kereitsu (Nishiguchi 1994) relationships suggest a move toward more cooperative relationships. Skeptics, however, maintain that being tough and

using fear is still necessary, but this study strongly suggests that fear actually reduces performance in key buyer-supplier relationships.

In developing the measures for trust, a tradeoff often encountered by researchers between content validity and convergent validity was experienced (Dunn, Seaker, and Waller 1994). In order to achieve high factor loadings, certain components of the three trust constructs were eliminated, and consequently, the content validity of the knowledge-based trust construct was narrowed to include addressing the areas of honesty and not misleading another party. Lewicki and Bunker's theoretical description of knowledge-based trust includes predictability, reliance on information, and communication information exchange. In this dissertation information and communication exchange fell out of the knowledge-based construct in order to achieve convergent validity. Likewise, a trade-off between convergent and content validity occurred with the identification-based trust construct which was defined as involving identification with the other party, understanding, joint goals, and having a shared collective identity. The identification-based trust latent variable for this study ended up with three manifest variables involving openness, fairness, and empathy. As a result, fairness, which is an area thought to possibly be an element of knowledge-based trust, is actually a part of identification-based trust. In addition, joint goal setting and shared identity did not load high enough on the factor and were not included as part of identification-based trust. Table 5-2 below shows the key elements of the three trust types according to Lewicki and Bunker (1995) and this study.

Table 5-2 shows that the measurements in this study are consistent content-wise with the theory posited by Lewicki & Bunker (1995); however, all three types of trust

used in this study are more narrowly defined. Calculus-based trust is essentially fear of punishment, knowledge-based trust involves being honest and forthright, and identification-based trust involves being empathic, open, and fair. One surprising finding is that identification-based trust includes the concepts of fairness and openness. The prior theory by Lewicki and Bunker (1995) suggest that these two concepts would more likely develop at the knowledge-based stage.

In conclusion, this study establishes the existence of calculus-based trust and possibly the existence of knowledge and identification-based trust. The possibility that knowledge and identification-based trust form a single type of trust (character- based trust) also exists.

5.2.2 Individual versus Organizational Trust

Proposition 2 looked at whether a difference exists between trust at an organizational level versus trust at an individual level. The apriori proposition stated that these two types of trust would not be unique.

However, six of the seven statistical tests analyzed showed a significant difference between trust at the individual and organizational levels. These findings suggest that respondents do in fact see a difference between trusting an individual person and trusting an organization. This result is interesting in that it indicates that while purchasing executives trust the individual they are working with, this trust does not necessarily extend to the entire organization. This result supports a strong emphasis on stability in relationships among buyers and suppliers; however, the results suggest that too much stability may possibly be negative. In other words, the supplier becomes too comfortable

with the relationship manager from the buyer, so that eventually when this manager leaves the supplier feels anxiety because their trust of the organization is not strong. Therefore, it may be important that rather than individual relationships between members of the buyer and supplier that groups or teams from both parties work together which would mitigates dependence on a small number of relationships and possibly increase each party's trust of one another.

Looking at theory, the work of Ring and Van de Ven 1984; Dore 1983; Granovetter 1985; Eccles 1981; and Lincoln 1985 found that long-term personal relationships develop standards of behavior at the same level or better than rules created by a hierarchical relations. Ring and Van de Ven also go on to point out that one of the major advantages to having high levels of trust is that trust effectively mitigates risk. While trust may provide many of the benefits noted in this study (avoid use of contracts, mitigate risk, increase information and resource exchange), a key question that arises is whether firms are effectively taking advantage of the benefits that trust provides and translating these benefits into performance improvement. This question was answered by statistically testing to see if there is a relationship between length of relationship and performance. Length of relationship and performance were found to have a significant relationship which supports the Ring and Van de Ven's, Dore's, Eccle's and Granovetter's theory findings. Therefore, it is essential that firms have a reason for creating trust (avoid costly contracts, take more risks, and share resources) because without a plan trust may be created but not leveraged into results.

Most prior studies on trust have analyzed trust at an individual level (McAllister 1993; Cummings and Bromiley 1995), but in the area of buyer-supplier relationships,

trust at the organizational level is also important. The question arises, is trust of an employee of a firm the same as trust of the organization itself? Intuitively, the answer would appear to be yes. If a purchasing agent has a good relationship with an employee at the supplier, the purchasing agent would then likely say he or she has a good relationship with the organization as well.

Results from this study suggest that trust of an individual does not automatically translate into trust of an organization. Many possible explanations exist regarding why trusting an individual would differ from trusting the organization they represent, and future research analyzing this issue could prove to be interesting.

5.2.3 Coercive and Non-coercive Power

Hypothesis 1A states there is a positive association between coercive power and calculus-based trust. Calculus-based trust is trust based on fear of punishment, and coercive power is use of punishment as influence, so it is not surprising that a strong significant relationship was found between these two variables.

Hypothesis 1B states that there is a positive association between non-coercive power and knowledge-based trust. Non-coercive power is the use of rewards, persuasion, and other non-coercive measures to influence a supplier. Thus the a-priori model posits that non-coercive power will be present with the stronger more developed forms of trust. Support was found for Hypothesis 1B. Hypothesis 1C states that there is a positive association between non-coercive power and identification-based trust and support was found for Hypothesis 1C also. These findings support the stream of research created by Deutsch in 1960 and extended by Gaski and Nevin through the 1980s suggesting that

non-coercive and coercive power have different effects on levels of performance. This study went further in hypothesizing that power impacts trust which is then correlated with performance. Implications of this finding are signficant. Firms that are impatient and resort to the use of coercive power will likely see the performance of their key supplier deteriorate whereas firms using non-coercive power will have a much better chance of seeing a supplier's performance improve.

Table 5-3 Hypotheses 2-3

Propositions/Hypotheses	Result	Implications
H2. Dependence between buyer and supplier will be positively associated with the level of identification-based trust in a supplier.	Not Supported	Dependence of supplier on the buyer may lead to exploitive rather than trust building behavior by buyer.
H3A. A short-term cooperative buyer-supplier relationship planning horizon will be associated with the level of knowledge-based trust in a supplier.	Not Supported	Measurement of relationship planning horizon using proxies such as the length of a firm's average key supplier relationship may be more accurate.
H3B. A short-term cooperative buyer-supplier relationship planning horizon will be associated with the level of identification-based trust in a supplier.	Not Supported	

As noted on page 44 of chapter two, there appears to be some type of relationship between Lewicki and Bunker's three types of trust and Raven's (1958) three types of power (coercive, expert and referent). Prior empirical work in the area of power has looked at coercive and non-coercive power (Gaski & Nevin 1985) in channel relationships, and Gaski and Nevin's work was extended in this study to buyer-supplier relationships. Non-coercive power according to Gaski & Nevin and Hunt & Nevin (1974) is referent, legitimate, and reward power, but for the purpose of this study, non-

coercive power is the non-coercive influence of the buyer on the supplier which could be due to rewards, identification, status, or other non-coercive sources.

Little research has been done on the relationship between different types of power and trust. Gaski (1986) found some support for a relationship between fear and punishment and dissatisfaction in a relationship. The strong positive relationship between calculus-based trust and coercive power confirms Gaski's earlier findings. This study found coercive power to have a strong positive association with calculus-based trust which in turn had a strong negative correlation with performance. Research on non-coercive power and trust is scarce so this study is one of the first to analyze this issue. Both knowledge and identification-based trust were found to have a positive association with non-coercive power. It should be noted however, that non-coercive power in this study addressed the issue of supplier influencability and not the specific type of influence (legitimate, reward, identification, etc.). Therefore, influencability of a supplier is heavily correlated with trust, but how that influence is attained is a question requiring further study.

5.2.4 Dependence

Hypothesis 2 analyzed the association between dependence and identification-based trust. Dependence addresses how dependent the supplier is on the buyer. The relationship between identification-based trust and supplier dependence was not statistically significant. A possible explanation for the lack of significance is the possible exploitation by large buyers of the supplier who is dependent on them. As previously mentioned, the survey respondents were predominantly from very large industrial firms.

The size of these firms combined with suppliers who feel vulnerable or dependent may lead to one sided relationships where the supplier does whatever they must to keep the buyer as a customer.

Dependence analyzes the reliance of the supplier on the buyer and how this associates with trust. Originally, this study attempted to consider interdependence, but the measures did not provide significant convergent validity to include buyer dependence along with supplier dependence as a good measure of interdependence. Previous work on dependence has looked at the relationship between power and dependence (Emerson 1962; Frazier, Spekman and O'Neal 1988) and the effect of power asymmetries on a relationship (Williamson 1975; Heide 1994; Lusch & Brown 1996). The measures in this study directly address how costly, and hence, how dependent the supplier is on the buyer. The expectation is that a dependent supplier would be more amenable to creating a good relationship with the buyer which would generate in higher levels of trust.

Dependence was theorized to have a positive association only with identification-based trust primarily because of the findings of Mohr and Spekman who found a positive correlation between interdependence and trust in buyer-supplier partnerships. As noted above, this study tested supplier dependence and not interdependence between buyer and supplier. Interestingly though, in this study, supplier dependence was not found to have a significant association with identification-based trust; however, prior theory supports this finding. Several prior studies (Frazier, Spekman and O'Neal 1987; Williamson 1975; and Etgar & Valency 1983) suggest that in situations where dependence exists, the more powerful party will almost always exploit the relationship. It is not surprising then to find

that perhaps in this study some firms use a supplier's dependence to gain more favorable conditions which could have a negative impact on trust.

Future research may benefit from looking at restraint from the use of power in a dependence or power asymmetric relationship. Lusch & Brown (1996) and Heide & Miner (1992) found significant relationships between restraint of the use of power and various satisfaction and expectation measures of channel relationships. This study would likely have had a better opportunity of seeing a positive association between restraint from the use of power and trust rather than dependence and trust. Exercise of power is an important issue because prior research (Emerson 1962; Buchanan 1992) found that in relationships with power asymmetry a significant difference in relational norms, of which trust is a part of, exists. Therefore, it would be beneficial to specifically find relationships where power asymmetry exists and compare relationship performance between buyers that exploit power asymmetry versus relationships where there is restraint of power.

5.2.5 Relationship Planning Horizon

Hypothesis 3A tested the association between relationship planning horizon and knowledge-based trust. The association was not statistically significant. Scale items for the relationship planning horizon construct were created specifically for this study and combined with prior measures in an attempt to create a latent construct. Convergent validity was established, but in creating the measurement model, it was difficult to establish discriminant validity between relationship planning horizon and several of the other constructs including: dedicated asset specificity, knowledge-based trust and

identification-based trust. Problems establishing discriminant validity are not surprising since the advanced levels of trust and dedicated asset specificity are both constructs that usually require a long-term perspective or long-term investment.

Because a long-term perspective is part of these constructs, discriminant validity became a problem and the relationship planning horizon construct was only measured by one manifest variable. This lone manifest variable used looks more at the issue of perceived equity in the relationship rather than the planning horizon. Hypothesis 3B testing the association between relationship planning horizon and identification-based trust was not found to be statistically significant.

While perceived equity in the relationship was not found to be significantly related to trust, length of relationship which is perhaps a closer proxy for relationship time horizon was found to be significantly related to trust. Firms that have the capacity to have a 15 or 25 year relationship with one supplier shows an ability and emphasis of a firm on developing long-term relationships which could be a skill that relationship managers have in or develop in that company.

As noted in chapter II, the theory on relationship planning horizon can be split into two schools of thought. The first is the economic short-term planning horizon idea put forth by Williamson 1975, Hirschman 1982, and discussed by Gulati and Nohria 1992. The economic short-term perspective is the opposite of the mutually shared long-term philosophy put forth by Gulati and Nohria 1992, Fisher and Brown 1989, and others. This study hypothesized that a long-term orientation would be positively associated with knowledge-based and identification-based trust. Neither association was found to be statistically significant.

A problem with testing the relationship planning horizon latent variable with trust was the difficulty in attaining discriminant validity between relationship planning horizon and trust, and also between relationship planning horizon and asset specificity. This difficulty is not completely surprising because both trust and asset specificity are each constructs that would seem to imply a long-time time horizon. For example, asset specificity is not likely to take place between a buyer and supplier doing business for the first time. Asset specificity generally occurs later in a relationship and will escalate if performance and trust increase (Kamath & Liker 1994).

A logical explanation of why discriminant validity was difficult with the relationship planning horizon construct is the lack of prior research using this construct. While there are a few studies that have used similar concepts, no established definition or reliable and valid construct for relationship planning horizon exists. This study was hoping to establish a reliable and valid construct but was unable to do so. The only way relationship planning horizon was usable in the structural model was to use one question which addresses the perceived equity in the relationship. Not surprisingly, this question on perceived equity was not found to have a significant relationship with either knowledge-based or identification-based trust.

In conclusion, the results of the analysis on buyer-supplier relationship planning horizon are misleading. Neither relationship was found to be significant; however, perceived equity and not relationship planning horizon was tested. In fact, long-term planning manifest variables were tied so closely to trust that discriminant validity could not be established. The inability to establish discriminant validity may indicate that relationship planning horizon is actually a part of the latent variable of knowledge-based

trust, identification-based trust, or asset specificity. While relationship planning horizon did not fall out as part of the different types of trust in the confirmatory factor analysis, an implicit time or planning horizon element is evident when comparing calculus-based trust versus knowledge and identification-based trust. Knowledge and identification-based trust imply a relationship that has taken time to develop. The parties know each other well and can predict how the other party will react to certain situations. Calculus-based trust is more short term and associated with actions aimed at getting quick results possibly at the expense of long-term trust development. The prior post hoc analysis mentioned that length of relationship was found to be significantly associated with trust which supports the link between planning horizon and trust.

5.2.6 Human Asset Specificity

Asset specificity has traditionally been the dedicated equipment or capacity made by one firm to a relationship. Recent research by Kamath & Liker 1994; Nishiguchi 1994; indicated that asset specificity can be broken into multiple types including components of co-location, information exchange and dedication of sites. This study broke down asset specificity into two types, asset specificity behavior and dedicated asset specificity. Hypotheses 4 looks at the association between asset specificity behavior and identification-based trust.

Asset specificity behavior builds on the work of Dyer (1994) who looked at the higher incidence of personnel and knowledge transfer between Japanese automotive firms in comparison to American automotive firms. This study postulated that a higher incidence of visitation of key supplier personnel to the buyer's facilities would be

Table 5-4 Hypotheses 4-5

Propositions/Hypotheses	Result	Implications
H4. Asset Specificity behavior focusing on information sharing and synergy will be positively associated with identification-based trust in a supplier	Supported	Co-location and information sharing by the supplier has a positive relation to identification-based trust. (Knowledge-based trust was also found to have a significant relationship with asset specificity behavior).
H5A. The level of dedicated asset specificity will be positively associated with the level of knowledge-based trust. H5B. The level of dedicated asset specificity will be positively associated with the level of Identification-based trust.	Not Supported Supported	Dedicated asset specificity is a significant influence on identification-based trust but not on knowledge-based trust. Firms use dedicated assets only at advanced levels of trust development.

associated with higher levels of identification-based trust. The relationship between asset specificity behavior and identification-based trust was found to be positive and statistically significant.

These results strongly support the increase use of co-location and coordination that many buying firms are using with suppliers. Those who speak against the use of co-location state the dangers of sharing important information and ideas with suppliers, but these fears have yet to influence performance in buyer supplier relationships. In fact, possibly the opposite happens, and suppliers are able to take information and ideas learned from a buyer they have co-located with and apply these ideas to their own

suppliers. In this way ideas from the original equipment manufacturer are slowly disseminated throughout the supply base which makes the entire supply base better.

5.2.6.1 Asset specificity behavior Asset specificity behavior addresses the more human and behavioral aspects of asset specificity. These behavioral aspects include co-location, information sharing, sharing of personnel, and frequency of visits by personnel. Previous theory on asset specificity and trust has been contradictory. Research by Kamath & Liker 1994; Nishiguchi 1994, and Dyer 1995 indicate a positive relationship between asset specificity and trust. However, research by Joshi 1993, Campbell 1992, and Zaheer & Venkatraman 1995, have found a negative relationship between trust and asset specificity. In many of the previous studies on asset specificity and trust, the distinction between different types of asset specificity has not been made which may explain the conflicting results.

Asset specificity behavior in this study emerged as personnel from the supplier (primarily non-sales) visiting the buyer's facilities. These visits by supplier personnel would facilitate communication and information exchange among the companies, but primarily this type of asset specificity functions as a way for the supplier to provide better service to the buyer. Because asset specificity behavior involves co-location which is a significant commitment on behalf of a supplier, asset specificity behavior was hypothesized to only have an association with identification-based trust.

Results from this study support the findings of Nishiguchi, Kamath & Liker, and others stating a positive association between trust and asset specificity behavior exists. A possible explanation of why this study found a positive association is that when asset specificity is used in a proactive developmental fashion, trust is likely to develop.

However, some firms use asset specificity in a punitive fashion, and in these cases, the level of trust is probably not high because a supplier has been forced to dedicate material or human resources to a relationship.

5.2.7 Dedicated Asset Specificity

Hypotheses 5A and 5B analyze the association between dedicated asset specificity and knowledge and identification-based trust. Dedicated asset specificity was hypothesized to have a positive association with both types of trust. Previous research (Kamath & Liker 1994; Nishiguchi 1994) suggest that higher levels of asset specificity are associated with higher levels of trust and responsibility in suppliers. Neither Hypotheses 5A and 5B were statistically supported. This result is not surprising because as noted in chapter two there is little agreement on the relationships between asset specificity and trust. In fact, research by Zaheer & Venkatraman 1995 and Joshi 1993 found significant results supporting a negative association between dedicated asset specificity and trust.

The other more traditional type of asset specificity is dedicated asset specificity. Dedicated asset specificity involves the dedication of assets involved in a relationship ranging from plant capacity to specific pieces of specialized equipment. Dedicated asset specificity is similar to asset specificity behavior in that it can be used to help develop relationships or to punish a poorly performing supplier. Several authors (Borys & Jemison 1989; Williamson 1983; Gulati & Nohria 1992; Cooper et al. 1990) have noted the tendency of firms to use dedicated assets as mutual hostages so that parties will be less likely to be opportunistic. This study defined dedicated asset specificity as

specialized equipment, dedicated equipment, or dedicated capacity specifically set aside for the relationship or purchased by the supplier for the relationship.

Identification-based trust was found to have a significant positive association with dedicated asset specificity; however, knowledge-based trust was just below the threshold for significance. These results would again support the work of Kamath & Liker and Nishiguchi who formed a theory making specific distinctions in both dedicated and behavioral asset specificity that occur over four stages as a buyer-supplier relationship matures. Therefore, dedication of equipment and capacity would not occur until later mature stages where identification-based trust exists. This study definitely supports the use of dedicated asset specificity in a positive way which builds a relationship rather than as a punishment to poor performing suppliers.

A key issue that arises, however, is whether trust or asset specificity arises first. Previous research suggests that trust builds the use of asset specificity as well as the use of asset specificity builds trust. This study specifically found that both knowledge and identification-based trust are positively associated with human and dedicated asset specificity. The structural model tested implies that asset specificity causes trust but an interesting finding emerged from the identification-based trust model. In that model identification-based trust was found to influence dedicated asset specificity. This finding is important because it suggests that trust is developed for some reason (mitigate use of contracts, develop human asset specificity, and develop dedicated asset specificity) and not merely developed as an end result. A danger in developing trust is that managers in firms will try to develop a "positive atmosphere" or "good feelings" between the parties. This response may possibly be in due to previous poor performance or a directive from

upper management to develop strategic alliances or partnerships. The problem with this approach is that trust may be developed, but it is not translated into any actions or behaviors that will impact performance. The use of trust to develop dedicated asset specificity would avoid the problem of developing trust without maximizing this action's impact on performance.

5.2.8 Environmental Uncertainty

Prior theory addressing trust and uncertainty is scant. Hypothesis 6 posits a positive association between identification-based trust and risk. Hypothesis 6 was found to not be statistically significant. However, it should be noted that uncertainty was measured with only one manifest variable which addressed the area of technological uncertainty in the supplier's industry. Only one manifest variable was used due to difficulties in establishing discriminant validity between uncertainty and other antecedents to trust.

Implications of the inability to find discriminant validity indicate that perhaps in a large database using many different industries that uncertainty is significantly different across different industries. This study looked at several different kinds of uncertainty including cost, technology and introduction of many new products. Future studies may benefit from focusing on a certain type of uncertainty rather than all three types.

Uncertainty involves the uncertainty in the environment of the buyer and supplier. Problems were encountered in achieving convergent validity among the questions asked on environmental uncertainty. Environmental uncertainty was hypothesized to have a positive association with identification-based trust only.

Table 5-5 Hypotheses 6-7

Propositions/Hypotheses	Result	Implications
H6. Environmental uncertainty will be positively associated with the level of identification-based trust	Supported	Technological uncertainty in the buying firm's environment is positively related to identification-based trust.
H7A. Cooperative buyer-supplier relationship performance will be positively associated with the level of knowledge-based trust in a supplier.	Supported	Relationship performance is positively associated with both knowledge and identification-based trust.
H7B. Cooperative buyer-supplier relationship performance will be positively associated with the level of identification-based trust in a supplier.	Supported	

Uncertainty was not hypothesized to have a association with knowledge-based trust because prior theory on uncertainty suggests that uncertainty and trust move together which means we would expect to see higher levels of uncertainty with higher levels of trust.

Hypothesis H6 was found to be significant in associating the technological uncertainty of the supplier's environment with identification-based trust. Even more interesting is that the relationship was found to be a negative association. This result suggests that higher levels of trust are associated with lower levels of technological uncertainty experienced by suppliers. Intuitively, this result is not surprising. A turbulent risky environment may not allow for longer term key buyer-supplier relationships to unfold and develop.

A significant problem in interpreting this question is the sample which is an aggregation of respondents across all levels of technological uncertainty. This aggregation makes it difficult to see what the true nature of the relationship between

environmental uncertainty and identification-based trust is. Future research on uncertainty and trust would probably benefit from making distinctions between industries. For example, in the highly volatile computer industry where change is rampant, is uncertainty closely associated with trust? The answer is likely yes. However, in more mature industries such as the automotive or chemical industries where channel and supply chain relationships are more developed, the opposite may be true. In this study, it is possible that there are low levels of uncertainty in many of the industrial industries surveyed which would possibly explain the negative association between uncertainty an trust. In addition, future research on uncertainty addressing the supplier's technological environment may benefit from dyadic studies where the supplier as well as the buyer can provide data on the relationship between uncertainty and trust. Supplier perceptions could then be combined with buyer perceptions to add face validity to the uncertainty construct.

5.2.9 Performance

Hypotheses 7A and 7B hypothesize a positive association between knowledge and identification-based trust with relationship performance. Both hypotheses 7A and 7B were found to have strong statistical significance. These findings were slightly surprising because of the strength of the relationship between trust and performance. Both knowledge and identification-based trust were found to have estimated structural coefficients higher than .95 with performance which is exceptionally strong. This means that a movement of one standard deviation in one variable would result in a movement of

.95 of a standard deviation in the other variable. These results suggest that trust is an essential element in the performance of a key buyer-supplier relationship.

Not only is trust an essential element but firms need to look closely at where they invest resources including money, people and equipment. The results from hypotheses 7A and 7B suggest that trust building may be an exceptionally profitable area of investment for firms. Firms can use extra resources for a variety of reasons ranging from upgrading information systems to training and hiring of personnel. Results of this study suggest that trust development with key suppliers is an area that firms should look at closely Hypotheses 1-6 then provide more specific information on what investment areas have a significant impact on trust.

An additional interesting finding was the strong negative relationship between calculus-based trust and performance suggesting that use of fear or punishment has a significant negative impact on performance. Prior to this study, extensive research on the relationship between trust and performance already existed as noted in chapter II. Research clearly shows an association between trust and performance. Since this study looked at new theory on trust, performance was included in the analysis to further explore nomological validity of the new trust theory. What is interesting about the findings of this study is the strength of the relationships between trust and performance. Both knowledge-based and identification-based trust were found to have positive associations above .95 which is extremely strong. The strength of these findings further support the critical importance of trust in key buyer-supplier relationships. An interesting finding also in the performance area was the large negative association between calculus-based trust and performance. This large negative association indicates that the use of fear and

punishment as noted recently by Kumar 1996 does not produce better performance but in fact lowers performance.

The major conclusion to draw from the relationship between trust and relationship performance is that trust development is an important and profitable investment for firms. Managers have a variety of choices in how they can spend budgeted monies but this study clearly shows that resource investment in trust development is an investment likely to bring strong returns in performance.

Just as important, but far less expensive of an investment is the finding that fear and punishment have a strong negative impact on performance. The clear advantage of this finding is that changing managerial thought processes can be less costly in terms of resources such as money or equipment. This is good new for executives in firms with limited budgets. However, while taking fear and threat out of a relationship doesn't cost much in resources, it requires something difficult to achieve. What it requires is a fundamental change in thinking which is not achieved quickly in a firm that has used fear and threat of punishment as supplier "motivation" in the past. What makes this change even more difficult is that fear works in the short run. Threats to a supplier will force the supplier to change; however, these changes have come at a tremendous expense. That expense is the long-term trust (knowledge and identification-based) discussed in this study. In fact, it may be more difficult to change a thought process in an organization as opposed to expending resources to obtain information or equipment.

5.3 Practical Implications

The findings of this study suggest that definitely two and possibly three types of trust exist in buyer relationships with key suppliers. A calculus-based trust exists which

uses punishment and threat to attain compliance from the supplier. Also, a knowledge-based trust exists where honesty and directness in representing facts exists. Finally, there is identification-based trust which is built on being open, fair, and empathic. In addition to establishing these three types of trust, this study confirms the strong association of trust with relationship performance. Purchasing executives need to look hard at their relationships with their key suppliers to see if they are developing high levels of knowledge and identification-based trust. Possibly, just as important is that purchasing executives avoid developing high levels of calculus-based trust.

Figure 5-1 Typical Trust Development

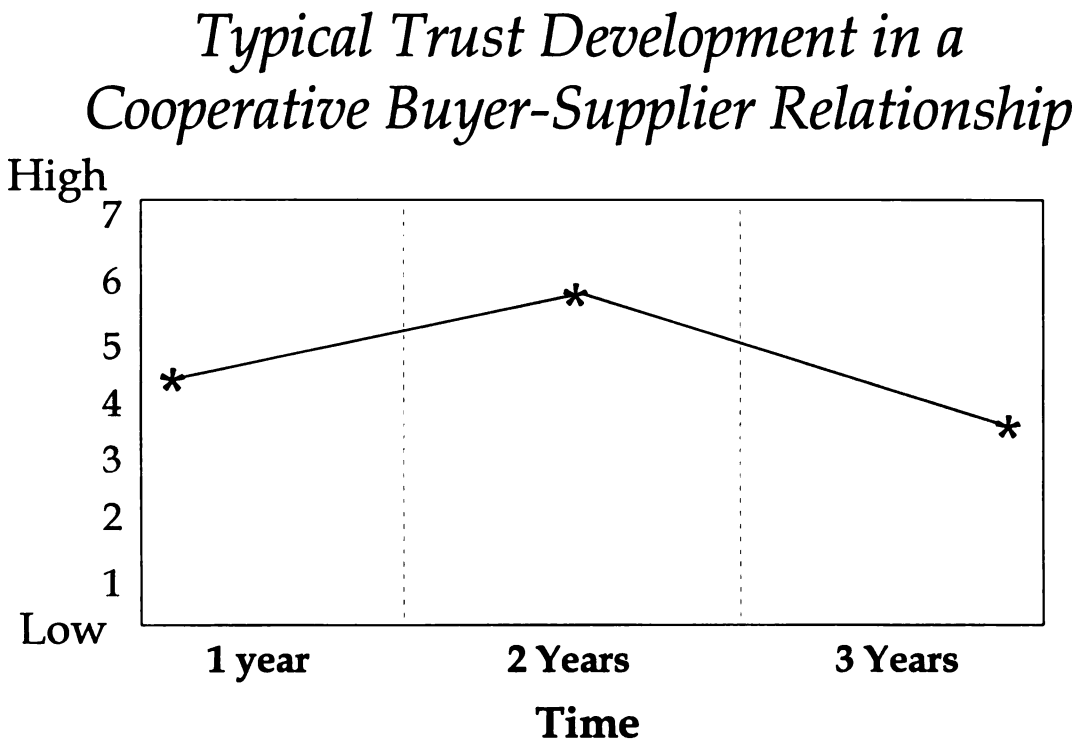


Figure 5-1 is based on actual data supplied by a respondent analyzing data from all of his key suppliers. What the data shows is the frustration this purchasing executive

was experiencing in trying to get key supplier relationships to prosper beyond the initial honeymoon period. Results of this study provide several possible explanations and solutions to the occurrence in Figure 5-1.

One possible explanation for the drop off in key supplier relationships that occurs after the relationship is 1-2 years old is that initial levels of knowledge-based trust are not nurtured into identification-based trust. Knowledge-based trust is primarily the honesty and integrity of one party, but identification-based trust goes further to where parties can actually predict and gauge how each other may react to situation. Identification-based trust may require higher levels of asset specificity behavior and dedication of assets than knowledge-based trust.

In other words, there is high energy as the buyer-supplier relationship starts as information and coordination occurs, but after a year of new projects and priorities are emerging it is easy to slowly put less attention and resources in an cooperative buyer-supplier relationship causing a decrease in trust.

A second cause for a decrease in trust after a year is possibly the introduction of calculus-based trust building behaviors such as the use of coercive power to improve performance. The use of coercive power may be a natural reaction by a buying firm if a supplier has run into performance problems. As this study found, however, trust and performance will likely decrease and not increase with the use of coercive power.

This study offers several possible solutions to the problem depicted in Figure 5-1. The first solution is that firms creating key buyer-supplier relationships realize that there are different levels of trust. Beyond this realization, firms must take actions that take a relationship beyond knowledge-based trust to identification-based trust. This movement

to identification based trust requires taking specific actions outlined below in Table 5-6 below.

Table 5-6 Key Actions of Trust

TYPE OF TRUST	Knowledge-Based Trust	Identification-Based Trust
KEY ACTIONS	• Tell the truth • Never exaggerate • Never misrepresent • Have actions back up promises	• Be as open as possible • Ensure perceived fairness by partner • Be empathetic to the other side's needs

Table 5-6 shows that a relationship needs to move beyond the honesty and integrity level to a relationship built on openness, fairness, and empathy. This point in time is where many firms can stall as shown by Figure 5-1. Executives will attend seminars stating the many benefits in creating partnerships and alliances so these executives extol the virtues of being honest and acting with integrity with suppliers but they often fail to raise the relationship to the next level (idenfication-based trust). At the next level, honesty is translated into openness where firms share important information and personnel which creates stronger trust and better performance. Similarly, not only must the buyer avoid misrepresentation, but it is important that the supplier feel that they are treated fairly by the buyer which in turn requires empathy and concern on the part of the buyer.

The emergence of fairness as a key component of identification-based trust cannot be underestimated. There has been substantial prior research on fairness in the areas of

procedural and distributive justice (Kumar 1995; Kim and Mauborgne 1991). Procedural justice is perceived fairness of procedures and processes in a relationship. Distributive justice address fairness in reception of outcomes or earnings in a relationship. Kumar found a strong relationship between procedural justice and relationship quality which included broke character-based trust into two components including honesty and benevolence. This study supports these prior findings of Kumar by including procedural fairness as a part of identification-based trust.

It is also essential that a relationship manager make a distinction between key suppliers and non-key suppliers. Without this distinction, relationship managers may find themselves spending their time with "the squeaky wheel" or the supplier with many problems. Unfortunately, the supplier with many problems may not be a key supplier. Consequently, there is a huge opportunity cost from opportunities foregone with key suppliers because the relationship manager has squandered time or cost savings with a non-key supplier.

Knowledge of what type of relationship a manager is involved with is also important because it is impossible in most firms to create identification-based trust with all suppliers. This study, however, says nothing about how non-key suppliers should be treated. This study does NOT imply that it is correct to use coercive power or calculus-based trust development with non-key suppliers. This study only addressed key suppliers, and therefore, only conclusions can only be drawn on buyer relationships with key suppliers.

This research study also suggests several key antecedents that help to develop the three types of trust tested in this study. Use of coercive power should be avoided by

purchasing executives. Coercive power which uses threats and fear to influence another party was strongly associated with calculus-based trust. Non-coercive trust, however, is a strategy that executives can use to increase trust and hence performance in a relationship. Non-coercive trust uses rewards, persuasion, and other non-punitive or non-fear provoking measures to influence another party.

Asset specificity can also provide higher levels of trust with key suppliers. Asset specificity behavior where key non-sales personnel from the supplier spend substantial time at the buyer's facilities has potential for developing higher levels of knowledge-based trust. Co-location of key non-sales personnel has grown substantially over the years as firms grasp for ways of increasing supplier performance. This study verifies that co-location, if done correctly can substantially impact trust and consequently performance.

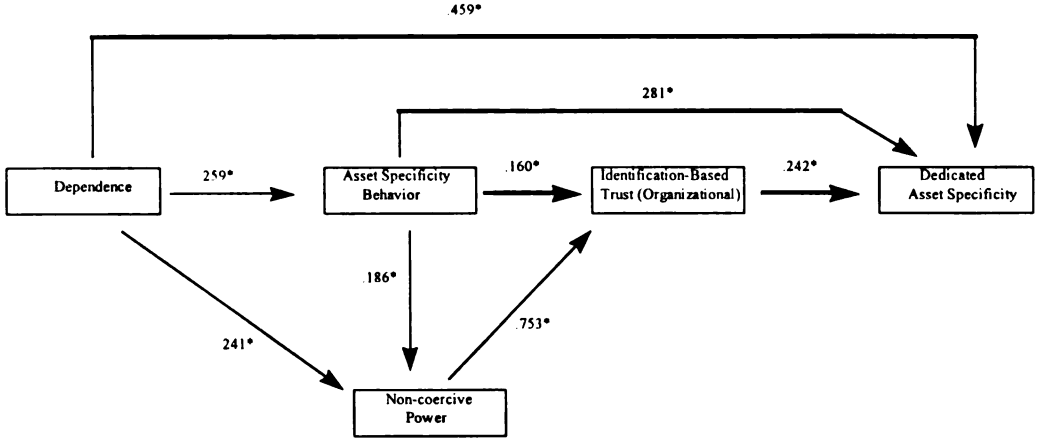
The use of dedicated assets (equipment or capacity) also has potential to increase identification-based trust but is less effective at the knowledge-based trust level. Executives must be careful in using dedicated asset specificity as a strategy. Some suppliers may see this strategy as manipulative rather than the forging of a relationship. It is important in the area of asset specificity that both sides demonstrate voluntary commitment to the relationship.

One of the more interesting results of this study is the finding concerning supplier dependence and trust. In pre-test interviews with buying firm executives, several executives mentioned that they only created strong relationships with key suppliers where the buying firm was a major customer to the supplier. By being a major customer, the buying firm felt that the supplier was dependent on them, and consequently, it would be

easier for the buying firm to exert influence or power over the supplier. This study found no relationship between supplier dependence and trust which indicates the possibility that many purchasing executives use supplier dependence to exert coercive power and hence knowledge and identification-based trust is not built.

The revised model also presents some very interesting implications for relationship managers as shown in Figure 5-2. The most important finding addresses the issue of whether trust or asset specificity come first in relationship development. The modified model suggests that in key buyer-supplier relationships trust precludes dedicated asset specificity, but asset specificity behavior is strongly associated with the development of identification-based trust. The results suggest that it is important to get

Figure 5-2 Modified Identification-Based Trust Model



*** Indicates significant at p<.01 level**

personnel and information from the supplier integrated into the buyer's facilities as soon as possible. Dedicated asset specificity may require a waiting period until both sides exhibit behaviors indicating the presence of identification-based trust including openness a sense of fairness and empathy.

After the demonstration of identification-based trust, a firm should investigate the use of dedicated assets in a key buyer-supplier relationship. The modified model also shows the importance that non-coercive power plays in developing identification-based trust. The model suggests that asset specificity behavior where information and personnel are coordinated and shared may actually be interpreted by the supplier as a non-coercive method of influence. Again, since trust is such an important influence on performance relationship managers may want to direct resources to methods of non-coercive power.

5.4 Limitations

This research study has several limitations. First, the sample was drawn from the membership of the National Association of Purchasing Management. Thus, the results are only generalizable to a group to that extent that the group resembles the National Association of Purchasing Management database.

Second, all of the data is obtained from purchasing executives. Some of the constructs ask about supplier dependence and other feelings of the supplier toward the buyer. While prior studies have used perceptions of one party to assess relationship attributes, this practice still remains problematic. Are the perceptions the buyer has actually indicative of the supplier's feelings or situation? Future research needs to corroborate buyer perceptions with data from the supplier.

Third, the sample was not stratified by industry. All of the respondents were from manufacturing firms; however, there are over 10 different SIC codes represented in the sample. Within each SIC code, up to 3 different industries can be represented. Consequently, the results of this study represent analysis of an aggregate of industries. Future studies breaking a sample into different industries could possibly produce different results from the ones in this study.

Fourth, several measures for various reasons were represented by only one manifest variable. The constructs defined by only a single manifest variable lost considerable content validity. In fact, the constructs were considerably different from their names.

5.5 Directions For Future Research

First, and most important, a dyadic study needs to be done to follow up on several of the interesting findings of this study. The key to a dyadic study would be to investigate if three types of trust exist from the perspective of suppliers as well as buyers. Also, several of the antecedents such as supplier dependence could be tested with data from the supplier rather than relying on buyer perceptions. A dyadic study could also help to clarify the area of asset specificity where dedication of assets to a relationship can be seen as both a commitment to a relationship or as punishment.

A second direction for future research would be to investigate trust in a time series study to examine the possible hierarchical relationship among calculus, knowledge and identification-based trust. A time series study would also allow investigation into the possible temporal relationship among various antecedents and trust development.

Finally, a study analyzing successful versus unsuccessful key buyer-supplier relationships would be beneficial. This study would hypothesize that unsuccessful relationships would see higher levels of threat and fear while successful relationships would have more openness and honesty.

APPENDIX A

Please take time to complete this questionnaire by circling the appropriate answer in either pen or pencil.

- All responses to this questionnaire will be held **strictly confidential**. Only aggregate results will be reported.

- If you are unsure of the answer to a question, please provide your best estimate. Incomplete questions create serious problems in data analysis.

The purpose of this study is to gain an understanding of your experiences with a key supplier.

Questionnaire

Please direct your thoughts to a key supplier that provides a high expenditure (total dollar amount) and strategic service or part. Please respond to each statement by circling the number which best reflects the extent of your agreement or disagreement with the statement.

Please answer the following questions with this key supplier in mind.

	Strongly Agree						Strongly Disagree
	1	2	3	4	5	6	7
1. We occasionally threaten this key supplier to motivate them.	1	2	3	4	5	6	7
2. We will take quick punitive measures (e.g. reduce volumes) if this key supplier does not meet our performance expectations.	1	2	3	4	5	6	7
3. We occasionally use fear to motivate this key supplier.	1	2	3	4	5	6	7
4. Our key supplier feels that we identify strongly with their needs.	1	2	3	4	5	6	7
5. Our key supplier feels that we have a strong sense of oneness with them.	1	2	3	4	5	6	7
6. Our key supplier feels that we have become closely associated with them.	1	2	3	4	5	6	7
7. We have few problems influencing this key supplier.	1	2	3	4	5	6	7
8. This key supplier is highly receptive to our ideas.	1	2	3	4	5	6	7
9. This key supplier respects our industry knowledge.	1	2	3	4	5	6	7
10. Our key supplier recognizes us as an expert in the industry.	1	2	3	4	5	6	7
11. This key supplier is not receptive to our suggestions.	1	2	3	4	5	6	7
12. We are dependent on this key supplier.	1	2	3	4	5	6	7
13. This key supplier would be difficult to replace.	1	2	3	4	5	6	7
14. This key supplier would be costly to lose.	1	2	3	4	5	6	7
15. This key supplier is dependent on us.	1	2	3	4	5	6	7
16. This key supplier would find it difficult to replace us.	1	2	3	4	5	6	7
17. This key supplier would find it costly to lose us.	1	2	3	4	5	6	7
18. We expect our key supplier relationships to last more than three years.	1	2	3	4	5	6	7
19. We reap unexpected benefits from our key suppliers.	1	2	3	4	5	6	7
20. Once we have gotten what we need from a key supplier, we end the relationship and then move on.	1	2	3	4	5	6	7
21. We rarely have to motivate or reward this key supplier.	1	2	3	4	5	6	7
22. This key supplier regularly comes up with performance enhancing ideas on their own.	1	2	3	4	5	6	7

23. How many years has your firm purchased products or services from this key supplier.

_____ Years

	Strongly Agree						Strongly Disagree
	1	2	3	4	5	6	7
24. If a key supplier takes advantage of us, we immediately terminate the relationship.	1	2	3	4	5	6	7
25. If our key supplier is gaining more from the relationship than we are, we always take steps to end or alter the agreement.	1	2	3	4	5	6	7
26. In some of our relationships, our key suppliers benefit more than we do, but it is still in our best interest to maintain the relationship.	1	2	3	4	5	6	7
27. We provide resources and training to key suppliers if their performance slips.	1	2	3	4	5	6	7
28. This key supplier is quite willing to make a long-term investment in helping us.	1	2	3	4	5	6	7
29. This key supplier sees our relationship as long-term.	1	2	3	4	5	6	7
30. This key supplier is willing to dedicate whatever people and resources necessary to make us a satisfied customer.	1	2	3	4	5	6	7
31. This key supplier is loyal to our relationship.	1	2	3	4	5	6	7
32. Key supplier relationships are a competition between us and our key supplier to see who can learn the most the fastest.	1	2	3	4	5	6	7
33. Our primary goal in a relationship is to learn as much from our key supplier as possible.	1	2	3	4	5	6	7
34. We have several controls in place to limit the information our key supplier can get from us.	1	2	3	4	5	6	7
35. This key supplier will take information unrelated to the relationship if we do not monitor them.	1	2	3	4	5	6	7
36. We share our weekly, daily, or hourly production schedules with this key supplier.	1	2	3	4	5	6	7
37. Non-sales personnel from our key supplier have visited our plant to see how their product is used in our process.	1	2	3	4	5	6	7
38. Personnel from our key supplier work closely with our engineering and design area in developing new products.	1	2	3	4	5	6	7
39. We share a great deal of sensitive information with this key supplier.	1	2	3	4	5	6	7
40. Our manufacturing personnel regularly visit our key supplier's facilities.	1	2	3	4	5	6	7
41. In this relationship, it is expected that any information which might help the other party will be provided.	1	2	3	4	5	6	7
42. The parties are expected to keep each other informed about events or changes that may affect the other party.	1	2	3	4	5	6	7
43. Our key supplier has dedicated equipment or capacity specifically to maintain our relationship.	1	2	3	4	5	6	7
44. Our key supplier has dedicated personnel specifically to maintain our relationship.	1	2	3	4	5	6	7
45. Our key supplier has purchased specialized equipment to meet our needs for this key-input material or service.	1	2	3	4	5	6	7
46. Switching from our key supplier to another supplier would be very costly.	1	2	3	4	5	6	7
47. Technological change is rapid in the industry this key supplier works in.	1	2	3	4	5	6	7
48. We have taken a high degree of risk with this key supplier.	1	2	3	4	5	6	7
49. Pricing changes occur often in the area that this key supplier works in.	1	2	3	4	5	6	7
50. Key suppliers should not have to be rewarded to perform well.	1	2	3	4	5	6	7
51. We reward key suppliers exhibiting excellent performance.	1	2	3	4	5	6	7

	Strongly Agree						Strongly Disagree
	1	2	3	4	5	6	7
52. New products are introduced often in the industry this key supplier works in.	1	2	3	4	5	6	7
53. Complete honesty does not pay when dealing with this key supplier.	1	2	3	4	5	6	7
54. Sometimes, this key supplier alters the facts slightly in order to get what they need.	1	2	3	4	5	6	7
55. This key supplier has sometimes promised to do things without actually doing them later.	1	2	3	4	5	6	7
56. This key supplier seems to feel that it is OK to do anything within their means that will help further their firm's interest.	1	2	3	4	5	6	7
57. We feel that this key supplier takes advantage of us.	1	2	3	4	5	6	7
58. We feel that this key supplier tries to get the upper hand.	1	2	3	4	5	6	7
59. We monitor this key supplier closely, so that they cannot take advantage of us.	1	2	3	4	5	6	7
60. I think that this key supplier takes advantage of our vulnerabilities.	1	2	3	4	5	6	7
61. This key supplier is predictable.	1	2	3	4	5	6	7
62. Given this key supplier's track record, I see no reason to doubt their competence and preparation for the job.	1	2	3	4	5	6	7
63. In my opinion, this key supplier is reliable.	1	2	3	4	5	6	7
64. I feel that this key supplier negotiates honestly.	1	2	3	4	5	6	7
65. We have frequent face to face contact with this key supplier.	1	2	3	4	5	6	7
66. I feel that this key supplier will keep its word.	1	2	3	4	5	6	7
67. I think that this key supplier does not mislead us.	1	2	3	4	5	6	7
68. We have frequent phone conversations with this key supplier.	1	2	3	4	5	6	7
69. We regularly share information with this key supplier.	1	2	3	4	5	6	7
70. This key supplier carries out their duties even if we do not check up on them.	1	2	3	4	5	6	7
71. We feel confident that this key supplier won't take advantage of us.	1	2	3	4	5	6	7
72. We think the employees with this key supplier tell the truth in negotiations.	1	2	3	4	5	6	7
73. I feel that our key supplier does not try to get out of commitments.	1	2	3	4	5	6	7
74. We pass on new information that may be useful to this key supplier.	1	2	3	4	5	6	7
75. We jointly establish goals for our relationship with this key supplier.	1	2	3	4	5	6	7
76. This key supplier views the world the same way as we do.	1	2	3	4	5	6	7
77. This key supplier has a strong sense of loyalty to us.	1	2	3	4	5	6	7
78. We think this key supplier is open in describing their strengths and weaknesses in negotiating joint projects.	1	2	3	4	5	6	7
79. We know this key supplier will consider our concerns when making a decision.	1	2	3	4	5	6	7
80. I feel that our key supplier negotiates joint expectations fairly.	1	2	3	4	5	6	7
81. We confront issues effectively with this key supplier.	1	2	3	4	5	6	7
82. Our key supplier relationship is characterized by having short lead-times.	1	2	3	4	5	6	7
83. This key supplier has an outstanding on-time delivery record.	1	2	3	4	5	6	7
84 . This key supplier has the ability to modify their products to meet our requirements.	1	2	3	4	5	6	7
85. In this relationship, the parties work together to solve problems.	1	2	3	4	5	6	7

	Strongly Agree						Strongly Disagree
	1	2	3	4	5	6	7
86. This relationship has met our profitability projections thus far.	1	2	3	4	5	6	7
87. We are disappointed in the performance of this relationship.	1	2	3	4	5	6	7
88. This key supplier is genuinely concerned about our company's welfare.	1	2	3	4	5	6	7
89. Rewards have little impact on our key supplier's behavior.	1	2	3	4	5	6	7

90. How would you characterize your firm's ROI over the past two years in comparison to your industry's average. Below Average 1 2 3 4 5 6 7 Above Average

91. How would you characterize your firm's ROA over the past two years in comparison to your industry's average. Below Average 1 2 3 4 5 6 7 Above Average

92. How would you characterize your firm's profits over the past two years in comparison to your industry's average. Below Average 1 2 3 4 5 6 7 Above Average

93. a) Please circle the answer that best describes your position in your organization:
    1. V.P. of Purchasing
    2. V.P. of Materials Management
    3. Director of Purchasing
    4. Purchasing Manager
    5. Other: _____

    b) ____ Number of years with this organization

94. What are your company's annual gross sales dollars? (circle your answer)
    1. Less than $5 million
    2. $5 million to $10 million
    3. $10 million to $50 million
    4. $50 million to $100 million
    5. $100 million to $500 million
    6. $ 500 million to $1 billion
    7. Over $1 billion

95. Please estimate the total number of person days of face to face contact between key supplier salesperson and engineers with your purchasing personnel and engineers over the past year.
    _____ Person Days

96. Please estimate the average number of person days co-located (or guest engineers or technical support personnel) your key supplier have had at your firm over the past year.
    _____ Person Days

97. What is the intended duration of this relationship in years. _____ Years

98. Please indicate the percentage improvements realized by your firm in the following areas attributable to your firm's relationship with this key supplier.

Cycle-time Reduction (from order placement to receipt inclusive)	_____%
Shared Price Reduction (cost savings due to improvement)	_____%
Quality Improvement (reduction in PPM, warranties)	_____%
On-time Delivery (ability to deliver within buyer-specified delivery window)	_____%
Access to new technologies	_____%
New product development time (from concept to production)	_____%

Who (name and title) is the primary contact at this key supplier or the person you consider to be the key supplier's main representative.

Name: _____ Title: _____

Note: Questions 1-13 below refer to the primary contact indicated above.

	Strongly Agree						Strongly Disagree
	1	2	3	4	5	6	7
1. We have a sharing relationship, where my primary contact and I can both freely share ideas, concepts, or information.	1	2	3	4	5	6	7
2. I can talk freely to this person about difficulties we are having and know that he/she will listen.	1	2	3	4	5	6	7
3. If I shared my problems with this person, I know he/she would respond constructively and caringly.	1	2	3	4	5	6	7
4. I would say the primary contact and I have both made a considerable emotional investment in this relationship.	1	2	3	4	5	6	7
5. I interact with this primary contact informally as well as formally.	1	2	3	4	5	6	7
6. This primary contact acts with integrity.	1	2	3	4	5	6	7
7. I regularly communicate with this primary contact.	1	2	3	4	5	6	7
8. My primary contact regularly communicates with us.	1	2	3	4	5	6	7
9. Other people in our firm who have interacted with this primary contact consider him/her trustworthy.	1	2	3	4	5	6	7
10. The quality of work obtained from this primary contact is only maintained by diligent monitoring.	1	2	3	4	5	6	7
11. My primary contact regularly offers suggestions to enhance the performance of our relationship.	1	2	3	4	5	6	7
12. I have faith in my contact person to look out for my best interest even when it is costly to do so.	1	2	3	4	5	6	7
13. I would feel a sense of betrayal if my primary contact person's performance was below my expectations.	1	2	3	4	5	6	7

What other factors do you believe are important in developing a trusting relationship with a key supplier?

Thank you for your time. Again, if you would like a copy of the executive summary for this study, please attach a business card to this questionnaire when you return it.

APPENDIX B

March 15, 1998

Name
Position
Street
City

An essential foundation for successful buyer-supplier relationship is a strong sense of commitment between the two firms. However, little is known about what are the key factors that lead to strong buyer-supplier relationships as well as what can be done to maintain them. The **National Association of Purchasing Management** (NAPM) and the Department of Marketing and Supply Chain Management at **Michigan State University** are supporting this project on relationship development between buyers and suppliers. Your input is critically important in supporting this research.

You are one of a small group of executives selected from the NAPM membership list to provide your input on these matters. The questionnaire included is concise and should take roughly 15 minutes to fill out. Also, a return envelope with postage has been provided. Please be assured that your responses are **completely confidential.** The questionnaire has been tested and respondents found it informative and easy to complete.

If you would like a copy of the executive summary of this study, please include a copy of your business card in the enclosed envelope. If you have any questions, please call Christian Bechtel at (517) 353-6381 ext. 271.

Thank you for your assistance.

Sincerely,

Christian Bechtel
Ph.D. Candidate
Marketing and Supply Chain Management
Michigan State University

Robert B. Handfield, Ph.D.
Associate Professor
Marketing and Supply Chain Management
Michigan State University
Dissertation Chair

APPENDIX C

April 10, 1998

Name
Position
Company
Address

I recently mailed you a questionnaire as part of my dissertation project, which I believe will provide insight into ways companies are developing trust to improve performance in their key suppliers. If you have already returned the questionnaire, thank you for your participation. If you have not yet had a chance to complete the survey, could you please take a few minutes and fill out the enclosed survey now? A completed survey from your company is **invaluable** to the success of this study.

Michigan State University has one of only two Ph. D. programs in the country that specifically addresses the concerns of the purchasing function. In addition, this research is supported by **the National Association of Purchasing Management** (NAPM) which also provided the membership list form which your name was selected.

Your responses are **completely confidential** and if you would like to receive a copy of the executive summary of results simply include a copy of your business card in the enclosed stamped envelope.

If you have any concerns, please call Christian Bechtel at (517) 353-6381 ext. 271.

Christian Bechtel
Ph.D. Candidate
Marketing & Supply Chain Management
Michigan State University

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