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The Effects Of Risk And Trust On The Achievement Of Sustainable Competitive Advantage From B2b E-commerce Trading Relationships

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THE EFFECTS OF RISK AND TRUST ON THE ACHIEVEMENT OF SUSTAINABLE COMPETITIVE ADVANTAGE FROM B2B E-COMMERCE TRADING RELATIONSHIPS

by

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ABSTRACT

This dissertation consists of three interrelated studies focusing on the use of business-to-business (B2B) electronic commerce (e-commerce) to facilitate supply chain transactions. B2B e-commerce enabled supply chains produce substantial savings for organizations by reducing the amount of time and money necessary to negotiate contracts, processes orders, and pay suppliers. However, doubt exists as to whether reduced transaction costs are a sustainable competitive advantage for organizations. The advent of widespread and cost effective B2B e-commerce enabled supply chains coupled with increasingly complex, dynamic, and global competitive markets are encouraging organizations to form long-term relationships with their trading partners to achieve sustainable competitive advantage from improved supply chain performance. Competition is no longer restricted to large firms and end-product producers, but now encompasses the extended organizational supply chain. Using three separate, but related theories, these studies investigate 1) the factors affecting satisfaction with B2B e-commerce trading relationships, 2) the antecedents and effects of risk and trust on assurance desirability in B2B e-commerce partnerships, and 3) the impact of enterprise risk management procedures on the achievement of sustainable competitive advantage from B2B e-commerce enabled transnational alliances.

Critical to achieving sustainable competitive advantage from B2B e-commerce capabilities is the existence of long-term mutually satisfying buyer—supplier

relationships. The first study examines the antecedents of relationship satisfaction between B2B e-commerce trading partners. Using the relational view of the firm, a theoretical model is developed to investigate the direct and countervailing effects of trust and risk on relationship satisfaction. In addition, the indirect effects of justice and commitment on relationship satisfaction are also investigated. A field survey is used to collect data from 205 industry professionals concerning B2B e-commerce trading partnerships. Structural equation modeling is used to evaluate the hypothesized model relationships. The results support all hypotheses and indicate good model fit with strong explanatory power. This study contributes to the accounting information systems and strategic management literature by investigating the interactive but independent roles of risk and trust within B2B e-commerce trading relationships.

The second study examines the integrative effects of power, risk, and trust, along with their antecedents, on the desirability of assurance over a trading partner's e-commerce processes. Using the resource advantage theory of competition as a foundation, a research model is developed to examine the relationships among the various trading partners and organizational factors that drive demand for a high information governance structure such as assurance. A field survey is used to collect data from 205 industry professionals to enable the evaluation of the complex relationships in the overall research model using structural equation modeling. The results support all hypotheses and provide good model fit, strong explanatory power, and strong support for the theory. This study expands the literature on management control systems within interorganizational relationships by addressing three contemporary concerns in the literature: (1) the minimal consideration of the impact of information technology in these

relationships, (2) the minimal consideration of the impact of variances in the relative power of the trading partners, and (3) the need to consider the dual influence of risk and trust.

Globalization places greater emphasis on the development of transnational alliances. The greatest benefits from alliances are derived from high-level information sharing, but risk escalates with information sharing. The purpose of the third study is to examine the influence of enterprise risk management (ERM) on risk and trust associated with transnational alliances and the resulting impact on interorganizational information sharing. Survey data is gathered from 200 senior-level managers monitoring transnational alliances. Structural equation modeling is used to test the hypothesized relationships. The results provide strong support for the hypothesized relationships and the overall research model, showing that high ERM leads to decreased risk, increased trust, and improved information sharing.

To my wife, Christine
My debt to you is immeasurable, as is my love.

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GENERAL INTRODUCTION

Global competition and hyper-competitive markets are altering the nature and form of organizational competition. The traditional organizational structure, epitomized by individual organizational ownership and control of resources, barriers to entry, industry segmentation, and vertical integration (Williamson, 1985) is transforming to incorporate the concept of the extended enterprise (Hunt, 1997). Within the extended enterprise, competition shifts from an organization centric focus to one of relational networks competing against other relational networks where the success or failure of an individual organization is dependent on the relational networks in which it is embedded (Hunt, 2000; Sutton, 2006). Thus, the organizational focus shifts from ownership and control of resources to the formation, development, and growth of interorganizational relationships (Hunt, 2000; Dyer and Singh, 1998).

Central to the success of these relationships is the concept of constrained self-interest (Hunt, 1997). Organizations no longer strive for economic domination of partner organizations, but instead are concentrated on the long-term benefits attainable from the relationship. Thus, organizations are often willing to forgo short-term gains to ensure the long-term maintenance and growth of the relationship.

This long-term orientation is critical to the achievement of sustainable competitive advantage as it allows time for the development of rare, valuable, non-substitutable, and unique interorganizational resources that enable the achievement of

sustainable competitive advantage (Barney, 1991; Dyer and Singh, 1998; Hunt, 2000). These resources can be broadly classified into four categories: relation specific assets, knowledge sharing routines, complementary resources and capabilities, and effective governance (Dyer and Singh, 1998). While participants within the relationship can and do contribute to these resources, the resources themselves are created, developed, and grow within the context of the relationship and offer mutual long-term benefits to all participants. Thus, the forces that enhance relationships and facilitate the development of resources are a topic of interest to managers and academics.

While interorganizational relationships offer many benefits (Hunt, 2000; Dyer and Hatch, 2006), they also involve risk. As Dyer and Singh (1998: p. 660) note, "…the (dis)advantages of an individual firm are often linked to the (dis)advantages of the network of relationships in which the firm is embedded". The risk inherent in these relationships is also an area of management and academic interest (Power, 2007; Das and Teng, 2001). Risk is emerging as a key deterrent to the establishment of long-term relationships and the sustainable competitive advantage these relationships may provide (Aron et al., 2005; Sutton et al., 2008). Thus, understanding what factors may increase or diminish risk within relationships, how risk affects relationships, and how risk can be identified and controlled is critical to the formation and growth of relationships capable of producing the resources necessary to achieve sustainable competitive advantage.

Researchers have noted the need to acknowledge and consider the critical role of IT in interorganizational relationships (Cuganesan and Lee, 2006; Granland, 2011). Business-to-business (B2B) electronic commerce (e-commerce) provides an ideal setting to address this need. Prater and Ghosh (2006) note that technology is critical to the

function of global supply chains. Advances in information systems technology and the emergence of the Internet as a stable, reliable, and non-proprietary means of information transfer have resulted in the widespread use of B2B e-commerce supply chains to achieve cost efficient procurement. However, the advantages of cost efficient procurement are fleeting, as these advantages are relatively easy to imitate (Benjamin, 1990) and do not offer a means of achieving sustainable competitive advantage. However, B2B e-commerce systems can facilitate the integration and tight coupling of buyer and supplier information systems to enable the formation of relationships and the subsequent development of resources necessary for sustainable competitive advantage. B2B e-commerce systems transform what was once a transaction based exchange between separate entities into a relationship between trading partners focused on the development and growth of the resources necessary to achieve sustainable competitive advantage.

The three papers comprising this dissertation provided empirical evidence on the factors that enhance and diminish interorganizational relationships within the context of B2B e-commerce trading partnerships. Interwoven throughout these studies are the concepts of organizational trust in the trading partner and trading partner B2B e-commerce risk. Trust and risk serve as the nexus points for the positive and negative influences on relationships. While each study provides a unique and distinct examination of B2B e-commerce trading partnerships, together they provide an integrated sequence proceeding from a high-level perspective to a detailed view. The first study examines the effects of trust and risk on satisfaction within B2B e-commerce trading partnerships. The next study considers how trust and risk influence the desire for assurance services over trading partner B2B e-commerce systems. Finally, the third study examines transnational

interorganizational alliances to understand the effects and interactions of trust, risk, and organizational enterprise risk management (ERM) processes and procedures on the use of a specific relational resource. In addition, the third study considers the potential effects of culture on transnational relationships. Further details on each study are provided in the following three subsections.

Study One
Relationship Satisfaction in B2B E-Commerce Trading Partnerships: The Countervailing Effects of Risk and Trust

The purpose of the first study is to investigate the antecedents of relationship satisfaction between B2B e-commerce trading partners. Relationship satisfaction is critical for sustaining long-term interorganizational relationships that allow for the development of interorganizational resources necessary to achieve sustainable competitive advantage. Using the relational view of the firm (Dyer and Singh, 1998) as a theoretical foundation, a research model is developed to investigate the direct and counterbalancing effects of organizational trust in the trading partner and trading partner B2B e-commerce risk on organizational relationship satisfaction. In addition, the indirect effects of justice and commitment on relationship satisfaction are also considered.

Using a field survey, data are collected from 205 managers involved in B2B e-commerce trading partnerships and evaluated using structural equation modeling. The results support all hypotheses and provide good model fit, strong explanatory power, and strong support for the theory. The findings indicate that justice perceptions and commitment are instrumental to the formation of trust within the context of a B2B e-commerce trading relationship. In turn, trust enhances relationship satisfaction. However,

risk diminishes relationship satisfaction, thereby serving as a counterpoint to the positive effects of trust.

This study makes several contributions to interorganizational relationship research. First, this research addresses concerns on the relationship between risk and trust (Miller et al., 2008) by developing and testing the distinct and countervailing effects of risk and trust on relationships. Second, this study contributes to research investigating interorganizational perceptions of procedural and distributive justice and the influence of justice perceptions on relationships (Luo, 2005; Beugre and Acar, 2008). Finally, this study addresses the call to acknowledge and consider the critical role of information technology in interorganizational relationships (Cuganesan and Lee, 2006; Granland, 2011).

Study Two
Managing Risk in Interorganizational Relationships: Factors Influencing the Desirability of E-Commerce Assurance

The purpose of the second study is to examine the integrative effects of organizational power over the trading partner, organizational trust of the trading partner, and trading partner B2B e-commerce risk on the desirability of assurance over a trading partner's B2B e-commerce processes. In addition, the antecedents to power, trust and risk are examined. The conditions under which interorganizational relationships are formed and develop impact organizational perceptions of trust and risk. Variations in these perceptions, and the procedures available to validate or refute these perceptions, can alter interorganizational relations and the development of resources necessary to achieve sustainable competitive advantage. Using the resource advantage theory of competition (Hunt, 1995; Hunt and Morgan, 1995) as a foundation, a research model is developed to

investigate the underlying relationships among the various trading partner and organizational factors that drive demand for a high information governance structure such as assurance.

Using a field survey, data are collected from 205 managers involved in interorganizational B2B e-commerce trading partnerships and evaluated using structural equation modeling. The results support all hypotheses and provide good model fit, strong explanatory power, and strong support for the theory. Specifically, dependence, core technical competency, and commitment are shown to directly and indirectly increase trust. Similarly, dependence and power are shown to directly and indirectly increase risk. Finally, trust and risk positively influence the desire for assurance over a trading partner's B2B e-commerce systems.

This study makes several contributions to management controls systems research on interorganizational systems. First, the impact of risk on the desirability of a high information governance structure such as assurance is assessed. The focus on B2B e-commerce risk considers the multi-dimensional aspects of associated risks: technical level concerns, application level concerns, and business level concerns (Sutton et al., 2008). Next, the results support recent research suggesting that trust and risk should be considered independently and that these control structures are not replacements for each other. Instead, trust leads to greater investment in governance structures that can verify the basis for that trust (Nicolaou and McKnight, 2006; Dekker, 2008). Finally, this study addresses the need to investigate control as it functions within the context of technology driven organizations and interorganizational relationships (Granlund, 2011) to better understand the meeting point of technology and control.

Study Three
Enterprise Risk Management: Re-Conceptualizing the Role of Risk and Trust on Information Sharing in Transnational Alliances

The purpose of the third study is to examine the influence of organizational ERM practices on the mitigation of trading partner B2B e-commerce risk, the enhancement of organizational trust in the trading partner, and information sharing within transnational interorganizational relationships. Information sharing is a fundamental component necessary for the development of knowledge sharing routines that enable the achievement of sustainable competitive advantage (Buhman et al., 2005; McEvily and Marcus, 2005). Using Power's (2007) strategic view of ERM as a foundation, a research model is developed to investigate the underlying associations between ERM practices, risk, trust, and information sharing within transnational relationships. In addition, the effects of culture on these associations are also considered.

Using a field survey, data are collected from 200 senior-level managers involved in international B2B e-commerce trading partnerships and evaluated using structural equation modeling and analysis of variance techniques. The results support all hypotheses and provide good model fit, strong explanatory power, and strong support for the effects of ERM practices within interorganizational relationships. Specifically, the direct effects of ERM practices are shown to decrease risk, increase trust, and increase information sharing within the transnational relationship. Decreased risk is positively associated with increased trust and information sharing. In addition, increased trust is also positively associated with increased information sharing. Thus, an organization's ERM practices both directly and indirectly influence information sharing. No effect of culture on the relationships tested within the model could be detected.

This study makes several contributions to management control systems and risk management research on interorganizational relationships. First, the study addresses recent calls by researchers to recognize the shifting organizational focus where risk management, governance, management control systems, and trust work together to reduce risk and optimize interorganizational relationships (Langfield-Smith, 2008; Bhimani, 2009). Second, the research addresses the evolving relationship between risk and trust attributable to the ERM movement among organizations. While trust is traditionally viewed as a means for mitigating risk, within an ERM context, risk analysis occurs first and the evidence gathered determines the level of trust that should be afforded the relational partner. Finally, the results show that the level of information sharing is simultaneously a function of the strategic nature of ERM processes, the perceived riskiness of the trading partner, and trust.

Overall Contribution

The three studies contained in this dissertation investigate interorganizational relationships within the context of B2B e-commerce trading partnerships. Taken together, these studies advance the understanding of interorganizational dynamics that affect the formation, development, and growth of the interorganizational resources necessary to achieve sustainable competitive advantage. Consistent throughout the three studies is the influence of organizational trust in the trading partner and trading partner B2B e-commerce risk.

The first study examines the impact of trust and risk on relationship satisfaction and the achievement of sustainable competitive advantage. While potential positive influences on interorganizational relationships have received much attention (Palmatier et

al., 2006), the negative influences are only recently emerging as a topic of interest within interorganizational supply chain (Das and Teng, 2001) and management control systems research (Dekker, 2008). Thus, the first study contributes to the growing body of literature within these streams by investigating the countervailing effects of trust and risk on relationship satisfaction.

The second study examines the influences of trading partner B2B e-commerce risk and organizational trust in the trading partner on the desire for assurance over a trading partner's B2B ecommerce systems. The antecedents that contribute to the development of trust and risk are also investigated. If, as the results from the first study confirm, trust and risk influence relationship satisfaction and the subsequent development of resources, confirmation of risk and trust perceptions would be beneficial to organizations seeking to enhance relationships and sustain competitive advantage. The second study addresses this issue by investigating the emerging view that both trust and risk increase the desire for assurance (Colletti et al., 2005).

The final study examines the effect of ERM practices on trading partner B2B e-commerce risk and organizational trust of the trading partner within transnational relationships. While the second study indicates a desire for some form of assurance over trust and risk perceptions, the third study examines the interactions of trust and risk with risk mitigation and control procedures and practices. The influence of ERM practices are shown to affect information sharing directly and indirectly through risk mitigation and trust enhancement. Thus, the third study contributes to the management controls systems literature by addressing the need to recognize the shifting organizational focus where risk management, governance, management control systems, and trust work together to

reduce risk and optimize interorganizational relationships (Langfield-Smith, 2008; Bhimani, 2009).

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STUDY ONE
RELATIONSHIP SATISFACTION IN B2B E-COMMERCE TRADING PARTNERSHIPS: THE COUNTERVAILING EFFECTS OF RISK AND TRUST

Introduction

Global competition and hyper-competitive markets have altered organizational and academic views concerning the role and importance of business to business (B2B) supply chains. Critical to this changing view is the diffusion of information and communication technologies that enable B2B e-commerce trading partnerships. The emergence of the Internet as a stable and reliable medium for conducting e-commerce provides organizations and their suppliers a cost effective and non-proprietary means of establishing supply chain linkages. The ability of e-commerce technologies to reduce transaction costs within the B2B supply chain is well established. E-commerce enabled B2B supply chains produce substantial savings for organizations by reducing the amount of time and money necessary to negotiate contracts, process orders, and pay suppliers (Lucking-Reiley and Spulber, 2001). For example, British Telecom estimates the use of B2B procurement processes reduced transaction cost from £113 to £8 (Phillips and Meeker, 2000). These supply chain cost reductions are driving the adoption of B2B e-commerce supply chains. Within the U.S. market, 2008 manufacturer and wholesaler B2B e-commerce transactions reached $3.416 billion, a 14.6% increase from 2007 (U.S. Census Bureau, 2010). In many industries, a supplier's ability to join an e-commerce

enabled B2B supply chain is no longer optional, but required (Urbaczewski et al., 2002), particularly given these potential cost savings, However, organizational managers and researchers have expressed concern about the long-term viability of cost reduction as a sustainable competitive advantage (Straub and Watson, 2001).

Consistent with this view, the conceptualization of the B2B e-commerce supply chain as a cost reducing technology is transforming to incorporate B2B supply chains as an integral and critical component of organizational competitive advantage. Researchers have identified numerous benefits associated with B2B supply chains that can facilitate the creation of a sustainable competitive advantage. These factors include lower inventory levels, lower inventory carrying cost, fewer stock-outs, shorter order cycles, lower input prices, greater product availability (Leonard and Cronan, 2002), increased collaboration and planning between the organization and its suppliers to enable JIT inventory and delivery (Ngai and Wat, 2002), lean manufacturing and retailing, increased manufacturing flexibility (Wang et al., 2006), and new product and service development (Kulp et al., 2004). However, to achieve these potential benefits, organizations and their trading partners must shift from a transaction based supply chain focus to trading partnerships capable of creating, fostering, and sustaining competitive advantage (Hunt and Davis, 2008). The widespread adoption of B2B e-commerce technologies embedded within the larger context of interorganizational information systems mandates that these systems become an integral component to organizational strategies focused on the formation and implementation of interorganizational relationships capable of creating and sustaining competitive advantage. Interorganizational information systems are tightly

integrated with the form and nature of interorganizational relationships (Chatterjee and Ravichandran, 2004).

The purpose of this study is to investigate the antecedents of relationship satisfaction between B2B e-commerce trading partners. Relationship satisfaction is critical for sustaining the long-term interorganizational relationships, such as B2B e-commerce trading partnerships, necessary to achieve sustainable competitive advantage. Using the relational view of the firm (Dyer and Singh, 1998), a research model is developed to investigate the direct and counterbalancing effects of trust and risk on relationship satisfaction. In addition, the indirect effects of justice and commitment on relationship satisfaction are also investigated.

Using a web-based survey instrument, data are collected from 205 managers involved in B2B e-commerce trading partnerships. Results from data analysis support the overall model and the underlying precepts of the relational view of the firm. The findings indicate that, within the context of B2B e-commerce trading partnerships, justice perceptions and commitment are instrumental to the formation of trust in a trading partner. Trust, in turn, increases relationship satisfaction with the trading partner. However, perceptions of a trading partner's B2B e-commerce risk diminish relationship satisfaction.

This study makes several contributions to interorganizational relationship research. First, this research addresses concerns on the relationship between risk and trust (Miller et al., 2008) by developing and testing the distinct and countervailing effects of risk and trust on relationship satisfaction. Second, this study contributes to research investigating interorganizational perceptions of procedural and distributive justice (Luo,

2005; Luo, 2007; Brown et al., 2006; Beugre and Acar, 2008) and the influence of justice perceptions on relationship satisfaction. Finally, this study addresses the call by researchers to acknowledge and examine the critical role of information technology in interorganizational relationships (Cuganesan and Lee, 2006; Granland, 2011).

The remainder of this paper proceeds as follows. Section 2 discusses the relational view of the firm and develops the research model and hypotheses. Section 3 presents the methodology. Section 4 reports the results and section 5 presents conclusions, limitations, and implications of the research findings.

Theory and Hypotheses Development

The relational view of the firm (Dyer and Singh, 1998) provides the theoretical foundation for understanding relationship satisfaction within the context of B2B e-commerce trading partnerships. Developed to explain how and why firms achieve competitive advantage from the formation and development of interorganizational alliances, the relational view of the firm (RVF) is an evolutionary extension of the resource based view of the firm (RBV) (Barney, 1991). Similar to RBV, RVF seeks to explain how firms obtain, develop, and use valuable, rare, inimitable and non-substitutable resources to achieve sustainable competitive advantage (Barney, 1991; Kraaijenbrink et al., 2010). However, unlike RBV, RVF does not require a firm to own or control resources to achieve sustainable competitive advantage—instead RVF recognizes "…the (dis)advantages of an individual firm are often linked to the (dis)advantages of the network of relationships in which the firm is embedded" (Dyer and Singh, 1998 p. 660). RVF recognizes that firms can achieve a sustainable competitive advantage through the formation and development of interorganizational relationships such as strategic

alliances, joint-ventures, and long-term buyer-supplier partnerships (Gulati et al., 2000). These interorganizational relationships are particularly relevant within the context of B2B e-commerce buyer-supplier interactions as the diffusion and widespread adoption of B2B e-commerce technologies casts doubt on whether reduced transaction costs are a sustainable competitive advantage (Benjamin et al., 1990). In their discussion of B2B supply chain practice and research, Straub and Watson (2001 p. 340) conclude that "The initial competitive advantages of network connectivity are not sustainable, any more than many other IS resources have been." The technologies that enable B2B e-commerce trading partnerships are no longer rare or inimitable—however; the relationships engendered through buyer-supplier interactions remain unique sources of sustainable competitive advantage. Within RVF, the interorganizational relationships, and associated processes, procedures, and assets created within the relationships, are the rare, valuable, inimitable, and non-substitutable resources that ultimately allow organizations to achieve sustainable competitive advantage.

RVF identifies four categories of determinants of interorganizational sustainable competitive advantage that can be derived from participation in relational networks: relation specific assets, knowledge sharing routines, complementary resources and capabilities, and effective governance (Dyer and Singh, 1998). Relation specific assets are those assets intended to work in conjunction with the assets of a partner firm (Teece, 1987; Williamson, 1985). Knowledge sharing routines are processes and procedures that allow the transfer, recombination, or creation of specialized, and frequently tacit, knowledge within the relational network (Malhotra, 2005). Complementary resources represent the combined resources of individual interorganizational relationship members.

Individually, each member possesses unique, rare, and non-substitutable resources that when combined produce new resources that are greater than the sum of their parts (Dyer and Singh, 1998). Effective governance, while distinct from the other four determinants of interorganizational competitive advantage, interacts with and facilitates the formation and development of asset specificity, knowledge sharing routines, and complementary resources. Effective governance refers to a broad range of safeguards that are informal, frequently specialized to the parties involved, share the common characteristic of self-enforcement, and develop over time. These safeguards are intended to provide benefits to both relationship partners by simultaneously lowering transaction costs and encouraging flexibility and cooperation while discouraging the risk of opportunistic behavior (Dyer and Singh, 1998). In a study of Taiwanese manufacturing firms, Wang et al. (2006) find that B2B e-commerce integration within the supply chain allows greater collaborative process planning and control between manufacturers and their suppliers. This collaborative relationship represents a relational resource that allows greater manufacturing flexibility through increased supplier responsiveness. Manufacturers are able to substitute "information for inventory" (Wang et al., 2006 p. 47) to improve both the manufacturer's and supplier's resource use. Increases in manufacturing flexibility allow organizations to quickly respond to the demand uncertainty characteristic of hypercompetitive markets. Thus, demand uncertainty is transformed from an organizational threat to a sustainable competitive advantage.

Consistent with RVF, B2B e-commerce trading partnerships provide sustainable competitive advantage when both buyers and suppliers are engaged in mutually beneficial and satisfying relational networks. Participation in trading partnerships affords

both buyer and supplier the opportunity and time to develop the processes and procedures necessary to achieve sustainable competitive advantage. Buyer-supplier interactions evolve from a short-term transaction based focus to a long-term relational focus where both parties are willing to forgo short-term, one-sided gains to achieve long-term benefits (Morgan and Hunt, 1994). Within the trading partnership, buyers and suppliers no longer operate as separate entities but instead view themselves as mutually interdependent members of an extended organizational supply chain (Schorr, 1998; Chapman and Corso, 2005; Hunt and Davis, 2008). This extended organizational supply chain competes against other extended organizational supply chains and is focused on achieving a level of relationship satisfaction necessary to ensure the development and maintenance of sustainable competitive advantage from the trading partnership. The remainder of this section is focused on the antecedents of relationship satisfaction. Figure 2.1 presents the research model developed to investigate the indirect effects of justice perceptions and commitment and the direct and countervailing effects of trust and risk on relationship satisfaction. The research model is developed from the perspective of the organization's view of its relationship with a selected trading partner. Thus, the terms "organization" and "trading partner" are used to refer to the two entities respectively.

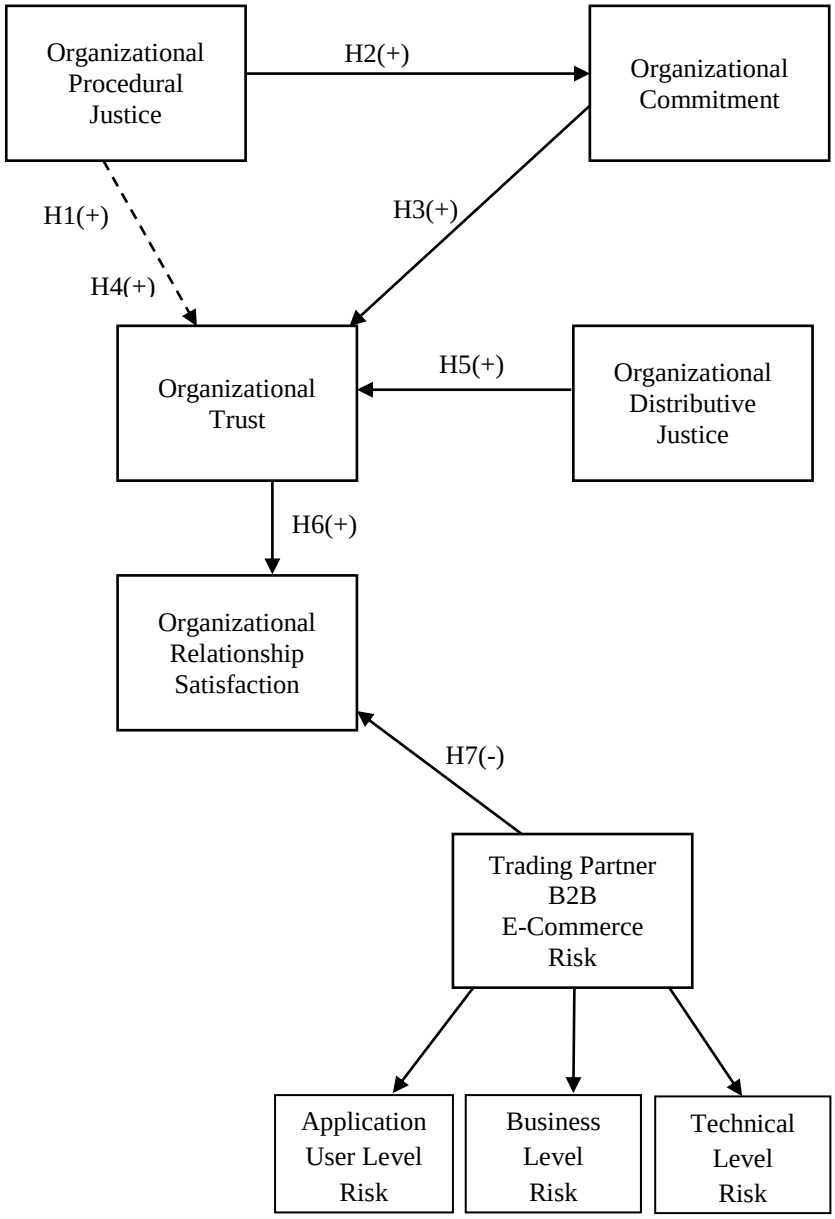


Figure 2.1: Research Model

Justice, Commitment, and Trust

Trust is essential for the formation and continuation of any successful relationship. Within an interorganizational context, trust is the confident expectation that

all parties to an exchange will perform their roles with competence, with duty, and with goodwill (Hart and Saunders, 1998; Zaheer, et al., 1998). Organizational trust of the trading partner is critical for the development of relationship satisfaction. Absent trust that a trading partner possesses adequate technological safeguards, such as firewalls, digital signatures, current virus protection software, and other e-commerce best practices, organizations will not initiate e-commerce linkages (Ratnasingam and Phan, 2003). Thus, a minimal level of trust is necessary for the formation of trading partnerships. However, to achieve the level of relationship satisfaction necessary for sustainable competitive advantage, trust must incorporate procedures and practices that are not reliant on contracts or third party sanctions, but instead use self-enforcing safeguards, processes, and routines to manage interorganizational exchanges (Dyer and Chu, 2000).

The existence of informal self-enforcing safeguards manifests in perceptions of procedural justice. Procedural justice is the extent to which the decision making processes and procedures that impact the organization's and trading partner's interests are perceived as impartial and fair (Luo, 2007). Central to procedural justice within interorganizational relationships is a focus on mutually beneficial procedures intended to foster growth (Luo, 2007). High levels of procedural justice improve process efficiency by creating standards for expected behavior and relational norms that reduce the need for contracts (Tyler, 1989), allowing for greater flexibility and responsiveness along the supply chain. Thus, procedural justice enables effective governance through the establishment of decision making processes and procedures, expectations for appropriate behaviors, and relation norms. Dyer and Hatch (2006) attribute Toyota's superior component parts defect reduction rate to interorganizational routines and policies that

enable greater knowledge sharing with suppliers. Greater knowledge sharing allowed a faster rate of learning within supplier's manufacturing processes resulting in a 50 percent reduction in defect rates. Conversely, U.S. automakers, using the same suppliers, but subject to more restrictive interorganizational routines and policies that inhibit knowledge sharing, achieved a 26 percent defect rate reduction over the same time period. These differences persisted over the six-year period of the study. Procedural justice permitted Toyota and its supplier to develop knowledge sharing routines that provide a sustainable competitive advantage. In a study of cross-cultural cooperative alliances, Luo (2005) finds that shared perceptions of high levels of procedural justice produce greater financial returns for alliance partners in conditions of high structural uncertainty. Under conditions of high procedural justice, trading partners are more willing to engage in practices that benefit the organization (Griffith et al., 2006), thereby enhancing trust in the trading partner.

HYPOTHESIS 1: *Higher levels of procedural justice are positively associated with organizational trust in the trading partner.*

Actions that benefit the trading partnership also signal the desire to maintain a valued trading partnership. Of key importance to organizations and their trading partners is organizational commitment to the trading relationship. Commitment is the belief that initial investments in maintaining a trading partnership will result in the long-term survival and growth of the relationship. Commitment justifies the expenditure of resources necessary to form and enhance integrated B2B e-commerce systems capable of achieving sustainable competitive advantage. Resource expenditures can include investments in relation specific assets such as IT hardware and software (Son et al., 2005;

Lui, 2009) or employee training in partner specific business processes (Patnayakuni et al., 2006) to facilitate the development of relational norms that guide exchanges between trading partners. Further, the development of relational norms to guide interorganizational interactions increases an organization's commitment to its trading partner (Jap and Ganesan, 2000). Investments in developing and strengthening the trading partnership represent a tangible manifestation of commitment (Son et al., 2005). Within the context of RVF, these investments represent relation specific assets and complementary resources necessary for achieving sustainable competitive advantage (Klein and Rai, 2009), and indicate that both the organization and its trading partner perceive the relationship as crucial and important (Morgan and Hunt, 1994). Thus, high levels of perceived procedural justice, made tangible through the existence of relational norms, increase commitment to the trading partnership (Lou, 2005; Kwong and Leung, 2002) by directing actions through shared perceptions of appropriate behavior.

HYPOTHESIS 2: *Higher levels of procedural justice are positively associated with organizational commitment to the trading partner.*

Commitment forms the foundation for the development of trading partnerships. Commitment indicates the desire for a long-term trading relationship and is influenced by prior experiences and interactions (Free, 2008). As previously discussed, organizations will not commit to trading partnerships absent a minimal level of trust—however, for the trading relationship to move beyond a transaction based exchange to a trading partnership capable of creating and maintaining sustainable competitive advantage, trust must deepen. Commitment and trust foster greater cooperation, reduce functional conflict, enhance decision making under conditions of uncertainty, and reduce the propensity of

trading partners to exit the exchange relationship (Morgan and Hunt, 1994; Palmatier et al., 2006). Mukhopadhyay and Kekre (2002) compare B2B e-commerce and traditional trading partnerships. They show that the initiation of B2B e-commerce linkages does not increase transaction volume; however, organizational implementation of the B2B e-commerce systems and subsequent trading partner development of advanced B2B e-commerce linkages results in improved strategic and operational benefits for both the organization and the trading partner. Thus, commitment is instrumental to achieving integrated information systems capable of achieving sustainable competitive advantage. In an analysis of EDI supply chain partners, Hart and Saunders (1998) find that supplier commitment to the trading relationship is a precursor to the development of trading partner trust. Trust and commitment, in the form of relationship specific asset investment, also increase the volume (Hart and Saunders, 1998) and diversity of B2B e-commerce transactions (Son et al., 2005). Further, mutual trust between the organization and its trading partner positively influences the strategic information flows necessary to create knowledge sharing routines (Klein, 2007; Klein and Rai, 2009). Thus, the prior experiences and interactions necessary to form commitment subsequently influence and change perceptions of trust.

HYPOTHESIS 3: *Higher levels of organizational commitment to the trading partner are positively associated with organizational trust in the trading partner.*

As previously discussed, high levels of procedural justice improve process efficiency by creating standards for expected behaviors that reduce the need for contracts (Tyler, 1989) and facilitate the development of relational norms. These standards for

expected behavior guide a trading partner's actions and impact perceptions of commitment. In turn, commitment enables the repeated interactions necessary for organizations and their trading partners to form and update trust beliefs (Tomkins, 2001).

HYPOTHESIS 4: *The impact of procedural justice on the organization's trust of the trading partner will be mediated by organizational commitment to the trading partner.*

While organizations are concerned with the effects of procedural justice on trust, the input to output ratio, or distributive justice, also impacts trust. Distributive justice is defined as the perceived fairness of the distribution of rewards and costs between trading partners (Colquitt, 2001). The financial benefits of B2B e-commerce supply chains include lower inventory levels and carrying costs, reduced stockouts, shorter order cycles (Leonard and Cronan, 2002), and increased revenue growth (Rai et al., 2006). Rewards, while typically financial, can also include access to new technologies, markets, production processes (Beugre and Acar, 2008), knowledge acquisition (Luo, 2007), and information sharing (Rai et al., 2006; Kannan and Tan, 2002). Like procedural justice, organizational perceptions of distributive justice received from the trading partner influence relationship satisfaction through trust. Equity in the distribution of outcomes and rewards validates prior trust in the trading partner and enhances future trust necessary for the creation, maintenance, and enhancement of interorganizational resources needed to achieve sustainable competitive advantage from the trading partnership. In conditions of high distributive justice, organizational relational behaviors and long-term orientation towards trading partners increase (Brown et al., 2006). Equitable outcomes reduce trading

partner conflict (Griffith et al., 2006; Brown et al., 2006) and increase trust that the trading partner will not participate in opportunistic behaviors (Dyer and Singh, 1998).

HYPOTHESIS 5: *Higher levels of organizational distributive justice attributable to the trading partner are positively associated with organizational trust in the trading partner.*

Trust, Risk, and Relationship Satisfaction

Relationship satisfaction is "a positive affective state resulting from the appraisal of all aspects of a firm's working relationship with another firm" (Geyskens et al., 1999 p. 224). Satisfaction with the trading partnership provides the incentive for organizations and their trading partners to devote the time, effort, and resources necessary to transform buyer-supplier interactions from transactional exchanges to interorganizational relationships capable of producing sustainable competitive advantage (Geyskens et al., 1999). Back office integration, managerial skills, and partner support are critical to enhancing process performance and competitive advantage from trading partnerships (Dong et al., 2009). Highly integrated and collaborative trading partnerships enable the exchange of diverse, high quality, and privileged information between trading partners to facilitate joint decision making, increases in operational efficiency, and gains in market knowledge (Malhotra et al., 2005; Saraf et al., 2007). Information sharing, knowledge creation, back office integration, and the managerial skills necessary to leverage trading partner interactions develop over time (Sobrero and Roberts, 2001; Jap and Ganesan, 2000; Hunt and Davis, 2008; Subramani, 2004; Patnayakuni et al., 2006) and are facilitated by the existence of a mutually satisfying trading relationship. Thus,

relationship satisfaction is a key to the success of interorganizational relationships (Dwyer, 1980), such as B2B e-commerce trading partnerships.

The research model presented in Figure 2.1 identifies two key and opposing dimensions of relationship satisfaction—organizational trust of the trading partner and trading partner B2B e-commerce risk. This conceptualization is consistent with the central tenant of RVF —that organizations engaged in interorganizational relationships are subject to both the advantages and disadvantages inherent in the interorganizational relationship (Dyer and Singh, 1998). The need for trust is predicated on the existence of risk (Das and Teng, 2001; Bhattacharya et al., 1998). Within the trading partnership, trust is valuable when conditions exist for a partner to behave opportunistically (Ring and Van de Ven, 1994). Power (2007) suggests that risk management has become the dominant focus of corporate governance. Recent research focused on evaluating and controlling risk within interorganizational relationships supports this contention (Das and Teng, 2001; Colletti et al., 2005; Caglio and Ditillo, 2008; Dekker, 2004; Dekker, 2008). Trust, while still instrumental to the achievement of sustainable competitive advantage from B2B e-commerce systems, may not be sufficient to mitigate the risk inherited from collaborative supply chain relationships (Miller et al., 2008). Instead, risk is emerging as a unique and key deterrent to the formation of sustainable competitive advantage in trading partnerships (Aron et al., 2005; Goh et al., 2007).

Trust, as previously defined, is the confident expectation that all parties to an exchange will perform their roles with competence, with duty, and with goodwill (Hart and Saunders, 1998; Zaheer, et al., 1998). Trust enhances exchange performance by reducing the need for formal governance structures and monitoring (Gulati and

Nickerson, 2008). Trust is critical to trading partnerships as organizations, to achieve sustainable competitive advantage, must also 'purchase' their trading partners information systems and capabilities (Handfield and Bechtel, 2002). Nicolaou and McKnight (2006) find that trust positively influences intentions to use interorganizational information systems—a key requirement to achieving sustainable competitive advantage from trading partnerships. Trust, developed over time through interorganizational learning and adaptation processes, strengthens trading partnerships by encouraging knowledge exchange and mutual promotion of organizational and trading partner interests (Langfield-Smith and Smith, 2003). Thus, trust effects relationship satisfaction by providing confidence about the long-term positive behavior of the trading partner towards the organization and the trading relationship (Palmatier et al., 2006).

HYPOTHESIS 6: *Higher levels of organizational trust in the trading partner are positively associated with organizational relationship satisfaction.*

In a study of global B2B e-commerce supply chains, Arnold et al. (2010) find an organization's perception of trading partner B2B e-commerce risk reduces the organizations willingness to share information. Reduced information sharing hinders the formation of knowledge sharing routines necessary for sustainable competitive advantage (Dyer and Singh, 1998). Risk perceptions also reduce the intention to use interorganizational information systems (Nicolaou and McKnight, 2006). Absent use of the B2B e-commerce system, sustainable competitive advantage from trading partnerships cannot be realized.

Risk in the context of the trading partnerships is a multidimensional construct composed of application user level, business level, and technical level risks (Khazanchi and Sutton, 2001). Application user level risk focuses on the decision makers' choices and rationale for B2B e-commerce implementation. For example, organizations may use their coercive power, derived from trading partner dependence on the organization, to mandate that trading partners implement B2B e-commerce systems. However, this strategy can reduce the volume and diversity of transactions (Hart and Saunders, 1998). Business level risks are concerned with the effective implementation and integration of B2B e-commerce technologies to the existing organizational structure and back office systems. Absent successful integration and appropriate business process reengineering, trading partners cannot assist the organization in achieving sustainable competitive advantage (Malhotra et al., 2005; Saraf et al., 2007). Finally, technical level risks address whether trading partners possess the technologies, or the capital necessary to obtain the technologies, to enable B2B e-commerce integration with the organization (Khazanchi and Sutton, 2001). In combination, application user level, business level, and technical level risk provide an indication of B2B e-commerce risk. Sophisticated information technology infrastructures give organizations and their trading partners the flexibility necessary to adjust to changing business conditions and demands (Armstrong and Sambamurthy, 1999; Mishra and Agarwal, 2010). As trading partnerships develop, organizations and their trading partners become intertwined in order to facilitate the processes, such as knowledge sharing routines, necessary to achieve sustainable competitive advantage. Unfortunately, this tight coupling also exposes organizations to their trading partners' B2B e-commerce risk and diminishes relationship satisfaction.

Organizations can outsource processes, but they cannot outsource the risks associated with work stoppages and supply chain disruptions (Ernst & Young, 2004).

HYPOTHESIS 7: *Higher levels of trading partner B2B e-commerce risk are negatively associated with organizational relationship satisfaction.*

Research Methods

The research model presented in Figure 2.1 is tested in the overall context of a structural model. Support of the overall model is critical to establishing the direct effects of trust and risk on relationship satisfaction as well at the indirect effects of the antecedents to trust. Hence, the hypotheses are also examined simultaneously within the overall context of the model.

Data Collection

The focus of this study is interorganizational relationships within the context of B2B e-commerce trading partnerships. Consistent with prior interorganizational research (Yilmaz et al., 2004; Luo, 2005; Luo, 2007; Beugre and Acar, 2008), individuals with the knowledge, expertise, and experience to evaluate B2B e-commerce trading partnerships are deemed suitable participants as their opinions and beliefs guide organizational perceptions concerning the trading partnership and influence B2B e-commerce interactions. In order to test the research model and hypotheses, a web-based survey instrument was used. Chief Information Officers (CIOs), information systems security specialists, IT internal audit specialists with e-commerce experience, and e-commerce development staff represent suitable participants for this study as they possess the

knowledge, experience, and expertise to assess their organization's interactions with trading partners. To assess ease of use, clarity, and completion time, the web-based survey was pretested by 42 individuals with knowledge and expertise similar to potential study participants. Individuals participating in the pretest phase of this study were excluded from further participation in the study, and their responses were not used for data analysis beyond the pretest phase.

A survey company was employed to target and solicit suitable participants for this study. Initial contact was made via e-mail using job titles as an indicator of a participant's suitability for participation in the study. A total of 1,021 individuals responded to the initial contact and began the survey at the survey company's web site. To participate in the study, each respondent answered the following four questions designed to further assess their suitability for participation in the study:

- Does your organization have experience in working with trading partners (e.g., suppliers, customers, outsourcers, etc.) in a B2B e-commerce relationship?
- Does your organization repeatedly transact with any such trading partners?
- Do you have a basic understanding of the technological and IT-driven components of B2B e-commerce?
- Do you have a reasonable understanding of any of your trading partners' B2B e-commerce capabilities and your firm's relationship with this partner?

A "yes" response to all four questions was required to access the survey and continue participation in the study. Subsequent to completing the pre-screening questions, 149 of the 1,021 initial potential participants were eliminated. Of the remaining 872 qualified respondents, 266 (30.50 percent) completed the survey. Upon receipt of the completed

survey, 11 surveys were eliminated due to response inconsistencies and an additional 50 were deemed unusable because of excessive missing data. The final sample consists of 205 usable competed surveys representing a response rate of 77.06 percent. Descriptive statistics related to demographic information provided by survey respondents are presented in Table 2.1. Survey respondents were asked to identify and evaluate a B2B e-commerce trading partner with which they were most familiar based on their job duties. Either an internal (e.g., separate business division or other related party) or external B2B e-commerce trading partner could be evaluated. The majority (90.73 percent) of survey respondents evaluated external B2B e-commerce trading partners (results not tabulated). B2B e-commerce trading partnerships require time to transform from the transactional to the relational. Demographic data indicate 95.12 percent of the organizations represented in the survey have been using B2B e-commerce systems between 1 and 29 years. The majority of organizations (92.20 percent) are publicly traded. At 25.37 percent, manufacturing was the predominant industry segment. Customers are the most frequent trading partners followed by wholesalers, manufacturers, and financial institutions. Purchasing, followed by administration, and partner information exchanges are the most common B2B e-commerce functionalities used with all trading partners and the specific trading partner evaluated for this study. Based on the demographic data discussed above and presented in Table 2.1, the organizations represented in this study have dedicated, and diverse B2B e-commerce trading partnerships capable of creating sustainable competitive advantage.

Table 2.1: Participant and Organizational Demographics

Category	Frequency (n = 205)	Percent
Gender		
Male	193	94.15
Female	12	5.85
Not Answered	0	0.00
Age (in years)		
<22	1	0.49
22-27	1	0.49
27-32	9	4.39
31-37	34	16.59
37-42	37	18.05
42-47	37	18.05
47-52	32	15.61
52-57	29	14.15
>57	23	11.22
Not answered	2	0.98
Experience in current job function (in years)		
<1	1	0.49
1-5	25	12.20
5-9	53	25.85
9-13	48	23.41
13-17	25	12.20
17-21	20	9.76
21-25	19	9.27
25-29	13	6.34
>29	0	0.00
Not answered	1	0.49
Organizational Structure		
Publicly traded	189	92.20
Not publicly traded	12	5.85
Not answered	4	1.95
Industry		
Manufacturing	52	25.37
Insurance	17	8.29
Financial/real estate	16	7.80
Wholesale/retail	22	10.73
Technology	3	1.46
Utilities	8	3.90
Health	18	8.78
Communication	1	0.49
Aerospace & defense	27	13.17
Transportation	9	4.39
Other	29	14.15
Not answered	3	1.46
B2B e-commerce functions conducted with this trading partner[†]		
Purchasing/Order Management	153	74.63
Administration (including price/sales catalog)	73	35.61
Sales Analysis/Inventory Management	60	29.27
Billing/Payment	123	60.00
Shipping/Receiving	101	49.27

Category	Frequency (n = 205)	Percent
Bidding/Quotation (including RFP)	62	30.24
Partner Information/Acknowledgement	56	27.32
Other	13	6.34
Not answered	1	0.49
B2B e-commerce functions used by your organization †		
Purchasing/Order Management	153	74.63
Administration (including price/sales catalog)	73	35.61
Sales Analysis/Inventory Management	60	29.27
Billing/Payment	123	60.00
Shipping/Receiving	101	49.27
Bidding/Quotation (including RFP)	62	30.24
Partner Information/Acknowledgement	56	27.32
Other	13	6.34
Not answered	1	0.49
B2B e-commerce purchase with this trading partner for current fiscal year (in dollars)		
< 250,000	65	31.71
250,000-750,000	29	14.15
750,000-2.25 million	42	20.49
2.25 million-2.75 million	4	1.95
2.75 million-3.25 million	5	2.44
3.25 million-3.75 million	4	1.95
3.75 million-4.25 million	2	0.98
4.25 million-4.75 million	3	1.46
>4.75 million	44	21.46
Not answered	7	3.41
B2B e-commerce sales with this trading partner for current fiscal year (in dollars)		
< 250,000	68	33.17
250,000-750,000	22	10.73
750,000-2.25 million	33	16.10
2.25 million-2.75 million	9	4.39
2.75 million-3.25 million	2	0.98
3.25 million-3.75 million	4	1.95
3.75 million-4.25 million	4	1.95
4.25 million-4.75 million	4	1.95
>4.75 million	50	24.39
Not answered	9	4.39
All trading partners your organization currently uses B2B e-commerce to transact business with †		
Customers (e.g., Retailers, Supermarkets, etc.)	128	62.44
Wholesalers/Distributors	115	56.10
Manufacturers	100	48.78
Financial Institutions	87	42.44
Shipping Companies	66	32.20
Government (e.g., Customs)	45	21.95
Other	11	5.37
Not answered	1	0.49
Length of time your organization has used B2B e-commerce (in years)		
<1	5	2.44
1-5	69	33.66
5-9	63	30.73
9-13	29	14.15
13-17	19	9.27

Category	Frequency (n = 205)	Percent
17-21	10	4.88
21-25	3	1.46
25-29	2	0.98
>29	3	1.46
Not answered	2	0.98

† Multiple items could be selected

Development of Measures

All item measures use a 7-point Likert type scale anchored on 1 indicating a strong negative perception and 7 indicating a strong positive perception. In addition, participants have the option to select "No basis for judgment". Measurement items for the reflective constructs organizational perceptions of procedural justice present in the trading partnership (Kumar et al., 1995), organizational perceptions of distributive justice received from the trading partnership (Kumar et al., 1995), organizational commitment to a trading partner (Ganesan, 1994; Hart and Saunders, 1998), organizational trust in a trading partner (Hart and Saunders, 1998), and organizational satisfaction with the trading relationship (Ganesan, 1994) were adapted from prior studies. As these scales were adapted from prior research, scale validity was assessed during measurement model testing using confirmatory factor analysis (CFA). CFA results indicated all measurement items loaded on their corresponding construct at a level greater than 0.70 (Hair et al., 2010), with the exception of the first measurement item for commitment (com1), which loaded on the commitment construct at 0.64. However, further analysis of the commitment scale indicated a composite reliability of 0.86 and an average variance extracted (AVE) of 0.68. Given these acceptable indicators of scale validity (Hair et al.,

2010), com1 was retained as a measurement item for the commitment scale. Table 2.2 contains the item measures, medians, means, standard deviations, and item loadings for the reflective construct item measures.

Table 2.2: Descriptive Statistics for Reflective Measurement Items

Variable Measures	Item Name	Range	Median	Mean	Std. Dev.	Item Loading
Organizational Procedural Justice (Kumar et al., 1995)						
Your organization promotes bilateral communication with this trading partner. 1) Strongly Disagree to 7) Strongly Agree	pj1	7.00	6.00	5.34	1.61	0.86
Your organization applies consistent policies and decision-making procedures with this trading partner. 1) Strongly Disagree to 7) Strongly Agree	pj2	7.00	6.00	5.26	1.52	0.85
Your organization provides valid reasons for any changes in policies affecting this business partner. 1) Strongly Disagree to 7) Strongly Agree	pj3	7.00	6.00	5.34	1.49	0.91
Organizational Commitment (Hart and Saunders, 1998; Ganesan, 1994)						
Your organization expects the relationship with this trading partner to last a lifetime. 1) Strongly Disagree to 7) Strongly Agree	com1	7.00	5.00	4.68	1.67	0.64
Your organization believes that over the long run the relationship with this trading partner will be profitable. 1) Strongly Disagree to 7) Strongly Agree	com2	7.00	6.00	5.27	1.52	0.88
Your organization focuses on long-term goals with this trading partner. 1) Strongly Disagree to 7) Strongly Agree	com3	7.00	6.00	5.48	1.57	0.92
Organizational Trust (Hart and Saunders, 1998)						
Deadlines set by this trading partner are honest and accurate. 1) Strongly Disagree to 7) Strongly Agree	trt1	7.00	5.00	5.10	1.44	0.80
This trading partner is honest in business dealings. 1) Strongly Disagree to 7) Strongly Agree	trt2	7.00	6.00	5.52	1.42	0.89

Variable Measures	Item Name	Range	Median	Mean	Std. Dev.	Item Loading
This trading partner is willing to share information 1) Strongly Disagree to 7) Strongly Agree	trt3	7.00	6.00	5.27	1.38	0.84
Organizational Distributive Justice (Kumar et al., 1995) *How fair are your organization's outcomes and earnings compared to:*						
The roles and responsibilities this trading partner assigns to our organization. 1) Extremely Unfair to 7) Extremely Fair	dj1	7.00	5.00	5.06	1.33	0.96
What other organizations in your industry receive from their trading partners. 1) Extremely Unfair to 7) Extremely Fair	dj2	7.00	5.00	5.02	1.19	0.78
What this trading partner earns from transactions associated with their relationship with your organization. 1) Extremely Unfair to 7) Extremely Fair	dj3	7.00	5.00	5.06	1.32	0.83
Organizational Relationship Satisfaction (Ganesan, 1994) *Describe your organizations feeling with respect to the outcomes with this trading partner.*						
Dissatisfied versus Satisfied 1) Very Pleased to 7) Very Displeased	rs1	7.00	6.00	5.13	1.53	0.90
Contented versus Disgusted 1) Very Pleased to 7) Very Displeased	rs2	7.00	6.00	5.16	1.45	0.98
Disagreements 1) Very Pleased to 7) Very Displeased	rs3	7.00	5.00	5.06	1.38	0.72
Trading Partner B2B E-commerce Risk Reflective Scale						
Business Level Risk Factors	blr	6.11†	.01	0.00	1.00	0.88
Application user Level Risk Factors	alr	5.90†	.04	0.00	1.00	0.99
Technical Level Risk Factors	tlr	5.80†	.11	0.00	1.00	0.88

† Absolute values

Both reflective and formative measurement techniques were used to derive the B2B e-commerce risk construct (Jarvis et al., 2003). Whether to model a construct as formative or reflective is determined by the nature of the construct and the item measures used. Item measures for reflective constructs are influenced by the underlying latent construct. As such, reflective construct item measures are expected to be internally consistent, and substitutable. Thus, the addition or deletion of an item measure does not

change the underlying meaning or nature of the reflective construct. In addition, changes that alter the reflective latent construct are made apparent by changes to the group of related item measures (Jarvis et al., 2003).

Formative latent constructs are derived from the combination of associated and observable formative item measures. As such, formative item measures need not be internally consistent or move in the same direction, as each item measure can make a unique contribution to the latent construct. In addition, the removal of a formative item measure can alter the meaning of the associated latent construct (Jarvis et al., 2003).

The reflective construct trading partner B2B e-commerce risk was based on a two-step process utilizing three lower level formative constructs: business level risk, application user level risk, and technical level risk. In step 1, measurement items from Sutton et al. (2008) were validated and used to estimate the three lower level formative constructs business level risk, application user level risk, and technical level risk. In step 2, the validated formative items were used to generate participant factor scores for business level risk, application user level risk, and technical level risk using principal component analysis (PCA). These PCA participant factor scores were used as reflective item measures for the B2B e-commerce risk reflective construct. This two-step process incorporated both individual B2B e-commerce risk from a specific trading partner and the effects of the organization's universal B2B e-commerce risk policies, procedures, and practices that can influence organizational perceptions of specific trading partner B2B e-commerce risk.

As previously discussed, step 1 evaluates the scale validity of the lower level formative constructs business level risk, application user level risk, and technical level

risk. Consistent with prior research, multicollinearity (Diamantopoulos et al., 2008) and outer-item weights (Chin, 1998) were examined to assess formative item measurement validity. Based on Petter et al. (2007), a conservative variance inflation factor (VIF) of 3.30 was adopted as the maximum allowable for formative measurement item inclusion. VIF scores for one application user level risk item measure and two technical level risk item measures exceeded the 3.30 threshold. These items were eliminated from further analysis. All other formative items were retained.

Components based structural equation modeling was used to assess outer-item weights (Ringle et al., 2005). Prior literature offers mixed guidance concerning the inclusion or exclusion of formative item measures with non-significant item weights. Some (Diamantopoulos and Winklhofer, 2001) recommend removing non-significant item measures for parsimony, while others (Bollen and Lennox, 1991; Diamantopoulos et al., 2008) recommend retaining all item measures to ensure alteration of the meaning of the formative construct does not occur. The latter approach was adopted for use within this study. While retaining formative item measures with non-significant outer-item weights may not contribute significantly to the estimation of the formative construct, this approach ensures the meaning of the formative construct is not altered. In addition, the prior elimination of formative items measure with a VIF of 3.30 or over ensures that the remaining formative measures are not unduly influencing formative construct estimation. Scale item measures, VIF scores, outer-item weights, and associated t-values are presented in Table 2.3.

Table 2.3: Descriptive Statistics for Formative Measurement Items

Formative Measures	Item	VIF	Outer-Item Weights	t-value
Business Level Risk Factors (Sutton et al., 2008)				
Understanding by trading partner (TP) of their business processes, where e-commerce fits into those processes, value of business process integration with TPs, and where benefits are derived.	blr1	2.13	-0.01	0.04
Trading partner's ability to assess the use/success of technology and the benefits of B2B implementation/technology investment (including return on investment).	blr2	2.83	0.16	0.66
Trading partner's costs of meeting regulatory requirements and their organization's understanding of associated risks of non-compliance (including inter- and Intra- state compliance issues).	blr3	1.96	0.22	1.12
Trading partner's technical understanding at a level that facilitates creation of a transformational vision for change and the ability to implement successful change management strategies to achieve objectives, gain acceptance, and support sustainability of the change.	blr4	2.40	-0.12	0.47
Trading partner's understanding of the intended functionality of a system at the analysis/requirements stage and tying of the system to business processes that are evolved or engineered accordingly to meet the business objective.	blr5	3.03	-0.01	0.17
Trading partner's level of adherence to contractual requirements including such things as product volume, sales prices, time/service commitments, and settlement (including legal agreements such as non-repudiation and the level of legal binding).	blr6	2.15	0.11	0.43
Trading partner's due diligence in implementing B2B relationships at the business, technology, and security levels to assure users understand data classification/ownership/security when handling partner data and the partner maintains appropriate segregation of data to appropriate users.	blr7	2.58	-0.22	0.93
Trading partner's understanding of risks associated with their projects and accordingly executing effective project management.	blr8	2.47	0.27	1.34
Trading partner's understanding of the technical complexities and associated costs of B2B development, implementation, and maintenance; and the legal ramifications, costs of implementing vs. not implementing non-repudiation agreements, costs of new business rules, and loss of personal marketing contacts.	blr9	2.79	-0.07	0.40

Formative Measures	Item	VIF	Outer-Item Weights	t-value
Trading partner's team expertise for guiding all aspects of B2B e-commerce projects along with training for project teams and users.	blr10	2.79	-0.26	1.25
Trading partner's broad management involvement in IT/business planning while maintaining independence in the selection of technology preferences.	blr11	2.37	0.58	3.14
Trading partner's integration of applications into organizational procedures and guidelines – including comprehensive documentation.	blr12	2.18	-0.30	1.49
Auditability of trading partner's system based on effective monitoring controls and audit trail (history of electronic data, updates, changes).	blr13	1.95	0.35	2.01
Trading partner's ability to protect a distinguished Brand in an e-commerce environment.	blr14	1.76	0.15	0.69
Trading partner's resilience to a business interruption.	blr15	1.72	0.07	0.51
Application user Level Risk Factors (Sutton et al., 2008)				
Appropriate level of training for trading partner's users and related cost constraints	alr1	2.19	-0.01	0.01
Will the target trading partner (TP) use a proposed B2B system (considering such issues of whether there is a champion for the project, sufficient IT sophistication to integrate within TP's systems environment, and ease of use of application)?	alr2	2.20	0.09	0.37
When upgrading systems based on new technologies or business partner request, the trading partner has sufficient coordination and change control procedures in place to maintain reliability and protect transaction validation procedures	alr3	2.38	-0.06	0.23
Trading partner's understanding of and agreement on data structure/scope/business rules for exchange of information	arl4	2.51	-0.40	2.12
Is there benefit of B2B ventures to the trading partner and is the e-business marketplace sustainable?	alr5	2.30	0.02	0.26
Clear and sufficient contract documentation on policies, procedures, connectivity guidelines, limitations, review plan, etc. (Service Level Agreements)	alr6	2.17	0.14	0.67
Application controls in place for completeness, accuracy, and processing integrity (i.e., trading partner's applications function as intended).	alr7[†]	3.65	N/A	N/A
Trading partner's implementation of new B2B applications include testing for assurances on hardware/software capability to support applications, availability of supporting applications 24/7, and performance and capacity of data exchange	alr8	2.83	0.38	1.94

Formative Measures	Item	VIF	Outer-Item Weights	t-value
Third party assurance of transaction validity	alr9	1.58	0.08	0.49
Marketing cost to sell the trading partner on a given B2B application	alr10	1.73	0.23	1.13
Privacy of data agreements	alr11	2.04	-0.15	0.76
Alignment of trading partner's business processes with implemented B2B e-business technologies	alr12	2.31	-0.03	0.08
Adequacy of the security over access to trading partner's business application systems	alr13	2.19	0.18	0.80
Inaccurate, inadequate, or outdated documentation on systems software/hardware provided by trading partner	arl14	1.89	0.17	0.73
Trading partner's inability to have an enterprise view of the full range of trading partner relationships	alr15	2.08	0.37	1.87
Technical Level Risk Factors (Sutton et al., 2008)				
Change management processes in place to assure maintenance of security and integrity of systems as technology evolves rapidly.	tlr1	2.18	0.08	0.69
Trading partner's security over all networks and network interactions ensure transmission integrity and provide guaranteed delivery transaction to the correct trading partner.	tlr2	2.79	0.03	0.03
Technology sophistication/expertise differential between trading partners and related selection of appropriate standards and hardware/software by the right people in this trading partner's organization.	tlr3	2.41	-0.05	0.12
Trading partner's maintenance of data accuracy during systems conversion and application usage.	tlr4	2.80	-0.11	0.37
Completeness and accuracy of trading partner's data processing activities.	tlr5	3.09	0.08	0.31
Metrics related to capacity, resiliency, and monitoring in order to better predict/control performance by trading partner.	tlr6	2.09	-0.27	1.32
Security of communication technology (infrastructure) --including vulnerability of ISP and/or public Internet, vulnerability to malicious code (e.g., viruses), security vendors expected survival and the trading partner's general security model.	tlr7	3.00	0.10	0.35
Trading partner's vulnerability to loss of availability of data, systems, applications, etc., whether loss is accidental, intentional, or by poor design.	tlr8	2.71	0.19	0.67
Trading partner's setting of appropriate user profiles to assure information is appropriately compartmentalized by information types and classified by access levels.	tlr9	3.17	0.08	0.36
Controls to enforce compliance with regulatory requirements and to enforce regulations	tlr10	2.67	0.03	0.04

Formative Measures	Item	VIF	Outer-Item Weights	t-value
Comprehensive access management to applications/operating systems protected via controls (e.g., firewalls) in place to assure confidentiality, availability, and integrity (e.g., unauthorized access).	tlr11†	3.76	N/A	N/A
Channel security through appropriate controls (e.g., encryption implemented according to regulations) including validation and authentication of transaction partner.	tlr12	2.74	0.19	0.78
Ease of transition of information to new B2B systems, ease of integration with trading partner's systems, consistency in methods of partner, and ability to efficiently route B2B transactions to the right internal applications.	tlr13	2.58	0.46	1.76
Flexibility and scalability of the trading partner's system (hardware/software independence).	tlr14	2.78	0.16	0.72
Redundancy and failover of trading partner's systems (in relation to downtime tolerance).	tlr15†	4.10	N/A	N/A
Adequacy of trading partner's disaster recovery plan.	tlr16	2.12	-0.18	0.99
Adequate staff expertise available on an as-needed basis.	tlr17	2.26	-0.24	1.14
Comprehensive systems documentation of trading partner's systems.	tlr18	2.26	0.19	0.83

† Items dropped

Step 2 generates individual PCA factor scores for each participant based on the validated business level, application user level, and technical level risk formative item measures retained from step 1. Using PCA with oblique ($\Delta = 0$) rotation, eigenvalues were generated to assess the scale validity of the business level, application user level, and technical level risk formative constructs. Analysis of the eigenvalues indicated that the business level risk formative item measures combined to form a single construct. However, based on the initial eigenvalues, both application user level risk (eigenvalues = 6.98 and 1.11) and technical level risk (eigenvalues = 8.89 and 1.14) formed two constructs (results not tabulated). Given the disparity in the range of eigenvalues for both application user level and technical level risk, parallel analysis was used to generate an

eigenvalue cutoff. The results (not tabulated) indicated that eigenvalues greater than 1.34 for application user level risk and 1.39 for technical level risk were necessary to establish the existence of a second unique factor. As the initial eigenvalues for application user level and technical level risk did not exceed this level, the existence of the second factors was deemed spurious. Based on the preceding results, PCA constrained to a single factor, was used to generate participant factor scores for business level risk, application user level risk, and technical level risk. The resulting participant factor scores become the reflective items measures for the B2B e-commerce construct. Scale validity for the B2B e-commerce construct was evaluated using principal axis factoring. The business level risk, application user level risk, and technical level risk reflective item measures all loaded on the B2B e-commerce risk construct at a minimum of 0.70 (Hair et al., 2010) indicating acceptable scale validity.

Measurement and Structural Model Results

Covariance based structural equation modeling (SEM) was used to evaluate overall measurement model fit and assess the measurement validity of the latent constructs prior to testing the structural model (Hair et al., 2010). Inter-construct correlations, average variance extracted (AVE), square root of AVE, composite reliability scores, and inter-construct correlations for all reflective latent constructs are reported in Table 2.4. Examination of the inter-construct correlations indicated none were above the standard threshold of 0.85 (Kline, 2005). In addition, the square root of all AVE exceeded the highest inter-construct correlation (Chin, 1998). Based on these results, the latent constructs exhibited acceptable discriminant validity. Latent construct convergent validity was assessed using composite reliability scores and AVE. The results indicated

the composite reliability scores of all constructs exceeded 0.70 (Nunnaly and Bernstein, 1994). All AVE were higher than 0.50 (Chin, 1998). These results support the convergent validity of the latent constructs (Chin, 1998; Fornell and Larker, 1981). The chi-square statistic (X^2 = 170.94, df = 118, p = 0.001), root mean squared error of approximation (RMSEA = 0.05, LO = .03, HI = .06), Tucker Lewis Index (TLI = 0.98), and comparative fit index (CFI = 0.98) were used to evaluate overall measurement model fit (results not tabulated). These results suggest an acceptable degree of measurement model fit to the underlying data (Hair et al., 2010).

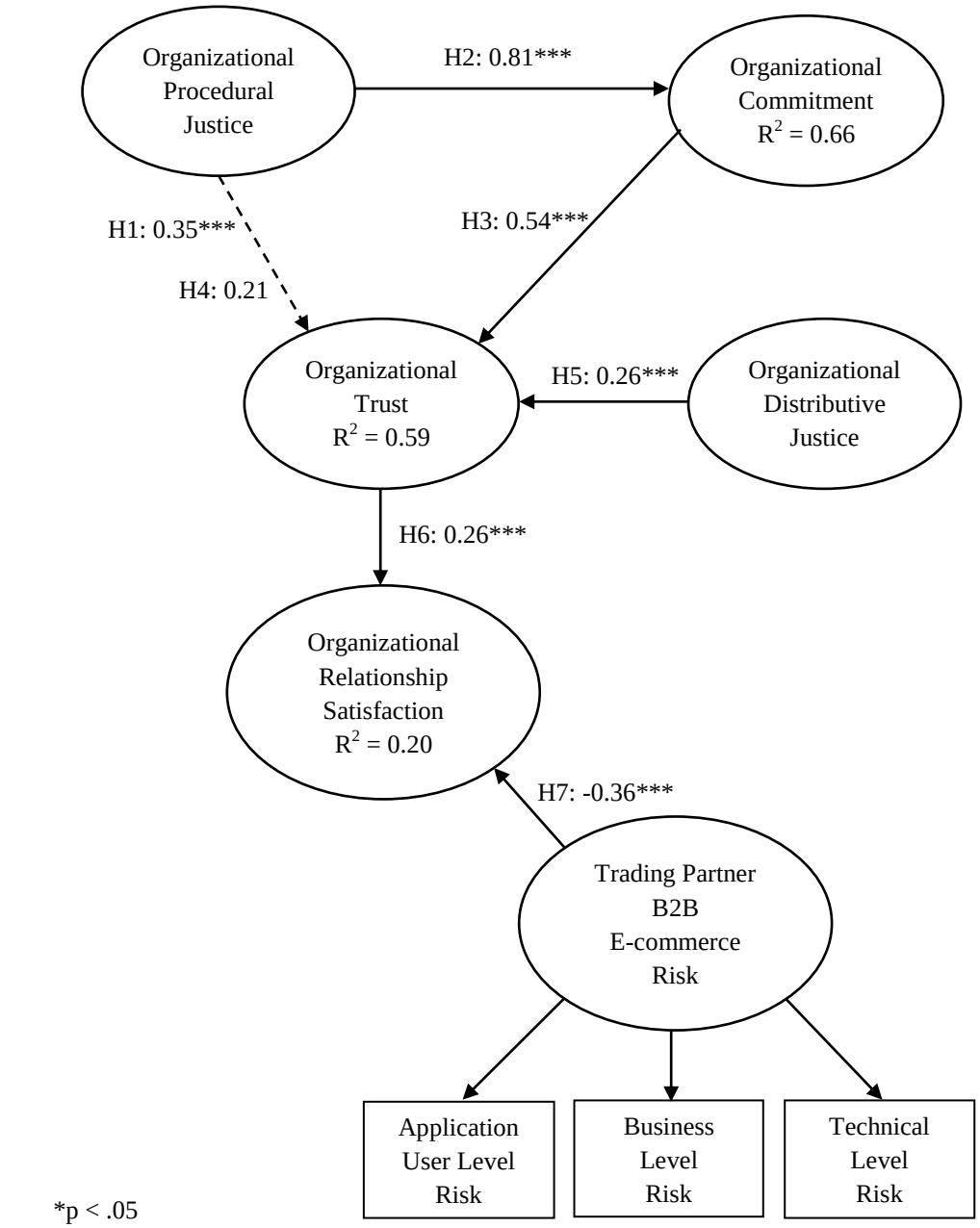
As with all perceptual data obtained from a single survey completed by an individual respondent, common method bias is a concern (Burton-Jones, 2009). The unmeasured latent factor method approach (Podsakoff et al., 2003) was used to evaluate if sufficient common method variance exists to detrimentally influence parameter estimates within the measurement model (results not tabulated). All measurement items loaded significantly on their associated latent constructs. In contrast, the highest measurement item loading on the unmeasured latent construct was 0.11 and not significant (p > .10). Thus common method bias does not appear to be of concern within this study.

Table 2.4: Measurement Model Construct Validity and Composite Reliability

	Organizational Procedural Justice	Organizational Distributive Justice	Trading Partner B2B E-Commerce Risk	Organizational Trust	Organizational Commitment	Organizational Relationship Satisfaction
Average Variance Extracted[†], Square Root of Average Variance Extracted[††], and Inter-Construct Correlations[†††]						
Organizational Procedural Justice	**0.76** **0.87**					
Organizational Distributive Justice	0.43	**0.74** **0.86**				
Trading Partner B2B E-Commerce Risk	0.07	0.12	**0.84** **0.92**			
Organizational Trust	0.71	0.52	0.19	**0.71** **0.84**		
Organizational Commitment	0.79	0.39	0.11	0.74	**0.68** **0.82**	
Organizational Relationship Satisfaction	0.10	0.20	-0.32	0.21	0.18	**0.76** **0.87**
Composite Reliability						
	0.91	0.89	0.94	0.88	0.86	0.90

[†] AVE is the upper number on the diagonal
[††] The square root of AVE is the lower number on the diagonal
[†††] Inter-construct correlations are below the diagonal

The structural model with path loadings and significance levels for the hypothesized relationships is presented in Figure 2.2. The chi-square statistic (X^2 = 228.20, df = 129, $p < .001$), root mean squared error of approximation (RMSEA = 0.06, LO = 0.05, HI = 0.07), Tucker Lewis Index (TLI = 0.96), and comparative fit index (CFI=0.97) were used to evaluate the overall fit of the structural model. The results suggest strong structural model fit to the underlying data (Hair et al., 2010). Examination of the path loadings indicated all hypothesized relationships were significant in the predicted direction at a minimum of $p < .001$, with the exception of the mediated relationship between procedural justice and trust. An examination of the non-significant procedural justice to trust path indicated full mediation of the procedural justice to trust relationship through commitment. The overall strength of the structural model provides strong support for RVF and the direct influences of trust and risk on relationship satisfaction. In addition, the structural model results support the indirect effects of justice and commitment that enhance trust and, ultimately, relationship satisfaction.



*p < .05
**p < .01
***p < .001

X^2 = 228.20, df = 129, p < .001
TLI = 0.96
CFI = 0.97
RMSEA = 0.06, LO = 0.05, HI = 0.07

Figure 2.2: Structural Model

HYPOTHESIS 1 predicts that higher levels of procedural justice within the trading partnership will be positively associated with organizational trust in the trading partner. Because of limitations in the SEM software used to estimate the mediated relationships within the structural model, the results for HYPOTHESIS 1 are obtained by estimating the structural model without the path from procedural justice to commitment. All other paths within the structural model remain intact. This approach provides an unbiased estimate of the direct effect of procedural justice on trust. The results indicate that higher levels of procedural justice are positively associated (0.35, $p < .001$) with organizational trust of the trading partner. Thus, procedural justice serves as a form of effective governance by reducing the need for formal contracts and control mechanisms that inhibit the development of trust.

The effects of procedural justice on commitment are addressed in HYPOTHESIS 2. As predicted, higher levels of procedural justice within the trading partnership are positively associated (0.81, $p < .001$) with high levels of organizational commitment to the trading partnership. In addition, the results indicate that procedural justice accounts for 66 percent of the variance in commitment. This supports the contention that relational norms and behaviors developed between trading partners signal the desire to maintain partnership ties.

HYPOTHESIS 3 is concerned with the impact of commitment on trust. Specifically, high levels of organizational commitment are positively associated with high levels of trust. Support for this relationship is provided by the positive association (0.54, $p < .001$) between high levels of organizational commitment and organizational trust of the trading partner. Asset specific investments and the development of behavioral norms signal the

desire to form and maintain long-term mutually beneficial trading partnerships which are necessary for trust to deepen.

HYPOTHESIS 4 predicts that the direct association between higher levels of procedural justice within the trading partnership and organizational trust of the trading partner will be mediated by the procedural justice-commitment-trust relationship. The results (not tabulated), estimated using the bias corrected percentile method, indicate the total effect of all structural paths from procedural justice to trust is 0.65 and significant at the $p < .001$ level. Analysis of the indirect effects of the structural paths from procedural justice through commitment to trust indicate much (0.44, $p < .001$) of the influence of procedural justice on trust flows through commitment (results not tabulated). This indirect effect suppresses the direct effect (0.21, $p > .05$) between procedural justice and trust. Thus, organizational commitment to the trading partner fully mediates the relationship between procedural justice in the trading relationship and organizational trust in the trading partner.

The influence of distributive justice on trust is examined in HYPOTHESIS 5. Specifically, hypothesis 5 predicts that higher levels of organizational distributive justice will be positively associated with higher levels of organizational trust in the trading partner. The model results indicate support for this prediction. Distributive justice is positively associated (0.26, $p < .001$) with higher levels of trust. The rewards, both financial and non-financial, from interactions between organizations and their trading partners are beneficial to trust in the trading partner. In addition, the combined effects of justice and commitment account for 59 percent of the variance in trust.

HYPOTHESIS 6 examines the relationship between higher levels of organizational

trust in the trading partner and higher levels of organizational relationship satisfaction. The results support this proposed relationship. Higher levels of trust are positively associated (0.26, $p < .001$) with higher levels of relationship satisfaction. Thus, trust is instrumental in building and maintaining the level of satisfaction necessary to ensure long-term trading partnerships capable of producing sustainable competitive advantage.

Trust serves as a nexus to collect and channel the effects of procedural justice, distributive justice, and commitment perceptions on relationship satisfaction; however, justice perceptions and commitment can also enhance relationship satisfaction indirectly. The results (not tabulated), estimated using the bias corrected percentile method, demonstrate the positive indirect effects of the structural paths from procedural justice (0.17, $p < .001$), commitment (0.14, $p < .001$), and distributive justice (0.07, $p < .001$) to relationship satisfaction. Interestingly, distributive justice has the least indirect effect on relationship satisfaction. This suggests that, relative to the input-output ratio (i.e., distributive justice), organizations and their trading partners view the processes that encourage the development of relational norms of expected behavior (i.e., procedural justice), and demonstrate long-term orientation through investments in relation specific assets or business process training (i.e., commitment), as critical to building and maintaining relationship satisfaction.

Finally, HYPOTHESIS 7 predicts that organizational perceptions of B2B e-commerce risk will be negatively associated with organizational relationship satisfaction. The structural model results support this hypothesis. A negative association (-0.36, $p < .001$) exists between perceptions of trading partner B2B e-commerce risk and relationship satisfaction. The highly integrated and tightly coupled information systems necessary for

organizations to achieve sustainable competitive advantage from relationships with their trading partner also expose the organization to risk from the trading partnership. In addition, the combined effects of trust and risk explain 20 percent of the variance in relationship satisfaction.

Discussion

This study examines the influence of trust and risk on relationship satisfaction within the context of B2B e-commerce trading partnerships. The impacts of procedural justice, distributive justice, and commitment on trust are also analyzed. All hypotheses are significant in the predicted direction and the research model exhibits strong fit to the underlying data.

The results show that organizational trust in the trading partner is positively associated with an organization's satisfaction with the trading relationship; however, this effect is counter balanced by the greater and negative association of trading partner B2B e-commerce risk on relationship satisfaction. The results also support the effects of the hypothesized antecedents to trust. Higher levels of interorganizational procedural justice, organizational perceptions of distributive justice, and organizational commitment to the trading partner are all positively associated with organizational trust in the trading partner. As hypothesized, the relationship between procedural justice and trust is mediated by commitment.

Overall, the results presented in this paper support the RVF. Organizations can attain sustainable competitive advantage through participation in interorganizational relationships, such as B2B e-commerce trading partnerships. To do so, high levels of procedural justice, distributive justice, and commitment must exist within the trading

partnership to engender the level of trust necessary to produce relationship satisfaction—a critical component to long-term trading partnerships capable of creating, maintaining, and enhancing relation specific assets, complementary resources and capabilities, effective governance procedures, and knowledge sharing routines. However, the advantages derived from the trading partnerships expose organizations to risks that can erode relationship satisfaction and hinder the achievement of sustainable competitive advantage.

The research presented in this paper contributes to three areas of concern within the broad context of interorganizational relationship literature. First, researchers have noted the need to consider the effects of risk, in addition to trust, within the environment of interorganizational relationships (Miller et al., 2008). The results on risk indicate it is an important deterrent to the achievement of relationship satisfaction despite the existence of trust. This finding lends support to the emerging view that trust and risk are distinct, but interrelated constructs that exist simultaneously within the interorganizational relationship setting of B2B e-commerce trading partnerships. This finding is of key importance, as declining levels of relationship satisfaction hinder the development of the interorganizational resources necessary to achieve sustainable competitive advantage. Second, this study contributes to the growing stream of research investigating interorganizational perceptions of procedural and distributive justice and the influence of these justice perceptions on interorganizational relationships (Luo, 2005; Luo, 2007; Brown et al., 2006; Beugre and Acar, 2008). The direct and indirect effects of procedural and distributive justice on commitment, trust, and relationship satisfaction support the conceptualization of justice perceptions as interorganizational construct that

have significant influence on trading partnerships and relationship satisfaction. Finally, by examining the use of B2B e-commerce trading partnerships, this study addresses the need to consider the impact of information technology on interorganizational relationships (Cuganesan and Lee, 2006; Granland, 2011).

As in all studies, several limitations should be considered when evaluating the results and framing future research. First, data collected for this study is cross-sectional. Thus, how justice perceptions, commitment, trust, and risk develop and change over time and the implications for relationship satisfaction are not specifically addressed. However, to the extent that perceptions of justice, commitment, trust, risk, and relationship satisfaction are based on the culmination of prior experiences and represent beliefs about future performance, the measures used incorporate a longitudinal dimension. Further exploration of how the antecedents to relationship satisfaction develop and evolve over time would aid in understanding the complexities of interorganizational relationships.

Second, the research model tested does not consider the existence of feedback mechanisms that may exist between the constructs. For example, increased levels of commitment may plausibly influence trust which in turn increases commitment. If these cyclical relationships exist, knowledge of the interplay would be beneficial to understanding how trading partnerships transition from transaction based to relational.

Third, the B2B e-commerce risk measure, while comprehensive, does not directly distinguish between risks to relationship dynamics and performance risks (Das and Teng, 2001). Further research on this distinction and its impact on relationship satisfaction could guide the development of appropriate risk identification and mitigation efforts.

Finally, and related to the preceding point, this research study does not consider

the effects of controls on risk. Research within the management control systems stream suggests that controlling risk will enhance trust by providing reassurance that trust has been well placed (Das and Teng, 2001; Colletti et al., 2005, Caglio and Ditillo, 2008, Dekker, 2004; Dekker, 2008). However, what form these controls should take, how they should be implemented, and how they might affect relationship satisfaction is not clear. Increased control contradicts a key principle of RVF—the need for effective governance structures based on relational norms of behavior. Thus, the implementation of inappropriate or excessive performance measures and controls may erode relationship satisfaction and undermine the trading partnership (Mahama and Chua, 2011). Future research should consider how various forms of control, such as assurance over a trading partner's B2B e-commerce systems, will impact relationship satisfaction.

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STUDY TWO
MANAGING RISK IN INTERORGANIZATIONAL RELATIONSHIPS: FACTORS INFLUENCING THE DESIRABILITY OF E-COMMERCE ASSURANCE

Introduction

Interorganizational trading partnerships that transcend traditional boundaries of control and require the coordination of multiple entities have radically impacted the design of contemporary management control systems (MCS) (Chenhall, 2003; Chenhall and Euske, 2007). Such alliances are nested within large, complex networks of interorganizational relationships. These alliances are no longer viewed as optional, but rather a necessity to maintaining competitiveness (Chua and Mahama, 2007). Corporate competitiveness has moved from an organization centric view to an extended enterprise view where firms participate in end-product networks competing directly with other end-product networks. As a result, an individual organization's success or failure depends on the success or failure of the networks in which it participates (Chapman and Corso, 2005; Sutton, 2006; Hunt and Davis, 2008). The result is ever increasing pressure to accelerate business processes and reduce the latency between decisions and outcomes/consequences (Vasarhelyi and Alles, 2008). Yet, with a growing body of evidence of high failure rates within these arrangements, the need to assess governance structures that reduce risk is critical (Das and Teng, 2001; Langfield-Smith and Smith, 2003; Dekker, 2004).

The purpose of this study is to examine the integrative effects of power, risk, and

trust, along with their antecedents, on the desirability of assurance over a trading partner's e-business processes. While a rich literature is evolving in the area of MCS for interorganizational relationships, researchers have noted the need to (1) pay more attention to risks rather than just trust (Miller et al., 2008), (2) acknowledge and consider the critical role of IT (Cuganesan and Lee, 2006), and (3) focus on the impacts of unequal power in such relationships on the choice of governance structure (Caker, 2008). Our research specifically addresses these issues as we consider the joint effects of risk and trust on the nature of interorganizational relationships and the preference for the use of a high information governance structure—i.e., assurance over a trading partner's e-business capabilities and systems. We also directly consider how variances in power over the trading partner affects the relationship. Antecedents to the establishment of power and trust are also considered. We concur with, and embrace, Dechow and Mouritsen's (2005 p. 691) view that control cannot be studied apart from technology and context because one will never get to understand the underlying 'infrastructure' – the meeting point of many technologies and many types of controls. Examining these issues is increasingly important, as they form the core in the whole field of modern management control (Granlund, 2011, Elbashir et al., 2011)

The resource-advantage theory of competition provides a foundation for understanding how interorganizational relationships evolve, when information on a trading partner's behavior is desirable, and why a trading partner might be motivated to support the relationship even if it requires loss of control due to imbalances in power (Hunt, 1997a; Morgan and Hunt, 1999; Hunt and Davis, 2008). We focus on the structural relationships between the trading partners in order to understand the conditions

that would drive the desirability of such assurances. Accordingly, we examine organizations that maintain interorganizational relationships with trading partners, conduct repeated transactions over time with such trading partners, and process related transactions using B2B e-commerce. These criteria are important as long-term relationships form dependencies and commitments, which are viewed as instrumental to the selection of and investment in governance structures (Tomkins, 2001; Morgan and Hunt, 1999; Hunt and Davis, 2008; Vosselman and Meer-Kooistra, 2009). Data were collected from 205 experienced B2B e-commerce professionals (i.e., CIOs, IT Auditors, IS Security staff, and B2B E-commerce managers). Respondents were asked a series of questions related to their own organization, a key trading partner, and the trading relationship between the two.

This study makes several contributions to the evolution of the MCS research on interorganizational systems. First, we directly address the impact of B2B e-commerce risk on the desirability of a high information governance structure. This focus on B2B e-commerce considers the multi-dimensions of associated risks: technical level concerns, application level concerns, and business level concerns (Sutton et al., 2008). Second, we examine the joint impacts of trust and risk on the desirability of B2B e-commerce assurance. Recent research has increasingly suggested that trust and risk should be considered and that these control structures are not replacements for each other, but rather trust leads to greater investment in governance structures that can verify the basis for that trust (Dekker, 2004; Nicolaou and McKnight, 2006; Dekker, 2008; Vosselman and Meer-Kooistra, 2009). Third, we consider the relationship structures that dictate the resulting decision choices by considering the important roles of power (Caker, 2008) and

commitment (Tomkins, 2001) in establishing the desirability of enhanced governance. These results have implications for organizations in both the formative stages and maturation of an interorganizational relationship.

The remainder of the paper is presented as follows. Section II provides an overview of the theory, coverage of the relevant background literature, and the formulation of the hypotheses and the research model. Section III presents the research methods and Section IV documents the results of the study. Section V provides conclusions and implications.

Theory and Hypotheses Development

The theoretical foundations for understanding interorganizational relationships are derived from the emerging body of research supporting the applicability of the Resource-Advantage Theory of Competition[1] (R-A theory) (Hunt, 1995, 1997b, 1997c, 2000; Hunt and Morgan, 1995). R-A theory focuses on the judicial use of valuable resources to achieve superior financial performance. R-A theory has its foundations in neo-classical economics, such as transaction cost economics, but builds on this foundation to incorporate social and organizational perspectives with a specific focus on buyer-supplier interorganizational relationships. R-A theory explicitly adopts a fundamental assumption that information about customers, competitors, suppliers, and production techniques is both imperfect and costly to obtain (Hunt, 1997b). Successful organizations focus on developing comparative advantage through available resources that are unique. This, in turn, allows the organization to achieve superior financial performance through either more efficient or effective production—or ideally through more efficient production that

[1] Also referred to as Comparative Advantage Theory of Competition in its early gestations (e.g., Hunt and Morgan, 1995).

leads also to more effective production (Hunt, 1997c, 1999).

In developing relationships with trading partners, this theoretical perspective has significant ramifications for how such relationships are viewed. Most notably, R-A theory posits that such behavior is often motivated by *constrained* self-interest seeking (Hunt, 1997b, 1997c). This behavioral perspective is critical as organizations develop trading relationships. Trading relationships, like many other types of resources, must be selected carefully and groomed over time in order to develop a strategic portfolio of relationships. Not all potential relationships are ultimately important to a firm, and development of strong, long-term relationships can be costly (Hunt, 1997a). Given the high exit costs, such relationships should be restricted to those that provide a competitive advantage (Morgan and Hunt, 1999) and those in which the partner behaves in a trustworthy manner (Morgan and Hunt, 1994).

The development of a transaction-based trading partner into a key relational partner is an evolutionary process that requires time (Hunt and Morgan, 1994). Frequently in such trading relationships, one organization will be dominant and the other will be dependent, leading to the dominant firm being perceived as having power and control (Morgan and Hunt, 1999). Organizations have long been thought to view these relationships as a liability, and fear participating in them will require relinquishment of power.

Morgan and Hunt (1999: p. 282) posit on the other hand that trading partners enter into such relationships "not reluctantly but optimistically". They theorize that such relationships can make an organization more competitive, yield greater access to valuable resources, and offer the best means by which to access such resources. Treating such

relationships as strategic assumes the available resources are used efficiently, are complex, and are maintained and protected to ensure ongoing availability (Bharadwaj et al., 1993; Hunt and Morgan, 1995; Morgan and Hunt, 1999). Access to these resources rarely, if ever, comes without a cost. The trading partner must provide a certain level of asset specificity in an efficient and effective manner for the relationships to survive; thus, the trading partner will also make investments, but only when such investments support and foster a long-term, strategic trading relationship (Chen et al., 2004; Hunt and Davis, 2008). Trading partners often make short-term sacrifices in order to preserve profitable, long-term relationships with the more powerful firm (Hunt and Davis, 2008). Nonetheless, such an interorganizational relationship creates a substantial dependence and transfer of power in the relationship (Emerson, 1962; Son et al., 2005).

Power is arguably still important as it can be the most direct driver of a relationship and enables the more powerful partner to determine the agenda and protocols for the interorganizational relationship (Dekker, 2003; Seal et al., 2004; Caker, 2008). However, judicial use will likely foster and sustain a longer-term relationship with the trading partner when the relationship is viewed as a potential resource—a premise of R-A theory. But R-A theory also posits that the development of a long-term relationship is premised on the trading partner maintaining *constrained* self-interest, seeking behavior (Hunt, 1997a). Given the premise of R-A theory that information on customers, suppliers, and alliance partners is imperfect and very costly to attain, the more powerful partner remains under a certain veil of ignorance as to the actual behavior of the weaker partner (Hunt, 1997c).

Accentuating this void of information are the conditions under which such

relationships are most valuable and most likely to be sustainable over the long-term. Long-term relationships generating a valuable resource advantage are perceived to be most sustainable when they arise from organizational, informational, or relational resources (Morgan and Hunt, 1999). Organizational resources consist of proprietary technologies that are often gained through organizational learning. Informational resources on their face have a highly perishable life when considering the information itself; however, the systems that gather, use, and disseminate information have a much longer life. Such informational resources frequently include technologies that facilitate tight electronic coupling of the organization's IT systems. While an organization may interact and benefit from a trading partner's organizational and informational resources, the organization has little opportunity to aggregate information on the depth of integration and sustainability of such resources within the partner firm.

Relational resources are most valuable when associated with trust, commitment, and loyalty (Morgan and Hunt, 1999). Trust and commitment do not evolve quickly, and must be developed over time based on experience with the trading partner (Hunt and Morgan, 1994). Both are considered critical to long-term relationships that are sustainable and generate a resource advantage. Relationship commitment arises when an organization believes a relationship warrants maximum effort to maintaining that relationship. Trust exists when an organization has confidence that a trading partner is reliable and participates in the relationship with integrity. Accordingly, trust is instrumental to commitment; and, in the presence of commitment, the existence of trust is the conduit through which an organization is willing to pursue stronger relationships with that trading partner (Morgan and Hunt, 1994). However, in the absence of perfect

information, the organization lacks certainty as to the justifiability of placing such trust in the trading partner and likewise creates a risk by forming a strong commitment. Minimizing levels of risk are just as important as the potential resource advantage in allowing commitment to build (Arnold et al., 2010).

E-commerce assurance is a mechanism for alleviating risks that come from imperfect information in trading partner relationships (Khazanchi and Sutton, 2001). As Ernst & Young (2004) notes, organizations can outsource processes but they cannot outsource the risks associated with work stoppages and supply chain disruptions.[2] One of the assumptions inherent in e-commerce assurance[3] is a focus on trading partners that are more deeply integrated at the organizational and informational resource level—the types of relationships perceived to be most sustainable over time in terms of providing a resource advantage (Morgan and Hunt, 1999). Such assurance provides better information for assessing the reasonableness of both trust in and commitment to a trading partner. Prior research shows that managers appear more willing to recommend a partner when assurance as to reliability of the partner's system is provided (Boritz and Hunton, 2002). This is reflected in the research model presented in Figure 3.1. In the following subsections, we look more specifically at individual hypotheses in the model. Key to the model is our focus on an organization's view of its relationship with a selected trading partner. Thus, we will use the terms "organization" and "trading partner" to refer to the two entities respectively. Some of the relationships are well-established in the literature

[2] Ernst & Young (2009) estimates that Fortune 1000 companies spend on average 4 percent of revenue on risk management.

[3] Instrumental to this perception is the use of E-Commerce Assurance as put forth by Khazanchi and Sutton (2001) which includes consideration of not only the technical levels of integration but the knowledge of users, strength of application systems, and strategic understanding of e-commerce potential at the business level.

e.g., HYPOTHESIS 1 and HYPOTHESIS 5), but we provide the hypothesis formulation for all relationships in order to develop a more comprehensive overall model reflective of the complexities of R-A Theory.

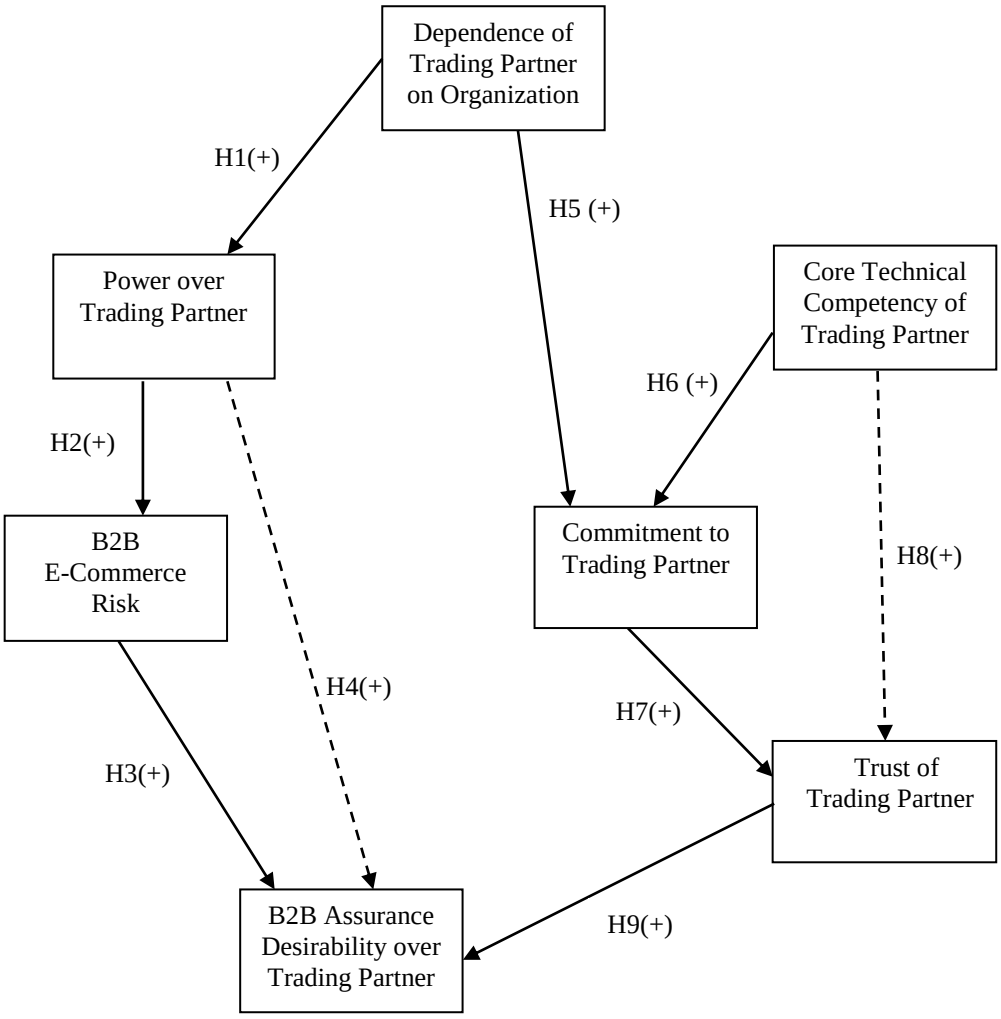

Figure 3.1: Research Model

Establishing and Using Power

Dependence is the extent to which one trading partner is reliant on the second partner, and the relationship generates rewards and benefits that cannot be easily garnered through alternative available relationships (Kumar et al. 1998; Morgan and Hunt 1999). Relative dependence is considered the primary determinant of power in an interorganizational relationship (Emerson, 1962; Hart and Saunders, 1997; Son et al., 2005). Such an imbalance in power is common in interorganizational relationships (Caker, 2008). Accordingly, the first hypothesis is:

HYPOTHESIS 1: *As a trading partner's dependence increases, the organization's power in the trading relationship will increase.*

A power advantage position allows for greater influence in putting governance structures in place (Karahannas and Jones, 1999; Mouritsen and Thrane, 2006; Emsley and Kidon, 2007). However, if the trading partner sees the governance structure as necessary to maintaining the relationship, but not as having any personal efficiency gains attached, then the partner may behave in a manner counter to the intent of the structures (Caker, 2008). The trading partner may view such governance structures as self-interested behavior on the part of the organization and be less inclined to act in a *constrained* self-interest seeking mode (Hunt, 1997c). In such situations, greater exchange of information could actually put the more powerful organization at risk should the trading partner fail to have appropriate safeguards in place (Kulp, 2002). The interconnectedness of partner company intranets that commonly occur in interorganizational relationships leaves an organization vulnerable to viruses, security

intrusions, and other cyber attacks if the trading partner has inadequate security in place (Vasarhelyi and Greenstein, 2003). Even in the presence of strict contracts intended to mitigate risks, partners can fail to live up to the requirements of those contracts (Anderson and Dekker, 2005).

Alternatively, the trading partner may simply fail to integrate processes at a level expected that creates concerns further down the line as to ability to perform as needed across the supply chain. Frequently, the trading partner faces significant investment requirements to place itself in the position of providing resource advantage in a relationship (Chen et al., 2004; Hunt and Davis, 2008) and may even face short-term losses in order to achieve long-term comparative advantage (Hunt and Davis, 2008). These costs can be a significant deterrent to the trading partner putting the resources in place to create a lasting long-term resource advantage. Khazanchi and Sutton (2001) found little integration among a large sample of small- and medium-sized enterprises that were connected electronically in supply chains. Rather, orders were received electronically and printed out; thus the print-outs drove manual based processes. Anderson and Lanen (2002) similarly did not observe any evidence of widespread integration of EDI connections with back office activities. While performance requirements might be adhered to in the short-term, the lack of integration could affect long-term interests in further cutting cycle times throughout the supply chain and likewise affecting competitiveness (Khazanchi and Sutton, 2001; Nicolaou, 2008). Such capacity limitations affect not only the supplier, but also upstream supply chain partners (Tomkins, 2001).

The use of power to force processes on a dependent trading partner may not always result in the desired outcome. This allows for the possibility that e-commerce risk could actually increase in situations where there is a power imbalance and potentially a lack of collaboration on strategic deployments. This leads to the second hypothesis:

HYPOTHESIS 2: *As an organization's power over a trading partner increases, the level of B2B e-commerce risk for that partner will also tend to increase.*

If an organization perceives that substantial B2B e-commerce risk is evolving from a trading partner, then the organization is more likely to seek a governance structure that could mitigate that risk. Such supplier uncertainty creates an unpredictability that can affect the organization's on-going activities. An organization operating in a B2B e-commerce environment should make a great effort to minimize the level of uncertainty that it faces in future trading activities (Son et al., 2005). This is consistent with R-A theory where information is considered imperfect and costly to attain (Hunt, 1997c). One form of governance structure that can help reduce uncertainty is assurance over the trading partner's B2B e-business processes. This leads to the third hypothesis:

HYPOTHESIS 3*: An organization will be more likely to desire assurance over a trading partner's B2B processes if the relationship increases the level of perceived B2B e-commerce risk.*

Faced with the potential risks from entering into a B2B e-commerce relationship with a trading partner, an organization in a power advantage position would be likely to pursue a mitigating governance structure. Prior research has found that the assurance process yields higher quality systems and processes, although it is uncertain whether the

quality was derived from the assurance, or those pursuing assurance have quality (Jamal et al., 2002). Nonetheless, while a part of the desire for assurance is likely to be affected by the perceived level of risk, the potential for self-interest seeking behavior by the trading partner in reaction to processes implemented via the power advantage will also provide motivation to implement an assurance process. Thus, we predict that as the power of an organization increases within an interorganizational relationship, the desire for assurance over a trading partner' B2B processes will increase. However, we also anticipate that this effect will flow through increased levels of B2B e-commerce risk. That leads to the fourth hypothesis:

HYPOTHESIS 4: *The impact of power over a trading partner on B2B assurance desirability is mediated by the level of B2B e-commerce risk.*

Such assurance can come from multiple sources. Coletti et al. (2005) operationalize assurance in their experiment as an outside consultant while Gendron and Barrett (2004) note that accounting professionals have also established principles and criteria for providing specific business-to-business (B2B) e-commerce assurance. In summary, one source of assurance desirability comes from the power advantage position and an organization's ability to push control structures onto the trading partner. However, this desire for assurance will also be influenced by the level of commitment to the trading relationship and whether the nature of the relationship justifies such a relatively high cost governance structure.

Commit, Trust, but Verify

Commitment is the strong desire to maintain a valued relationship (Moorman et

al., 1992) and is a central tenet to all relational exchanges between firms (Morgan and Hunt, 1994). Committed relationships are based on confidence that the relationship will endure as a result of joint efforts and sacrifices (Boyle et al., 1992). As commitment develops, an organization must assess both the vulnerabilities and the dependency of the trading partner (Free, 2008).

Dependency provides a certain level of commitment by the trading partner as the relationship yields greater returns than any other available alternatives (Morgan and Hunt, 1999). For the organization on the other side of the relationship, if the partner is viewed as supplying a resource that provides comparative advantage, the more powerful organization should leverage this dependency and commit to a longer-term relationship if it helps the trading partner link into trading systems and join the supply chain network. This leads to HYPOTHESIS 5:

HYPOTHESIS 5: *As the level of trading partner's dependence increases, the organization will be more likely to commit to the trading relationship.*

The underlying potential for resource advantage that drives commitment is also based on the competency of the trading partner. Before committing to even the early stages of a trading relationship, an organization will assess the potential trading partner's ability to fulfill their end of the commitment (Emsley and Kidon, 2007). If a potential partner is not perceived as likely to be competent and reliable, an organization is not likely to enter into a long-term relationship (Nicolaou and McKnight, 2006). The level of competency may be negotiable, but perceptions of high ability and expertise would be desired (Langfield-Smith and Smith, 2003). An organization should be reluctant to share

information and to commit to a trading relationship absent a certain comfort zone (Kulp, 2002). Thus, competence is a key precursor to commitment; and, in the case of interorganizational systems, this is in large part exemplified by IT competence. This leads to the sixth hypothesis:

HYPOTHESIS 6: *As the perception of core technical competence of the trading partner increases, the organization's commitment to the relationship will increase.*

Commitment is the foundation for an interorganizational relationship to develop and become static. Long term experiences impact the social construction of the relationship between the trading partner and the organization based on perceptions of fairness, professionalism, and appropriate behavior (Chua and Mahama, 2007). As long term commitment is developed, the organization should examine the relationship in comparison to other possible trading partners (Tomkins, 2001). A fundamental part of commitment is the long-term perspective, which is a precursor to developing trust (Free, 2008). The memories of past events and changes in the relationship will affect the stability and perceived fairness of the relationship (Chua and Mahama, 2007), and ultimately these interactions during the commitment phase shape the form and nature of the trust (Free, 2008). This leads to the seventh hypothesis:

HYPOTHESIS 7: *As an organization's commitment to a trading partner increases, trust in the trading partner will also increase.*

As noted earlier, commitment arises when an organization believes the relationship warrants the effort required to strengthen it (Morgan and Hunt, 1994). Similarly, trust develops when an organization has confidence that a trading partner is

reliable, which in the initial development stages relates to competency. Thus, as core technical competence of the trading partner increases the willingness to trust should also increase. However, a trading partner's technical competence will only influence trust in the presence of an organization's willingness to commit to a relationship with the trading partner. In the presence of commitment, trust becomes the conduit through which an organization is willing to pursue stronger relationships with that trading partner and invest in appropriate control mechanisms (Morgan and Hunt, 1994). Thus, we posit that as a trading partner's technical competency increases, trust will increase, but that this effect from technical competency will flow through commitment to the trading partner. This leads to the eighth hypothesis:

HYPOTHESIS 8: *The impact of a trading partner's core technical competence on trust of the trading partner will be mediated by commitment to the trading partner.*

Prior literature has revealed controversy over whether management controls reduce trust or grow trust (Langfield-Smith and Smith, 2003; Mellewigt et al., 2007; Vosselman and Meer-Kooistra, 2009; Lankton et al., 2011). Coletti et al. (2005) suggest that research showing a deterioration effect is backwards—controls are important to trust building; firms will build a stronger control system when possible. High trust provides a platform where success encourages partners to cooperate more and in turn leads to higher integration of MCS (Velez et al., 2008). Lankton et al. (2011) provide further evidence that information sharing used to facilitate coordination builds trust.

The trust-control relationship is actually fundamental to the concept of building alliances. Termed, "Trust but Verify", this concept has often been used in establishing

political alliances between countries where the balance of power was skewed in a given direction, but the relationship was viewed as mutually beneficial. This development of mutual trust is important in the development of an interorganizational relationship (Morgan and Hunt, 1999; Son et al., 2005).

MCS researchers have recently begun to evolve in this direction. Dekker (2004) notes that formal control mechanisms may actually enhance a trusting relationship by narrowing the domain and severity of risk (see also Poppo and Zenger, 2002). Further the objectivity and provision of a track record about the other's performance, behavior, and skills can further support trust building (Das and Teng, 1998). This is consistent also with Bedard et al.'s (2005) views on the role of e-commerce systems reliability assurance as a vehicle for establishing stronger trust. Assurance helps reduce the asymmetries that arise in the presence of only imperfect information (e.g., Hunt, 1997a). Accordingly, we posit that *as an organization's trust in a trading partner increases, the desirability of assurance over the trading partner's e-business processes will also increase*. This leads to the ninth hypothesis:

HYPOTHESIS 9: *As trust in a trading partner increases, an organization's desirability of assurance over that relationship will increase.*

The view that control needs trust, and trust needs control, suggests that the two are intertwined in terms of developing effective MCS in a solid interorganizational relationship. The rational approach views trust and control as having a common goal—the absorption of behavioral uncertainty (Vosselman and Meer-Kooistra, 2009).

We test each of the hypotheses individually while examining them in the overall

context of a structural model. The support of the overall model is the most critical component in terms of assessing the viability of R-A theory in explaining the complex relationships existing among trading partners in interorganizational relationships supported through e-business processes. Hence, the hypotheses are also examined simultaneously within the overall context of the model.

Research Methods

Data Collection

In order to test the above hypotheses, a web-based survey instrument was used and targeted to individuals with the knowledge, experience, and expertise to evaluate the potential risks as well as the ability to influence B2B e-commerce interactions. To ensure that the participants had the requisite skills, Chief Information Officers (CIOs), information systems security specialists, IT internal audit specialists with e-commerce experience, and e-commerce development staff were invited to participate. The views of these individuals are instrumental in shaping and guiding organizational perceptions of the B2B e-commerce trading relationship (Beugre and Acar, 2008; Luo, 2007; Yilmaz et al., 2004). Prior to data collection, the survey instrument was pretested for ease of use, clarity, and time to complete by 42 individuals from the targeted groups. The responses provided by these participants were not used for hypotheses testing nor did these participants participate in this research beyond the pretest phase.

To reach the targeted sample, we employed a survey company who solicited potential participants via e-mail based on their job titles. Out of the e-mail solicitations, 1,021 respondents started the survey at the survey company's site. Each respondent was

presented with the following pre-screening questions to evaluate their suitability for participation:

- Does your organization have experience in working with trading partners (e.g., suppliers, customers, outsourcers, etc.) in a B2B e-commerce relationship?
- Does your organization repeatedly transact with any such trading partners?
- Do you have a basic understanding of the technological and IT-driven components of B2B e-commerce?
- Do you have a reasonable understanding of any of your trading partners' B2B e-commerce capabilities and your firm's relationship with this partner?

If any of the questions were answered with a "no" response, participants were not granted access to the survey. The pre-screening questions eliminated 149 individuals, leaving 872 potential participants. Out of 872 qualified respondents, 266 (31.50 percent) completed the survey resulting in 205 (or approximately 77 percent) usable responses. Of the 61 discarded responses, 11 were eliminated due to inconsistencies between responses, and 50 were eliminated because of incomplete data. Over 90 percent of survey respondents evaluated B2B e-commerce relationships with an external trading partner. Table 3.1 presents descriptive statistics on survey respondents' demographics. The organizational demographic information collected from survey participants indicates 95.13 percent of the organizations in the sample have been using B2B e-commerce for a period of 1 to 29 years. The majority are publicly traded with the most heavily represented industry segment being manufacturing which comprises approximately 25.37 percent of the sample organizations. The most frequently occurring trading partner are customers, followed my wholesalers, manufacturers, and financial institutions. The most common

B2B e-commerce functionalities used with all trading partners and the specific trading partner evaluated for this study are purchasing, followed by administration, and partner information exchanges. These demographics indicate sample organizations have long-term, dedicated, and diverse B2B e-commerce relationships capable of creating competitive advantage.

Table 3.1: Participant and Organizational Demographics

Category	Frequency (n = 205)	Percent
Gender		
Male	193	94.15
Female	12	5.85
Not Answered	0	0.00
Age (in years)		
<22	1	0.49
22-27	1	0.49
27-32	9	4.39
31-37	34	16.59
37-42	37	18.05
42-47	37	18.05
47-52	32	15.61
52-57	29	14.15
>57	23	11.22
Not answered	2	0.98
Experience in current job function (in years)		
<1	1	0.49
1-5	25	12.20
5-9	53	25.85
9-13	48	23.41
13-17	25	12.20
17-21	20	9.76
21-25	19	9.27
25-29	13	6.34
>29	0	0.00
Not answered	1	0.49
Organizational Structure		
Publicly traded	189	92.20
Not publicly traded	12	5.85
Not answered	4	1.95

Category	Frequency (n = 205)	Percent
Industry		
Manufacturing	52	25.37
Insurance	17	8.29
Financial/real estate	16	7.80
Wholesale/retail	22	10.73
Technology	3	1.46
Utilities	8	3.90
Health	18	8.78
Communication	1	0.49
Aerospace & defense	27	13.17
Transportation	9	4.39
Other	29	14.15
Not answered	3	1.46
B2B e-commerce functions conducted with this trading partner†		
Purchasing/Order Management	153	74.63
Administration (including price/sales catalog)	73	35.61
Sales Analysis/Inventory Management	60	29.27
Billing/Payment	123	60.00
Shipping/Receiving	101	49.27
Bidding/Quotation (including RFP)	62	30.24
Partner Information/Acknowledgement	56	27.32
Other	13	6.34
Not answered	1	0.49
B2B e-commerce functions used by your organization†		
Purchasing/Order Management	153	74.63
Administration (including price/sales catalog)	73	35.61
Sales Analysis/Inventory Management	60	29.27
Billing/Payment	123	60.00
Shipping/Receiving	101	49.27
Bidding/Quotation (including RFP)	62	30.24
Partner Information/Acknowledgement	56	27.32
Other	13	6.34
Not answered	1	0.49
B2B e-commerce purchase with this trading partner for current fiscal year (in dollars)		
< 250,000	65	31.71
250,000-750,000	29	14.15
750,000-2.25 million	42	20.49
2.25 million-2.75 million	4	1.95
2.75 million-3.25 million	5	2.44
3.25 million-3.75 million	4	1.95
3.75 million-4.25 million	2	0.98
4.25 million-4.75 million	3	1.46
>4.75 million	44	21.46
Not answered	7	3.41
B2B e-commerce sales with this trading partner for current fiscal year (in dollars)		
< 250,000	68	33.17
250,000-750,000	22	10.73
750,000-2.25 million	33	16.10
2.25 million-2.75 million	9	4.39
2.75 million-3.25 million	2	0.98
3.25 million-3.75 million	4	1.95
3.75 million-4.25 million	4	1.95

Category	Frequency (n = 205)	Percent
4.25 million-4.75 million	4	1.95
>4.75 million	50	24.39
Not answered	9	4.39
All trading partners your organization currently uses B2B e-commerce to transact business with†		
Customers (e.g., Retailers, Supermarkets, etc.)	128	62.44
Wholesalers/Distributors	115	56.10
Manufacturers	100	48.78
Financial Institutions	87	42.44
Shipping Companies	66	32.20
Government (e.g., Customs)	45	21.95
Other	11	5.37
Not answered	1	0.49
Length of time your organization has used B2B e-commerce (in years)		
<1	5	2.44
1-5	69	33.66
5-9	63	30.73
9-13	29	14.15
13-17	19	9.27
17-21	10	4.88
21-25	3	1.46
25-29	2	0.98
>29	3	1.46
Not answered	2	0.98

† Multiple items could be selected

Development of Measures

All questions use a 7-point Likert type scale anchored on 1 (strongly disagree) and 7 (strongly agree). In addition, participants had the option to select "No basis for judgment". Items for the reflective constructs trading partner's dependence on organizational relationship (Ganesan, 1994; Kumar et al., 1998), trading partner's core technical competency (Hart and Saunders, 1998; Armstrong and Sambamurthy, 1999), an organization's power over a trading partner (Kumar et al., 1998; Hart and Saunders, 1998), an organization's commitment to a trading partner (Ganesan, 1994; Hart and Saunders, 1998), and an organization's trust of a trading partner (Zaheer et al., 1998; Hart

and Saunders, 1998), were adapted from prior studies. The validity of these scales was assessed during measurement model testing using confirmatory factor analysis (CFA). The results indicate all scale items load on their respective constructs at a minimum level of 0.70 with the exception of one item, pwr1, in the power scale which loaded at 0.63. All scale item loadings are significant ($p < .05$). Based on these results, all scale items are retained. Scale items with their corresponding range, median, mean, standard deviation, and construct loading from measurement model validation using CFA are presented in Table 3.2.

Table 3.2: Descriptive Statistics for Reflective Measurement Items

Variable Measures	Item Name	Range	Median	Mean	Std. Dev.	Item Loading
Dependence (Ganesan, 1994; Kumar et al., 1998)						
Your organization's relationship is crucial to this trading partner's future performance. 1) Strongly Disagree to 7) Strongly Agree	dep1	7.00	5.00	4.53	1.82	0.89
This trading partner is dependent on your organization. 1) Strongly Disagree to 7) Strongly Agree	dep2	7.00	4.00	3.98	1.85	0.82
It would be difficult for this trading partner to replace the business generated from their relationship with our organization. 1) Strongly Disagree to 7) Strongly Agree	dep3	7.00	4.00	4.07	1.76	0.80
Core Technical Competency (Hart and Saunders, 1998; Armstrong and Sambamurthy, 1999)						
This trading partner is competent in accurately and efficiently processing electronic transactions. 1) Strongly Disagree to 7) Strongly Agree	ctc1	7.00	6.00	5.42	1.45	0.93
The trading partner's computer systems are reliable. 1) Strongly Disagree to 7) Strongly Agree	ctc2	7.00	6.00	5.44	1.34	0.93
This trading partner is extremely knowledgeable about the potential of current B2B e-commerce IT? 1) Strongly Disagree to 7) Strongly Agree	ctc3	7.00	6.00	5.33	1.41	0.80

Variable Measures	Item Name	Range	Median	Mean	Std. Dev.	Item Loading
Power (Kumar et al., 1998)						
Some of your organization's actions have a negative effect on this trading partner, but they cannot do anything to prevent it. 1) Strongly Disagree to 7) Strongly Agree	pwr1	7.00	4.00	3.61	1.65	0.63
Your organization, if it wanted to, has the capability to make things difficult for this trading partner. 1) Strongly Disagree to 7) Strongly Agree	pwr2	7.00	4.00	4.12	1.87	0.84
Your organization, if it wanted to, has the capability to tie this trading partner up in an expensive legal battle. 1) Strongly Disagree to 7) Strongly Agree	pwr3	7.00	4.00	3.87	1.91	0.82
Commitment (Ganesan, 1994; Hart and Saunders, 1998)						
Your organization believes that over the long run the relationship with this trading partner will be profitable. 1) Strongly Disagree to 7) Strongly Agree	com1	7.00	6.00	5.27	1.52	0.83
Your organization focuses on long-term goals with this trading partner. 1) Strongly Disagree to 7) Strongly Agree	com2	7.00	6.00	5.48	1.57	0.92
Your organization assumes that renewal of agreements with this trading partner generally will occur. 1) Strongly Disagree to 7) Strongly Agree	com3	7.00	5.00	5.11	1.66	0.82
Trust (Hart and Saunders, 1998; Zaheer et al., 1998)						
Deadlines set by this trading partner are honest and accurate. 1) Strongly Disagree to 7) Strongly Agree	trt1	7.00	5.00	5.10	1.44	0.80
This trading partner is honest in business dealings. 1) Strongly Disagree to 7) Strongly Agree	trt2	7.00	6.00	5.52	1.42	0.95
This trading partner has always been evenhanded in their negotiations with our organization. 1) Strongly Disagree to 7) Strongly Agree	trt3	7.00	6.00	5.26	1.40	0.79
B2B Assurance Desirability						
Your organization would desire a formal review by your internal audit department of this trading partner's B2B e-commerce risks. 1) Strongly Disagree to 7) Strongly Agree	ad1	7.00	4.00	4.12	1.64	0.80
Your organization would find third party certification of this trading partner's B2B e-commerce risks advantageous. 1) Strongly Disagree to 7) Strongly Agree	ad2	7.00	4.00	4.37	1.60	0.85

Variable Measures	Item Name	Range	Median	Mean	Std. Dev.	Item Loading
Your internal auditors would consider recommending to management that this trading partner be required to attain assurance over their B2B e-commerce related systems. 1) Strongly Disagree to 7) Strongly Agree	ad3	7.00	4.00	4.17	1.62	0.89
B2B E-Commerce Risk Reflective Scale						
Business Level Risk Factors	blr	6.11†	0.01	0.00	1.00	0.88
Application user Level Risk Factors	alr	5.90†	0.04	0.00	1.00	0.99
Technical Level Risk Factors	tlr	5.80†	0.11	0.00	1.00	0.88

† Absolute values

Since assurance desirability over a trading partner has not been previously examined, a scale to measure this construct was developed for this study. Initial validation of the assurance desirability scale was conducted with data from a hold-out sample using principal axis factoring with oblique ($\Delta = 0$) rotation. All scale items loaded on a single factor at a minimum of 0.70. Scale average variance extracted (AVE) and Cronbach's alpha scores are 0.71 and 0.88 respectively (results not tabulated).

The B2B e-commerce risk construct was derived using both reflective and formative measurement techniques (Jarvis et al., 2003). The decision to model a given construct as formative or reflective was driven by the nature of the construct and the item measures developed. Reflective constructs are based on the premise that an unobservable latent construct causes change in a group of observable measures. The observable measures, or items, are expected to move in the same direction in response to changes in the associated latent construct, be somewhat internally consistent, and be substitutable. Thus, removal of an item from the latent construct measurement model will not alter the meaning of the latent construct (Jarvis et al., 2003). In contrast, formative constructs are based on the premise that observable measures come together to create the latent

construct. Therefore, changes in a single formative item measure can cause changes in the associated latent construct. Formative items are not expected to move in the same direction, nor are they expected to be internally consistent or substitutable. Inappropriate removal of a formative item may alter the meaning of the latent construct (Jarvis et al., 2003).

A two-step process was utilized to produce the reflective construct, organizational B2B e-commerce risk, from three formative constructs: business level risk, application user level risk, and technical level risk. In step 1, formative constructs were estimated with measurement items developed by Sutton et al. (2008). In step 2, the formative measures developed and validated in step 1 were used to produce principal component analysis (PCA) participant factor scores for business level, application user level, and technical level risk constructs. These PCA participant factor scores serve as reflective items of the global construct B2B e-commerce risk. This two-step process recognizes that an organization's B2B e-commerce risk is simultaneously influenced by individual trading partner relationships as well as the organization's own global B2B e-commerce policies and procedures. Organizations will evaluate and institute risk policies, procedures, and controls to manage simultaneously business level, application user level, and technical level risks across all trading partners. Thus, these risk policies, procedures, and controls will be consistent and complementary with respect to business level, application user level, and technical level risks, and, to varying degrees, affect individual trading partner risk inherited by the organization. As such, these three levels of risk will move in tandem to reflect an acceptable or desirable level of organizational B2B e-commerce risk.

Consistent with step 1 discussed above, the business level risk, application user level risk, and technical level risk formative constructs were evaluated for scale validity. Because formative items were not expected to be internally consistent, classical measurement theory tests for assessing construct validity were not applicable. Instead formative items were evaluated on multicollinearity (Diamantopoulos et al., 2008) and outer-item weights (Chin, 1998). Table 3.3 lists the variance inflation factors (VIF) and outer-item weights for the formative items used in this study. A review of prior literature indicates a lack of consensus concerning an unacceptable level of formative item multicollinearity. Recommended VIF levels range from a low of 3.30 (Petter et al., 2007) to a high of 10 (Diamantopoulos et al., 2008). Consistent with Petter et al. (2007), we adopted a conservative VIF of 3.30 as a cutoff for formative item elimination. One application user level risk item and two technical level risk items were eliminated because VIF scores exceeded 3.30. All other formative items were retained.

Outer-item weights were assessed using components based structural equation modeling (Ringle et al., 2005). Again, prior literature is unclear concerning the best treatment of insignificant item weights. Diamantopoulos and Winklhofer (2001) recommend removing non-significant items for parsimony. However, Bollen and Lennox (1991) and Diamantopoulos et al. (2008) recommend retaining all items as removal of a non-significant item may alter the meaning of the formative construct. We used the approach advocated by Bollen and Lennox (1991) and Diamantopoulos et al. (2008) and retained all formative items. While this approach may include formative items that do not significantly contribute to the estimation of the formative construct, the prior elimination of formative items with VIF equal to or greater than 3.30 assured that the retained

formative items were not inappropriately influencing formative construct estimation. Scale items, VIF scores, and outer-item weights and associated t-values are presented in Table 3.3.

Table 3.3: Descriptive Statistics for Formative Measurement Items

Formative Measures	Item	VIF	Outer-Item Weights	t-value
Business Level Risk Factors (Sutton et al., 2008)				
Understanding by trading partner (TP) of their business processes, where e-commerce fits into those processes, value of business process integration with TPs, and where benefits are derived.	blr1	2.13	-0.01	0.04
Trading partner's ability to assess the use/success of technology and the benefits of B2B implementation/technology investment (including return on investment).	blr2	2.83	0.16	0.66
Trading partner's costs of meeting regulatory requirements and their organization's understanding of associated risks of non-compliance (including inter- and Intra- state compliance issues).	blr3	1.96	0.22	1.12
Trading partner's technical understanding at a level that facilitates creation of a transformational vision for change and the ability to implement successful change management strategies to achieve objectives, gain acceptance, and support sustainability of the change.	blr4	2.40	-0.12	0.47
Trading partner's understanding of the intended functionality of a system at the analysis/requirements stage and tying of the system to business processes that are evolved or engineered accordingly to meet the business objective.	blr5	3.03	-0.01	0.17
Trading partner's level of adherence to contractual requirements including such things as product volume, sales prices, time/service commitments, and settlement (including legal agreements such as non-repudiation and the level of legal binding).	blr6	2.15	0.11	0.43

Formative Measures	Item	VIF	Outer-Item Weights	t-value
Trading partner's due diligence in implementing B2B relationships at the business, technology, and security levels to assure users understand data classification/ownership/security when handling partner data and the partner maintains appropriate segregation of data to appropriate users.	blr7	2.58	-0.22	0.93
Trading partner's understanding of risks associated with their projects and accordingly executing effective project management.	blr8	2.47	0.27	1.34
Trading partner's understanding of the technical complexities and associated costs of B2B development, implementation, and maintenance; and the legal ramifications, costs of implementing vs. not implementing non-repudiation agreements, costs of new business rules, and loss of personal marketing contacts.	blr9	2.79	-0.07	0.40
Trading partner's team expertise for guiding all aspects of B2B e-commerce projects along with training for project teams and users.	blr10	2.79	-0.26	1.25
Trading partner's broad management involvement in IT/business planning while maintaining independence in the selection of technology preferences.	blr11	2.37	0.58	3.14
Trading partner's integration of applications into organizational procedures and guidelines – including comprehensive documentation.	blr12	2.18	-0.30	1.49
Auditability of trading partner's system based on effective monitoring controls and audit trail (history of electronic data, updates, changes).	blr13	1.95	0.35	2.01
Trading partner's ability to protect a distinguished Brand in an e-commerce environment.	blr14	1.76	0.15	0.69
Trading partner's resilience to a business interruption.	blr15	1.72	0.07	0.51
Application user Level Risk Factors (Sutton et al., 2008)				
Appropriate level of training for trading partner's users and related cost constraints	alr1	2.19	-0.01	0.01
Will the target trading partner (TP) use a proposed B2B system (considering such issues of whether there is a champion for the project, sufficient IT sophistication to integrate within TP's systems environment, and ease of use of application)?	alr2	2.20	0.09	0.37
When upgrading systems based on new technologies or business partner request, the trading partner has sufficient coordination and change control procedures in place to maintain reliability and protect transaction validation procedures	alr3	2.38	-0.06	0.23
Trading partner's understanding of and agreement on data structure/scope/business rules for exchange of information	arl4	2.51	-0.40	2.12

Formative Measures	Item	VIF	Outer-Item Weights	t-value
Is there benefit of B2B ventures to the trading partner and is the e-business marketplace sustainable?	alr5	2.30	0.02	0.26
Clear and sufficient contract documentation on policies, procedures, connectivity guidelines, limitations, review plan, etc. (Service Level Agreements)	alr6	2.17	0.14	0.67
Application controls in place for completeness, accuracy, and processing integrity (i.e., trading partner's applications function as intended).	alr7[†]	3.65	N/A	N/A
Trading partner's implementation of new B2B applications include testing for assurances on hardware/software capability to support applications, availability of supporting applications 24/7, and performance and capacity of data exchange	alr8	2.83	0.38	1.94
Third party assurance of transaction validity	alr9	1.58	0.08	0.49
Marketing cost to sell the trading partner on a given B2B application	alr10	1.73	0.23	1.13
Privacy of data agreements	alr11	2.04	-0.15	0.76
Alignment of trading partner's business processes with implemented B2B e-business technologies	alr12	2.31	-0.03	0.08
Adequacy of the security over access to trading partner's business application systems	alr13	2.19	0.18	0.80
Inaccurate, inadequate, or outdated documentation on systems software/hardware provided by trading partner	arl14	1.89	0.17	0.73
Trading partner's inability to have an enterprise view of the full range of trading partner relationships	alr15	2.08	0.37	1.87
Technical Level Risk Factors (Sutton et al., 2008)				
Change management processes in place to assure maintenance of security and integrity of systems as technology evolves rapidly.	tlr1	2.18	0.08	0.69
Trading partner's security over all networks and network interactions ensure transmission integrity and provide guaranteed delivery transaction to the correct trading partner.	tlr2	2.79	0.03	0.03
Technology sophistication/expertise differential between trading partners and related selection of appropriate standards and hardware/software by the right people in this trading partner's organization.	tlr3	2.41	-0.05	0.12
Trading partner's maintenance of data accuracy during systems conversion and application usage.	tlr4	2.80	-0.11	0.37
Completeness and accuracy of trading partner's data processing activities.	tlr5	3.09	0.08	0.31
Metrics related to capacity, resiliency, and monitoring in order to better predict/control performance by trading partner.	tlr6	2.09	-0.27	1.32

Formative Measures	Item	VIF	Outer-Item Weights	t-value
Security of communication technology (infrastructure) --including vulnerability of ISP and/or public Internet, vulnerability to malicious code (e.g., viruses), security vendors expected survival and the trading partner's general security model.	tlr7	3.00	0.10	0.35
Trading partner's vulnerability to loss of availability of data, systems, applications, etc., whether loss is accidental, intentional, or by poor design.	tlr8	2.71	0.19	0.67
Trading partner's setting of appropriate user profiles to assure information is appropriately compartmentalized by information types and classified by access levels.	tlr9	3.17	0.08	0.36
Controls to enforce compliance with regulatory requirements and to enforce regulations	tlr10	2.67	0.03	0.04
Comprehensive access management to applications/operating systems protected via controls (e.g., firewalls) in place to assure confidentiality, availability, and integrity (e.g., unauthorized access).	tlr11†	3.76	N/A	N/A
Channel security through appropriate controls (e.g., encryption implemented according to regulations) including validation and authentication of transaction partner.	tlr12	2.74	0.19	0.78
Ease of transition of information to new B2B systems, ease of integration with trading partner's systems, consistency in methods of partner, and ability to efficiently route B2B transactions to the right internal applications.	tlr13	2.58	0.46	1.76
Flexibility and scalability of the trading partner's system (hardware/software independence).	tlr14	2.78	0.16	0.72
Redundancy and failover of trading partner's systems (in relation to downtime tolerance).	tlr15†	4.10	N/A	N/A
Adequacy of trading partner's disaster recovery plan.	tlr16	2.12	-0.18	0.99
Adequate staff expertise available on an as-needed basis.	tlr17	2.26	-0.24	1.14
Comprehensive systems documentation of trading partner's systems.	tlr18	2.26	0.19	0.83

† Items dropped

Step 2 estimated individual participant factor scores for business level, application user level, and technical level risk constructs based on the their respective factor scores using the validated formative items from step 1. PCA with oblique ($\Delta = 0$) rotation was

used to generate item eigenvalues. The eigenvalues for business level risk indicated the existence of a single construct, while the eigenvalues for application user level risk (eigenvalues = 6.98 and 1.11) and technical level risk (eigenvalues = 8.89 and 1.14) formed two constructs (results not tabulated). However, examination of the scree plots suggested the existence of one dominant construct for application user level risk and one dominant construct for technical level risk. Parallel analysis confirmed this supposition. The results (not tabulated) indicated that eigenvalues less than 1.34 for application user level risk and 1.39 for technical level risk were spurious. Based on the analysis of the scree plots and eigenvalues, we generated participant factor scores for the business level risk, application user level risk, and technical level risk constructs using PCA constrained to a single factor. Principal axis factoring with oblique ($\Delta = 0$) rotation was used to assess scale validity for the reflective B2B e-commerce scale. All scale items load on the B2B e-commerce construct at a minimum of 0.70. Scale AVE and Cronbach's alpha scores are 0.84 and 0.94, respectively (results not tabulated). Scale items with their corresponding ranges, medians, means, standard deviations, and construct loadings from measurement model validation using CFA are presented in Table 3.2.

Measurement and Structural Model Results

Validation of the measurement model is conducted using covariance based structural equation modeling (SEM). The validity of the measurement model constructs as well as the overall measurement model fit are assessed prior to testing the structural model (Hair et al., 2010). Table 3.4 reports the inter-construct correlations, composite reliability scores, AVE, and square root of AVE for all constructs. The composite reliability scores of all reflective constructs exceed 0.70 (Nunnaly and Bernstein, 1994).

All AVE are higher than 0.50, and the square root of all AVE are larger than the correlations between the reflective constructs (Chin, 1998). All inter-construct correlations are below the standard threshold of 0.85 (Kline, 2005). These results support the convergent and discriminant validity of the reflective constructs (Chin, 1998; Fornell and Larker, 1981). Indices used to assess the overall measurement model fit include the chi-square statistic (X^2 = 274.23, df = 168, p < .001), the root mean squared error of approximation (RMSEA = 0.06, LO = 0.04, HI = 0.07), the Tucker Lewis Index (TLI = 0.96), and the comparative fit index (CFI=0.97). These results (not tabulated) suggest an overall acceptable fit for the measurement model (Hair et al., 2010). Because the item measures used in this study are perceptual and were obtained using a single survey completed by single respondent, common method bias is a concern (Burton-Jones, 2009). We assessed the existences of common method variance within the measurement model using the unmeasured latent factor method approach, as recommended by Podsakoff et al. (2003). The results (not tabulated) indicate that all measurement items load significantly on their intended construct. Measurement item loadings on the unmeasured latent construct are not significant (p > .10) and range from 0.07 to 0.14. These results indicate common method bias is not a concern within this study.

Table 3.4: Measurement Model Construct Validity and Composite Reliability

	B2B Assurance Desirability Over Trading Partner	B2B E-Commerce Risk	Core Technical Competency of Trading Partner	Commitment to Trading Partner	Dependence of Trading Partner on Organization	Power Over Trading Partner	Trust of Trading Partner
Average Variance Extracted†, Square Root of Average Variance Extracted††, and Inter-Construct Correlations†††							
B2B Assurance Desirability Over Trading Partner	**0.72** **0.85**						
B2B E-Commerce Risk	0.30	**0.84** **0.92**					
Core Technical Competency of Trading Partner	0.16	0.14	**0.79** **0.89**				
Commitment to Trading Partner	0.21	0.11	0.56	**0.74** **0.86**			
Dependence of Trading Partner on Organization	0.27	0.16	0.17	0.53	**0.70** **0.84**		
Power Over Trading Partner	0.40	0.18	-0.07	0.16	0.66	**0.59** **0.77**	
Trust of Trading Partner	0.25	0.14	0.76	0.67	0.34	0.05	**0.72** **0.85**
Composite Reliability							
	0.88	0.94	0.92	0.89	0.88	0.81	0.89

† AVE is the upper number on the diagonal
†† The square root of AVE is the lower number on the diagonal
††† Inter-construct correlations are below the diagonal

Figure 3.2 presents the structural model with path loadings and significance levels for the hypothesized relationships. Indices used to assess the overall fit of the research model include the chi-square statistic (X^2 = 297.21, df = 180, p < .001), root mean squared error of approximation (RMSEA = 0.06, LO = 0.04, HI = 0.07), Tucker Lewis Index (TLI = 0.96), and comparative fit index (CFI=0.96). These results indicate good fit for the research model (Hair et al., 2010). All hypothesized relationships are significant in the predicted direction at a minimum of p < .05. The overall strength of the model provides strong support for the overall R-A theory of competition that provides a basis for understanding partner relationships and the role of dependence, technical competence, power, commitment, trust, and risk on an organization's desire to enhance information quality and scope in assessing a trading partner's behavior.

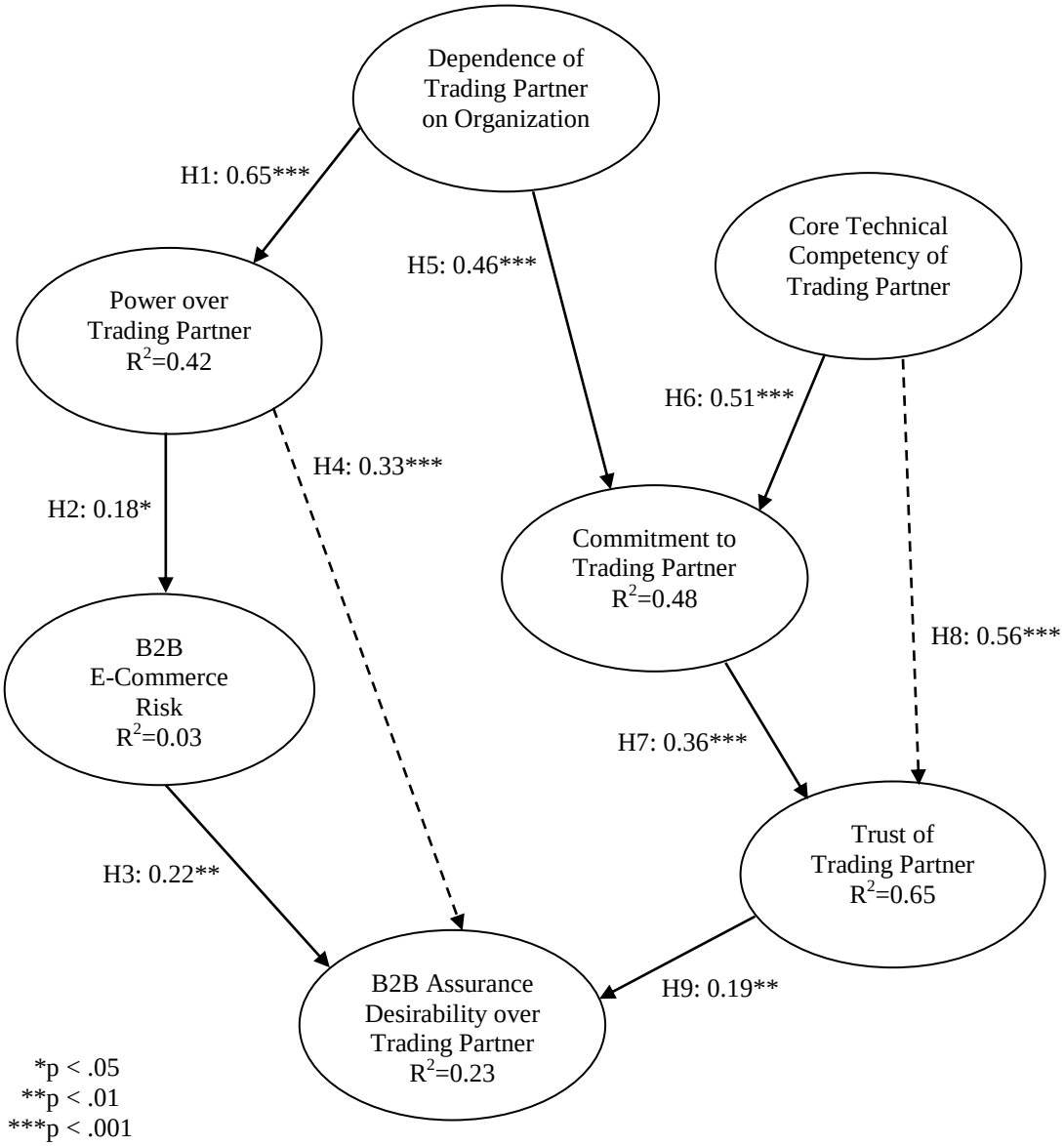

Figure 3.2: Structural Model

HYPOTHESIS 1 predicts that increasing levels of trading partner's dependence increase the dominant partner's power over the trading partner. The results indicate a positive (0.65) and significant ($p < .001$) association between trading partner dependence and power over the trading partner. In addition, trading partner dependence explains 42 percent of the variation in power.

The effects of increasing power over a trading partner on B2B e-commerce risk are addressed in HYPOTHESIS 2. As predicted, increases in power over the trading partner are positively (0.18) and significantly ($p < .05$) related to increases in B2B e-commerce risk inherited from the trading partner. However, power explains little (3 percent) of the variation in B2B e-commerce risk. Thus, the ability of a dominant partner to dictate e-commerce policy and procedures to a given trading partner does not appear to substantially impact B2B e-commerce risk. This suggests that B2B e-commerce risk may be better managed as an egalitarian relationship, consistent with that posited in the R-A theory of competition (Morgan and Hunt, 1999; Hunt and Davis, 2008).

HYPOTHESIS 3 predicts that increasing levels of B2B e-commerce risk are positively associated with an organization's increasing desire for assurance over a trading partner's B2B e-commerce processes. The results indicate a positive (0.22) and significant ($p < .01$) relationship between B2B e-commerce risk and assurance desirability over a trading partner.

The mediating effect of B2B e-commerce risk on the positive association between power over a trading partner and assurance desirability is addressed by HYPOTHESIS 4 and evaluated using the three stage approach and the Aroian version of the Sobel test recommended by Barron and Kenny (1986). With the exception of the paths within the

hypothesized relationship being tested, all model paths are left intact when testing the hypothesized mediating relationship. As Figure 3.3 depicts, the direct positive (0.36) and significant ($p < .001$) association between power over the trading partner and assurance desirability is established in step 1. Step 2 confirms the positive (0.16) and significant ($p < .05$) relationship between power and B2B e-commerce risk (i.e., HYPOTHESIS 2). Finally, step 3 confirms that the direct positive association between power and assurance desirability decreases, but remains positive (0.33) and significant ($p < .001$), when mediated by B2B e-commerce risk. Thus, B2B e-commerce risk partially mediates the relationship between power and assurance desirability. The Aroian version of the Sobel test is used to evaluate the significance of the partial mediation effect. The results (not tabulated) indicate support ($t = 2.46$; $p < .05$) for the mediation effect hypothesized in HYPOTHESIS 4.

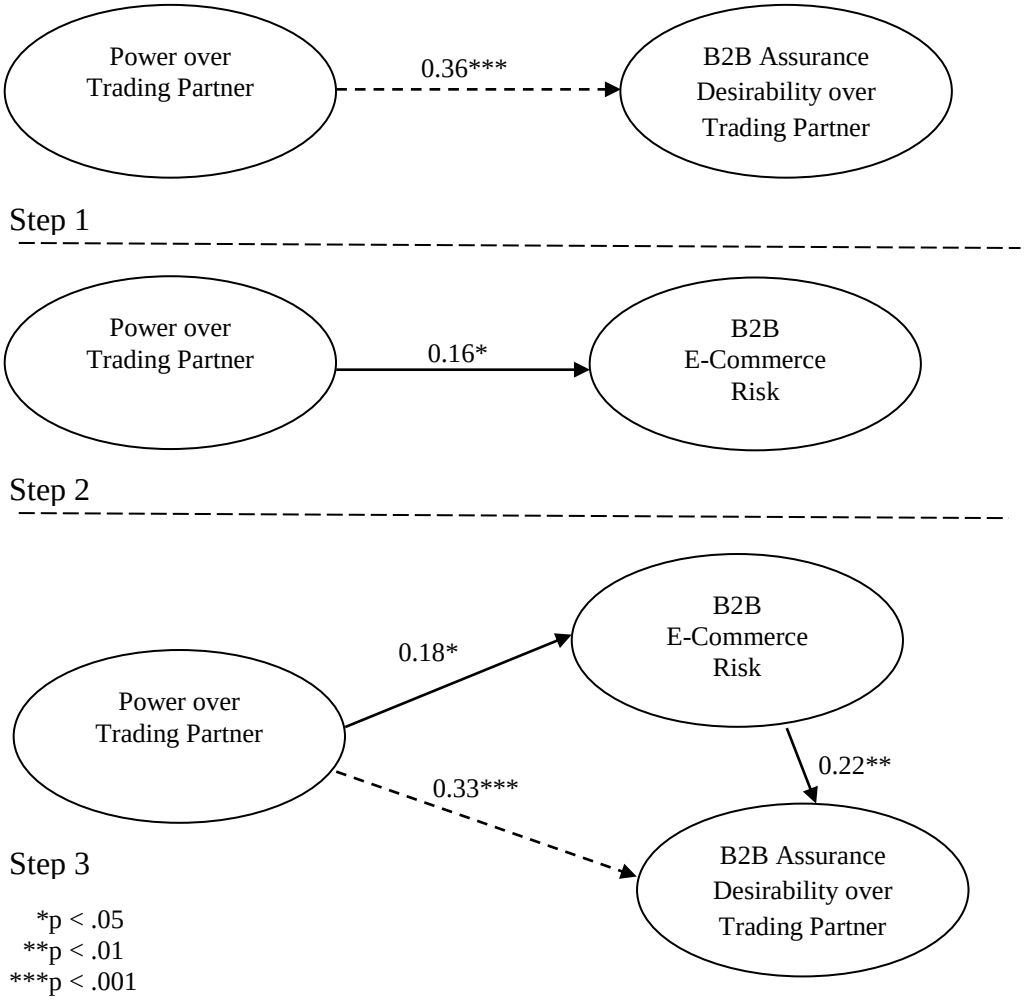

Figure 3.3: HYPOTHESIS 4 Mediation Tests

HYPOTHESIS 5 posits that as trading partner dependency on an organization increases, the organization's commitment to the trading partner relationship will also increase. The results show a positive (0.46) and significant ($p < .001$) relationship between trading partner dependence and commitment to the trading partner suggesting that dependence strengthens the commitment to a trading partner and the trading relationship.

HYPOTHESIS 6 addresses the relationship between trading partner core technical competency and commitment to the trading partner. The results indicate that trading partner core technical competency is positively (0.51) and significantly ($p < .001$) associated with increasing commitment. The results also indicate that trading partner dependence and core technical competency together account for 48 percent of the variation in commitment to the trading partner.

The positive effects of increasing commitment to the trading partner on trust of the trading partner are addressed by HYPOTHESIS 7. The results show that increases in commitment are positively (0.36) and significantly ($p < .001$) associated with increases in trust of a trading partner.

The mediating effect of commitment to a trading partner on the positive association between perceived core technical competency and trust of the trading partner is addressed by HYPOTHESIS 8 and evaluated using the three stage approach and the Aroian version of the Sobel test (Barron and Kenny, 1986). With the exception of the paths within the hypothesized relationship being tested, all model paths are left intact when testing the hypothesized mediating relationship. As Figure 3.4 depicts, the direct positive (0.77) and significant ($p < .001$) association between the perceived core technical competency of the trading partner and trust of the trading partner is established in step 1. Step 2 confirms the positive (0.51) and significant ($p < .001$) relationship between perceived core technical competency of the trading partner and commitment to the trading partner (i.e., HYPOTHESIS 6). Finally, step 3 demonstrates that the direct positive association between the perceived core technical competency of the trading partner and trust of the trading partner decreases, but remains positive (0.56) and significant ($p <$

.001), when mediated by commitment to the trading partner. Thus, commitment to the trading partner partially mediates the relationship between perceived core technical competency of the trading partner and trust of the trading partner. The Aroian version of the Sobel test is used to evaluate the significance of the partial mediation effect. The results (not tabulated) indicate support ($t = 4.42$; $p < .001$) for the mediation effect hypothesized in HYPOTHESIS 8. Note also, as reflected in Figure 3.2, that the components of the mediation relationship jointly explain 65 percent of the variation in trust.

HYPOTHESIS 9 predicts that increases in trust of a trading partner will be positively associated with increases in assurance desirability over a trading partner's B2B e-commerce processes. The results indicate significant support ($p < .01$) for the hypothesized (0.19) relationship.

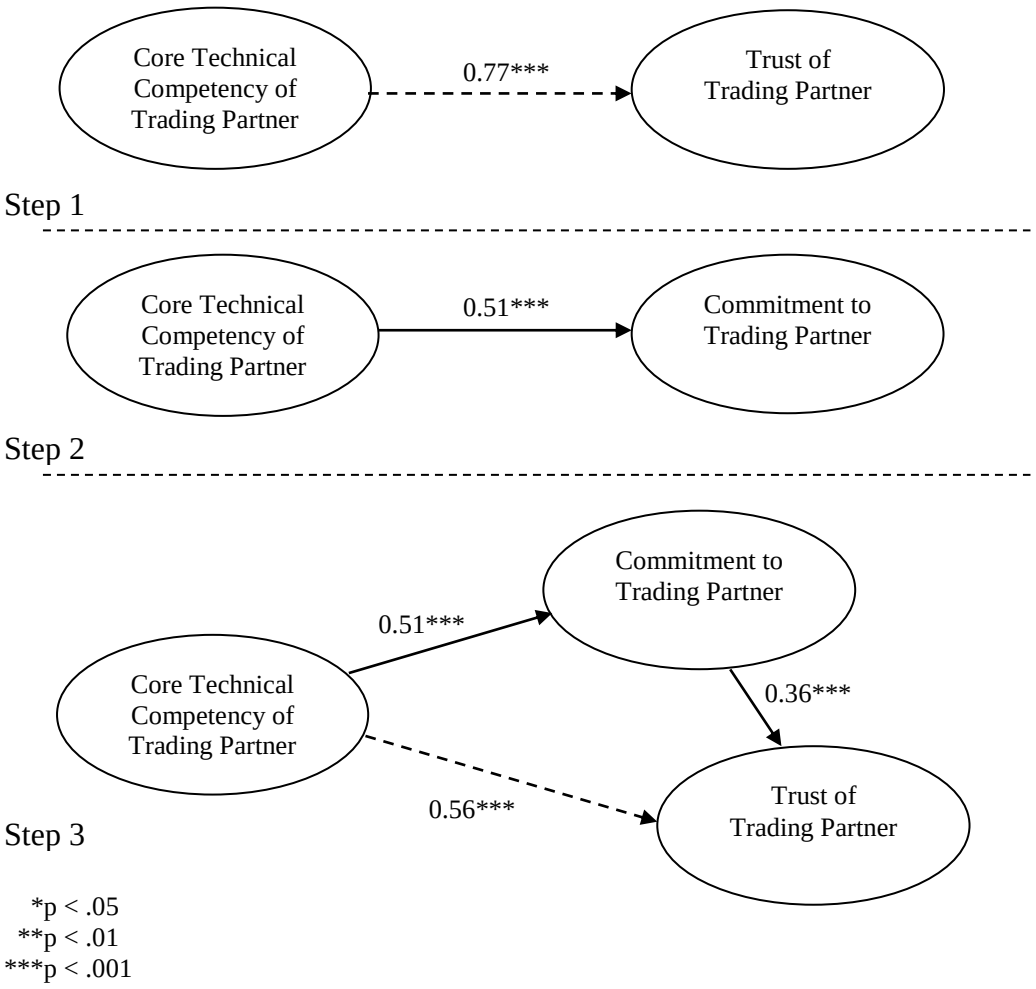

Figure 3.4: HYPOTHESIS 8 Mediation Tests

Supplemental Analysis

One of the central questions in this study concerns the roles of B2B e-commerce risk and trust on the desirability of assurance over a trading partner's B2B processes. A view beginning to emerge within the MCS literature suggests that while trust remains essential to the development and long-term enhancement of the trading relationship, the

level of risk inherited from a trading partner is a concern to organizations. This concern is particularly relevant in e-commerce trading relationships as these relationships require a level of openness and coordination of critical organizational information resources and systems in order to provide comparative advantage. With this openness comes risk. To better assess the impact of B2B e-commerce risk on assurance desirability, a X^2 difference test (results not tabulated) was conducted to determine if a significant difference exists between the research model and an alternate model that does not include the hypothesized relationship between B2B e-commerce risk and assurance desirability. The X^2 for the alternate model is 306.61 (df = 181) and the change in X^2 is 9.41 (df = 1), which is significant ($p < .01$). Thus, the alternate model does not fit the underlying data as well as the research model.

As previously discussed, debate concerning the directionality of the relationship between trust and assurance also exists among MCS researchers. Prior literature finds support for the view that assurance engenders trust (Mellewigt et al., 2007; Vosselman and Meer-Kooistra, 2009). However, other researchers (Coletti et al., 2005; Velez et al., 2008) suggest that trust leads to higher integration of MCS within inter-organizational relationships. To assess the nature of the relationship between trust and assurance desirability, we re-estimate an alternate model with a path emanating from assurance desirability to trust (results not tabulated). The model fit statistics for the alternate model are unchanged. However, the path from assurance desirability to trust is not significant ($p > .05$) supporting our theorization that increases in trust are associated with increased assurance desirability.

Discussion

In this study, we analyze the impact of relationship power differences, B2B e-commerce risk, and trust in a given trading partner on the desirability of assurance over the trading partner's B2B e-commerce processes. We also examine the mediating effects of B2B e-commerce risk on the direct relationship between power and assurance desirability. Our results show that B2B e-commerce risk mediates the relationship between power and the desirability of B2B e-commerce assurance. However, the mediation effect is partial and there are strong direct effects for both B2B e-commerce risk and power on the desirability of assurance. Our results also show a strong relationship between trust and assurance desirability. We also show strong results for antecedents of power and trust through dependence of the trading partner on the trading relationship, the core technology competence of the trading partner, and an organization's willingness to commit to the trading partner. As expected, our results show that commitment mediates the relationship between trading partner technical competence and an organization's trust. The mediation effect is partial, however, and there is also a significant direct effect of competence on trust. On an overall basis, the hypotheses are all significant and in the predicted direction. Additionally, model fit is strong and the explanatory power is quite high.

The results of the study provide strong support for the underlying R-A theory of competitiveness. Key among the tenants of R-A theory is that trading partners may still be motivated to enter into relationships where they are at a power disadvantage and recognize that constrained self-interest seeking behavior is more likely to lead to optimal comparative advantage. R-A theory also suggests that information an organization needs

to assess the trading partner's behavior is both imperfect and costly to attain. Our research shows the combined effects of the desire to improve information about the trading partner's behavior and verification about the reasonableness of commitment and trust placed in that trading partner on the desirability of assurance. All three conditions are key to the development of sustainable, long-term trading relationships that are based on joint value creation.

Our research specifically contributes to three areas of concern in the interorganizational relationship literature in regards to MCS design. First, researchers have noted the need to pay more attention to risks rather than just trust (Miller et al., 2008). Our findings on risk indicate that risk is an important determinant of the preferred governance structure over the interorganizational relationship. Second, researchers have noted the need to acknowledge and consider the critical role of IT in interorganizational relationships (Cuganesan and Lee, 2006; Granland, 2011). Our study embedded both measures of the core IT competence and, more importantly, a comprehensive measure of e-business processes including technical level issues, application issues, and business process issues. Our broad-based measure proved to be a very solid measure of risk and provides insights into the role of e-commerce risk on trading relationships. Third, we address the need to focus on the impacts of unequal power in such relationships on the governance structures that may be most appropriate (Caker, 2008). The effects of variance in power within the relationships provides evidence that assurance processes for B2B e-commerce risk are of interest to organizations who are in a position to mandate additional governance structures to be applied by their trading partners. Finally, we expand upon prior case study work to provide an analysis of a broad cross-section of

firms representing a breadth of industries, while examining the issues across a complex model providing a representation of the overall organizational drivers of assurance.

Beyond the theory and literature contributions, our study also provides a significant methodological contribution. While it is theorized that second order factors may include both formative and reflective measures at different levels (Jarvis et al., 2003), the nature of our construct for B2B e-commerce risk where first order constructs are formative and second order factors are reflective, has not been previously used, validated, and analyzed. We demonstrate the multi-level validation of such a construct to support use in a covariance-based SEM. The same method would be appropriate using components based SEM, such as partial least squares (PLS).

As in all studies, there are limitations that should be considered in evaluating the results and in framing future research. First, we used a research firm to solicit our participants due to the difficulty of identifying and soliciting participation from individuals having the broad-based expertise required to complete the survey. This approach does not allow traditional tests for response bias such as comparisons of early and late respondents, and reporting of response rates. Rather, all data was obtained over an approximately 72 hour period with a single e-mail request. Once the number of respondents for which the research firm had been contracted was obtained, the survey was shut down and additional potential respondents accessing the site were informed the survey was closed. However, the benefits of using the research firm outweighed any risks as it allowed us to obtain responses from a large set of experts in a study area requiring access to managers with complex expertise.

Second, our research did not explore in-depth the type of competitive advantage

that was provided by individual supply chain participants and the nature of specific types of advantage that might influence model components. Further exploration in future research on these antecedents will enhance our understanding. Little is understood at this point as to the role comparative advantage plays in supply chain relationships.

Third, our measure of B2B e-commerce assurance desirability is an open measure of assurance by internal or external bodies that may or may not be professional accountants. Further, our measure does not specifically address cost, although our respondents would be aware of the costs associated with various internal auditors, external auditors, and consultants that may provide such services. Our results establish the desirability of assurance. Future research should explore in greater detail the form that such assurance should take. Khazanchi and Sutton (2001) and Sutton et al. (2008) provide a conceptual discussion of the scope of B2B e-commerce assurance services, but additional discourse with affected groups could provide much greater clarity as to the form this assurance should take. Bedard et al. (2005) similarly provide insights into how such services are deliverable by independent CPAs, but the optimality of this form of delivery should also be the subject of additional scrutiny.

Fourth, the increasing globalization of interorganizational relationships and B2B e-commerce trading partnerships suggests the desire and need for assurance services over the information systems that facilitate these relationships may continue to escalate. Our model results indicate B2B e-commerce risk and trust, in conjunction with their antecedents, explain a moderate amount of the variance in assurance desirability—however, much remains to be explained. Future research should explore the identification and effects of other antecedents to assurance desirability within interorganizational

relationships.

Finally, this research has provided an initial view into the joint effects of risk and trust on the form and role of MCS in interorganizational relationships. Recent research has increasingly called for consideration of risk in interorganizational relationships and the impact on MCS (Langfield-Smith and Smith, 2003; Dekke,r 2004; Miller et al., 2008). With the increasing global strategic management focus on risk management, further research into the roles of risk and trust in relationship development and sustainability is of great need.

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STUDY THREE
ENTERPRISE RISK MANAGEMENT: RE-CONCEPTUALIZING THE ROLE OF RISK AND TRUST ON INFORMATION SHARING IN TRANSNATIONAL ALLIANCES

Introduction

Competition between organizations is increasingly driven by global alliances of firms as opposed to individual firms (Buhman et al., 2005; Chapman and Corso, 2005; Langfield-Smith, 2008). Strategic alliances are formed between alliance partners and become nested within larger, more complex networks of interorganizational relationships (Chua and Mahama, 2007). Partners in these relationships understand that coordination with suppliers can provide skills and knowledge not available within the firm, but that these linkages also generate risks that must be controlled (Bensaou and Anderson, 1999). Many—perhaps even a majority—of these strategic alliances fail (Das and Teng, 2001; Langfield-Smith and Smith, 2003; Dekker, 2004). Yet, the competitive landscape pushes organizations to forge these alliances with full awareness that the most successful alliances come from high levels of information sharing and associated knowledge sharing (McEvily and Marcus, 2005; Cousins et al., 2006). The result of these tight collaborations is generally a mutual interdependence, meaning that each party is vulnerable to its partners, substantially escalating the potential risk (Nicolaou, 2008). Accordingly, firms with successful alliances generally understand that risks should be initially identified when the alliances are forged and that such risks should be mitigated to the degree

possible during the start-up phase (Das and Teng, 2001; Aron et al., 2005; Miller et al., 2008).

Miller et al. (2008) make the case that managerial control systems (MCS) researchers should focus more on the risk aspect of these alliances, rather than the current focus on trust, as a control mechanism. This focus on risk is consistent with Power's (2007) observation that risk management has become the overriding dominant corporate strategy for evaluating internal and external relationships. Triggered in large part by the CICA's Criteria of Control Board (CoCo) move in the mid-90s to extend the strategic significance of risk-based control activities, corporate management has rapidly moved toward re-classifying control activities under the broader umbrella of enterprise risk management (ERM) (Kinney, 2000; Maijoor, 2000; Power, 2007). Power (2007: p. 66) makes the case that the rapid evolution and adoption of ERM has created a "global governance structure" designed to meet the needs of transnational organizations in the absence of any overarching regulatory mandates. ERM has become recognized as a standard form of organizational governance from the perspective of important stakeholders, and the central focus for most public and many private companies in managing internal and external operations and relationships.

The purpose of this study is to examine the influence of ERM practices on both the risk and trust associated with transnational alliances and the resulting impact on interorganizational information sharing. The specific risk area of concern in this study is e-commerce business risk (i.e., business risk) which encompasses both the IT-enabled nature of these alliances (Langfield-Smith, 2008; Nicolaou, 2008) and the strategic nature of the associated risks (Khazanchi and Sutton, 2001; Sutton et al., 2008). The impact of

these risks on information sharing is perceived to be most critical to successful transnational alliances (Buhman et al., 2005; McEvily and Marcus, 2005; Cousins et al., 2006).

Traditionally, the theoretical basis for MCS studies on alliance relationships is formed by transaction cost economics and resource based views. Approaching the theoretical relationships from an ERM view provides a different lens through which to view alliance relationships. In this study, we adopt Power's (2007) views that ERM has become the central strategic focus for organizations, and the primary criterion used to assess potential alliance partners' risk. ERM dictates that assessment of potential partners should begin with risk analysis, and related decisions will align with risk management outcomes. In the past, research has focused on trust as the primary organizing principle necessary for organizations that are relative strangers to form alliances; in an ERM focused world, management and stakeholders will first demand evidence that supports the desired level of trust before trust will be offered (Power, 2007: p. 39). This study examines Power's (2007) strategic view of ERM by investigating the relationships between business risk and trust in transnational alliances.

To test the theoretical model, we collect data from 200 North American managers monitoring relationships with transnational alliance partners. A survey was used to collect data related to strategic ERM practices, partner's business risk, trust in the supply chain partner, and the level/quality of information sharing with the partner. Consistent with ERM philosophies, we view the strength of ERM as a precursor to decreased business risk and increased trust. ERM is viewed as directly influencing information sharing, but also indirectly affecting information sharing through identified risks and

established trust levels. Testing the overall model using structural equation modeling (SEM) provides strong support for the theorized relationships. Competing models that focus on trust as the key control mechanism are also tested to assess the strength of our research model. Our risk-oriented research model demonstrates stronger explanatory power than the competing models.

The research provides several important advancements to the MCS literature. First, the study addresses recent calls by researchers to recognize the shifting organizational focus where risk management, governance, MCS, and trust work together to reduce risk and optimize interorganizational relationships (Langfield-Smith, 2008; Bhimani, 2009). Second, the research addresses the shifting relationship between risk and trust that is evolving arguably due to the ERM movement among organizations. While trust has generally been seen as a means for mitigating risk, in an ERM-driven strategy, risk analysis occurs first and the evidence gathered determines the level of trust that should be afforded the alliance partner. Third, results show that the level of information sharing is simultaneously a function of the strategic nature of ERM processes, the perceived riskiness of the partner, and the trust placed in that alliance partner.

The remainder of this paper is divided into four sections. The next section provides the theoretical foundations for the research model and the hypotheses formulation. Section three presents the research method, while the fourth section provides the results of the analysis. The fifth and final section provides a discussion of the findings, a review of possible limitations to the study, and some concluding perspectives on the implications for future research.

Theory and Hypotheses Development

Power (2007), in his widely acclaimed book on the rise of ERM practices, notes that a dozen years ago there were no risk committees, but now they are considered "mandatory features of organizational life" (p. viii). CoCo initiated the rapid escalation of ERM practices through its extension of the strategic significance of risk-based control activities (Kinney, 2000). COSO's subsequent defining of ERM as a process requiring senior management direction, an enterprise-wide focus on risk analysis and control, and an emphasis on establishing *risk appetite* as a necessary component of organizational consciousness, served to raise ERM to the strategic level of the firm (Power, 2007: p. 78). In essence, internal control processes and managerial control processes were placed under the umbrella of risk analysis and risk management, and engrained into the strategic focus of organizations. This focus on ERM becomes a key component to strategic management of the firm under the auspices of governance structures that focus on risks from internal and external operations and relationships (Power, 2007: p. 42).

Several recent reports in practice support Power's view of ERM as a key cultural component in strategic management decision making. Recent joint meetings of the North American and European Audit Committee Leadership Networks yielded discussions of how talk about strategy and risk occurred "at every board meeting" (EACLN and NAACLN, 2008). Ernst & Young surveys on internal control and ERM find that executive management has heightened expectations for ERM and its underlying risk mitigation efforts that support overall business performance (E & Y, 2008b). Survey results also reveal that 61percent of institutional investors avoid investing in companies with inadequate ERM, 48 percent de-invested in companies with poor ERM, and 82

percent put premiums on share prices for companies with good risk management (E & Y, 2008a). Reflective of this movement, Standard and Poor's has said it will downgrade companies with inadequate ERM (EACLN and NAACLN, 2008). Ernst & Young also notes that ERM's focus on risks and controls extends across functional activities and business processes that cross traditional boundaries (E & Y, 2008b), and ERM benefits are maximized in areas such as alliance relationships (E & Y, 2008a).

This perspective of ERM as a part of strategic management and culture re-shapes the way organizations view interorganizational relationships such as strategic transnational alliances. ERM supplants trust as an organizing principle necessary for unfamiliar alliance partners by focusing on risk and risk analysis as a precursor to trust. Demands for trust create corresponding demands for evidence justifying trust—i.e. risk analysis (Power, 2007: p. 39). This orientation shifts the dominant focus from trust to risk and places this focus at a higher and more strategic level of the firm. This strategic orientation toward risk suggests the focus in such relationships begins with risk analysis—but primarily at the strategic levels of decision making as opposed to the transactional level.

As Power (2007: p. 66) notes, corporate stakeholders' demands for enhanced organizational governance have forced a standardized adoption of ERM across organizations and created a *de facto* "global governance" standard that transcends country borders. These transnational alliances are nested networks consisting of a myriad of strategic relationships among different firms (Chua and Mahama, 2007). In these alliances, supplier partners are frequently managed as if they were a part of the buyer firm (Caker, 2008). However, the complexity and embeddedness of alliance relationships

increase the volatility and risk in the supply chain (Seal et al., 2004). Controls enforced within these relationships can be a key strategy for improving supply chain performance (Dekker, 2004). Still, the biggest concern in these relationships persists—the concern that suppliers will be unable to perform (Anderson and Dekker, 2005). A strategic ERM approach necessitates that risk be assessed for every alliance partner and the associated risk reduced to an acceptable level.

The establishment of these transnational alliances and the management of associated risks are further complicated by the inevitable dependence on technology and information sharing (Buhman et al., 2005). Technology has been the chief catalyst in the explosion of alliances (Langfield-Smith, 2008). The leveraging of technology requires another layer of alliance coordination, and the complexity involved in linking alliance partners' internal systems increases "lock-in" costs as well as switching costs (Nicolaou, 2008). These linkages greatly escalate the risks assumed through the alliance, as an organization's internal systems become more vulnerable (Vasarhelyi and Greenstein, 2003; Vasarhelyi and Alles, 2008). Technology is critical to the existence and continuity of strategic alliances, yet the technology component has received scant attention from researchers (Cuganesan and Lee, 2006).

ERM advocates stress that before entering into alliances, firms should carefully assess the risks associated with sharing information (Lam, 2003: p. 143). Lam notes the importance of evaluating risks across a variety of capabilities and business congruencies in order to achieve a desired level of support for answering the question, "Can we trust each other?" This view is consistent with Power (2007: p. 39) and his acknowledgement that ERM demands evidence in order to meet demands for trust. Lam (2003: p. 144) also

notes the importance of on-going monitoring and reassessment of relationships with reassessment of risks and risk management being a priority. Again, the ERM focus on risk emerges as the overarching concern and the dominant governance theme (Power, 2007: p. 66). This places risk at the forefront of efforts to coordinate and manage these networks of alliances across the supply chain.

ERM Influences on Trust, Risk, and Information Sharing

The central role of ERM in governing all aspects of interorganizational relationships is symptomatic of Power's (2007: p. 186) concept of organized uncertainty. Our risk management oriented society has led to an emergence of contemporary views on ERM that focus on the construction of risk objects and management of those risks. This view of ERM as an overarching strategic governance mechanism suggests that risk management will drive all aspects of an interorganizational relationship. In our research, the primary focus is on the direct effects of ERM on trust, risk, and information sharing within transnational alliances.

Little is known about the nature of the relationship between ERM and trust. Power (2007: p. 39) recognizes trust as a key organizing principle for building relationships between remote organizations. ERM does not displace trust; rather, the demand for trust still exists. However, the demand for trust instead creates demands for evidence to support trust. While we would expect that this evidence will largely be derived from identifying, assessing, and monitoring risks, other sources of evidence supporting trust will likely still exist. Trust is not sufficient for effective risk management, but it can contribute (Emsley and Kidon, 2007). While there has been conflicting perspectives on the relationship between trust and control, trust is generally

viewed as complementary to control (Caglio and Ditillo, 2008). Thus, trust will not be displaced as a control mechanism by the implementation of ERM strategies, but will become one component of risk management as it is applied to each alliance partner. Prior studies highlight the fact that control can strengthen trust (Coletti et al., 2005).

Trust has traditionally been a focal point in establishing new alliances as a means for improving interorganizational relationships (Langfield-Smith, 2008). Repeated cycles of transactions and performance can strengthen the trust within such alliances (Free, 2008). While ERM may shift the focus toward gathering evidence that indicates violations of trust, ERM strategies also emphasize mechanisms that make key trust variables more visible (Power, 2007: p. 40). Thus, risk management efforts should identify evidence to support trust in an alliance partner by monitoring on-going relationship experiences as well as other mechanisms for monitoring and assessing that are not necessarily focused just on risks. Where risk management efforts provide confirming evidence, trust should be greater. Alternatively, when risk management efforts provide disconfirming evidence, discontinuance of the alliance would likely occur. This leads to the first hypothesis:

HYPOTHESIS 1: *As the strength of ERM increases, the level of trust in alliance partners increases.*

The primary focus of ERM, however, is inevitably on risks that go beyond just the establishment of trust (Miller et al., 2008). In transnational alliances, these risks are heavily tied to information technologies from an operational and reliability standpoint as well as from a strategic vision that supports opportunity and growth in the relationship (Khazanchi and Sutton, 2001; Sutton et al., 2008). Technology is key to making global

supply chains work (Prater and Ghosh, 2006), and the risks can be substantial if alliance partners have only made minimal investments in the technologies to meet current operational needs and have not developed a strategic understanding on how to leverage such technologies for future supply chain improvements (Khazanchi and Sutton, 2001). In many business-to-business (B2B) e-commerce enabled relationships, there is a lack of evidence that alliance partners have made investments in such key areas as linking external systems with internal, back-office systems (Khazanchi and Sutton, 2001; Anderson and Lanen, 2002). To thrive in B2B e-commerce enabled relationships, the appropriate technologies must be in place to participate and survive (Straub and Watson, 2001). The biggest risk in these alliances is a supplier's inability to perform as required (Anderson and Dekker, 2005).

From an ERM perspective, the primary concerns in assessing alliance partner risk are at the more global, strategic level. Research has shown that participants in B2B e-commerce relationships are much more concerned with the overall reliability and capability of an alliance partner than with simply the reliability of transaction information (Mauldin et al., 2006). Sutton et al. (2008) discuss three levels of B2B e-commerce risks—technical, application, and business. Evaluation of these three levels of concern shows that technical and application level risks feed into business level concerns. These business level concerns focus more comprehensively on an organization's technical and application strength (or weakness), as well as on assimilated knowledge for leveraging the technology and comprehending strategic opportunities. This includes how technologies and relationships can be leveraged for competitive gain. B2B e-commerce risk at the business level (i.e., business risk) is a strategic concern in alliance

relationships. Given the strategic orientation of contemporary ERM practices, business level risks are of greatest strategic interest. Given an alliance partner with high business risk, the likely continuity of the relationship with that alliance partner is low. Further, Khazanchi and Sutton (2001) posit that helping an alliance partner improve their strategic capabilities is in the best interest of the organization and the entire supply chain. A strong ERM-oriented firm may be willing to assist an alliance partner in reducing their level of business risks. In combination, this leads us to the second hypothesis:

HYPOTHESIS 2: *As the strength of ERM increases, the business risk of alliance partners decreases.*

While many alliances fail, a characteristic of successful alliances is a high level of information sharing protected through risk mitigation (Buhman et al., 2005). Information sharing relates to the willingness of alliance partners to exchange strategic information (Mahama, 2006). This may include information on a range of joint interests including product design, open book arrangements, cost data sharing, and strategic initiatives. Increased familiarity, generated through on-going alliance relationships, facilitates the development of more extensive governance structures to coordinate advanced relational activities such as information sharing (Dekker, 2008). These complex relationships are characterized by interdependencies that leverage and grow from high levels of information sharing, but also create increased risk potential (Nicolaou, 2000; Seal et al., 2004; van der Meer-Koistra and Scapens, 2008). From an ERM perspective, we expect that high levels of ERM will provide the type of extensive governance structures required

to help coordinate information sharing. This leads to the third hypothesis:

HYPOTHESIS 3: *As the strength of ERM increases, information sharing with alliance partners increases.*

Risk, Trust, and Information Sharing

The relationship between risk and trust is increasingly of interest to MCS researchers, a predictable phenomenon amidst our rapidly emerging risk management oriented culture (Power, 2007). The relationship between risk and trust is tenuous with earlier MCS research focusing on trust as a means of mitigating risk (Langfield-Smith and Smith, 2003). Trust evolves from experience with an alliance partner and the resulting perceptions of competence, integrity, and benevolence (Free, 2008). However, Tomkins (2001) notes that no matter the level of trust in a relationship, information on the alliance partner will be needed in order to plan and execute a collaborative relationship. Further, while trust is particularly relevant to alliance relationships, trust is only important where there is risk and, as such, risk management becomes a critical aspect of the relationship (Das and Teng, 2001).

As noted earlier, a strategic ERM approach necessarily demands an initial focus on risk. While there are culturally constructed trade-offs between demands for evidence and trust (Power, 2007: p. 164), the impact of the ERM movement and its "global governance structure" dictates that risk analysis and risk management take prevalence in transnational alliances (p. 66). Thus, while trust was traditionally the organizing principle necessary to enable the formation of transnational alliances, in an ERM focused global environment, demands for trust create corresponding demands for evidence to support that trust (p. 39). Thus, the perceived level of business risk associated with an alliance

partner will dictate whether sufficient evidence exists to support demanded levels of trust. This leads to the fourth hypothesis:

HYPOTHESIS 4: *As business risk decreases, the level of trust in an alliance partner increases.*

Greater information sharing in alliance relationships provides better coordination and a greater opportunity for high levels of success, but such information sharing subjects a firm to substantial risks which should be assessed before information is shared (Kulp, 2002). Before a firm makes the commitment to collaborate with an alliance partner, a firm needs to understand the competency of the alliance partner and the reliability of the supporting systems that allow information sharing (Malhotra et al., 2005; Nicolaou and McKnight, 2006). The dual need to coordinate and share information must be countered by the risks that are inherent in tight collaborative relationships with alliance partners (Klein et al., 2007). Controlled levels of risk should lead to increased information sharing (Klein et al., 2007). The expected relationship is captured in the fifth hypothesis:

HYPOTHESIS 5: *As business risk decreases, information sharing increases.*

Research suggests that risk and trust have a dual and complimentary impact on information sharing (Nicolaou and McKnight, 2006). Chae et al. (2005) argue that the relationship is more important than the technology infrastructure, and that trust should be the primary driver behind increased information sharing. Research shows that as experience is gathered and familiarity with an alliance partner increases, less governance is often required and the focus evolves to implementing the processes necessary to increase information sharing (Mellewight et al., 2007; Dekker, 2008). High trust provides a foundation where positive experiences encourage alliance partners to cooperate further

and increase information sharing (Velez et al., 2008). Others argue, however, that reliance on trust when interdependencies are created produces tensions (Mouritsen and Thane, 2006). However, this tension would seem to be mitigated when trust is coupled with risk management efforts. This leads to our sixth hypothesis:

HYPOTHESIS 6: *As trust increases, information sharing increases.*

The six hypotheses create a unified view of the interrelationships between ERM, trust, and risk on information sharing in transnational alliances. The six hypotheses in combination provide an overall framework for understanding how information sharing can be increased in alliance relationships. Given these interrelationships, the six hypotheses are considered in tandem and can be conceptualized as presented in Figure 4.1.

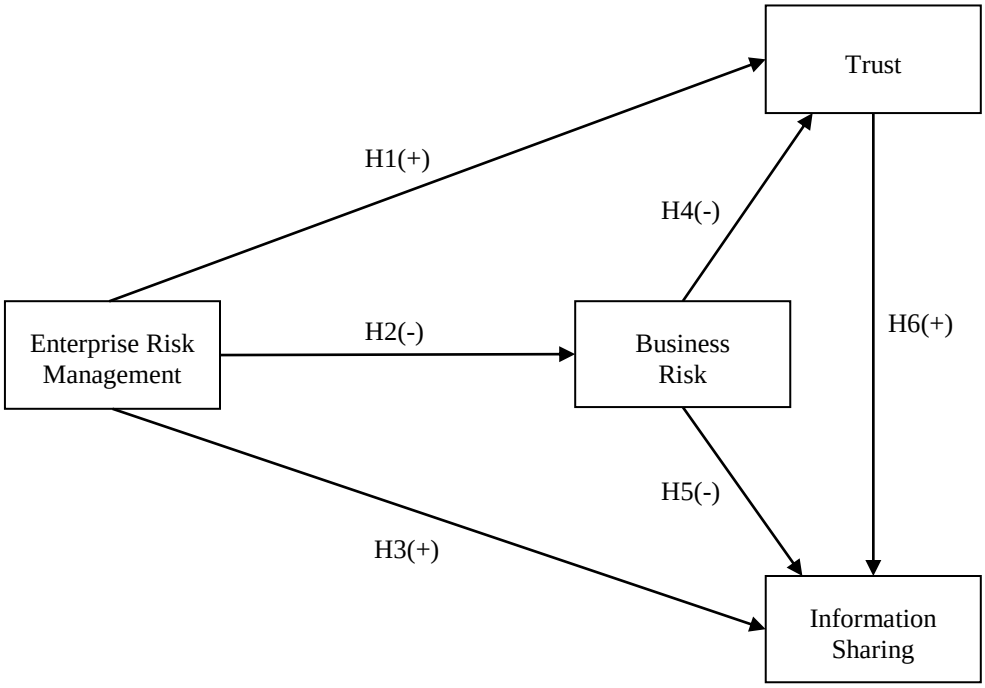

Figure 4.1: Research Model

Research Methods

This study examines the antecedents of information sharing for organizations engaged in transnational alliances using B2B e-commerce as a primary communication and information sharing medium. Participant demographics, instrument development, and model validation are presented in the following sub-sections.

Data Collection

Respondents with considerable business-level and technical e-commerce level knowledge of their organization as well as their alliance partner's organization were needed in order to examine how ERM, trust, and business risk impact information

sharing between alliance partners. Identifying a pool of potential participants possessing this complex knowledge set was problematic; thus, a survey company was employed to reach the targeted population. The survey company sent email solicitations to 18,500 potential participants; job title was the criteria used for the initial email solicitation. From that solicitation, 6,668 (36.04 percent) potential participants responded; these potential participants were further screened to insure that they met the study requirements. [4] Potential participants were asked the following screening questions:

1. In which country is your company based?
2. What are your job responsibilities?
3. Does your company use any non-North American supplier or outsourcing companies?
4. How familiar are you with these non-North American supplier or outsourcing relationships.

A five point Likert scale (1= not at all familiar and 5 = very familiar) was used to solicit responses to question four. Of the respondents that satisfactorily answered the first three screening questions, 268 responded either four or five to screening question four. These respondents were deemed appropriate for this study, and the survey company provided them the link to this study's survey materials. Responses from 268 participants were logged. These responses were examined, and participants who responded "no basis for answering" or failed to answer a majority of the questions were excluded from further analysis. This process yielded a sample of 200 participants who worked for organizations

[4] The survey company is paid for a pre-determined number of respondents. Once those responses are obtained, the survey is closed. Hence, there could have been many more respondents who were subsequently turned away after the survey closed.

with supply chain partners located in an array of different countries and geographical locations.

A summary of the participant demographic data is presented in Table 4.1. These data reveal that 160 (80 percent) of the 200 participants were in high-level managerial positions and 176 (88 percent) of the participants had three or more years experience with their current employer. The majority (61.50 percent) of the participants were from 25 to 40 years old, 119 (59.50 percent) were male, 76 (38 percent) were female and five participants choose not to disclose this information. Industry representation included manufacturing (32 percent), wholesale/retail (15.50 percent), construction (6 percent), consulting (6 percent), technology (5.50 percent), and health (5 percent).

Table 4.1: Participant and Organizational Demographics

Item	Frequency (n = 200)	Percent
Panel A: Gender		
Male	119	59.50
Female	76	38.00
Not answered	5	2.50
Panel B: Age		
Under 25	3	1.50
25 to 40 years	123	61.50
40+ years	71	35.50
Did not answer	3	1.50
Panel C: Experience with current employer		
1 to 2 years	15	7.50
3 to 10 years	119	59.50
10+ years	57	28.50
Did not answer	9	4.50
Panel D: Current Position		
C-level executive / Owner	59	29.50
Vice President / Director	33	16.50
Managers	68	34.00
Supervisors/Consultants / Analysts	21	10.50
All Other	19	9.50
Panel E: Organizational Structure		
Publicly traded	113	56.50

Item	Frequency (n = 200)	Percent
Not publicly traded	86	43.00
Did not answer	1	0.50
Panel F: Organizational Size		
Less than 50 employees	21	10.50
51 – 100 employees	11	5.50
101 – 500 employees	29	14.50
501 - 1,000 employees	42	21.00
More than 1000 employees	96	48.00
Did not answer	1	0.50
Panel G: Industry		
Manufacturing	64	32.00
Wholesale/retail	31	15.50
Construction	12	6.00
Consulting	12	6.00
Technology	11	5.50
Health	10	5.00
Financial	8	4.00
Telecommunications	7	3.50
Energy	6	3.00
Insurance	5	2.50
Aerospace	5	2.50
Education	5	2.50
Transportation	5	2.50
All other	15	7.50
Did not answer	4	2.00

Development of Measures

As shown in Figure 4.1, the theoretical constructs for the current study are enterprise risk management, business risk, trust, and information sharing. An on-line survey was used to collect item measures for each of the constructs. The items used to measure each of those constructs are shown in Table 4.2. Each item was measured using a five point Likert scale where 1 represented the strongest positive response, 5 represented the strongest negative response, and 6 represented "no basis for answering". In order to capture diversity in the alliance partner's cultural and geographic dispersion, respondents were asked to provide data on an offshore alliance partner; and, the data

collection process was designed to promote a diverse set of partner organizations in the sample. Although culture is not a construct of particular interest in this study, a supply chain partner's geographical location and cultural orientation could systematically affect analysis and results. To rule out the possible effects of culture, supply chain partners were classified into three primary groups, Anglo, European, and Asia-Pacific, based on cultural orientation (Ronen and Shenkar, 1985). All scale item responses are examined for culture effects using one-way ANOVA with Bonferroni correction. The results (not tabulated) indicate culture does not significantly influence any of the individual scale item measures.

Table 4.2: Descriptive Statistics for Item Measures and Tests of Convergent Validity

Scale Item	Item Name	Mean	Median	Std. Dev.	Item Loading	Composite Reliability	Average Variance Extracted
Information Sharing First Order Constructs (Malhotra et al., 2005)							
Breadth of Exchange *Regarding the sharing of information between Your Company and Company ABC*						0.90	0.60
To what extent do you exchange details of upcoming product or service related changes with Company ABC?	ISboe1	1.99	2.00	0.92	0.76		
To what extent do you exchange future plans such as promotion and marketing plans, long-term production plans, capital investments and capacity utilization with Company ABC?	ISboe2	2.15	2.00	1.01	0.82		

Scale Item	Item Name	Mean	Median	Std. Dev.	Item Loading	Composite Reliability	Average Variance Extracted
To what extent do you exchange information related to market demand trends and forecasts with Company ABC?	ISboe3	2.17	2.00	0.96	0.75		
To what extent do you exchange information on demand shifts and changes in customer preferences with Company ABC?	ISboe4	2.10	2.00	0.93	0.77		
To what extent do you exchange information related to changes in supply chain structure—such as addition or dropping of partner companies, merger and alliances, with Company ABC?	ISboe5	2.17	2.00	1.05	0.75		
To what extent do you exchange process information needed to support changes in product features or volumes, with Company ABC?	ISboe6	2.00	2.00	0.96	0.79		
Quality of Exchange *How would you rate the information exchanged with Company ABC in terms of its:*						0.89	0.66
Relevancy to your business needs, compared to information exchanged with other similar partners?	ISqoe1	1.89	2.00	0.82	0.84		
Value-added to your business needs, compared to information exchanged with other similar partners?	ISqoe2	1.89	2.00	0.79	0.76		
Timeliness, compared to information exchanged with other similar partners?	ISqoe3	1.96	2.00	0.91	0.86		

Scale Item	Item Name	Mean	Median	Std. Dev.	Item Loading	Composite Reliability	Average Variance Extracted
Its completeness, compared to information exchanged with other similar partners?	ISqoe4	2.01	2.00	0.86	0.79		
Privileged Information Exchange *In our relationship with Company ABC*						0.86	0.62
We provide each other proprietary information if we feel it can help our business partner.	ISpie1	1.91	2.00	0.99	0.75		
We share confidential information if we feel it can help our business partner.	ISpie2	2.03	2.00	1.03	0.78		
We share information with each other that is not available from other sources.	ISpie3	1.99	2.00	0.95	0.76		
The information exchange helps us provide each other a unique perspective that neither of us could have developed on our own.	ISpie4	1.94	2.00	0.95	0.84		
Coordination Information Exchange *When performing processes that are inter-linked*						0.82	0.61
To what extent does your company and Company ABC exchange coordination information to synchronize your activities?	IScie1	1.97	2.00	0.86	0.81		
To what extent does your company and Company ABC exchange information to track each other's internal processes?	IScie2	2.18	2.00	0.97	0.75		
To what extent does your company and Company ABC exchange operational information (such as inventory levels, product availability, production volumes etc.)?	IScie3	2.06	2.00	0.94	0.78		

Scale Item	Item Name	Mean	Median	Std. Dev.	Item Loading	Composite Reliability	Average Variance Extracted
Information Sharing Second Order Construct (Malhotra et al., 2005)						0.87	0.63
Breadth of Exchange					0.73		
Quality of Exchange					0.92		
Privileged Information Exchange					0.71		
Coordination Information Exchange					0.81		
Enterprise Risk Management (Arnold et al., 2011) *Regarding risk management activities in Your Company:*						0.87	0.63
Our company performs a thorough enterprise-wide risk assessment at least once a year.	ERM1	1.80	2.00	0.89	0.64		
Our company is able to identity events that may affect the achievement of our objectives.	ERM2	1.82	2.00	0.88	0.75		
Our company regularly evaluates the effectiveness of internal controls for mitigating identified risks--management has effective processes to respond to identified risks	ERM3††	NA	NA	NA	NA		
Our risk management procedures provide the necessary information top management needs to monitor changes that could impact our company's well-being.	ERM4	1.84	2.00	0.88	0.86		
One focus of our ERM is the strength of our internal control system for risk identification.	ERM5	1.93	2.00	0.98	0.89		
Our company has a Chief Risk Officer.	ERM6††	NA	NA	NA	NA		
Global Business Risk *Considering B2B e-commerce capabilities, how would you rate Company ABC's*						0.91	0.66
Understanding of the strategic nature of the B2B e-commerce relationship?	GBR1†	4.14	4.00	0.82	0.73		

Scale Item	Item Name	Mean	Median	Std. Dev.	Item Loading	Composite Reliability	Average Variance Extracted
Understanding of the benefits of the B2B e-commerce relationship?	GBR2†	4.24	4.00	0.78	0.86		
Reengineering of business processes to facilitate B2B e-commerce transaction requirements?	GBR3†	4.05	4.00	0.91	0.76		
Management of data, transmission security, and auditability?	GBR4†	4.17	4.00	0.81	0.86		
Ability to fulfill legal obligations initiated via B2B e-commerce transactions?	GBR5†	4.19	4.00	0.82	0.85		
Trust (McKnight et al., 2002; Nicolaou and McKnight, 2006) *Regarding Company ABC:*						0.95	0.71
I believe that Company ABC would act in my best interest.	T1	2.05	2.00	1.06	0.89		
If I required help, Company ABC would do its best to help me.	T2	1.95	2.00	0.96	0.80		
Company ABC is interested in my well-being, not just its own.	T3	2.08	2.00	1.06	0.82		
Company ABC is truthful in its dealings with me.	T4	1.91	2.00	0.99	0.91		
I would characterize Company ABC as honest.	T5	1.89	2.00	0.94	0.85		
Company ABC would keep its commitments.	T6	1.90	2.00	0.93	0.79		
Company ABC is sincere and genuine.	T7	1.94	2.00	0.98	0.85		

† Reverse Coded
†† Dropped

Power (2007: p. 67) notes that ERM should not be assumed to be representative of some explicitly coherent set of practices, but rather ERM "represents a mixed bag of

reformist, organizing sensibilities in the name of risk." ERM is fundamentally about the governance of risk metrics as these mechanisms have evolved (p. 76). The global identification and recognition of the COSO Framework (COSO, 2004) provides a framework for delineating the confines of ERM, defining it as a process that requires senior management direction, extends across the whole organization , and signifies a new organizational consciousness of 'risk appetite' and assurance (Power, 2007: p. 78). In an effort to measure ERM across its more globally accepted strategic objectives, we adapted the ERM global strategic benefits measures developed in Arnold et al. (2011). Arnold et al. describe the measures as being reflective of ERM activities typically found in organizations that are actively engaged in strategically addressing opportunities and the associated risks at the enterprise level. The instrument is designed to measure the firm's own ERM proficiency.

Existing instruments for measuring business risk as conceptualized for our research purposes could not be found. As a result, a multi-item measure consisting of questions reflective of the overall business risk associated with an alliance partner's strategic B2B e-commerce capabilities were designed specifically for this research study. Based on prior research (Khanzanchi and Sutton, 2001; Nicolaou and McKnight, 2006; Sutton et al., 2008), five aspects of B2B e-commerce risk—strategic nature, understanding benefits, reengineering business processes, management of data processes, and obligation fulfillment—are identified. These five categories of business risk are designed to capture the key facets of B2B e-commerce alliances necessary for current and future success that are applicable across a wide range of B2B e-commerce instantiations.

The items used to measure trust in this study were previously developed and

validated by McKnight et al. (2002) and further tested by Nicolaou and McKnight (2006). These measures incorporate general trust in a supply chain partner in addition to trust issues distinct to B2B e-commerce based alliances. Thus, the trust scale captures generalized trust beliefs that may impact specific trust issues associated with supply chain alliances.

Mahama (2006) defines information sharing as the willingness of alliance partners to exchange important, possibly proprietary, information about their relationship among supply chain members. Malhotra et al. (2005) identified four critical dimensions of information sharing; these dimensions include the breadth, quality, privileged nature, and coordination of the information exchanged. Breadth in the exchange between supply chain partners represents the diverse nature of the information exchanged, while quality is a measure of the value of the information exchanged. Another dimension of information sharing, the privileged nature of the exchange, is the extent to which supply chain partners share confidential information. The fourth dimension, coordination, represents the extent to which supply chain partners synchronize their processes. Each dimension is captured in the current study using questions previously validated by Malhotra el al. (2005). The four dimensions are combined to form a second order construct of information sharing.

Scale items with their corresponding means, medians, standard deviations, and factor loadings are presented in Table 4.2. Scale items for the latent constructs, ERM (Arnold et al., 2011), trust (Nicolaou and McKnight, 2006), and information sharing (Malhotra et al., 2005) are adapted from measures used in prior research studies. Business risk scale items are developed for this study based on Sutton et al. (2008). ERM scale

item ERM3 inadvertently combined what should have been two separate item measures on the survey. This item is not included in the remaining analysis.[5] For analysis purposes, responses coded "no basis for answering" were treated as missing values. Initial analysis of scale item data values indicates excessive missing values for ERM scale item ERM6. This item is not included in the remaining analysis. Since the remaining missing data appear to be completely at random (chi-square = 35.34, df = 39, p-value = 0.638), EM (SPSS 15.0, 2006) was used for imputation of these data; EM has the least amount of bias for random missing data (Hair et al., 2010).

Measurement and Structural Model Results

The validity of the measurement model constructs as well as the overall measurement model fit is assessed prior to testing the structural model (Hair et al., 2010). The measurement model is estimated using a two-step approach. Step one uses confirmatory factor analysis to assess the convergent and discriminant validity of the four information sharing first order constructs. As previously noted, information sharing is a second order construct comprised of four first-order constructs: breadth of exchange, quality of exchange, privileged information exchange, and coordination of information exchange. As shown in Table 4.2, each of the item measures of the four first order constructs has a standardized factor loading greater than 0.70. The composite construct reliability of the first order constructs is greater than the recommended 0.70, and the related average variance extracted is greater than 0.50 supporting the convergent validity of the constructs. The first order constructs were then used as measures of the second

[5] The data were analyzed with and without item ERM3 and excluding the item did not materially impact the study results. Excluding the item was deemed most appropriate as the item, as presented to the participants, was confounded.

order information sharing construct (Hair et al., 2010). As shown in Table 4.3 Panel A, the average variance extracted for each of the four first-order constructs is greater than the related squared inter-construct correlations providing evidence that these constructs are unique and distinct (Hair et al., 2010). The maximum inter-construct correlation of 0.73, between quality of exchange and coordination information exchange, is below the standard threshold of 0.85, which also supports construct discriminant validity (Kline, 2005). Indices used to assess the overall fit of this portion of the measurement model include the chi-square statistic (X^2 = 198.55, df = 106, p = 0.00), the root mean squared error of approximation (RMSEA = 0.07), the Tucker Lewis Index (TLI = 0.94), and the comparative fit index (CFI = 0.96). These results (not tabulated) suggest an overall acceptable fit for this portion of the measurement model (Hair et al., 2010).

Table 4.3: Tests of Discriminant Validity

Panel A: First Order Constructs

	Quality of Exchange	Breath of Exchange	Privileged Information Exchange	Coordination Information Exchange
Average Variance Extracted	0.66	0.60	0.62	0.61
Squared inter-construct correlations				
Quality of Exchange	1.00			
Breath of Exchange	0.39	1.00		
Privileged Information Exchange	0.31	0.50	1.00	
Coordination Information Exchange	0.54	0.44	0.44	1.00

Panel B: Research Model Constructs

	Business Risk	Information Sharing	Enterprise Risk Management	Trust
Average Variance Extracted	0.66	0.63	0.63	0.71
Squared inter-construct correlations				
Business Risk	1.00			
Information Sharing	0.49	1.00		
Enterprise Risk Management	0.30	0.46	1.00	
Trust	0.43	0.50	0.30	1.00

In step two, confirmatory factor analysis is used to assess convergent and discriminate validity of the four measurement model constructs (ERM, business risk, trust, and information sharing). As shown in Table 4.2, each of the item measures of the measurement model constructs has a standardized factor loading greater than 0.70 with the exception of ERM, which has one factor (ERM1) with a factor loading of 0.64. However, the ERM composite construct reliability (0.87) exceeds the recommended 0.70, and average variance extracted (0.63) exceeds the recommended 0.50. Accordingly, ERM1 is retained as a measure of ERM. In addition, the composite construct reliability and average variance extracted of business risk, information sharing, and trust all exceed the recommended 0.70 and 0.50 respectively. These results support the convergent

validity of the constructs used in the measurement model (Fornell and Larcker, 1981). As shown in Table 4.3 Panel B, the average variance extracted for each of the measurement model constructs is greater than the related squared inter-construct correlations providing evidence that these constructs are unique and distinct (Hair et al., 2010). The maximum inter-construct correlation of 0.71, between trust and information sharing, is below the standard threshold of 0.85, which also supports construct discriminant validity (Kline, 2005). Indices used to assess the overall fit of the measurement model include the chi-square statistic (X^2 = 835.49, df = 469, $p < .001$), the root mean squared error of approximation (RMSEA = 0.06), the Tucker Lewis Index (TLI = 0.91), and the comparative fit index (CFI = 0.92). These results (not tabulated) suggest overall acceptable measurement model fit (Hair et al., 2010).

Misleading results stemming from common method bias are always a concern when a single source of survey data is used to measure attitudes and beliefs (Bagozzi and Yi, 1990; Bamber and Iyer, 2002; Podsakoff et al., 2003). One strategy is to use multiple respondents; however, to reduce potential social desirability bias and obtain candid responses from senior management regarding their transnational alliances, we opted to assure anonymity to all respondents (Podsakoff et al., 2003). Thus, we use a common method factor to test for the existence of a common method bias. A first-order common factor latent variable was added to the research model, and all of the research model indicators were used as indicators of this common factor latent variable (Podsakoff et al., 2003). As shown in Table 4.4, when the common method factor is included in the model, all of the factor loadings for the research model remain significant, while the common method factor loadings are not significant ($p < .05$). The average variance explained by

the research model constructs is 63 percent while the common method factor explains an average of 2 percent of the variance. These results suggest that common method bias is not a concern for the current study results (Podsakoff et al., 2003; Liang et al., 2007).

Table 4.4: Common Method Bias

Construct	Indicator	Research Model Factor Loadings (R)	Research Model R^2	Common Method Factor Loadings (R)	Common Method R^2
Information Sharing	ISboe1	0.74***	0.54	0.00	0.04
	ISboe2	0.84***	0.71	-0.08	0.02
	ISboe2	0.74***	0.55	-0.08	0.00
	ISboe4	0.78***	0.60	0.07	0.00
	ISboe5	0.74***	0.54	0.22	0.00
	ISboe6	0.80***	0.64	0.02	0.00
	ISqoe1	0.79***	0.62	-0.21	0.04
	ISqoe2	0.77***	0.60	-0.14	0.02
	ISqoe3	0.81***	0.65	-0.06	0.00
	ISqoe4	0.82***	0.67	-0.01	0.00
	ISpie1	0.72***	0.52	-0.03	0.00
	ISpie2	0.76***	0.58	-0.06	0.00
	ISpie3	0.77***	0.59	-0.00	0.00
	ISpie4	0.86***	0.74	0.04	0.00
	IScie1	0.77***	0.59	-0.05	0.00
	IScie2	0.75***	0.57	-0.11	0.01
	IScie3	0.75***	0.57	-0.10	0.01
Enterprise Risk Management	ERM1	0.64***	0.41	-0.10	0.01
	ERM2	0.75***	0.56	-0.10	0.01
	ERM4	0.87***	0.75	0.05	0.00
	ERM5	0.89***	0.79	0.00	0.00
Business Risk	GBR1	0.76***	0.58	0.24	0.06
	GBR2	0.80***	0.64	0.37	0.14
	GBR3	0.78***	0.61	0.02	0.00
	GBR4	0.83***	0.69	-0.33	0.11
	GBR5	0.80***	0.64	-0.31	0.09
Trust	T1	0.87***	0.75	-0.05	0.00
	T2	0.82***	0.67	-0.17	0.03

Construct	Indicator	Research Model Factor Loadings (R)	Research Model R^2	Common Method Factor Loadings (R)	Common Method R^2
	T3	0.85***	0.73	-0.20	0.04
	T4	0.83***	0.69	-0.08	0.01
	T5	0.80***	0.64	-0.03	0.00
	T6	0.82***	0.67	-0.07	0.00
	T7	0.84***	0.71	-0.02	0.00
Average		**0.79**	**0.63**	**-0.04**	**0.02**

***p < .001

The research model, presented in Figure 4.1, is tested using covariance based structural equation modeling (SEM) (Amos 16.0, 2007). As shown in Figure 4.2, indices used to assess the goodness of fit of the structural model include the chi-square statistic (X^2 = 804.51, df = 474, p < .001), the root mean squared error of approximation (RMSEA = 0.06), the Tucker Lewis Index (TLI = 0.92), and the comparative fit index (CFI = 0.93). These results suggest an overall good fit of the structural model (Hair et al, 2010). All hypothesized relationships are significant in the predicted direction at a minimum of p < .01. As indicated by an R^2 of 0.74, enterprise risk management, trust, and business risk explain 74 percent of the variance in information sharing.

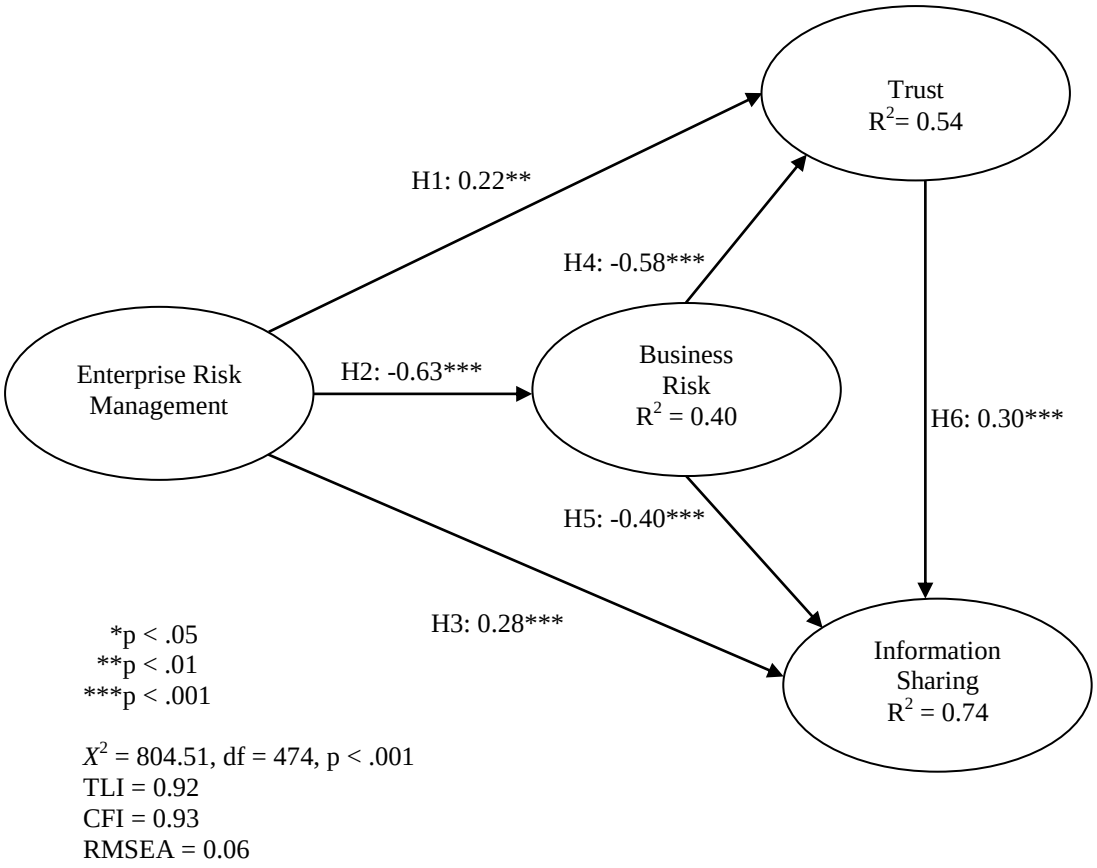

Figure 4.2: Structural Model

HYPOTHESIS 1 predicts that an organization's ERM proficiency is associated with the level of trust in the alliance partner. The model results indicate a significant ($p < .01$) positive association (0.22); that is, higher levels of ERM are associated with higher levels of trust in the alliance partner. The positive relationship between ERM and trust suggests that the enhanced levels of identification, evaluation, and monitoring of alliance partners provide a better understanding of alliance partner capabilities and motives, and result in a higher level of trustworthiness for the alliance partners in which the organization maintains relationships.

The effects of an organization's ERM on the alliance partner's business risk are addressed by HYPOTHESIS 2. As predicted, higher levels of ERM are associated with lower levels of alliance partner business risk (-0.63, $p < .001$). In addition, ERM accounts for 40 percent of the variation in business risk. The negative relationship between ERM and business risk suggests that holistically focused ERM processes may lower organizational perceptions of unique risk associated with alliance partners.

The relationship between ERM and information sharing with a supply chain partner is addressed in HYPOTHESIS 3. Specifically, HYPOTHESIS 3 predicts that stronger ERM will be associated with greater information sharing with alliance partners. Consistent with predictions, a positive (0.28) and significant ($p < .001$) relationship exists between ERM and information sharing with an alliance partner.

HYPOTHESIS 4 posits a negative relationship between alliance partners' business risk and levels of trust in those partners. The results indicate a significant ($p < .001$), negative (-0.58) association between business risk and trust. In combination, the strength of an organization's ERM and the level of business risk associated with an alliance partner explains 54 percent of the variation in trust. These results suggest that a large part of trust in an alliance partner is a function of both the holistic risk processes incorporated within ERM and the unique business risks of that partner.

HYPOTHESIS 5 predicts that as business risk associated with an alliance partner decreases, information sharing with the partner will increase. The hypothesized relationship is supported. A negative (-0.40) and significant ($p < .001$) association exists between alliance partner business risk and information sharing.

The final hypothesis posits that higher levels of trust in a supply chain partner will be positively associated with higher levels of information sharing with that alliance partner. As predicted by HYPOTHESIS 6, a positive (0.30) and significant ($p < .001$) association exists between trust in an alliance partner and information sharing with that partner. As previously noted, ERM, trust, and business risk explain 74 percent of the variation in information sharing. These findings suggest organizations consider both the global risks identified by ERM processes and unique alliance partner factors incorporated within trust and business risk, when determining the breadth, depth, coordination, and quality of information to be shared.

Supplemental Analysis

The results of model estimation and testing indicate strong support for the research model developed in this paper. However, given the conflicting views on the relationship between business risk associated with an alliance relationship and trust of that alliance partner, tests of competing models were deemed appropriate. The ERM view of transnational alliances, as modeled in Figure 4.1, predicts that business risk is the primary concern, and evidence on risk must be gathered before trust develops (Power, 2007: p. 39). The traditional MCS view has been shaped by transaction cost economics and/or resource based views of the firm. This view generally suggests that trust is used to mitigate business risk (i.e., trust influences risk) (see Langfield-Smith, 2008). Because theoretical and empirical support exists for the relationship between risk and trust to be reversed from our conceptualization and recognizing the importance and active nature of this debate, two alternative models are compared to the research model. X^2 difference tests are used to evaluate the competing models (Hair et al., 2010).

The first alternative model, presented in Figure 4.3, modifies the relationship between business risk and trust to emanate from trust to business risk. The relationship between ERM and trust is also removed as ERM would no longer be expected to impact trust. The results of the re-estimation are presented in Figure 4.3. X^2 for the first alternative model is 866.65 (df = 475) and the increase in X^2 is 62.14 (df = 1), which is significant ($p < .001$). Thus, the research model is a better fit than the first alternative model. Similar to alternative model 1, the second alternative model, shown in Figure 4.4, depicts the relationship between business risk and trust as emanating from trust to business risk; in addition, this alternative removes the relationships between ERM and trust, business risk and information sharing. X^2 for the second alternative model is 904.96 (df = 477) When the second alternative is compared with the research model, the increase in X^2 of 101.45 (df = 3) is significant ($p < .001$). Again, the research model is a better fit than the alternative. In addition, the research model explains more of the variance in information sharing ($R^2 = 0.74$) than either alternative model (Figure 4.3 $R^2 = 0.68$ and Figure 4.4 $R^2 = 0.69$).

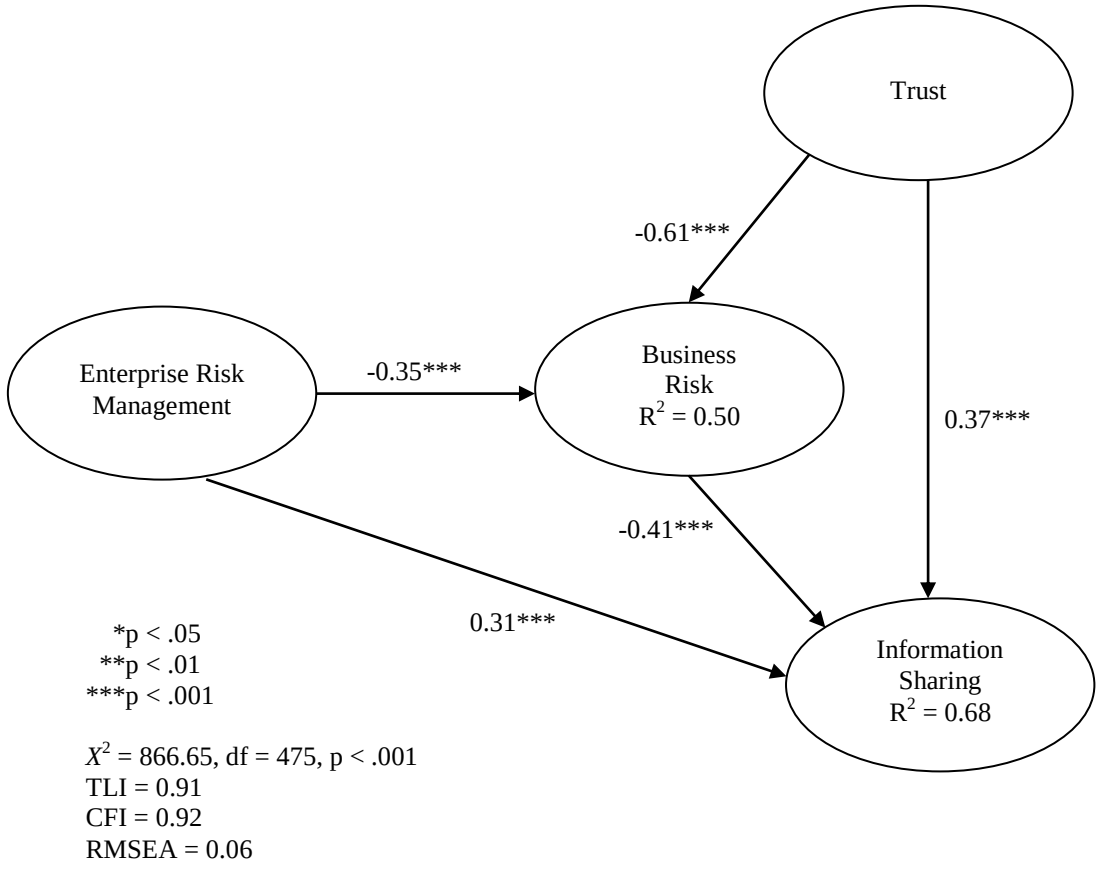

Figure 4.3: Alternate 1 Structural Model

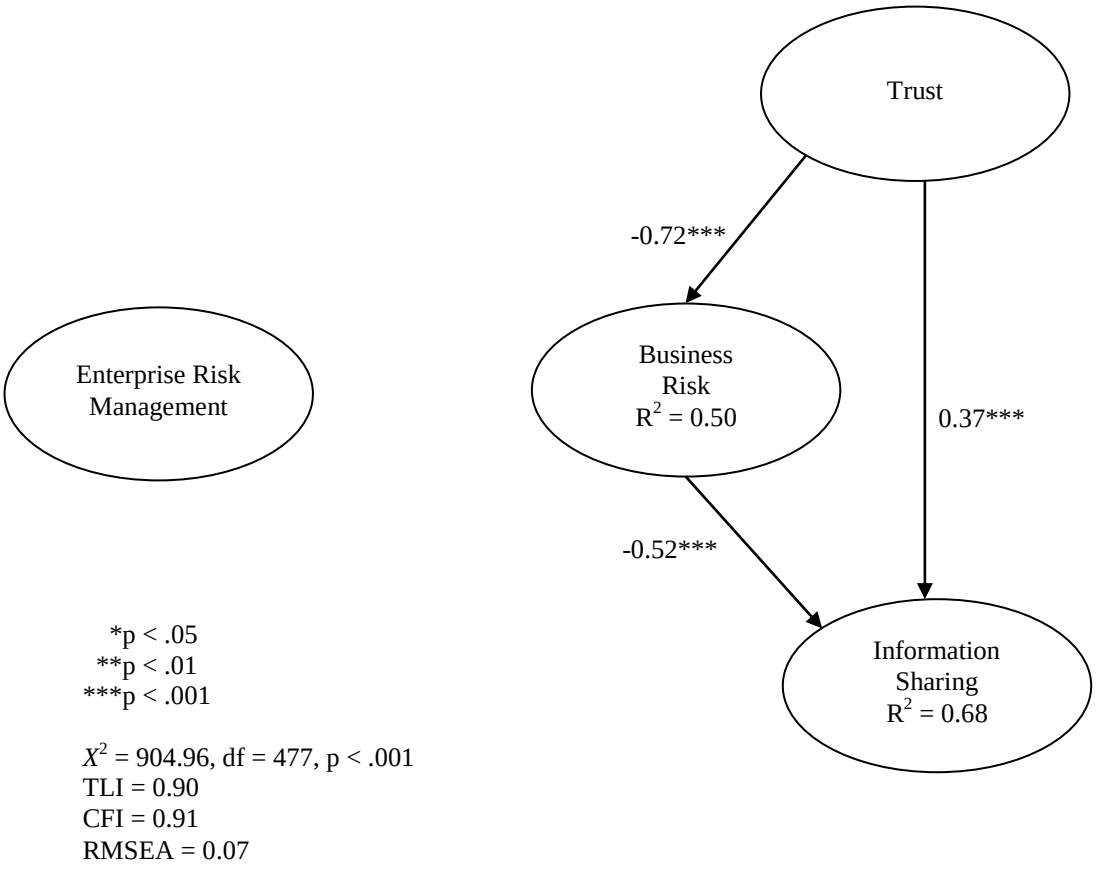

Figure 4.4: Alternate 2 Structural Model

Discussion

In this study, we examine key factors affecting information sharing in transnational alliances. The focus is specifically on the effects of risk and trust and the overarching influence of the organizations' strategic ERM and its effect on partner risk and trust, and in turn on information sharing with the alliance partner. The conceptual model underlying the research is based on Power's (2007: p. 66) conceptualization of ERM as a representation of organizational governance that transcends country specific

governance practices and creates a "global governance structure" to meet the needs and demands of transnational organizations. Power (2007: p. 186) posits that ERM has developed as a response to the desire of firms and their stakeholders for organized uncertainty that has rapidly emerged in today's risk management oriented society. The result is that risk analysis and risk management, as key tools supporting ERM, have become the central concerns in the strategic management of internal and external firm operations and relationships. One critical by-product of the rapid emergence of ERM as an overriding dominant corporate strategy is that trust, which has served as the organizing principle for facilitating relationships between diverse firms, is being supplanted as the enabling force in such relationships by a focus on risk analysis and risk mitigation. ERM driven organizations now react to demands for trust with demands for evidence on risk minimization to support the establishment of trust (Power, 2007: p. 39). Actual trust develops only when business risk can be reduced to levels acceptable for establishing trust levels.

This study presents a conceptual model for understanding the interrelationships of ERM, risk, and trust in influencing information sharing with alliance partners. The research model specifically addresses recent calls by researchers to recognize the shifting organizational focus where risk management, governance, MCS, and trust work together to reduce risk and optimize interorganizational relationships (Langfield-Smith, 2008; Bhimani, 2009). The results of the study are strong and support the model. Consistent with recent strategic views espoused on ERM, the results show that ERM has an overarching effect on the interorganizational relationship, as stronger ERM is associated with decreased risk, increased trust, and increased information sharing in transnational

alliances. This impact on increased information sharing is particularly critical given that research suggests that successful alliances generally include high levels of information sharing that facilitate strategic reaction and innovation by supply chains as a whole (Buhman et al., 2005; McEvily and Marcus, 2005; Cousins et al., 2006; Dekker, 2008).

The research also highlights a shift in the relationship between trust and risk. Traditionally, this relationship has been viewed as trust is formed to reduce risk (see Langfield-Smith and Smith, 2003; Power, 2007: p. 39). Other researchers have often questioned this relationship with the belief that risk should always be a critical concern within itself (e.g., Das and Teng, 2001; Tomkins, 2001). Power (2007: p. 39) posits that in an ERM focused environment, risk analysis is a necessary precursor to the development of trust. Our research model and results provide strong support for this conceptualization.

Several limitations to the study should be considered when assessing the research findings. First, our sample was drawn from individuals in North American firms managing transnational alliances. Thus, while our study examines the effects of ERM within transnational alliances, the emphasis on ERM could potentially be biased if there are either stronger or weaker sentiments about ERM among North American firms versus other regions of the globe. Power (2007: p. 66) notes that the ERM movement is a global phenomenon, but the impact of mandatory reporting on internal controls for most North American firms could influence their views. Further examination of the phenomena reported in this study among firms in other global regions could extend the external validity. Second, we use a survey method to collect the data; survey data captures perception data as opposed to observable or archival data. However, for the phenomena

of interest in this study, perceived risk, trust, and information sharing are the variables of interest; and, as such, the method applied is the most appropriate for this research. Future research using alternative data sources could further extend our understanding of the dynamics surrounding alliance relationships.

Overall, the research provides several contributions to the MCS literature on transnational alliances and the underlying drivers of information sharing in these alliances. By integrating an ERM effect into the MCS research on the relationship between risk, trust, and information sharing, we are able to demonstrate the effects of the rapidly emerging ERM movement in strategic management on the nature of MCS in transnational alliances. Additional sensitivity tests support the ERM-based theoretical model as opposed to traditional views that trust is the first line of control. Identification of this ERM and risk mitigation focus suggests future research should further examine the ERM phenomena. This study provides an initial lens into the critical role of ERM and risk mitigation on the rapidly developing global networks of firms. Much about the ERM movement and the effect on interorganizational relationships is still unknown. There is great opportunity to enhance our understanding of the emerging world of global supply chains and influence their development and viability.

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GENERAL CONCLUSIONS

The nature and form of organizational competition is changing. Faced with increasingly global and hypercompetitive markets, organizations are abandoning traditional hierarchical structures, characterized by monolithic control of resources, in favor of interorganizational relationships that offer mutual benefits to the organization and its partners. Competition is now focused on extended interorganizational networks competing against other extended interorganizational networks to achieve sustainable competitive advantage. Within these networks, an individual organization's success or failure is tied to the advantages and disadvantages of the network of relationships in which it is embedded (Hunt, 2000; Sutton et al., 2008; Dyer and Singh, 1998). Relationship participants are no longer focused on short-term gains, but instead concentrate on the development of long-term partnerships capable of producing interorganizational resources that are unique to the relationship, difficult to imitate, non-substitutable, and rare (Barney, 1991; Dyer and Singh, 1998). These resources allow the achievement of sustainable competitive advantage for all relationship partners.

Information technology is a critical facilitator of interorganizational relationships. Fueled in large part by the emergence of the Internet as a cost effective and reliable means of information exchange, advances in information technology allow the integration of separate and unique organizational information systems. These

interorganizational information systems facilitate communication between relational partners and enable the development of interorganizational resources.

B2B e-commerce trading partnerships represent one form of interorganizational relationship. Initially implemented to reduce transactions costs along the supply chain, speed ordering and fulfillment processes, and allow JIT inventory management, B2B e-commerce exchanges have transformed from transactional exchanges to trading partnerships capable of creating sustainable competitive advantage through the development of interorganizational resources. While these trading partnerships provide numerous advantages, the high level of information system integration necessary to enable resource development also exposes organizations and their trading partners to risk.

Each of the three studies presented in this dissertation provides a unique but interrelated examination of the factors that enhance and diminish interorganizational relationships within the context of B2B e-commerce trading partnerships. Together, the studies provide an integrated sequence proceeding from a high-level perspective to a detailed view of the factors that affect trading partnerships, the subsequent development and growth of interorganizational resources, and ultimately, the achievement of sustainable competitive advantage. Interwoven throughout these studies are the concepts of organizational trust in the trading partner and trading partner B2B e-commerce risk. Trust and risk serve as the focal points for the collection of positive and negative influences on interorganizational relationships. These positive and negative influences contribute to the formation and development of trust and risk. In turn, trust and risk influence the relationship and its ability to achieve sustainable competitive advantage.

The first study examines the countervailing effects of trust and risk on relationship satisfaction. Absent satisfaction with the relationship, organizations and their trading partners have little incentive to invest the time, effort, and resources necessary to transform from transactional B2B e-commerce exchanges to interorganizational trading partnerships capable of developing the resources necessary to ensure sustainable competitive advantage (Geykens et al., 1999). Consistent with predictions, the findings of the first study indicate that trust and the antecedents to trust, exert a strong positive influence on satisfaction; however, risk offsets this positive influence and degrades satisfaction. Thus, risk and trust represent opposing forces on the formation of relationship satisfaction. Given these opposing forces and the importance of relationship satisfaction to the evolution of the trading partnership, information that confirms or disproves risk and trust perceptions is of value to organizations.

Building on the results of study one, the second study investigates the desire for assurance over a trading partner's B2B e-commerce systems. While organizations can outsource their business processes, they cannot outsource the risks resulting from the high level of B2B e-commerce system and business process integration necessary to leverage sustainable competitive advantage from trading partnerships (Ernst & Young, 2004). Assurance over a trading partner's B2B e-commerce systems offers organizations a means to evaluate existing perceptions of trust and risk. The results of study two indicate organizations desire information (in the form of assurance over a trading partner's B2B e-commerce systems) on the appropriateness of existing trust and risk perceptions. Ultimately, whether these existing perceptions are validated or refuted can guide organizational efforts to control risk and increase trust.

How organizations evaluate and control trading partner B2B e-commerce risk is examined in study three. Specifically, study three investigates the effects of enterprise risk management (ERM) practices and procedures on risk and trust within the trading partnership. An emerging view within the management control systems literature suggests organizations are increasingly focused on the interactions between risk management, governance, management control systems, and trust. Of critical importance is how these processes work together to reduce risk and enable the achievement of sustainable competitive advantage (Langfield-Smith, 2008; Bhimani, 2009). The results of the third study demonstrate that ERM decreases risk. Decreased risk is associated with increased trust. In turn, decreased risk and increased trust are found to enhance information sharing, a critical interorganizational resource necessary for the achievement of sustainable competitive advantage.

Considering the results of the three studies as a unified whole suggests that trust and risk exist and influence all aspects of the trading partnership; however, whether these effects are positive, negative, reinforcing, opposing, or some combination of these forces depends on the level of analysis and the outcome examined. As depicted in Figure 5.1, at the highest level, trust and risk exert unique, distinct, and opposing influences on relationship satisfaction. Thus, the effects of risk and trust on the development of interorganizational resources and the achievement of sustainable competitive advantage depend on their relative levels and strengths.

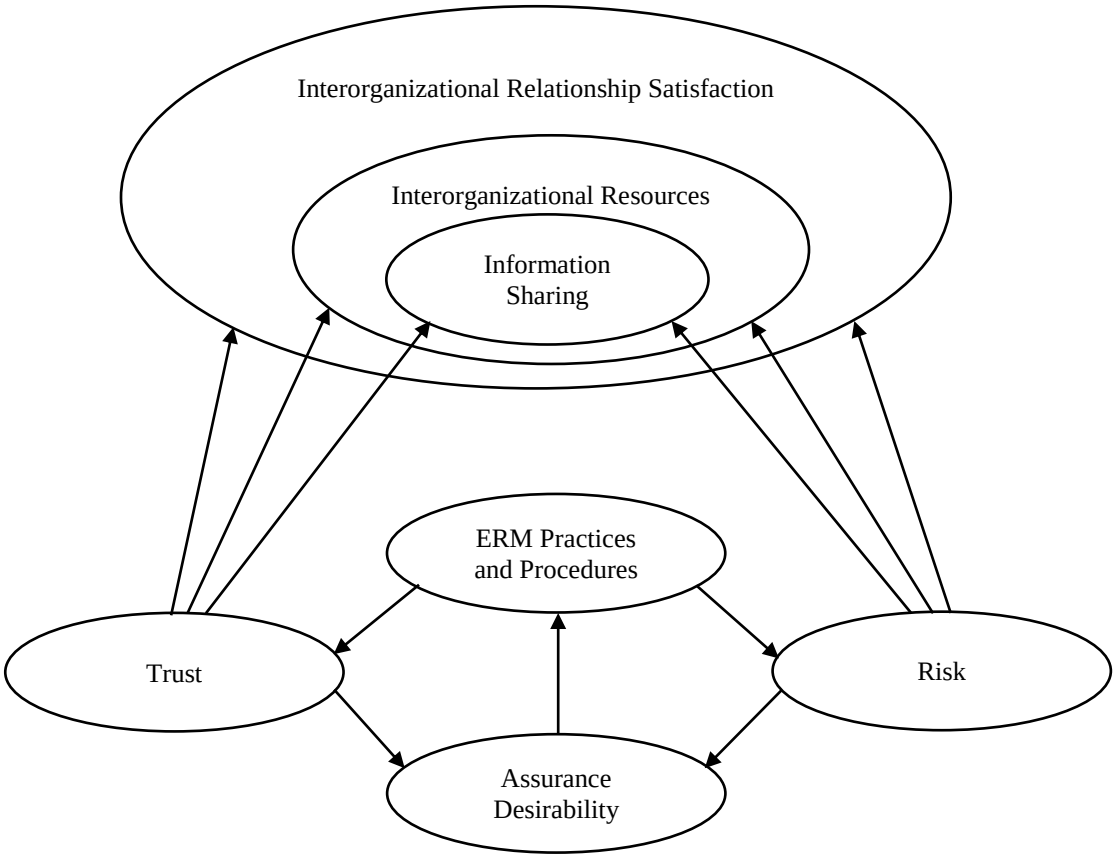

Figure 5.1: Unified Model

Absent information on the accuracy of existing trust and risk perceptions, trading partners operate in a void where continued development of interorganizational resources, and the competitive advantages they enable, may slow or halt. The existence of risk and the need to verify trust beliefs drives the desire for information in the form of assurance over B2B e-commerce systems. At this secondary level, trust and risk are mutually reinforcing with respect to assurance desirability. Thus, the assurance function provides

critical information on the current state of the trading partnership and influences future actions by trading partners.

At the final level examined in this dissertation, the information provided from assurance services guides the implementation of enterprise risk management (ERM) practices and procedures. At this level risk and trust interact. The reduction of risk directly increases information sharing and trust. In turn, increased trust directly and positively influences information sharing. Information sharing is a foundational component of the interorganizational resources necessary to achieve sustainable competitive advantage.

While the model depicted in Figure 5.1 suggests that information provided from assurance services guides ERM practices and procedures, future research could evaluate organizational propensity to use ERM as a substitute for assurance over B2B e-commerce systems. Under this scenario, organizations would rely on their ERM practices and procedures to identify, evaluate, and guide future governance policies and procedures intended to reduce risk and validate trust beliefs. Conversely, assurance services could be incorporated within organizational ERM practices and procedures. Under this scenario, assurance services become an integral component of ERM necessary to provide information on current risk and trust perceptions.

As ERM both increases trust and decreases risk, the effects on relationship satisfaction should be positive. However, generalizations concerning the impact of ERM on relationship satisfaction require caution. ERM is frequently associated with the implementation of controls over trading partner actions and trading relationship interactions. These controls, while reducing risk, may also erode effective governance

processes by formalizing expected behavioral norms. As discussed in study one, the diminishment of effective governance processes can erode trust, a positive influence on relationship satisfaction. Declining levels of relationship satisfaction impede the development of interorganizational resources necessary to achieve sustainable competitive advantage. Thus, the effect of ERM practices and procedures on relationship satisfaction remains a topic for future research.

Taken together, the studies make contributions to the accounting information systems, management control systems, and interorganizational relationship research streams. First, all three studies address the call by researchers to acknowledge and consider the critical role of information technology in interorganizational relationships (Cuganesan and Lee, 2006; Granland, 2011). Information technology is the facilitating mechanism through which relationships are formed, develop, grow, and ultimately, prosper or decline. As such, relationships cannot be studied apart from their underlying technology infrastructure (Dechow and Mouritsen, 2005). The results of these studies suggest a number of future research opportunities for examining the impact of information technology on relationships. For example, the results of study three, which examined transnational interorganizational relationships, suggest that culture does not impact the relationships between enterprise risk management (ERM) practices, risk, trust, and information sharing within transnational relationships. Future research could examine the role of information technology in dampening previously established cultural differences such as uncertainty avoidance and individualism versus collectivism (Hofstede et al., 2010).

An emerging view within the management control systems literature suggests the need to consider the interactive nature of risk, trust, and control on relationships (Langfield-Smith, 2008; Bhimani, 2009). The three studies in this dissertation contribute to this emerging view by examining the interactions between trust, risk, assurance desirability, and ERM practices and procedures. Overall, the results suggest that within the context of modern interorganizational relationships, trust, although still critical, is no longer sufficient to facilitate relationships. Instead, organizations demand evidence of risk mitigation and control to support trusting beliefs. In addition, the results suggest even within relationships characterized by high levels of trust, the desire for assurance and validation that trust is well placed exists. Future research could investigate how assurance services from different providers (e.g., internal audit, information systems auditors, or external auditors) will impact the development of interorganizational resources and relationships. With respect to risk identification, mitigation and control, future research could evaluate the effects of different control strategies, such as key performance indicators, on the enhancement or diminishment of relationships (Mahama and Chua, 2011).

The potential positive influences on relationships have received much attention (Palmatier et al., 2006) within interorganizational research. However, the negative influences are only recently emerging as a topic of interest within interorganizational (Das and Teng, 2001) and management control systems research (Dekker, 2008). The studies presented in this dissertation contribute to this growing topic of interest by examining the countervailing effects of trust and risk on relationships. While these results indicate risk has a significant detrimental effect on relationships, future research could

identify and evaluate the effects of other negative influences on interorganizational relationships.

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APPENDIX A
IRB APPROVAL FORMS

Study One: IRB Approval Form

Study Two: IRB Approval Form

University of Central Florida

Office of Research & Commercialization

May 3, 2007

Steve Sutton, Ph.D.
Vicky Arnold, Ph.D.
Clark Hampton
University of Central Florida
Dixon School of Accounting
BA 436
Orlando, FL 32816-1400

Dear Drs. Sutton & Arnold and Mr. Hampton:

The University of Central Florida's Institutional Review Board (IRB) received your protocol IRB #07-4440 entitled, "Enterprise Risk Management: Identifying Risks in Business-to-Business Electronic Commerce Relationships." The IRB Chair reviewed the study on 5/3/2007 and did not have any concerns with the proposed project. The Chair has indicated that under federal regulations (Category #2, research involving the use of educational tests, survey or interview procedures, or the observation of public behavior, so long as confidentiality is maintained) this research is **exempt** from further review by our IRB, so an approval is not applicable and a renewal within one year is not required.

Please accept our best wishes for the success of your endeavors. Should you have any questions, please do not hesitate to call me at 407-823-2901.

Cordially,

Joanne Muratori

Joanne Muratori
(FWA00000351 Exp. 5/13/07, IRB00001138)

Copies: IRB File

JM:jt

12201 Research Parkway • Suite 501 • Orlando, FL 32826-3246 • 407-823-3778 • Fax 407-823-3299

An Equal Opportunity and Affirmative Action Institution

THE UNIVERSITY OF CENTRAL FLORIDA
INSTITUTIONAL REVIEW BOARD (IRB)

IRB Committee Approval Form

#07-4440

PRINCIPAL INVESTIGATOR(S): Steve Sutton, Ph.D., Vicky Arnold, Clark Hampton

PROJECT TITLE: Enterprise Risk Management: Identifying Risks in Business-to-Business Electronic Commerce Relationships

[ ] New project submission
[ ] Continuing review of lapsed project #
[ ] Study expires
[X] Resubmission of lapsed project #3074
[ ] Continuing review of #
[ ] Initial submission was approved by expedited review
[ ] Initial submission was approved by full board review but continuing review can be expedited
[ ] Suspension of enrollment email sent to PI, entered on spreadsheet, administration notified _____

Chair
[ ] Expedited Approval

Dated: _____
Cite how qualifies for expedited review: minimal risk and _____

[√] Exempt

Dated: 3/2/2017
Cite how qualifies for exempt status: minimal risk and #2

[ ] Expiration Date: _____

IRB Reviewers:

Signed: _____
Dr. Tracy Dietz, Chair

Signed: _____
Dr. Craig Van Slyke, Vice-Chair

Signed: _____
Dr. Sophia Dziegielewski, Vice-Chair

Complete reverse side of expedited or exempt form
[ ] Waiver of documentation of consent approved
[ ] Waiver of consent approved
[ ] Waiver of HIPAA Authorization approved

NOTES FROM IRB CHAIR (IF APPLICABLE): _____

Study Three: IRB Approval Form

University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901, 407-882-2012 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Notice of Expedited Initial Review and Approval

From : **UCF Institutional Review Board**
FWA00000351, Exp, 10/8/11, IRB00001138

To : **Tanya Benford** and Co-PIs: **Steven Sutton, Vicky J. Arnold**

Date : **March 10, 2009**

IRB Number: **SBE-09-06140**

Study Title: **Developing a theoretical understanding of transorganizational relationships**

Dear Researcher:

Your research protocol noted above was approved by **expedited** review by the UCF IRB Chair on 3/10/2009. **The expiration date is 3/9/2010.** Your study was determined to be minimal risk for human subjects and expeditable per federal regulations, 45 CFR 46.110. The category for which this study qualifies as expeditable research is as follows:

> 7. Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

The IRB has approved a **waiver of documentation of consent** for all subjects. Participants do not have to sign a consent form, but the IRB requires that you give participants a copy of the IRB-approved consent form, letter, information sheet. For online surveys, please advise participants to print out the consent document for their files.

All data, which may include signed consent form documents, must be retained in a locked file cabinet for a minimum of three years (six if HIPAA applies) past the completion of this research. Any links to the identification of participants should be maintained on a password-protected computer if electronic information is used. Additional requirements may be imposed by your funding agency, your department, or other entities. Access to data is limited to authorized individuals listed as key study personnel.

To continue this research beyond the expiration date, a Continuing Review Form must be submitted 2 – 4 weeks prior to the expiration date. Advise the IRB if you receive a subpoena for the release of this information, or if a breach of confidentiality occurs. Also report any unanticipated problems or serious adverse events (within 5 working days). Do not make changes to the protocol methodology or consent form before obtaining IRB approval. Changes can be submitted for IRB review using the Addendum/Modification Request Form. An Addendum/Modification Request Form **cannot** be used to extend the approval period of a study. All forms may be completed and submitted online at http://iris.research.ucf.edu .

Failure to provide a continuing review report could lead to study suspension, a loss of funding and/or publication possibilities, or reporting of noncompliance to sponsors or funding agencies. The IRB maintains the authority under 45 CFR 46.110(e) to observe or have a third party observe the consent process and the research.

On behalf of Tracy Dietz, Ph.D., UCF IRB Chair, this letter is signed by:

Signature applied by Joanne Muratori on 03/10/2009 04:22:32 PM EST

Joanne Muratori

IRB Coordinator

APPENDIX B
SURVEY INSTRUMENTS

Study One: Relationship Satisfaction Survey Instrument

Study Two: Assurance Desirability Survey Instrument

B2B E-COMMERCE CONTROL AND RISK ANALYSIS SURVEY

PART I: For purposes of the questions in this section, please identify a B2B e-commerce trading partner that you are most familiar with from your interactions when performing your job duties. This trading partner ideally will be an external entity to your organization, but if you are more comfortable it could be another division or business entity related to your organization.

1. Is this trading partner an:

- ☐ External entity
- ☐ Related entity

2. Please select a rating from "1" or "strongly disagree" to "7" or strongly agree that best describes your reaction to each statement listed below. If you have "No Basis for Judgment", please check N/A.

	1	2	3	4	5	6	7	N/A
Your organization's relationship is crucial to this trading partner's future performance	☐	☐	☐	☐	☐	☐	☐	☐
This trading partner is dependent on your organization	☐	☐	☐	☐	☐	☐	☐	☐
It would be difficult for this trading partner to replace the business generated from their relationship with your organization	☐	☐	☐	☐	☐	☐	☐	☐
Your organization expects the relationship with this trading partner to last a lifetime	☐	☐	☐	☐	☐	☐	☐	☐
Your organization assumes that renewal of agreements with this trading partner generally will occur	☐	☐	☐	☐	☐	☐	☐	☐
The relationship with this trading partner is essentially "evergreen" and will continue to be a good relationship	☐	☐	☐	☐	☐	☐	☐	☐
Your organization believes that over the long run the relationship with this trading partner will be profitable	☐	☐	☐	☐	☐	☐	☐	☐

Your organization focuses on long-term goals with this trading partner	☐	☐	☐	☐	☐	☐	☐	☐
Your organization is willing to make sacrifices to help this trading partner from time to time	☐	☐	☐	☐	☐	☐	☐	☐
Your organization promotes bilateral communication with this trading partner	☐	☐	☐	☐	☐	☐	☐	☐
Your organization applies consistent policies and decision making procedures with this trading partner	☐	☐	☐	☐	☐	☐	☐	☐
Your organization provides valid reasons for any changes in policies affecting this business partner	☐	☐	☐	☐	☐	☐	☐	☐
Deadlines set by this trading partner are honest and accurate	☐	☐	☐	☐	☐	☐	☐	☐
This trading partner is honest in business dealings	☐	☐	☐	☐	☐	☐	☐	☐
This trading partner is willing to share information	☐	☐	☐	☐	☐	☐	☐	☐
This trading partner adheres to agreements	☐	☐	☐	☐	☐	☐	☐	☐
This trading partner has always been evenhanded in their negotiations with your organization	☐	☐	☐	☐	☐	☐	☐	☐
This trading partner is competent in accurately and efficiently processing electronic transactions	☐	☐	☐	☐	☐	☐	☐	☐
The trading partner's computer systems are reliable	☐	☐	☐	☐	☐	☐	☐	☐
This trading partner is extremely knowledgeable about the potential of current B2B e-commerce IT	☐	☐	☐	☐	☐	☐	☐	☐
In relations with this trading partner, your organization always tries to cover everything with watertight contracts	☐	☐	☐	☐	☐	☐	☐	☐
Your organization wants to prevent becoming too dependent on one or a few large trading partners	☐	☐	☐	☐	☐	☐	☐	☐
In view of the nature of your industry it is best to proceed cautiously with B2B e-commerce, and not take too large steps	☐	☐	☐	☐	☐	☐	☐	☐
Your organization would desire a formal review by your internal audit department of this trading partner's B2B e-commerce risks	☐	☐	☐	☐	☐	☐	☐	☐

Your organization would find third party certification of this trading partner's B2B e-commerce risks advantageous	☐	☐	☐	☐	☐	☐	☐	☐
Your internal auditors would consider recommending to management that this trading partner be required to attain assurance over their B2B e-commerce related systems	☐	☐	☐	☐	☐	☐	☐	☐
Some of your organization's actions have a negative effect on this trading partner, but they cannot do anything to prevent it	☐	☐	☐	☐	☐	☐	☐	☐
Your organization, if it wanted to, has the capability to make things difficult for this trading partner	☐	☐	☐	☐	☐	☐	☐	☐
Your organization, if it wanted to, has the capability to tie this trading partner up in an expensive legal battle	☐	☐	☐	☐	☐	☐	☐	☐

3. Describe your organizations feelings with respect to the outcomes with this trading partner.

	1	2	3	4	5	6	7	N/A
Pleased versus Displeased ("1"= Very pleased; "7"= Very displeased; "N/A"=No Basis for Judgment)	☐	☐	☐	☐	☐	☐	☐	☐
Contented versus disgusted ("1"= Very contented; "7"= Very disgusted; "N/A"=No Basis for Judgment)	☐	☐	☐	☐	☐	☐	☐	☐
Disagreements ("1"= No disagreements; "7"= Many disagreements; "N/A"=No Basis for Judgment)	☐	☐	☐	☐	☐	☐	☐	☐

4. How fair are your organization's outcomes and earnings compared to the following?

Please select a rating from "1" or "extremely unfair" to "7" or "extremely fair" that best describes your feeling about your organization's outcomes and earnings compared to the following statements. If you have "No Basis for Judgment", please check N/A.

	1	2	3	4	5	6	7	N/A
The roles and responsibilities this trading partner	☐	☐	☐	☐	☐	☐	☐	☐

assigns to our organization.								
What other organizations in your industry receive from their trading partners.	☐	☐	☐	☐	☐	☐	☐	☐
What this trading partner earns from transactions associated with their relationship with your organization.	☐	☐	☐	☐	☐	☐	☐	☐

5. Describe the market for the product exchanged between your organization and this trading partner.

	1	2	3	4	5	6	7	N/A
Demand ("1" = Very unpredictable demand; "7" = Very predictable demand; "N/A" = No Basis for Judgment)	☐	☐	☐	☐	☐	☐	☐	☐
Sales Forecasts ("1" = Very inaccurate sales forecasts; "7" = Very accurate sales forecasts; "N/A" = No Basis for Judgment)	☐	☐	☐	☐	☐	☐	☐	☐
Industry Volume ("1" = Very stable industry volume; "7" = Very volatile industry volume; "N/A" = No Basis for Judgment)	☐	☐	☐	☐	☐	☐	☐	☐
Trends ("1" = Very easy to monitor trends; "7" = Very difficult to monitor trends; "N/A" = No Basis for Judgment)	☐	☐	☐	☐	☐	☐	☐	☐

6. Please select a rating from "1" or "no influence" to "7" or "very strong influence" that best describes your perception of the B2B e-commerce implementation process between your organization and this trading partner. If you have "No Basis for Judgment", please check N/A.

	1	2	3	4	5	6	7	N/A
To what extent did your organization influence your trading partner's decision to adopt B2B e-commerce (whether B2B is Internet or EDI-based)?	☐	☐	☐	☐	☐	☐	☐	☐

7. Please select a rating from "1" or "entirely your organization" to "7" or "entirely your trading partner" that best describes your perception of the primary force behind this trading partner's adoption of B2B e-commerce. If you have "No Basis for Judgment", please check N/A.

1	2	3	4	5	6	7

Which was the primary force behind your trading partner's adoption of B2B e-commerce?

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B2B E-COMMERCE CONTROL AND RISK ANALYSIS SURVEY

Part II: B2B Risk Factors

Please focus on the same trading partner as referenced in the previous section when completing this part of the questionnaire. What level of risk does your organization face across each of the identified B2B risk factors based on the trading partner's current state of operations?

8. PLEASE SELECT A RATING FROM "1" OR "STRONGLY DISAGREE" TO "7" OR "STRONGLY AGREE" THAT BEST DESCRIBES YOUR REACTION TO EACH STATEMENT LISTED BELOW. IF YOU HAVE "NO BASIS FOR JUDGMENT", PLEASE CHECK N/A.

	1	2	3	4	5	6	7	N/A
YOUR ORGANIZATION'S B2B E-COMMERCE CAPABILITIES ARE NOT WELL INTEGRATED WITH YOUR INTERNAL INFORMATION SYSTEM BUT ARE PRIMARILY USED TO TRANSMIT TRANSACTION DATA TO TRADING PARTNERS.	☐	☐	☐	☐	☐	☐	☐	☐
YOUR ORGANIZATION'S B2B E-COMMERCE CAPABILITIES ARE INTEGRATED WITH YOUR INTERNAL INFORMATION SYSTEM. TRANSACTION DATA EXHCHANGED WITH TRADING PARTNERS DRIVES FINANCIAL, LOGICISTICAL, SALES/MARKETING, AND/OR MANUFACTURING PROCESSES.	☐	☐	☐	☐	☐	☐	☐	☐
YOUR ORGANIZATION VIEWS B2B E-COMMERCE AS A STRATEGIC AND COMPETITIVE ADVANTAGE. TRADING PARTNERS ARE ENCOURAGED TO FULLY DEVELOP E-COMMERCE CAPABILITIES IN ORDER TO REALIZE GREATER E-COMMERCE BENEFITS FOR BOTH ORGANIZATIONS.	☐	☐	☐	☐	☐	☐	☐	☐
YOUR TRADING PARTNER'S B2B E-COMMERCE CAPABILITIES ARE NOT WELL INTEGRATED WITH THEIR INTERNAL INFORMATION SYSTEM BUT ARE PRIMARILY USED TO TRANSMIT TRANSACTION DATA TO YOUR	☐	☐	☐	☐	☐	☐	☐	☐

ORGANIZATION.								
YOUR TRADING PARTNER'S B2B E-COMMERCE CAPABILITIES ARE INTEGRATED WITH THEIR INTERNAL INFORMATION SYSTEM. TRANSACTION DATA EXHCHANGED WITH YOUR ORGANIZATION DRIVES YOUR TRADING PARTNER'S FINANCIAL, LOGICISTICAL, SALES/MARKETING, AND/OR MANUFACTURING PROCESSES.	☐	☐	☐	☐	☐	☐	☐	☐
YOUR TRADING PARTNER VIEWS B2B E-COMMERCE AS A STRATEGIC AND COMPETITIVE ADVANTAGE. THEY FULLY DEVELOP E-COMMERCE CAPABILITIES IN ORDER TO REALIZE GREATER E-COMMERCE BENEFITS FOR BOTH ORGANIZATIONS.	☐	☐	☐	☐	☐	☐	☐	☐

9. Please select a rating from "1" or "very low risk" to "7" or "very high risk" based on your assessment of the level of risk faced by your organization due to each of the risk factors listed below. If you have "No Basis for Judgment", please check N/A.

	1	2	3	4	5	6	7
Understanding by trading partner (TP) of their business processes, where e-commerce fits into those processes, value of business process integration with TPs, and where benefits are derived	☐	☐	☐	☐	☐	☐	☐
Trading partner's ability to assess the use/success of technology and the benefits of B2B implementation/technology investment (including return on investment)	☐	☐	☐	☐	☐	☐	☐
Trading partner's costs of meeting regulatory requirements and their organization's understanding of associated risks of non-compliance (including inter- and Intra- state compliance issues).	☐	☐	☐	☐	☐	☐	☐
Trading partner's technical understanding at a level that facilitates creation of a transformational vision for change and the ability to implement successful change management strategies to achieve objectives, gain acceptance, and support sustainability of the change.	☐	☐	☐	☐	☐	☐	☐
Trading partner's understanding of the intended	☐	☐	☐	☐	☐	☐	☐

functionality of a system at the analysis/requirements stage and tying of the system to business processes that are evolved or engineered accordingly to meet the business objective.							
Trading partner's level of adherence to contractual requirements including such things as product volume, sales prices, time/service commitments, and settlement (including legal agreements such as non-repudiation and the level of legal binding).	☐	☐	☐	☐	☐	☐	☐
Trading partner's due diligence in implementing B2B relationships at the business, technology and security levels to assure users understand data classification/ownership/security when handling partner data and the partner maintains appropriate segregation of data to appropriate users	☐	☐	☐	☐	☐	☐	☐
Trading partner's understanding of risks associated with their projects and accordingly executing effective project management.	☐	☐	☐	☐	☐	☐	☐
Trading partner's understanding of the technical complexities and associated costs of B2B development, implementation, and maintenance; and the legal ramifications, costs of implementing vs. not implementing non-repudiation agreements, costs of new business rules, and loss of personal marketing contacts	☐	☐	☐	☐	☐	☐	☐
Trading partner's team expertise for guiding all aspects of B2B e-commerce projects along with training for project teams and users.	☐	☐	☐	☐	☐	☐	☐
Trading partner's broad management involvement in IT/business planning while maintaining independence in the selection of technology preferences.	☐	☐	☐	☐	☐	☐	☐
Trading partner's integration of applications into organizational procedures and guidelines – including comprehensive documentation.	☐	☐	☐	☐	☐	☐	☐
Auditability of trading partner's system based on effective monitoring controls and audit trail (history of electronic data, updates, changes).	☐	☐	☐	☐	☐	☐	☐
Trading partner's ability to protect a distinguished Brand in an e-commerce environment.	☐	☐	☐	☐	☐	☐	☐
Trading partner's resilience to a business interruption.	☐	☐	☐	☐	☐	☐	☐
Appropriate level of training for trading partner's users	☐	☐	☐	☐	☐	☐	☐

and related cost constraints.							
Will the target trading partner (TP) use a proposed B2B system (considering such issues of whether there is a champion for the project, sufficient IT sophistication to integrate within TP's systems environment, and ease of use of application)?	☐	☐	☐	☐	☐	☐	☐
When upgrading systems based on new technologies or business partner request, the trading partner has sufficient coordination and change control procedures in place to maintain reliability and protect transaction validation procedures.	☐	☐	☐	☐	☐	☐	☐
Trading partner's understanding of and agreement on data structure/scope/business rules for exchange of information.	☐	☐	☐	☐	☐	☐	☐
Is there benefit of B2B ventures to the trading partner and is the e-business marketplace sustainable?	☐	☐	☐	☐	☐	☐	☐
Clear and sufficient contract documentation on policies, procedures, connectivity guidelines, limitations, review plan, etc. (Service Level Agreements).	☐	☐	☐	☐	☐	☐	☐
Application controls in place for completeness, accuracy, and processing integrity (i.e. trading partner's applications function as intended).	☐	☐	☐	☐	☐	☐	☐
Trading partner's implementation of new B2B applications include testing for assurances on hardware/software capability to support applications, availability of supporting applications 24/7, and performance and capacity of data exchange.	☐	☐	☐	☐	☐	☐	☐
Third party assurance of transaction validity.	☐	☐	☐	☐	☐	☐	☐
Marketing cost to sell the trading partner on a given B2B application	☐	☐	☐	☐	☐	☐	☐
Privacy of data agreements.	☐	☐	☐	☐	☐	☐	☐
Alignment of trading partner's business processes with implemented B2B e-business technologies.	☐	☐	☐	☐	☐	☐	☐
Adequacy of the security over access to trading partner's business application systems.	☐	☐	☐	☐	☐	☐	☐
Inaccurate, inadequate or outdated documentation on systems software/hardware provided by trading partner.	☐	☐	☐	☐	☐	☐	☐

Trading partner's inability to have an enterprise view of the full range of trading partner relationships.	☐	☐	☐	☐	☐	☐	☐
Trust in trading partner (internal or external).	☐	☐	☐	☐	☐	☐	☐
Change management processes in place to assure maintenance of security and integrity of systems as technology evolves rapidly.	☐	☐	☐	☐	☐	☐	☐
Trading partner's security over all networks and network interactions ensure transmission integrity and provide guaranteed delivery transaction to the correct trading partner.	☐	☐	☐	☐	☐	☐	☐
Technology sophistication/expertise differential between trading partners and related selection of appropriate standards and hardware/software by the right people in this trading partner's organization.	☐	☐	☐	☐	☐	☐	☐
Trading partner's maintenance of data accuracy during systems conversion and application usage.	☐	☐	☐	☐	☐	☐	☐
Completeness and accuracy of trading partner's data processing activities.	☐	☐	☐	☐	☐	☐	☐
Metrics related to capacity, resiliency, and monitoring in order to better predict/control performance by trading partner.	☐	☐	☐	☐	☐	☐	☐
Security of communication technology (infrastructure) -- including vulnerability of ISP and/or public internet, vulnerability to malicious code (e.g. viruses), security vendors expected survival and the trading partner's general security model.	☐	☐	☐	☐	☐	☐	☐
Trading partner's vulnerability to loss of availability of data, systems, applications, etc., whether loss is accidental, intentional, or by poor design.	☐	☐	☐	☐	☐	☐	☐
Trading partner's setting of appropriate user profiles to assure information is appropriately compartmentalized by information types and classified by access levels.	☐	☐	☐	☐	☐	☐	☐
Controls to enforce compliance with regulatory requirements and to enforce regulations	☐	☐	☐	☐	☐	☐	☐
Comprehensive access management to applications/operating systems protected via controls (e.g. firewalls) in place to assure confidentiality, availability, and integrity (e.g. unauthorized access).	☐	☐	☐	☐	☐	☐	☐

Channel security through appropriate controls (e.g. encryption implemented according to regulations) including validation and authentication of transaction partner.	☐	☐	☐	☐	☐	☐	☐
Ease of transition of information to new B2B systems, ease of integration with trading partner's systems, consistency in methods of partner, and ability to efficiently route B2B transactions to the right internal applications.	☐	☐	☐	☐	☐	☐	☐
Flexibility and scalability of the trading partner's system (hardware/software independence).	☐	☐	☐	☐	☐	☐	☐
Redundancy and failover of trading partner's systems (in relation to downtime tolerance).	☐	☐	☐	☐	☐	☐	☐
Adequacy of trading partner's disaster recovery plan.	☐	☐	☐	☐	☐	☐	☐
Adequate staff expertise available on an as-needed basis.	☐	☐	☐	☐	☐	☐	☐
Comprehensive systems documentation of trading partner's systems.	☐	☐	☐	☐	☐	☐	☐

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B2B E-COMMERCE CONTROL AND RISK ANALYSIS SURVEY

PART III: Demographic and B2B Usage Measures

10. Please indicate the B2B e-commerce functions that you conduct *with this trading partner* . Please check all applicable items.

- ☐ Purchasing/Order Management
- ☐ Administration (including price/sales catalog)
- ☐ Sales Analysis/Inventory Management
- ☐ Billing/Payment
- ☐ Shipping/Receiving
- ☐ Bidding/Quotation (including request for proposal/quotation and/or award notification)
- ☐ Partner Information/Acknowledgement
- ☐ Other, Please Specify: ____

11. Different organizations are at different stages in their use of B2B e-commerce capabilities. Which one of the following descriptions best characterizes the current state of B2B use *within this trading partner's organization?*

- ☐ Incoming business documents are electronically received and printed. A staff member is required to key-in outgoing messages. B2B applications run on a standalone PC/workstation or terminal.
- ☐ Incoming business documents are received electronically, stored in files, and can be printed on demand. Outgoing business documents are also created as files by internal applications and are electronically sent. B2B applications are either run on a PC/workstation or are based in a mainframe/mini-computer where internal business applications are run. This setup replaces the keying-in and printing-out of messages with files, speeding up the process and makes incoming messages particularly useful, since they do not require re-keying prior to use by another system (e.g., production scheduling or accounting).
- ☐ B2B transaction processing is seamlessly integrated with internal business applications such as purchasing, order entry, production scheduling, inventory management, accounts receivable/payable, shipping, and so on. Business documents are exchanged internally and externally (with trading partners) in a nearly "paperless" environment with little human intervention.
- ☐ B2B applications are viewed as strategic information technology (IT) and are instrumental in

reengineering (changing) internal business processes and functions with trading partner(s) and redefining organizational structure. B2B is seen as an integral part of the organizational context and is a major factor in strategic and information systems planning. Sharing databases, participating in just in time/quick response (JIT/QR) programs are examples of this top-down, organization-wide, strategic view of B2B and other related information technologies.

12. What is the amount of B2B e-commerce **purchases** your organization conducted with this trading partner during the most recent fiscal year?

- ☐ Less than $250,000
- ☐ $250,000 to $750,000
- ☐ $750,000 to $2.25 million
- ☐ $2.25 million to $2.75 million
- ☐ $2.75 million to $3.25 million
- ☐ $3.25 to $3.75 million
- ☐ $3.75 to $4.25 million
- ☐ $4.25 to $4.75 million
- ☐ More than $4.75 million

13. What is the amount of B2B e-commerce **sales** your organization conducted with this trading partner during the most recent fiscal year?

- ☐ Less than $250,000
- ☐ $250,000 to $750,000
- ☐ $750,000 to $2.25 million
- ☐ $2.25 million to $2.75 million
- ☐ $2.75 million to $3.25 million
- ☐ $3.25 to $3.75 million
- ☐ $3.75 to $4.25 million
- ☐ $4.25 to $4.75 million
- ☐ More than $4.75 million

14. What was your organization's **total sales** for the most recent fiscal year end?

- ☐ Less than $5 million
- ☐ $5million to $10 million
- ☐ $10 million to $15 million

- ☐ $15 million to $20 million
- ☐ $20 million to $25 million
- ☐ $25 million to $75 million
- ☐ $75 million to $125 million
- ☐ $125 million to $225 million
- ☐ $225 million to $325 million
- ☐ $325 million to $425 million
- ☐ $425 to $525 million
- ☐ $525 to $625 million
- ☐ $625 to $725 million
- ☐ $725 MILLION TO $825 MILLION
- ☐ $825 MILLION TO $925 MILLION
- ☐ $925 MILLION TO $1.25 BILLION
- ☐ MORE THAN $1.25 BILLION

15. What was your organization's **net income** for the most recent fiscal year end?

- ☐ Less than $250,000
- ☐ $250,000 TO $500,000
- ☐ $500,000 TO $750,000
- ☐ $750,000 TO $1 MILLION
- ☐ $1 MILLION TO $1.25 MILLION
- ☐ $1.25 MILLION TO $3.75 MILLION
- ☐ $3.75 MILLION TO $6.25 MILLION
- ☐ $6.25 MILLION TO $11.25 MILLION
- ☐ $11.25 MILLION TO $16.25 MILLION
- ☐ $16.25 MILLION TO $21.25 MILLION
- ☐ $21.25 MILLION TO $26.25 MILLION
- ☐ $26.25 MILLION TO $31.25 MILLION
- ☐ $31.25 MILLION TO $36.25 MILLION
- ☐ $36.25 MILLION TO $41.25 MILLION
- ☐ $41.25 MILLION TO $46.25 MILLION
- ☐ $46.25 MILLIONTO $62.5 MILLION
- ☐ More than $62.5 million

16. In which one of the following major industry groups is your primary business?

- ☐ Manufacturing
- ☐ Wholesale Trade
- ☐ Retail Trade
- ☐ Services
- ☐ Construction
- ☐ Transportation and Public Utilities
- ☐ Telecommunications
- ☐ Agriculture Services, Forestry and Fishing
- ☐ Natural Resource Exploration and Processing
- ☐ Finance, Insurance and Real Estate
- ☐ Mining
- ☐ Audit/Consulting
- ☐ Other, Please Specify: [ ]

17. Please indicate the B2B e-commerce functions that your organization currently uses. Please check all applicable items.

- ☐ Purchasing/Order Management
- ☐ Administration (including price/sales catalog)
- ☐ Sales Analysis/Inventory Management
- ☐ Billing/Payment
- ☐ Shipping/Receiving
- ☐ Bidding/Quotation
- ☐ Partner Information/Acknowledgement
- ☐ Other, Please Specify: [ ]

18. What means of communication are you using for B2B e-commerce? Please check all applicable items.

- ☐ Direct Link or Point-to-Point Network
- ☐ Third-party EDI Network/Value Added Network (VAN)
- ☐ Internet
- ☐ Virtual Private Network (VPN)
- ☐ Other, Please specify: [ ]

19. Which Electronic Transaction Communication Standard or format are you using?

- ☐ International (e.g., EDIFACT)
- ☐ National/Regional (e.g., ANSI-X.12)
- ☐ Virtual Private Network (VPN)
- ☐ Industry Protocol (e.g., TDCC/EDIA, VICS, UCS, WINS, etc.); Please Specify: _____
- ☐ Proprietary Format; Please specify: _____

20. Please identify **all** trading partners with whom your organization currently uses B2B electronic commerce (including EDI) to transact business.

- ☐ Customers (e.g., Retailers, Supermarkets)
- ☐ Wholesalers/Distributors
- ☐ Manufacturers
- ☐ Financial Institutions
- ☐ Shipping Companies
- ☐ Government (e.g., Customs)
- ☐ (Other: e.g., Agents, Brokers, Warehouse Companies, etc.); Please specify: _____

21. What is the **age** of your organization?

- ☐ Less than 10 years
- ☐ 10 to 20 years
- ☐ 20 to 30 years
- ☐ 30 to 40 years
- ☐ 40 to 50 years
- ☐ 50 to 60 years
- ☐ 60 to 70 years
- ☐ 70 to 80 years
- ☐ More than 80 years

22. How long has your organization used B2B e-commerce?

- ☐ Less than 1 year
- ☐ 1 to 5 years
- ☐ 5 to 9 years

- ☐ 9 to 13 years
- ☐ 13 to 17 years
- ☐ 17 to 21 years
- ☐ 21 to 25 years
- ☐ 25 to 29 years
- ☐ More than 29 years

23. How many people work in an internal auditing function in your organization?

- ☐ Less than 5
- ☐ 5 to 10
- ☐ 10 to 15
- ☐ 15 to 20
- ☐ 20 to 25
- ☐ 25 to 30
- ☐ 30 to 35
- ☐ 35 to 40
- ☐ More than 40

24. How many people are employed in total by your organization?

- ☐ Less than 500
- ☐ 500 to 1,000
- ☐ 1,000 to 1,500
- ☐ 1,500 to 2,000
- ☐ 2,000 to 2,500
- ☐ 2,500 to 3,000
- ☐ 3,000 to 3,500
- ☐ 3,500 to 4,000
- ☐ More than 4,000

25. Please tell us Your age?

- ☐ Less than 22 years
- ☐ 22 to 27 years
- ☐ 27 to 32 years

- ☐ 32 to 37 years
- ☐ 37 to 42 years
- ☐ 42 to 47 years
- ☐ 47 to 52 years
- ☐ 52 to 57 years
- ☐ More than 57 years

26. Please tell us Your gender?

- ☐ Male
- ☐ Female

27. What is Your highest education level completed?

- ☐ High school
- ☐ Some College
- ☐ Associates Degree
- ☐ Bachelors Degree
- ☐ Masters Degree
- ☐ Ph.D. Degree

28. Please tell us Your primary work function.

- ☐ IT Auditor (Internal)
- ☐ IT Auditor (External)
- ☐ Non-IT Auditor (External)
- ☐ Non-IT Auditor (Internal)
- ☐ IS Security Staff
- ☐ CIO/CTO
- ☐ B2B eCommerce manager
- ☐ Other, Please specify: _____

29. Please tell us your number of years experience in the current job function?

- ☐ Less than 1 year

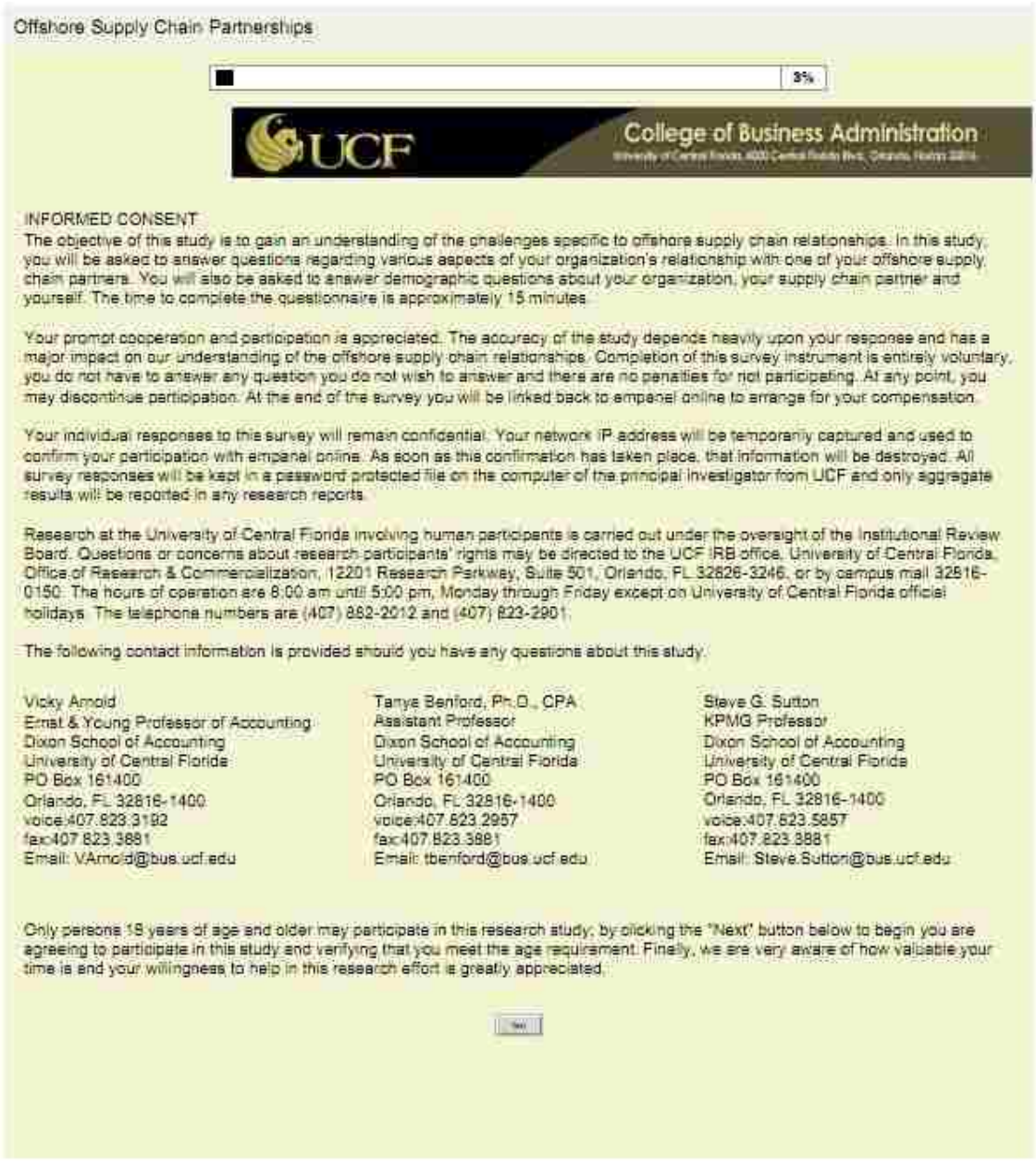
- ☐ 1 to 5 years
- ☐ 5 to 9 years
- ☐ 9 to 13 years
- ☐ 13 to 17 years
- ☐ 17 to 21 years
- ☐ 25 to 29 years
- ☐ More than 29 years

30. Please indicate which, if any, of the following certifications You hold (check all that apply).

- ☐ CIA
- ☐ CPA
- ☐ CISA
- ☐ CFE
- ☐ CDP
- ☐ CMA
- ☐ Other, Please Specify: [ ]

Submit Survey

Study Three: Enterprise Risk Management Survey Instrument



Offshore Supply Chain Partnerships

3%

UCF College of Business Administration

INFORMED CONSENT

The objective of this study is to gain an understanding of the challenges specific to offshore supply chain relationships. In this study, you will be asked to answer questions regarding various aspects of your organization's relationship with one of your offshore supply chain partners. You will also be asked to answer demographic questions about your organization, your supply chain partner and yourself. The time to complete the questionnaire is approximately 15 minutes.

Your prompt cooperation and participation is appreciated. The accuracy of the study depends heavily upon your response and has a major impact on our understanding of the offshore supply chain relationships. Completion of this survey instrument is entirely voluntary, you do not have to answer any question you do not wish to answer and there are no penalties for not participating. At any point, you may discontinue participation. At the end of the survey you will be linked back to empanel online to arrange for your compensation.

Your individual responses to this survey will remain confidential. Your network IP address will be temporarily captured and used to confirm your participation with empanel online. As soon as this confirmation has taken place, that information will be destroyed. All survey responses will be kept in a password protected file on the computer of the principal investigator from UCF and only aggregate results will be reported in any research reports.

Research at the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board. Questions or concerns about research participants' rights may be directed to the UCF IRB office, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246, or by campus mail 32816-0150. The hours of operation are 8:00 am until 5:00 pm, Monday through Friday except on University of Central Florida official holidays. The telephone numbers are (407) 882-2012 and (407) 823-2901.

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Only persons 18 years of age and older may participate in this research study; by clicking the "Next" button below to begin you are agreeing to participate in this study and verifying that you meet the age requirement. Finally, we are very aware of how valuable your time is and your willingness to help in this research effort is greatly appreciated.

Offshore Supply Chain Partnerships

6%

Before beginning the survey, please provide some general demographic information about you and Your Company.

Gender

- (•) Female
- ( ) Male

Your Age

	Age
Please select the appropriate range.	

Prev Next


Offshore Supply Chain Partnerships
9%
Years with your current employer
Years
How long have your worked for your current company?
What is your job title?

Offshore Supply Chain Partnerships

11%

Is your company publicly traded?

- (•) Yes
- ( ) No

Your company can best be described as a

- (•) Manufacturer
- ( ) Distributor
- ( ) Retailer
- ( ) Service Provider

Other (please specify)

Prev Next

Offshore Supply Chain Partnerships

14%

Industry

Industry

Which one of the following major industry groups best fits your company?

Other (please specify)

Number of employees

Number of Employees

How many full-time equivalents work in your company?

Age of your company

Years

How many years has your company been in business?

Offshore Supply Chain Partnerships

17%

This survey examines factors thought to impact offshore supplier and/or outsourcing relationships. When responding to the survey, please think of one business partner that you are very familiar with. In the survey we will refer to your business partner as Company ABC. Company ABC should be a overseas supplier or outsourcer with whom your company is doing business. Before you begin the survey, we would like you to provide some demographic information about Company ABC.

Where is Company ABC's primary location (the location that you primarily deal with)?

Location

From the list of countries provided, select the location of Company ABC's offshore operations that Your Company primarily employs. If the appropriate location is not listed, please indicate the location in the (other) space provided.

Other (please specify)

What type of service does Company ABC provide Your Company? Select all that apply.

- [x] Customer Service Support
- [x] Human Resources
- [x] Information Technology (IT) Systems Support
- [x] Internal Audit
- [x] Manufacturing
- [x] Payroll
- [x] Sales
- [x] Web (Internet) Services

Other (please specify)

Offshore Supply Chain Partnerships

20%

How would you rate your transactions with Company ABC in terms of:

	Excellent				Very Unsatisfactory	No basis for answering
Meeting agreed upon costs per unit	⊙	○	○	○	○	○
Meeting productivity standards Meeting on-time delivery requirements	⊙	○	○	○	○	○
Ability to meet inventory requirements (finished goods)	⊙	○	○	○	○	○
Responding to each others requests	⊙	○	○	○	○	○

Working with Company ABC has helped you

	Strongly Agree				Strongly Disagree	No basis for answering
Better understand the market segments you serve	⊙	○	○	○	○	○
Better understand the needs of customers	⊙	○	○	○	○	○
Better understand new or emerging markets	⊙	○	○	○	○	○
Better understand intentions and capabilities of your competitors	⊙	○	○	○	○	○
Find better ways of distributing/selling the products	⊙	○	○	○	○	○

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Offshore Supply Chain Partnerships

23%

Regarding Your Company's business relationship with Company ABC

	Years
How long has Company ABC been part of Your Company's supply chain?	
How long have you been personally involved in Your Company's business relationship with Company ABC?	

Regarding Company ABC

	Strongly Agree				Strongly Disagree	No basis for answering
Company ABC's performance can have a major impact on Your Company's overall profitability.	⊙	○	○	○	○	○

Offshore Supply Chain Partnerships

26%

Regarding Your Company's first-line workers

	Strongly Agree				Strongly Disagree	No basis for answering
The general knowledge level is high.	⊙	○	○	○	○	○
The overall technical knowledge is high.	⊙	○	○	○	○	○
The general educational level is high.	⊙	○	○	○	○	○
The overall job competence is high.	⊙	○	○	○	○	○

Regarding Your Company's management employees

	Strongly Agree				Strongly Disagree	No basis for answering
The knowledge of our managers is adequate when making business decisions.	⊙	○	○	○	○	○
The knowledge of our managers is adequate when dealing with new technologies.	⊙	○	○	○	○	○
The knowledge of our managers is adequate when managing daily operations.	⊙	○	○	○	○	○
The knowledge of our managers is adequate when solving technical problems.	⊙	○	○	○	○	○

Offshore Supply Chain Partnerships

29%

Regarding Your Company's communication network

	Strongly Agree				Strongly Disagree	No basis for answering
The communications between supervisors and their subordinates are extensive.	⊙	○	○	○	○	○
The communications among functional areas are extensive.	⊙	○	○	○	○	○
The communications among functional areas are frequent.	⊙	○	○	○	○	○
The communications between supervisors and their subordinates are frequent.	⊙	○	○	○	○	○
The communication of new ideas from one department to another is extensive.	⊙	○	○	○	○	○
The communications between departments are hindered by clear boundaries.	⊙	○	○	○	○	○
Communication has to pass through many hierarchical levels in our firm.	⊙	○	○	○	○	○

Regarding Your Company's communication climate

	Strongly Agree				Strongly Disagree	No basis for answering
Our employees tend to trust each other.	⊙	○	○	○	○	○
Our employees are supportive of each other.	⊙	○	○	○	○	○
Our employees have strong feelings of belonging to our organization.	⊙	○	○	○	○	○
Our employees share ideas freely with each other.	⊙	○	○	○	○	○
Our employees share a very open communications environment.	⊙	○	○	○	○	○
Our employees have no difficulty accepting new ideas.	⊙	○	○	○	○	○
Our employees are willing to accept changes.	⊙	○	○	○	○	○

Prev Next

Offshore Supply Chain Partnerships

31%

Regarding Your Company's knowledge acquisiton

	Strongly Agree				Strongly Disagree	No basis for answering
We seek to learn from tracking new market trends in our industry.	⊙	○	○	○	○	○
We seek to learn from routine search of useful information.	⊙	○	○	○	○	○
We seek to learn from benchmarking best practices in our industry.	⊙	○	○	○	○	○
We seek to learn from trying out new technologies.	⊙	○	○	○	○	○
We seek to learn from our customers and suppliers.	⊙	○	○	○	○	○
We seek to learn from taking new business opportunities.	⊙	○	○	○	○	○
We seek to learn from conducting R&D activities.	⊙	○	○	○	○	○

Regarding the sharing of information between Your Company and Company ABC

	Very Frequently				Not at all	No basis for answering
To what extent do you exchange details of upcoming product or service related changes with Company ABC?	⊙	○	○	○	○	○
To what extent do you exchange future plans such as promotion and marketing plans, long-term production plans, capital investments and capacity utilization with Company ABC?	⊙	○	○	○	○	○
To what extent do you exchange information related to market demand trends and forecasts with Company ABC?	⊙	○	○	○	○	○
To what extent do you exchange information on demand shifts and changes in customer preferences with Company ABC?	⊙	○	○	○	○	○
To what extent do you exchange information related to changes in supply chain structure—such as addition or dropping of partner companies, merger and alliances, with Company ABC?	⊙	○	○	○	○	○
To what extent do you exchange process information needed to support changes in product features or volumes, with Company ABC?	⊙	○	○	○	○	○

Prev Next

Offshore Supply Chain Partnerships

34%

How would you rate the information exchanged with Company ABC in terms of its:

	Excellent				Very Unsatisfactory	No basis for answering
Relevancy to your business needs, compared to information exchanged with other similar partners?	⊙	○	○	○	○	○
Value-added to your business needs, compared to information exchanged with other similar partners?	⊙	○	○	○	○	○
Timeliness, compared to information exchanged with other similar partners?	⊙	○	○	○	○	○
Its completeness, compared to information exchanged with other similar partners?	⊙	○	○	○	○	○

In our relationship with Company ABC

	Strongly Agree				Strongly Disagree	No basis for answering
We provide each other proprietary information if we feel it can help our business partner.	⊙	○	○	○	○	○
We share confidential information if we feel it can help our business partner.	⊙	○	○	○	○	○
We share information with each other that is not available from other sources.	⊙	○	○	○	○	○
The information exchange helps us provide each other a unique perspective that neither of us could have developed on our own.	⊙	○	○	○	○	○

When performing processes that are inter-linked

	To a large extent				Not at all	No basis for answering
To what extent does your company and Company ABC exchange coordination information exchange to synchronize your activities?	⊙	○	○	○	○	○
To what extent does your company and Company ABC exchange information to track each other's internal processes?	⊙	○	○	○	○	○
To what extent does your company and Company ABC exchange operational information (such as inventory levels, product availability, production volumes etc.)?	⊙	○	○	○	○	○

Offshore Supply Chain Partnerships

37%

Regarding Company ABC

	Strongly Agree				Strongly Disagree	No basis for answering
Deadlines set by Company ABC are honest and accurate.	⊙	○	○	○	○	○
Company ABC is honest in business dealings.	⊙	○	○	○	○	○
Company ABC is willing to share information.	⊙	○	○	○	○	○
Company ABC adheres to agreements.	⊙	○	○	○	○	○
Company ABC has always been evenhanded in their negotiations with our organization.	⊙	○	○	○	○	○
I believe that Company ABC would act in my best interest.	⊙	○	○	○	○	○
If I required help, Company ABC would do its best to help me.	⊙	○	○	○	○	○
Company ABC is interested in my well-being, not just its own.	⊙	○	○	○	○	○
Company ABC is truthful in its dealings with me.	⊙	○	○	○	○	○
I would characterize Company ABC as honest.	⊙	○	○	○	○	○
Company ABC would keep its commitments.	⊙	○	○	○	○	○
Company ABC is sincere and genuine.	⊙	○	○	○	○	○
Company ABC is competent and effective in providing data exchange.	⊙	○	○	○	○	○
Company ABC performs its role of providing the data exchange very well.	⊙	○	○	○	○	○
Overall, Company ABC is a capable and proficient data exchange provider.	⊙	○	○	○	○	○
In general, Company ABC is very knowledgeable about issues of Web-based data exchanges.	⊙	○	○	○	○	○

Prev Next

Offshore Supply Chain Partnerships

40%

Regarding Your Company's relationship with Company ABC

	Strongly Agree				Strongly Disagree	No basis for answering
We expect this relationship to last a lifetime.	⊙	○	○	○	○	○
It is assumed that renewal of agreements in this relationship generally will occur.	⊙	○	○	○	○	○
The relationship with Company ABC is essentially "evergreen," and will continue to be a good relationship.	⊙	○	○	○	○	○
We believe that over the long run our relationship with Company ABC will be profitable.	⊙	○	○	○	○	○
Company ABC is important to us.	⊙	○	○	○	○	○
We focus on long-term goals in this relationship.	⊙	○	○	○	○	○
We are willing to make sacrifices to help Company ABC from time to time.	⊙	○	○	○	○	○
Any concessions we make to help out Company ABC will even out in the long run.	⊙	○	○	○	○	○

How do you evaluate Your Company's performance in applying IT to support each of the following business strategies relative to other firms in your industry?

	Excellent				Very unsatisfactory	No basis for answering
Being a low-cost producer	⊙	○	○	○	○	○
Having manufacturing / operations flexibility	⊙	○	○	○	○	○
Enhancing supplier linkages	⊙	○	○	○	○	○
Enhancing customer linkages	⊙	○	○	○	○	○
Providing value-added services	⊙	○	○	○	○	○
Enhancing existing products / services	⊙	○	○	○	○	○
Creating new products / services	⊙	○	○	○	○	○
Entering new markets	⊙	○	○	○	○	○

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Offshore Supply Chain Partnerships

43%

How do you evaluate Your Company's performance in applying IT to execute each of the following activities relative to other firms in your own industry?

	Excellent				Very unsatisfactory	No basis for answering
Inbound logistics (e.g. purchasing)	⊙	○	○	○	○	○
Outbound logistics (e.g. warehousing)	⊙	○	○	○	○	○
Manufacturing / Operations	⊙	○	○	○	○	○
Marketing	⊙	○	○	○	○	○
Sales	⊙	○	○	○	○	○
Customer Services	⊙	○	○	○	○	○

Regarding data provided by Company ABC

	Strongly Agree				Strongly disagree	No basis for answering
The data provided is current enough to meet my business needs.	⊙	○	○	○	○	○
There are accuracy problems in the data provided by Company ABC.	⊙	○	○	○	○	○
The data provided by company ABC is pretty much what I need to carry out my tasks.	⊙	○	○	○	○	○
The transaction data transmitted are actually processed by my company.	⊙	○	○	○	○	○
Company ABC maintains data at an appropriate level of detail for my purposes.	⊙	○	○	○	○	○
The data provided by Company ABC can be relied upon.	⊙	○	○	○	○	○
The data provided by Company ABC is up-to-date enough for my purposes.	⊙	○	○	○	○	○
Company ABC provides up-to-date information with regard to past transactions.	⊙	○	○	○	○	○
The same data I enter on the form are the ones received by Company ABC.	⊙	○	○	○	○	○

Prev Next

Offshore Supply Chain Partnerships

46%

Considering B2B e-commerce capabilities, how would you rate Company ABC's

	Excellent				Very Unsatisfactory	No basis for answering
Understanding of their business processes, where e-commerce fits into those processes, value of business process integration with Your Company, and where benefits are derived.	⊙	○	○	○	○	○
Ability to assess the use/success of technology and the benefits of B2B implementation/technology investment (including return on investment).	⊙	○	○	○	○	○
Costs of meeting regulatory requirements and their organization's understanding of associated risks of non-compliance (including inter- and intra- state compliance issues).	⊙	○	○	○	○	○
Technical understanding at a level that facilitates creation of a transformational vision for change and the ability to implement successful change management strategies to achieve objectives, gain acceptance, and support sustainability of the change.	⊙	○	○	○	○	○
Understanding of the intended functionality of a system at the analysis/requirements stage and tying of the system to business processes that are evolved or engineered accordingly to meet the business objective.	⊙	○	○	○	○	○

Considering B2B e-commerce capabilities, how would you rate Company ABC's

	Excellent				Very Unsatisfactory	No basis for answering
Level of adherence to contractual requirements including such things as product volume, sales prices, time/service commitments, and settlement (including legal agreements such as non-repudiation and the level of legal binding).	⊙	○	○	○	○	○
Due diligence in implementing B2B relationships at the business, technology and security levels to assure users understand data classification/ownership/security when handling partner data and the partner maintains appropriate segregation of data to appropriate users.	⊙	○	○	○	○	○
Understanding of risks associated with their projects and accordingly executing effective project management.	⊙	○	○	○	○	○
Understanding of the technical complexities and						

associated costs of B2B development, implementation, and maintenance; and the legal ramifications, costs of implementing vs. not implementing non-repudiation agreements, costs of new business rules, and loss of personal marketing contacts.	◉	○	○	○	○	○

Prev Next

Offshore Supply Chain Partnerships

49%

Considering B2B e-commerce capabilities, how would you rate Company ABC's

	Excellent				Very Unsatisfactory	No basis for answering
Team expertise for guiding all aspects of B2B e-commerce projects along with training for project teams and users.	⊙	○	○	○	○	○
Broad management involvement in IT/business planning while maintaining independence in the selection of technology preferences.	⊙	○	○	○	○	○
Integration of applications into organizational procedures and guidelines – including comprehensive documentation.	⊙	○	○	○	○	○
Auditability of Company ABC's system based on effective monitoring controls and audit trail (history of electronic data, updates, changes).	⊙	○	○	○	○	○
Ability to protect a distinguished Brand in an e-commerce environment.	⊙	○	○	○	○	○
Resilience to a business interruption.	⊙	○	○	○	○	○

Considering B2B e-commerce capabilities, how would you rate Company ABC's

	Excellent				Very Unsatisfactory	No basis for answering
Understanding of the strategic nature of the B2B e-commerce relationship?	⊙	○	○	○	○	○
Understanding of the benefits of the B2B e-commerce relationship?	⊙	○	○	○	○	○
Reengineering of business processes to facilitate B2B e-commerce transaction requirements?	⊙	○	○	○	○	○
Management of data, transmission security, and auditability?	⊙	○	○	○	○	○
Ability to fulfill legal obligations initiated via B2B e-commerce transactions?	⊙	○	○	○	○	○

Offshore Supply Chain Partnerships

51%

Indicate your level of agreement with the following statements regarding Your Company's B2B e-commerce relationship with Company ABC

	Strongly agree				Strongly disagree	No basis for answering
The overall business risk associated with this relationship is minimal.	⊙	○	○	○	○	○
The overall business risk associated with Company ABC is greater than that of most of Your Company's other INTERNATIONAL supply chain partners.	⊙	○	○	○	○	○
The overall business risk associated with Company ABC is greater than that of most of Your Company's DOMESTIC supply chain partners.	⊙	○	○	○	○	○
The overall business risk associated with Company ABC is of great concern to Your Company.	⊙	○	○	○	○	○

Describe your feelings with respect to the outcomes with Company ABC in the past one year:

	Very				Not at all	No basis for answering
Pleased	⊙	○	○	○	○	○
Sad	⊙	○	○	○	○	○
Contented	⊙	○	○	○	○	○
Dissatisfied	⊙	○	○	○	○	○
Frustrated	⊙	○	○	○	○	○

Prev Next

Offshore Supply Chain Partnerships

54%

Regarding risk management activities in Your Compnay:

	Strongly Agree				Strongly Disagree	No basis for answering
Our company performs a thorough enterprise-wide risk assessment at least once a year.	⊙	○	○	○	○	○
Our company is able to identity events that may affect the achievement of our objectives.	⊙	○	○	○	○	○
Our company regularly evaluates the effectiveness of internal controls for mitigating identified risks Management has effective processes to respond to identified risks.	⊙	○	○	○	○	○
Our risk management procedures provide the necessary information top management needs to monitor changes that could impact our company's well-being.	⊙	○	○	○	○	○
One focus of our ERM is the strength of our internal control system for risk identification.	⊙	○	○	○	○	○
Our company has a Chief Risk Officer.	⊙	○	○	○	○	○

Offshore Supply Chain Partnerships

57%

Individuals should stick with the group even through difficulties.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

Group welfare is more important than individual rewards.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

Group success is more important than individual success.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

Offshore Supply Chain Partnerships

60%

Long-term planning.

	Very important				Not important at all	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

Giving up today's fun for success in the future.

	Very important				Not important at all	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

Working hard for success in the future.

	Very important				Not important at all	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

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Offshore Supply Chain Partnerships

63%

Domestic products, first, last, and foremost.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

Purchasing foreign-made products is not patriotic.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

It is not right to purchase foreign products because it increases unemployment.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

Offshore Supply Chain Partnerships

66%

A real patriot should always buy domestic-made products.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

We should purchase products manufactured domestically instead of letting other countries get rich off us.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

It is always best to purchase domestic products.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

Offshore Supply Chain Partnerships

69%

There should be very little trading or purchasing of goods from other countries unless out of necessity.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

We should not buy foreign products because this hurts domestic business and causes unemployment.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

Curbs should be put on all imports.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

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Offshore Supply Chain Partnerships

71%

It may cost me in the long run, but I prefer to support domestic products.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

Foreigners should not be allowed to put their products on our markets.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

Foreign products should be taxed heavily to reduce their entry.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

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Offshore Supply Chain Partnerships

74%

We should buy from foreign countries only those products that we cannot obtain within our own country.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

Consumers who purchase products made in other countries are responsible for putting their fellow countrymen out of work.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

Offshore Supply Chain Partnerships

77%

Individuals should pursue their goals after considering the welfare of the group.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

Group loyalty should be encouraged even if individual goals suffer.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

It is more important for men to have a professional career than it is for women.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

Offshore Supply Chain Partnerships

80%

Men usually solve problems with logical analysis; women usually solve problems with intuition.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

Solving difficult problems usually requires an active, forcible approach, which is typical of men.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

There are some jobs a man can always do better than a woman.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

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Offshore Supply Chain Partnerships

83%

It is important to have instructions spelled out in detail so that I always know what I'm expected to do.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

It is important to closely follow instructions and procedures.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

Rules/regulations are important because they inform me of what is expected of me.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

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Offshore Supply Chain Partnerships

86%

Standardized work procedures are helpful.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

Instructions for operations are important.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

People in higher positions should make most decisions without consulting people in lower positions.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

Offshore Supply Chain Partnerships

89%

People in higher positions should not ask the opinions of people in lower positions too frequently.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

People in higher positions should avoid social interaction with people in lower positions.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

People in higher positions should not delegate important tasks to people in lower positions.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

People in lower positions should not disagree with decisions made by people in higher positions.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

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Offshore Supply Chain Partnerships

91%

For each of the following, in the first row indicate your feelings regarding each statement and in the second row indicate how you think your counterpart or main contact person at Company ABC would respond.

Generally speaking, I feel satisfied with this job.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

Overall, I feel satisfied with the kind of work I do in this job.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

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Offshore Supply Chain Partnerships

94%

In general, I feel satisfied with my job.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

I frequently think of changing my job.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

Individuals should sacrifice self-interest for the group to which they belong.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

Offshore Supply Chain Partnerships

97%

For each of the following, in the first row rate the importance of each statement and in the second row indicate how you think your counterpart or main contact person at Company ABC would rate each statement.

Careful management of money (thrift).

	Very important				Not important at all	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

Going on resolutely in spite of opposition (persistence).

	Very important				Not important at all	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

Personal steadiness and stability.

	Very important				Not important at all	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

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Offshore Supply Chain Partnerships

100%

For each of the following, in the first row indicate your feelings regarding each statement and in the second row indicate how you think your counterpart or main contact person at Company ABC would respond.

People should always buy domestic products instead of imports.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

Only those products that are unavailable domestically should be imported.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○

Buy domestic products. Control unemployment.

	Strongly Agree				Strongly Disagree	No basis for answering
Your opinion	⊙	○	○	○	○	○
Your counterpart at Company ABC's opinion	⊙	○	○	○	○	○