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GOVERNANCE METHODS USED IN EXTERNALIZING INFORMATION  
TECHNOLOGY

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## **DEDICATION**

I dedicate this dissertation to my family. Especially to my loving parents, Kam-Cheung and Kam-Woon, even though they are no longer with me, they are always in my heart. To my sisters Emily and Canly, who always encourage me to push forward and are always by my side.

GOVERNANCE METHODS USED IN EXTERNALIZING INFORMATION  
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**ABSTRACT**

Information technology (IT) is the largest capital expenditure in many firms and is an integral part of many organizations' strategies. However, the benefits that each company receives from its IT investments vary. One study by Weill (2004) found that the top performer in the sample was estimated to have as high as a 40% greater return on its IT investment than its competitors. To expedite the progress toward getting better value from IT investments, along with the need to deal with the increasing complexity and expense of IT, a growing number of companies are turning to outside service providers to develop and/or manage various aspects of their information systems. The governance methods used by firms to maintain control over the quality, services, and cost of IT outsourcing are the focus of this dissertation.

Previously in the literature, researchers have looked into the phenomenon of outsourcing from various perspectives. However, existing literature has not constructed or proposed an outsourcing model that examines the important moderating impact of internal technical capabilities to governance mechanisms. Building on existing literature related to IT outsourcing, this dissertation examines governance mechanisms that were used by firms to maintain control over the quality, services, and the cost of outsourcing of IT in order to identify their contribution to the success of IT outsourcing initiatives from the perspective of managers whose companies have engaged in IT outsourcing. In this dissertation, a research model was developed, and through an on-line survey instrument,

data were collected from the members of the Information Systems Community of Practice in the Project Management Institute. The findings showed that the following governance mechanisms had positive impact on managerial perceptions of IT outsourcing success: (1) Financial commitment in the form of dedicated asset-specific investments; and (2) attitudinal commitment. This study also confirms the moderation effect that firm technological capabilities have on the relationship between managerial perception of outsourcing success and attitudinal commitment, respectively. Additionally, this study added to the literature in that it found that financial commitment and attitudinal commitment impacts on future business are partially mediated by outsourcing success. Based on the findings of this study, practical application and suggestion for future research are offered.

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# **CHAPTER I**

## **INTRODUCTION**

This dissertation focuses on strategic drivers related to managerial perceptions of outsourcing success. It specifically assesses how formal and informal contracts—from the underpinning theory of Transaction Cost Economics (TCE)—interact with internal and external technological capabilities—from the underpinning theory of the Resource-Based View (RBV)—and work together to impact managerial perceptions of outsourcing success. It builds linkages by using the Relational View of interorganizational cooperative strategies (Dyer & Singh, 1998) to bridge both the TCE and the RBV. Each of these theories will be discussed extensively in Chapter 2, Literature Review.

The Information Technology (IT) industry was selected to demonstrate the importance of these relationships because it readily provides rich, well-developed theoretical and empirical support the outsourcing construct, and it also provides a sophisticated arena in which to test the model developed for this dissertation. While TCE, the RBV, and the Relational View are the main drivers of this dissertation, it is necessary to first understand the main outsourcing issues central of the IT industry. Therefore, this

dissertation begins with a discussion of outsourcing as it has been established in the IT literature and then it moves to the potential impacts of its main theoretical drivers and how they inform the research questions that this dissertation works to answer.

Information Technology (IT) was little known until the 1980s when personal computers became more common in the workplace (Allen, 1999), after IBM introduced its first personal computer in 1981 (Butler, 1998). Since then, corporations around the world have now embraced IT as a vital and inseparable part of daily business operations (Renkema, 1998; Sambamurthy, Bharadwa, & Grover, 2003). Mosner (2003) cited a 2001 survey done by the Department of Commerce and the National Telecommunications Information Agency that found more than 57 percent of the U.S. workforce was already using personal computers in their jobs. The U.S. Census Bureau also reported that 56 percent of U.S. working adults used a computer at work in 2003 (Day, 2005). By 2009, 76.7% of U.S. households had a computer (U.S. Census Bureau, 2011).

This impressive use of IT has led organizations to find ways to manage their IT resources more cost-effectively and this had led to significant IT outsourcing, which has led to costly problems in IT governance of IT contracts IT. Despite the number of studies being published in the IT literature, little research has been done that actually measures the impacts of formal and informal contract mechanisms (TCE) and use of interorganizational resources (RBV and the Relational View) that might result in a better IT services contract. The following subsections are devoted to IT as it is used herein and its importance to businesses today.

## **1.1 Information Technology and Business Value Today**

Information technology (IT) was defined by the Architectural and Transportation Barriers Compliance Board (Access Board) of the United States Government as:

“any equipment or interconnected system or subsystem of equipment, that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information. The term “information technology” includes computers, ancillary equipment, software, firmware and similar procedures, services (including support services), and related resources” (Access Board, 2000, para. 7).

Nevo and Wade (2010) stated that IT has become an integral part of business organization. Straub, Weill, and Schwaig (2007) also mentioned that IT was becoming critical in an organization's success. This echoes Hitt and Brynjolfsson (1996), who concluded that IT had increased productivity and created substantial value for consumers even though they did not find evidence to indicate that these benefits resulted in higher business profitability. They theorized that the lack of evidence in companies getting higher profits from IT investments was because IT also lowered entry barriers for other competitors, which caused more products to be available in the market. Therefore, the prices that companies could charge for those products were reduced subsequently and this impacted overall business profitability. Both productivity and profitability are constructs commonly used by scholars when evaluating the business value of IT (Melville, Kraemer, & Gurbaxani, 2004).

Melville et al. (2004) defined IT business value as the “organizational performance impacts of information technology at both the intermediate process level and the organization-wide level, comprising both efficiency and competitive impacts” (p. 287). Based on their study of existing literature, Melville et al. (2004) summarized the measurements of IT business value to include “productivity enhancement, profitability improvement, cost reduction, competitive advantage, inventory reduction, and other measures of performance” (p. 287). While researchers have not been able to attribute definitively the impact of their IT investments on business performance (Kohli & Grover, 2008), many have found significant values of IT in business, and thus have classified it as a *strategic necessity* (Nevo & Wade, 2010). For example, after analyzing data collected for 36 monthly periods from eight hospitals, Devaraj and Kohli (2003) were able to establish a direct linkage between technology usage and net revenue per patient. Melville et al. (2004) also concluded that IT benefited business through increased flexibility and quality improvement, but the extent of its impact was dependent upon other internal and external factors.

With the rapid advancement of technology, many companies successfully have integrated IT into their business models as a powerful way to foster growth, improve interconnectivity among various business units, and to enhance their competitive advantage in the marketplace (Nevo & Wade, 2010). *However, the benefits that each company receives from its IT investments do vary.* One study by Weill (2004) found that the top performer in the sample was estimated to have as high as a 40% greater return on its IT investment than its competitors. Thus, from the literature, it is assumed that IT investments in outsourcing provide inconsistent results, and therefore, it is necessary to

better understand how those IT investments are governed, particularly in the outsourcing arrangement.

## **1.2 Strategic Governance of IT Outsourcing**

To realize better value from IT investments, many companies have turned to outside sources for assistance and guidance, and thus a surge in IT outsourcing has occurred (Wonseok, Gallivan, & Kim, 2006). This focus on externalizing IT services through an outsourcing contract aligns with TCE and its market versus hierarchy approach. From the TCE theoretical point of view, a corporation can be seen as a bundle of transactions (Coase, 1937) that propels the company forward. Ever since it was introduced by Coase (1937), TCE theory has been applied widely by scholars to explain how organizations make strategic purchasing decisions. It explains that markets and hierarchies are two alternative governance mechanisms (Coase, 1937), with the strict definition of markets being those goods or services that are purchased externally to the firm, and hierarchies being those goods or services that are developed inside the firm. Choosing one or the other largely depends on the transaction costs that are involved in these two options. Thus, outsourcing as used in this dissertation falls within the market-type of transaction from TCE.

As described by Simmonds and Gilmour (2005) and consistent with the TCE market perspective (Coase, 1937; Williamson, 1975), outsourcing is a practice that allows organizations to transfer their service delivery to external vendors. Although the number of outsourcing projects is increasing year after year and their potential benefits in many areas (e.g. cost savings, higher return on investment, and allowing companies to focus on their core competencies) are growing steadily (Martorelli, 2010), the promise of these

outsourcing providers to deliver added value remains somewhat unfulfilled (Willcocks, Hindle, Feeny, & Lacity, 2004). Particularly, as Willcocks et al. (2004) noted, client organizations frequently were not able to exploit vendors' superior technical know-how, mature management practice, and economies of scale.

The widespread adoption of IT outsourcing has emerged as an active research area for scholars since 1990 (Dibbern, Goles, Hirschheim & Jayatilaka, 2004). Among existing literature, scholars define IT outsourcing very similarly. However, these definitions vary because the propositions made by these authors are based on the purpose of their research. According to Klepper (1995), IT outsourcing has been described as “the provision of services by a vendor firm to a client” (p. 249). Loh and Venkatraman (1992) defined IT outsourcing more specifically as “managing a firm’s IT infrastructure through governance mechanisms with other firms” (p. 8). Two years later, Takac (1994) included the ownership dimension in the definition of IT outsourcing by stating that it involved transferring IT-related assets from service buyers to service providers so that service providers could take over the responsibility for the outsourced IT activity. Altinkemer, Chaturvedi, and Gulati (1994), who used the term information systems (IS) to reference IT, defined IT outsourcing as the “act of subcontracting a part, or all, of an organization’s IS work to external vendor(s), or manage on its behalf” (p. 252). For the purposes of this research, I am adopting the definition from Altinkemer et al. (1994) because it includes both IT-related services delivery and IT infrastructure management, which reflects current business practices (Cha, Pingry, & Thatcher, 2009).



### **1.2.1 Decisions Driving IT Outsourcing**

IT outsourcing entails cultivation of an interorganizational relationship between the client and the service provider, and thus, an inherently relational approach to the provision of IT services (Lee, Miranda, & Kim, 2004). This interorganizational approach is consistent with what Dyer and Singh (1989) term a Relational View. The Relational View is aligned with the RBV, which is concerned with internal resources and capabilities (Barney, 1991); however, it is distinct from the RBV in that it considers resources to also be derived from an interorganizational dyad or network, which results in a greater rent-earning potential for the resources (Dyer & Singh, 1989).

Several empirical studies have stated that outsourcing IT services to external vendors will help companies achieve higher service performance with lower cost (e.g. Duganier, 2005), and will allow corporations to gain competitive advantage (Johnston, Abader, Brey, & Stander, 2009; Lacity & Hirschheim, 1995). Competitive advantage occurs when a company acquires or develops a similar service or product as its competition, but at a lower cost (cost advantage), or by delivering a superior service or product than its competition (differentiation advantage) (Porter, 1985). These benefits motivate top business executives to increasingly contract out their IT operations to external service providers.

Recent literature on motivations for IT outsourcing suggests that outsourcing decisions are propelled by several other reasons. Both McFarlan and Nolan (1995) and Duganier (2005) stated that being able to obtain higher level of IT services at a lower cost was the key decisive factor for companies to outsource their IT operations. While acknowledging cost control was a key factor of IT outsourcing, Johnston et al. (2009)

added that environmental uncertainty, the high cost of developing internal expertise, and the ability to focus on companies' core business functions are also important factors that drive corporations' outsourcing decisions. Kishor, Agrawal, and Rao (2004) indicated commercial exploitation was another driver, especially for e-commerce projects.

IT outsourcing also has even been seen as a way to overcome internal politics to achieve organizational outcomes (Lacity & Hirschheim, 1995). Gartner (2005) has pointed out another noticeable factor for companies pursuing outsourcing—once personnel are freed from dealing with transaction-driven processes and tactical tasks, they can then spend more time on work that delivers strategic value. In addition, the growing technical complexity of IT and the substantial cost required to maintain a team of full-time competent staff is prompting an increasing number of companies to rely on the specialized expertise of outside service providers (Willcocks & Fenn, 2006). The level of dependency is expected to increase as firms become more reliant on the knowledge and motivation of external suppliers.

Depending on the nature of the outsourcing deals, the level of services offered by outside IT providers can range from body shopping (Pattnaik, 2005) and short-term consulting (Meyskens, Von Glinow, Werther, & Clarke, 2009) to selective outsourcing and comprehensive outsourcing (Lacity et al., 1996). Appendix A provides a detailed description of each of these outsourcing types. In this study, these outsourcing types are assumed to be held constant because the study concentrates on the managerial perceptions of outsourcing success given an outsourcing contract's governance type (driven by TCE), a firm's internal technological capabilities (driven by the RBV), and the desire to extrapolate more synergistic rents from interorganizational competitive

advantage (from the Relational View). The TCE, the RBV, and the Relational View will be discussed further in Chapter 2, Literature Review. Because the outsourcing type of contract was held constant, future work could include interactions between outsourcing type and the model developed herein.

### **1.2.2 IT Outsourcing Benefits**

Based on their observations of organizations that outsource their IT functions, Lacity and Willcocks (2000) categorized the desired benefits in terms of six strategic foci, namely financial position improvement, core competence, technology catalyst, business transition, business innovation, and new market. These anticipated benefits may appear individually or in combination over the outsourcing life cycle:

1. Financial position improvement through enhancing a firm's financial position by reducing overall the costs of performing a business function.
2. Core competence building through redirecting internal staff to focus on tasks that are more strategic in nature to provide better value.
3. Technology catalyst through bringing in external expertise to expedite the company's adoption of new technology.
4. Business transition through employing vendors to assist with key changes.
5. Business innovation through working toward business transformation and improving skills and technology to achieve competitive advantage.
6. New market development through using new sales channels to extend a company's product or services to a broader audience.

These perceived advantages could be seen as the key reasons that lead to large IT outsourcing deals being announced so frequently (Cha et al., 2009).

During the first half of 2010, Forrester Research interviewed 54 companies that have ongoing outsourcing projects worth at least \$10 million each. With the average

score being 4.33 out of 5, executives in these companies gave high marks for all 10 service delivery categories that Forrester tracked (Martorelli, 2010).

Even though the above-mentioned study shows that outsourcing projects are performing better than before (Martorelli, 2010), success is not guaranteed. However, Lacity and Willcocks (2000) found strong evidence that significant benefits can be gained through IT outsourcing, and these benefits are not limited to financial improvements. Per Claire et al. (2010) (processing efficiencies, quality improvements, plant scale flexibility and quality) and Kakumanu and Portanova (2006) (core competency development), the benefits derived from outsourcing help to align functional tactics with business strategy. In doing this, companies can increase the probability of higher performance (Hayes & Wheelwright, 1984). The Cao and Hoffman (2011) study also found that business strategy and functional-tactic alignment had a positive effect on business performance.

### **1.2.3 IT Outsourcing Detriments**

Despite some of the strong benefits of IT outsourcing, it also has significant detriments. A 1995 paper published by the Standish Group found that the cancellation rate for outsourcing projects was as high as 31.1%. The data suggested that over half of the outsourcing projects would end up costing almost double what they were originally estimated. Furthermore, there seemed to be a correlation between the failure rate and the size of the buying companies (Standish Group, 1995). While, on average, 16.2% of the software projects were completed on-time and on-budget, only 9% of the companies with revenue greater than \$500 million achieve that kind of success. Dun and Bradstreet (2001) also reported that between 20–25% of large IT outsourcing projects failed within two years, and an alarming 50% of these projects failed within five years.

DiamondCluster International, a consulting firm that specialized in Internet-based business development and telecommunications strategies, surveyed senior executives from both service recipients and service providers annually between 2002 and 2006 (Thibodeau, 2006). Its 2005 study revealed that growing numbers of companies were dissatisfied with their outsourcing vendors and struggled to realize full benefits from their outsourced projects (Weakland, 2005). While only 21% of the survey participants in 2004 reported that they had abnormally terminated an outsourcing vendor or canceled an outsourcing contract in the past twelve months, the number more than doubled to 51% in 2005 (Weakland, 2005) and 47% in 2006 (Thibodeau, 2006). These findings indicate that there is room for improvement.

Although Martorelli (2010) found many benefits as discussed in the previous section, the study also found that not all aspects of service delivery surveyed were getting high praise. While vendors' abilities to make a transformational impact in customers' environments had the lowest score among the 10 categories, executives ranked the vendor's account management and governance skills just in the middle of these ten categories. This certainly signals room for improvement in the IT governance area. (Note, because governance can take many forms, the next section will review IT governance).

Top executives also listed expectation management with business buyers (customers), effective knowledge transfer, and better goal alignment between outsourcers and business buyers as some of the top challenges that they experience with outsourcing partners (Martorelli, 2010). This latest finding echoes previous studies, which found that buyers were not able to absorb and exploit knowledge from their service providers

(Willcocks et al., 2004) and they struggled to realize the full benefit from their outsourced projects (Weakland, 2005).

Although vendors are responsible for delivering business value to their customers, Moore (2004) suggests purchasing companies need to share some of the burden before they can enjoy full benefits from their outsourcing initiatives. Mismanagement, not being able to solidify requirements, and bad-vendor and technology-selection procedures, among others, are some of the key factors that contribute to negative outcomes for outsourcing projects. Buyers have direct control over these elements (Moore, 2004).

Clearly, research on the results of IT outsourcing is mixed. This dissertation intends to clarify parts of this issue by not only looking at benefits from cost, governance type, financial commitment (asset specificity), commitment (attitudinal), and trust (calculative), it also looks at the impact of technological capability on managerial perceptions of outsourcing success and the possibility of future business.

### **1.3 The Purpose of this Dissertation**

Previous researchers have studied the phenomenon of outsourcing from many different perspectives, including the following:

1. Impact on the firm from an economic perspective and from political or social perspectives (Lacity & Hirschheim, 1993);
2. A resource and skills perspective--among all essential business functions, IT is considered as one of the areas requiring highly skilled employees and thus demands significant amounts of resources (Loughry & Elms, 2006; Masters & Miles, 2002; Teece, 1986);

3. Key determinants of outsourcing (e.g., Loh and Venkatraman (1992) studied the effect of strategic intent, project complexity, and technological maturity phase in organizations' e-commerce project sourcing decisions); and
4. Technical skills required as antecedents to outsourcing (Auber, Rivard, & Patry, 2004).

This dissertation enriches previous research in the subject of outsourcing by investigating factors that can affect manager's perception in IT outsourcing success. It focuses on governance-mechanism contributions to successful IT outsourcing initiatives from the perspective of managers who have overseen IT outsourcing engagements. Robbins (2009) stated that perception "is a process by which individuals organise and interpret their sensory impressions in order to give meaning to their environment" (p.119). Robbins (2009) further indicated that "peoples' behaviour is based on their perception of what reality is, not on reality itself. The world as it is perceived is the world that is behaviourally important" (p. 119). DeArmond, Huang, Chen, and Courtney (2010) also mentioned that "individuals' attitudes or perceptions can influence their actions" (p.4). This notion was confirmed by studies such as that by Ang and Straub (1998), which concluded that perceived comparative advantages in production costs offered by vendors had influenced executives' decisions to outsource their IT functions. In the context of this study, one can infer that a manager's perception of an outsourcing outcome is an important measure because this perception can impact a manager's decision in future IT outsourcing endeavors. The main focus of this dissertation will be the examination, investigation, and analysis of governance mechanisms and their impact on success of IT outsourcing, or more specifically, the formal and informal mechanisms that are

theoretically driven, the internal resources required to support and enhance those contractual governance mechanisms, and the interorganizational resources necessary to achieve higher perceptions of satisfaction regarding the outsourcing arrangement.

By building on the existing knowledge base, this study contributes to the field of strategic management by highlighting and examining the contributions of the need for governance of critical resources, and the actual difficulties in managing a contract based on knowledge wherein the skills of the individuals involved in any contract become a critical resource for the outsourcing firm (per Dyer & Singh, 1989). In reviewing the extant literature, this dissertation asks and studies the following questions:

1. Given TCE, what is the impact of formal and informal mechanisms on managerial perceptions of outsourcing success?
2. Given the RBV, what is the impact of internal technological capabilities on managerial perceptions of outsourcing success?
3. How does the Relational View of interorganizational competitive advantage help to bridge TCE and the RBV, and better inform managerial perceptions of outsourcing success?



## **CHAPTER II**

### **Literature Review**

There are competing as well as complementary theories regarding IT outsourcing governance; among which, the TCE, and the RBV traditionally have been applied to an organizational economics approach in the discipline of strategic management. To many scholars, these theories are considered as part of the theoretical core of the management discipline (Barney & Ouchi, 1986; Rumelt, Schendel & Teece, 1994). They have been used in a number of articles on growing outsourcing practices in IT from various perspectives, such as the determinants of sourcing decisions (Ang & Straub, 1998; Kishore, Agrawal & Rao, 2004; Loh & Venkatraman, 1992), the importance of maintaining internal capability (Willcocks & Feeny, 2006), and the relationship between IT outsourcing strategy and outsourcing success (Lee, Miranda, & Kim, 2004). In the following sections, these prominent theories are reviewed and their relevancy to this empirical study is discussed.

Besides TCE and RBV, Agency Theory also has been used in some IT outsourcing literature. Agency Theory traditionally is used to explain the principal-agent issues that initially focused on the relationship between owners and managers (Berle &

Means, 1932). Since the ground-breaking work done by Jensen and Meckling (1976), Agency Theory has been used by scholars to explain phenomenon found in executive compensation, employee management, and corporate governance, among others. It is concerned with the agency relationship, which occurs every time an entity (the agent) performs work on behalf of, or takes on responsibility from, another entity (the principal) who owns the assets, in accordance with a mutually agreed contract (Eisenhardt, 1989; Jensen & Meckling, 1976). While principals want their agents to work as hard as possible for the compensation that they are paying their agents, Agency Theory argues that employees are motivated to exert as little effort as possible for the rewards. Conflicts of interest also have been shown to occur between managers and owners, in which owners want to optimize their profits, but managers are more concerned about doing things that will secure or even improve their jobs and status, such as acquisition or using corporate assets for personal use (Galbraith, 1967; Williamson, 1964).

The separation of ownership and control and the conflict of interests between the principal and agent are the underpinning focus of Agency Theory (Jensen & Meckling, 1976). However, neither of this occurs in typical IT outsourcing engagements. In a typical IT outsourcing project, such as business process outsourcing (BPO) and custom application development, the outsourcing companies (the principals) do not actually own the tangible and intangible resources that their vendors (the agents) use to provide their services. Because this study is concerned with IT outsourcing from the outsourcing companies' point of view, it will not make use of the Agency Theory and will focus on demonstrating how the competing theories of TCE and the RBV explain the tension between trying to manage the tremendous costs of IT and outsourcing contracts (using

efficiency arguments from the TCE) and deriving value-added activities from an outsourcing contract (using effectiveness arguments from the RBV).

Finally, the Relational View of interorganizational competitiveness (Dyer & Singh, 1989) bridges the TCE and RBV, and notes that development of external networks are a source of competitive advantage to those firms that learn to use those networks successfully (Dyer, 1996). The typical short-term market interaction between and outsourcer and outsourcee is being replaced by longer term vertical partnerships in which both outsourcer and outsourcee collaborate greatly (Johnston & Lawrence, 1988), and outsourcing relationships have become critical to organizational strategy (Dubini, 1997). Given that critical functions have now been outsourced, Dyer and Singh (1998) identified four potential sources of interorganizational competitive advantage as critical to preserving relational rents, as follows:

1. Relations-specific assets;
2. Knowledge-sharing routines;
3. Complementary resources; and
4. Effective governance.

These Relational View's sources of competitive advantage clearly bridge TCE and RBV, with relation-specific assets being similar to TCE's asset-specificity, knowledge-sharing routines being similar to the RBV's knowledge sharing; and effective governance being similar to TCE's contributions to governance structure. The main difference between the market perspective of TCE, the firm-level RBV, and the Relational View is that both TCE and the RBV have the firm as the unit of analysis at their core. The Relational View, has the interorganizational dyad or network as the unit of

analysis at its core, and it specifically includes complementary resources between firms in its paradigm.

## **2.1 Transaction Cost Economics**

As noted in the introduction, The TCE views the corporation as a bundle of transactions (Coase, 1937), and has been applied widely by scholars to explain how organizations make strategic purchasing decisions. It explains that markets (strictly speaking, external purchases) and hierarchies (strictly speaking, internal development) are two alternative governance mechanisms (Coase, 1937). Choosing one or the other largely depends on the transaction costs that are involved in these two options.

This idea gained further popularity after Williamson (1975, 1985) tested the efficiency of these governance structures with measurable transaction dimensions, such as asset specificity and transaction frequency. According to TCE, economizing is a basic fundamental goal of any organization (Williamson, 1991). Additionally, all economic activity revolves around different transactions that basically are some form of exchange of goods or services between two or more economic partners. To optimize this type of exchange, appropriate governance mechanisms must be matched to the nature of the transaction (Williamson, 1985). Any company that fails to comprehend the cost implications of their strategies may suffer inferior economic performance (Goerzen & Beamish, 2005).

Williamson (1975) suggested that there are three key factors that determine whether a company will keep transactions within its hierarchy or move them into markets. Transactions, such as payroll processing, that are straightforward, repetitive and do not require transaction-specific investments, will take place across a market

interface. In this context, transaction-specific investments include money, time, or energy that cannot be transferred easily. However, transactions that are high in complexity, with high recurring frequency, or with “transaction-specific investments” (also known as asset-specificities, which can lead to opportunism in the transaction interface), are more likely to take place within hierarchically organized firms. This is because the costs to construct, monitor, and enforce transactions (i.e., transaction costs) in the latter scenarios often outweigh the market benefits if they are not being managed well (Geyskens, Steenkamp, & Kumar, 2006).

According to TCE, bounded rationality and opportunism are two main causes of contractual hazards. Bounded rationality as first introduced by Simon (1955), in part, refers to the information asymmetry between actors and unknowns that often exists in business transactions. Although a complex construct in and of itself, bounded rationality is being used in this strict definition for this paper, particularly because of the information asymmetry that can occur between contract participants. Because bounded rationality cannot be eliminated, it is being treated as a constraining theoretical assumption within the TCE perspective per Judge and Dooley (2006). This study will follow the same assumption and treat bounded rationality as an inherent limitation. Furthermore, bounded rationality implies that managers making the significant decisions surrounding IT investments on outsourcing commitments do so without full knowledge of outcomes. This would help to explain how managers might be satisfied with cost outcomes, but be unsatisfied with effectiveness outcomes. This duality is important for this dissertation.

Opportunism refers to human nature in that actors may seek to serve their self-interests rather than the best interests of their partners, when given the opportunity.

According to Williamson (1975), opportunism “refers to a lack of candor or honesty in transactions, to include self-interest seeking with guile.” (p. 9). Unfortunately, it is difficult to know beforehand who will act opportunistically during the transaction and who will not, which creates behavioral uncertainty (Williamson, 1985).

Contractual hazard (Coase, 1937; Williamson, 1975), which includes issues such as observability (Holmstrom, 1979), asset specificity (Williamson, 1985), and appropriability (Pisano, 1990), can lead to greater possibility of opportunism (Mayer & Salomon, 2006). Observability concerns the degree of monitoring that can be done to confirm actions by actors (Holmstrom, 1979). As stated by Holmstrom (1979), “full observation of actions is either impossible or prohibitively costly” (p. 74). The higher the degree of difficulty in monitoring actions and measuring quality of results, the higher the likelihood that a company will prefer using a hierarchical governance approach instead of a market-based contract (Mayer & Salomon, 2006). Asset specificity refers to the degree that assets can be deployed to alternative uses (Williamson, 1985). The higher the degree of asset specificity, the lower the amount of alternative uses of assets and the higher the possibility that vendors will act opportunistically (Kvaloy, 2007). This was often referred to as the holdup problem (Susarla, Subramanyam, & Karhadde, 2008). Lastly, appropriability describes the risk of exposing a company’s intellectual property to expropriation (Pisano, 1990). Using a company’s investment in research and development as an example, Pisano (1990) explained that corporations would conduct projects internally to minimize the risk of exposing their know-how to competitors.

Unlike bounded rationality, opportunism sometimes can be mitigated by appropriate governance mechanisms that match the nature of the transaction (Das & Teng, 2000). Misrepresentation of (Flinders, 2010), overcharging for (Pacheco, 2007), and withholding information (Bielski, 2006), or withholding technology (Cannice, Chen, & Daniels, 2003), are some opportunistic behaviors that one partner in a transaction may exhibit. In 2010, the British High Court ruled that Electronic Data Systems (EDS), now a unit of Hewlett-Packard (HP), misrepresented its capabilities when selling a Consumer Relationship Management (CRM) system service project to British Sky Broadcasting Group (BSkyB) (Flinders, 2010). It was reported that HP had agreed on June 7, 2010 to pay a total of £318 million, valued at that time at US\$ 461 million (XE, 2010), as part of the final settlement of this legal case (Deans, 2010).

By deploying appropriate governance mechanism(s), one can reduce the possibility of opportunism, but this also increases the cost of such a transaction (Kvaloy, 2007). And with uncertainty, more elaborate governance mechanisms to reduce transaction costs effectively are needed because of the higher possibility of opportunism and potential damages resulting from such opportunism. Therefore, companies will have a competitive advantage if they can better manage the employment of such mechanisms to minimize transaction costs derived from environmental uncertainty, asset specificity, and the potential for opportunistic behavior, while effectively controlling such issues (Rindfleisch & Heide, 1997). Through synergies, companies will be able to keep the extra profits that their resources jointly generate (Becerra, 2008). This will in turn lead to superior profitability for the firms. Becerra (2008) called this resource specificity or

“marginal contribution of resources being specific to the firm in which they are employed” (p.1119).

When encountering a make-or-buy decision, TCE assumes that market governance is preferable over hierarchical governance because of the free hand of the market derived from higher competition in the marketplace. As suggested by Adam Smith more than two centuries ago, society is somewhat self-regulated by the conjoined forces of self-interest and competition. Competitive market forces will induce the supply of goods and services that are desired by consumers at the costs that customers are willing to pay (Mafi-Kreft, 2003).

Despite the higher costs of the initial search for the right partner and the administrative burden needed to coordinate tasks across corporate boundaries, TCE suggests that using market governance will make sense as long as the cost of a transaction within the institution remains higher than the total cost of the same transaction via open market exchange (Williamson, 1985; Saarinen & Vepsalainen, 1994). As mentioned earlier in this study, one key cost while using an open market exchange is what TCE calls contractual hazard (Coase, 1937; Williamson, 1975), caused by issues such as imperfect measurement and asset specificity. From the TCE perspective, companies should internalize transactions in the presence of contractual hazards and employ external vendors to handle transactions when such hazards are absent (Mayer & Salomon, 2006).

While TCE has suggested that the use of an appropriate governance structure helps to safeguard against opportunism, TCE has been criticized for lacking in social and relational aspects of the exchange (Carson, Madhok, & Wu, 2006). Other scholars have



also weighed in on this important topic. For example, Anderson and Dekker (2005) suggested contract extensiveness, which is the extent both business partners engaging in IT outsourcing project can foresee contingencies when designing contracts. This was said to be one way to alleviate holdup by the other party (Susarla, Subramanyam, & Karhadde, 2008). Informal governance addresses this issue by focusing on building a long-lasting relationship between outsourcing companies and their service providers through relational contracting (Granovetter, 1985), trust (Ness & Haugland, 2003), and commitment (Goo, Kishore, Nam, Rao, & Song, 2007). Poppo and Zenger (2002) have argued that legal contracts and relational governance complement each other in inter-organizational exchanges. This view point was also echoed by Ryall and Sampson (2009) and Goo, Kishore, Rao, & Nam (2008).

Baker, Gibbons, and Murphy (2001) described the first of these forms—relational contracts—as informal agreements that were sustained by the value of future business opportunities. These added business opportunities were said to “reduce incentives for opportunism in any given transaction” (Carson et al., 2006, p. 1058).

The second form of informal mechanisms is trust, which is comprised of benevolent trust and calculative trust. Black (2008) defined benevolent trust as the extent to which one party believes that the other party has intentions and motives that will benefit both parties. Calculative trust is an ongoing, market-oriented economic evaluation where each party assesses the benefits and costs to be derived from creating and sustaining a relationship (Lewicki & Bunker, 1996). Ness and Haugland (2003) concluded that benevolent trust and calculative trust can affect the development and

expansion of inter-firm relationships. However, Jeffries and Reed (2000) theorized that too much trust can also lead to satisficing and pareto-inferior solutions.

Lastly, the informal contract type of commitment indicated that one firm would identify with its business partner(s) and, therefore, be committed to maintaining the relationship to pursue the interests of both itself and its partner(s) (McGee & Ford, 1987). Commitment was found to moderate the impact of service-level agreements (SLAs) on outsourcing success (Goo, Huang, & Hart, 2008). One year later, Goo, Kishore, Rao, and Nam (2009) empirically examined and confirmed that well-structured SLAs can also “enable effective management of outsourcing engagements through the development of partnership-style relationships with high levels of trust and commitment” (p. 120).

### **2.1.1 Transaction Cost Economics and IT Outsourcing**

The evolving literature on IT outsourcing frequently has used TCE to help explain its observations and predictions. As Willcocks and Lacity (1995) stated, several academics such as Beath (1983), Klepper (1993), and Lacity and Hirschheim (1993) have proposed that TCE provides a solid theoretical framework for describing and explaining the IT outsourcing phenomenon. For example, by relying on TCE, Aubert, Rivard, and Patry (2004) indicated that uncertainty and measuring problems are the major deterrents to outsourcing, and the level of technical skills creates a positive relationship with the company’s decision to outsource its IT functions. At the same time, business skills do not seem to have a major impact on the IT outsourcing decision, which the authors believe is because of relatively low level of business skills are required to conduct IT operations. Lastly, this study finds that asset specificity renders inconsistent effects. While results from the study’s first round of surveys suggests a positive relationship between asset

specificity and outsourcing activities, which contradicts TCE, subsequent surveys using both non-experts and experts, indicates opposite effects more congruent with expected TCE results.

Among all the recent studies, the most common discussion is related to the reasoning behind IT outsourcing, and many have focused on the economic determinants of such business relationships (Ang & Straub, 1998). One of the key reasons cited is no doubt the impression of cost savings that an open market can bring (Loh & Venkatraman, 1992). From this, TCE helps to predict whether a company will decide if it wants to perform its IT functions in house or outsource them after comparing production costs of internal operations to the total cost of fees required to pay vendors for the same IT services in the marketplace, plus the transaction costs to manage such business exchanges (Saarinen & Vepsalainen, 1994). Here, transaction costs refer to the resources including human resources, tools, time, and financial outflow incurred in searching, creating, negotiating, monitoring, and enforcing a service contract between buyers and suppliers (Mahoney, 1992). Through their research on IT outsourcing contracts within the banking industry, Ang and Straub (1998) have confirmed that perceived comparative advantages in production costs offered by vendors do appear to influence executives to outsource their IT functions, and increasing transaction costs do have a deterring effect on the IT outsourcing decision.

Lacity and Hirschheim (1995) found that firm size also affects a company's IT outsourcing decisions. While IT service providers were perceived to be able to enjoy economies of scale, which were referred to as lower average costs per unit, "due to mass production efficiencies and labour specialization" (Lacity & Hirschheim, 1995, p. 339),

smaller organizations often have greater difficulty generating economies of scale in their own IT operations. They further reported that this advantage enabled service providers to offer their services at a lower cost than their customers' internal IT departments, and they confirmed a negative relationship between firm size and outsourcing decisions.

According to Mudambi and Tallman (2010), service providers achieve economies of scale by applying "these processes to multiple clients, thus gaining scale efficiencies not available to the potential outsourcing client. They also will experience learning effects in applying these processes in more situations and to a wider range of applications than any single client." (p. 1441).

TCE has been used to help explain another key research area in IT outsourcing: the inter-firm cooperation or partnering relationship between the customer and the IT vendors (Clemons & Row, 1992; Klepper, 1995). Particular interest was paid to the variables that can improve the chance of a successful IT outsourcing relationship. For example, Levinthal and Fichman (1988) suggested that the inter-firm relationship grows over time, primarily through knowledge investments by the partner firms, and the trust and increased ability to communicate resulting from relationships between personnel of both parties. De Vita, Tekaya, and Wang (2010) also reported that service providers' human and dedicated asset-specific investments contributed significantly to their relationship with customers. The Dwyer, Schurr, and Oh (1987) model of partnership development, which includes attraction, communication, bargaining power, and norms and expectations, also was being suggested as beneficial in managing the development of partnerships between customers and service vendors (Klepper, 1995).

Many scholars have introduced guidelines for practitioners to conduct outsourcing functions assessments (Lacity, Willcocks, & Deeny, 1996) and to manage outsourcing engagements (Willcocks & Lacity, 1995), which have made real contributions to our understanding of the IT outsourcing phenomenon. However, even though scholars were able to use TCE to provide an explanation for some of the IT outsourcing phenomenon, Willcocks and Lacity (1995) also asserted that they have found many residuals, which are the experiences not explained by the theory and anomalies that actually contradict the theory. In addition, though many scholars are treating TCE as a fully explanatory theory, not many empirical tests have been done to validate its predictive power. Therefore, Willcocks and Lacity (1995) have suggested scholars consider adding other established theories in their studies to help increase the accuracy of their explanatory power. This dissertation attempts to do so by combining TCE with the RBV and knowledge management, as seen in the following sections.

## **2.2 The Resource-Based View**

The RBV traditionally has been used to understand the unique factors that enable organizations to gain and sustain competitive advantage (Amit & Schoemaker, 1993; Barney, 1986, 1991; Rumelt, 1984; Wernerfelt, 1984). It is considered one of the most widely accepted theories of strategic management (Newbert, 2007) because the RBV is at the core of strategic management theory and has been used as a theoretical basis in numerous studies (Berry-Stolzle & Altuntas, 2010). To find out the level of reliance upon the RBV's support in empirical literature, Scott Newbert performed a search of published journal articles in ABI/Inform and EconLit and found that there were 1,152 articles with "resource-based" or "RBV" in their titles, or abstracts (Newbert, 2007). After applying

more filtering technique, such as looking for relevant keywords, and reading the abstracts and the contents of those articles, Newbert (2007) identified 55 articles that are substantively relevant to RBV. As these scholars indicate, not all resources under a company's control are important to the success of that company.

According to Barney (1991), firm resources include “all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc., controlled by a firm that enable the firm to conceive of and implement strategies that improve its efficiency and effectiveness” (p. 101). Barney (1991) proposed how resource value, rareness, costly imitation, and strategic substitutes contributed to competitive advantage under conditions of uncertainty.

Because of the management team's intimate knowledge of the firm's capabilities and its internal processes, managers are considered one of the key resources of any company as well. In fact, it was, Penrose (1959) whose work underpins the RBV and whom suggested a potentially important causal link between top managements' knowledge of the firm's resources and capabilities and superior resource allocation decisions.

Barney (1991) extended Penrose's work to explain the impact of resource heterogeneity on firm profits. Further extending the RBV, Teece et al. (1997) defined dynamic capabilities as “the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments.” (p. 516). They used the word dynamic to emphasis the need to exploit “existing internal and external firm-specific competences to address changing environments” (p. 510) because “certain innovative responses are required when time-to-market and timing are critical” (p. 515).

Winter (2003) elaborated on the concept of dynamic capabilities and introduced a term called ordinary or 'zero-level' capabilities, which referred to “those that permit a firm to 'make a living' in the short term” (p. 991). Conversely, “capabilities that would change the product, the production process, the scale, or the customers (markets) served” (p. 992) are higher level capabilities.

Helfat and Peteraf (2003) referred to organizational capability as the ability of an organization to perform a coordinated set of tasks and using organizational resources, for the purpose of achieving a particular end result. Additionally, organizational capabilities can be used to support production of a sequence of products or multiple products concurrently (Helfat & Raubitschek, 2000), which make them more valuable to the companies that possess them. Kor and Mahoney (2005) also stated that intimate knowledge of the firm and its organizational capabilities could be critical for effective allocation of limited financial and human resources. The RBV suggests that managers' firm-specific experience, involving tacit knowledge of a firm's capabilities, organizational routines, and business objectives, allows managers to make better-informed decisions that are unique to each firm (Penrose, 1959).

This tacit knowledge is connected with problem solving (Polanyi, 1966), and dependent on the interactions within multiple parties (Goffin & Koners, 2011). Furthermore, tacit knowledge cannot be codified (Polanyi, 1962), which means that even the knowledge owner is not able to construct the relevant information into a set of identifiable rules and relationships that can be easily communicated (Kogut & Zander, 1992). Therefore, it has been suggested that tacit knowledge can best be expressed by direct interaction and storytelling (Mascitelli, 2000). During outsourcing engagements,

employees who are actively engaged in this process potentially can gain valuable knowledge, including sourcing experience and efficient governance of the relationship with the vendors (Espino-Rodríguez & Padrón-Robaina, 2006).

Through interactive learning, a company's cross organizational boundary capabilities can be further enhanced (Kale, Dyer, & Singh, 2002). The greater the development of such capabilities, the higher the probability of them influencing competitive advantage (Espino-Rodríguez & Padrón-Robaina, 2006). This type of valuable knowledge is a positive knowledge spillover, and the buyer must protect and promote its reuse and integration for its existing processes (Mayer, 2006) in order to have a continued competitive advantage.

### **2.2.1 The Resource-Based View and IT Outsourcing**

Similar to TCE, the RBV has been applied considerably in IT outsourcing research. Many studies use the RBV to explain the determinants and extent of IT outsourcing. Willcocks and Feeny (2006) acknowledged several studies employed RBV to help explain contributions that IT can make to achieving competitive advantage. Espino-Rodríguez and Padrón-Robaina (2006) stated that "RBV helps to distinguish the core competences and provides knowledge about which activities must be performed in-house and which must be outsourced" (p.53). More specifically, Galanaki, Bourantas, and Papalexandris (2008) applied RBV to develop a decision model to help companies determine which, if any, of the training functions may be outsourced. According to Espino-Rodríguez and Padrón-Robaina (2006), a firm's resources can be any production factors that are available to that company. Each organization has different tendencies in exploiting their resources, evaluating their values, and assembling them together in order



to produce their final products or services (Han, Lee, & Seo, 2008). Han et al. (2008) further stated that the ways in which performance can differ significantly depends on how organizations orchestrate their resources together. Adopting appropriate IT governance mechanisms was found to help companies reduce risk and establish 'best practices' in the IT functions (Wessels & Loggerenberg, 2006).

### **2.2.2 The Resource-Based View and Internal Capabilities**

It is well understood that knowledge is one of the scarce resources that can explain, in part, differences in marketplace performance. Under the Knowledge-Based View (KBV), knowledge is believed to be the key driver of competitive advantage and firm scope (Grant, 1996; Kogut & Zander, 1992). After analyzing data collected from 129 companies, Ravichandran and Lertwongsatien (2005) concluded that a firm's IT capabilities had contributed to firm performance. The study also found a causal relationship between internal IT resources and IT capabilities, as well as a company's IT capability and its IT support for core competencies. These relationships illustrate the path dependencies that companies have while using IT to complement and pursue their firm strategies.

Besides ensuring their management teams have skills to manage IT outsourcing engagements, companies must be sure that they have sufficient technical resources in-house to be able to clearly articulate their expected outcomes from their outsourcing initiatives and to develop precise measurements to track their progresses (Barthelemy, 2001). Furthermore, Mudambi and Tallman (2010) suggested that the "more knowledge a company has in a particular field, the easier it is to manage inter-firm relationships and to profit from external knowledge retention" (p. 1439). This observation is termed

“connective capability”, which is one of the six knowledge capabilities that Lichtenthaler and Lichtenthaler (2009) have identified as a critical capability responsible for managing internal and external knowledge exploration, retention, and exploitation.

Customer organizations with a history of increasing efforts in developing technological skills may gain in competitive advantage over their counterparts that do not commit to internal resource development (Kor, 2001; Kor & Mahoney, 2005). According to Itami (1987), corporate competencies are essentially information-based invisible assets, which include management skills, and technological capability (Pucik, 1988). Because competencies are embodied in employees within the organization, they represent a type of tacit knowledge that is difficult to imitate (Teece, 1987). Tacit knowledge is a type of knowledge that embeds in an individual’s personal experience and involves intangible elements, such as personal belief and values, which make it difficult to be articulated or codified (Polanyi, 1992; Nonaka & Takeuchi, 1995).

As such, Itami (1987) further suggested that accumulation of such invisible assets could be seen as a foundation for sustainable competitive advantage. Twenty years later, Kang, Morris, and Snell (2007) also reiterated that a firm's accumulated skills were the foundation for its core competencies; the flow of that knowledge was the key enabler to help it refine, and expand those critical skills.

One way that a corporation can accumulate competencies is through organizational learning. Levitt and March (1988) defined four sources of organizational learning:

1. Learning from direct experience: Corporations enrich their organizational experience through either trial-and-error experimentation or through organizational search, which

- represents the approach in which organizations draw from a pool of alternative routines and then adopt the better ones that they have discovered. The organization learns by doing.
2. Interpretation of experience: Although causality of events is often ambiguous and is subject to individual or group bias, organizations do form interpretations of events and classify their outcomes as good or bad.
  3. Organizational memory: “Rules, procedures, technologies, beliefs, and cultures are conserved through systems of socialization and control. They are retrieved through mechanisms of attention within a memory structure” (Levitt & March, 1988, p. 326). The approaches that an organization uses to maintain and consult its organizational memory structure has direct impact on how that organization reuses its experience and sets its future path.
  4. Learning from the experience of others: Organizations learn from other companies through the transfer of encoded knowledge in the form of technologies, procedures, or similar routines.

Although the first three sources could be adversely affected by outsourcing—because the temporary nature of outsourcing weakens the traditions and routines associated with a strong organizational culture (Pucik, 1988)—an organization can enhance its competencies by learning from its outsourcing vendors. However, a firm’s absorptive capacity for new information and knowledge is limited by its current knowledge endowment (Cohen & Levinthal, 1990). Cohen and Levinthal (1990) defined absorptive capacity as the company’s ability “to recognize the value of new, external information, assimilate it, and apply it to commercial ends” (p.128) and suggested that

this ability was critical to a company's innovative capabilities. Kor and Mahoney (2005) also stated that a firm's past investments in its technical skills could have continued economic value in the present and in the future because these investments could help that firm absorb new knowledge more efficiently. With strong internal technical forces working with the vendors throughout the project lifecycle, customers will increase their chance of learning relevant skills through the transactions. These inter-firm interactions raise the customer firm's possibility of reusing such knowledge in the future, which is important for sustaining a competitive advantage (Lichtenthaler & Lichtenthaler, 2009).

Recent RBV work promotes knowledge gathering and integration (Newbert, 2007), so that a company can increase its stock of a resource—in this case, knowledge—and further its competitive advantage by using this new information as a catalyst for transforming its existing knowledge (Mayer, 2006). At the very least, such knowledge can be redeployed in a different area in order to extend the benefits that the knowledge brings (Teece et al., 1997). Furthermore, keeping a sufficient level of internal IT expertise will also help transferring the outsourced service to another service provider or back to in-house at the end of the contract (Barthelemy, 2001).

In summary, the company's internal technical capabilities (Lichtenthaler & Lichtenthaler, 2009) and the experience of the company's management team in handling its outsourcing engagements and integrating these supplemental resources in the best possible manner (Kor & Mahoney, 2005) are two of the key contributing factors that can help determine whether companies can enjoy more benefits from their outsourcing endeavors. This dissertation will investigate the relationship between each of these two factors and the managerial perceptions of the outsourcing success.

### **2.3 The Relational View**

After studying the industry structure view and the RBV regarding the sources of competitive advantage, Dyer and Singh (1998) argued that the sources of supernormal returns may not be limited to those that are housed within the firm as suggested by those two prominent views. Instead, “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 & Singh, 1998, p.660). Haried and Ramamurthy (2009) also echoed that a firm’s critical resources may span firm boundaries and may also be embedded in inter-firm resources. Rather than using the firm as the primary unit of analysis, as proposed by both the TCE and the RBV, the relational view of competitive advantage focused on using dyad/network routine and processes as the unit of analysis. As indicated by Gulati, Nohria, and Zaheer (2000), a network approach allows consideration of strategic benefits from optimizing not just a single relationship but the firm’s entire network of relationships. The Relational View of the firm suggests that a firm’s relationships with its business trading partners are essential for understanding how it can achieve competitive advantage (Dyer & Singh, 1998).

The Relational View further argued that supernormal relational rents could be generated when business partners combine, exchange, or invest in idiosyncratic relationship-specific assets, knowledge-sharing routines, and complementary resources/capabilities endowments. In addition, relational rents can also be realized when business partners “employ effective governance mechanisms that lower transaction costs or permit the realization of rents through the synergistic combination of assets, knowledge, or capabilities” (Dyer & Singh, 1998, p. 662). Gulati, Nohria, & Zaheer

(2000) later added that this type of partnership building was not a one-time investment and it indeed required continuous maintenance before it could flourish. In order to maintain rent generation abilities, companies need to initiate necessary changes to the partnership as it evolves while also managing partner expectations (Gulati, Nohria, & Zaheer, 2000).

Since it was introduced by Dyer and Singh (1998), the Relational View has been used in various research areas. Poppo and Zenger (2002) suggested relational norms, such as trust, could be used as substitutes for complex, explicit contracts during market exchange. Literature in economics and sociology has generally viewed relational governance and formal contracts as substitutes (Poppo & Zenger, 2002). Gulati (1995) argued that the presence of one governance device could obviate the need for the other. Furthermore, trust and reputation, as a form of self-enforcement could increase relational rents because it could minimize transaction costs as compared to formal contracts (Dyer & Singh, 1998). The Relational View has also been used to explain how firms chose their preferred way to govern relationship with their outsourcing partners (Barthelemy, 2003).

Recently, the Relational View was used to explain the reason behind suggesting companies in R&D intensive industries to take advantage of the complementing resources of their partners (Mol, 2005). Dyer and Singh (1998) suggested that “firms who combine resources in unique ways may realize an advantage over competing firms who are unable or unwilling to do so” (p.661). The Relational View was also being used to discuss the benefit of early supplier integration (Gassmann, 2006). Studies found that suppliers could enhance the success of a firm’s innovation projects by contributing their specific capabilities (Sobrero & Roberts, 2002). According to Hagedoorn (1993),

suppliers' early involvement in the innovation process increases innovation performance in most industries. The Relational View of setting up differentiated relationships with suppliers early was said to allow companies enjoy significant benefit (Gassmann, 2006). Samaddar and Kadiyala (2006) also used the Relational View to explore and confirm the important of trust in governing inter-firm relationship in Korea. Data showed that "Korean company is governed by a lesser degree of contractual completeness and more by trust in its outsourcing relationship" (Samaddar & Kadiyala, 2006, p.922). After analyzing various complementary and, sometimes, contradictory theories that had been used to ground the studies of the outsourcing phenomenon, Perunovic and Pedersen (2007) associated those theories with different phases of the outsourcing process and concluded that the Relational View was the only one that had been applied in all five phases of the outsourcing process, which included preparation, vendor(s) selection, transition, managing relationship, and reconsideration. Drawing on the Relational View of the firm, Fink (2010) proposed a framework that identified four high-level dimensions that corresponded to an organization's resource position in four key areas: organizational IT value position, organizational IT asset position, relational asset position, and relational capability position. Last year, Ndubisi (2011) reported that the Relational View had also been utilized in studying the transition, managing relationship and reconsideration phases of the inter-organizational relationship building process. It confirmed that self-enforcement did play a significant facilitating role in conflict handling between business partners (Ndubisi, 2011).

### **2.3.1 The Relational View and IT Outsourcing**

Along with the RBV, the Relational View has been considered as one of the two main paradigms in strategic management theories used to explain outsourcing (Chadee & Raman, 2009). Since it was introduced by Dyer & Singh (1998), the Relational View has been used in substantial IT outsourcing related literature to discuss the use of formal and informal governance mechanisms in managing outsourcing relationship (Barthelemy, 2003); to prescribe ways to nurture rent-generating abilities from outsourcing partners (Gulati, Nohria, & Zaheer, 2000); to support the idea of keeping a small but active suppliers network (Manhnke, Overby & Vang, 2005); and to explain how a self-enforcement governance mechanism was a preferred approach in handling inter-firm relationships (Poppo and Zenger, 2002).

According to the Relational View, companies will outsource business functions if relational rents can be generated from inter-organization knowledge sharing, complementary resource endowments, or effective governance (Dyer and Singh, 1998). Supernormal rents can be generated when partners invest in relation-specific assets and companies will be more willing to outsource when these investments are likely to yield a satisfactory return for all firms involved. However, the Relational View does not presume that combinations of different firms' resources alone will create competitive advantages. Instead, relational rents will be created through the continuous successful evolvement of the IT vendor - outsourcer relationship (Manhnke, Overby & Vang, 2005).

Due to the significant resources required to invest in relation-specific assets, partner-specific absorptive capability, and in identifying partners with complementary



resources that can be realized, the Relational View argues that firms can increase profits by increasing their dependence on a smaller number of IT service providers (Manhnke, Overby & Vang, 2005). With a limited amount of business partners, companies can focus on communicating objectives, setting proper expectations, and building relationships to promote risk and benefit sharing in order to develop a win-win situation for all parties involved (Lee & Kim, 1999). Because partner-specific absorptive capability can be enhanced when partners “get to know each other well enough to know what and where critical expertise resides within each firm” (Dyer & Singh, 1998, p.665), a smaller number of service providers will ensure outsourcers be able to devote sufficient resources to build their relationships with their vendors. Furthermore, as Barthelemy (2003) suggested, trust generally develops over the course of a relationship. Dyer and Ouchi (1993) also stated that direct contact, such as through face-to-face meetings, was crucial to developing trust between the client and the vendor. A large number of service providers may dilute outsourcing companies’ abilities to develop mutual trust with their business partners. Because the Relational View advocates the use of self-enforcement in place of third-party enforcement, a smaller number of strategic service providers will be more favorable in generating relational rents.

Scholars also used the Relational View to strengthen their discussions in specific types of IT outsourcing projects. One of the potential sources of inter-organizational competitive advantage is inter-firm knowledge-sharing routines, which were defined as regular inter-firm interactions that permit the transfer, assimilate, or creation of specialized knowledge (Dyer & Singh, 1998). This implies a mutual interdependence between outsourcers and service providers to achieve an arrangement’s potential

(Manhnke, Overby & Vang, 2005). Mahnke (2001) thus argued that this type of relational rent-generating source might be more relevant for discussion in business process outsourcing, where interfaces between components might be specified more fully, as compared to infrastructure outsourcing arrangements. Studies also found support that self-enforcement governance mechanisms, such as trust and reputation were suitable complements of formal contract in outsourcing engagements. As suggested by Poppo & Zenger, (2002), governance emerges from values and agreed-upon processes found in social relationships that could minimize transaction costs as compared to formal contracts.

## **CHAPTER III**

### **Hypothesis Development**

#### **3.1 Introduction**

This chapter contains detailed discussions on key relationships in the model and their associated hypotheses. The first section introduces the types of governance mechanisms that are used in this study. The second section discusses how a firm's internal technological capabilities moderate the relationship between contract type and outsourcing success.

Outsourcing success has been evaluated by other scholars through single item measures such as satisfaction (Kim & Chung, 2003; Rouse & Corbitt, 2003), cost saving (Karpathiou & Tanner, 1995; Lacity & Willcocks, 2001; Saunder, Gebelt, & Hu, 1997), and vendor performance (Kern, 1999). Clearly, cost saving most frequently was used to gauge outsourcing success. This coincides with the TCE perspective. For example, Lacity and Willcocks (2001) reported that 53% of their survey respondents obtained cost saving through IT outsourcing, which was 10 percentage points higher than another study done by Rouse and Corbitt (2003). However, Rouse (2006) explained that "cost saving" itself may not be sufficient in measuring outsourcing success. Rouse (2006) explained that

“this measure fails to recognize that reduced costs accompanied by reduction in services or quality are not necessarily valuable to an organization. Nor does it recognize that the organization may be seeking alternative benefits, such as greater business flexibility, or converting capital costs to expenses that may, in the short term, involve additional costs to the firm” (p. 2). This juxtaposition of cost versus resource accumulation and use is at the heart of the differing perspectives of TCE and the RBV and the trade-offs between efficiency and effectiveness objectiveness.

Instead of assessing cost savings alone, Grover, Cheon, and Teng (1996) proposed that outsourcing success should be evaluated from both technical (RBV) and economic (TCE) perspectives. Besides the obvious economic benefit that many scholars have already measured, Grover et al. (1996) also examined strategic benefits, specifically measuring the degree that outsourcing helped customers refocus their core business and enhanced their IT competence. Furthermore, this study also evaluated technical benefits, which included how much outsourcing had impacted customers’ access to key information technologies and how much outsourcing reduced the risk of customers experiencing technological obsolescence. This study’s viewpoint of looking beyond the economic dimension was also shared by other studies such as Karpathou and Tanner (1995), Lee and Kim (1999), and Han, Lee, and Soe (2008). This dissertation adopts the outsourcing success dimensions as measured by Grover et al. (1996), including strategic (via strategic governance mechanisms), technical, and economic benefits.

### **3.2 Governance of IT Outsourcing**

IT governance can be seen as the alignment of strategy and operations across business and IT in support of business objectives. In fact, some authors agree that

although strategy is important, without governance, it is impossible to achieve desired results and thus, governance has an even bigger role in the success of outsourcing ventures (Cohen & Young, 2006; Cullen & Willcocks, 2003). For example, Cohen and Young (2006) indicated that “[effective] sourcing governance is more important to long-term sourcing success than any other factor” (p. 113). The rationale behind this belief is that governance mechanisms set up rules and structure for good decisions to be made by all parties involved without the need for continuous monitoring. Even if a company is still in the process of developing a strategy, adequate governance can help that company achieve positive outcomes from existing sourcing relationships and can help the company keep its outsourcing projects under control.

Strategy researchers have long argued that achieving competitive advantage depends upon a company’s ability to use existing stocks of resources rather than simply having the resource. As Mahoney and Pandian (1992) stated, “A firm may achieve rents not because it has better resources, but rather the firm’s distinctive competence involves making better use of its resources” (p. 365). A company can appropriate extra returns when it possesses the ability to integrate available resources (Becerra, 2008). Mahoney and Pandian (1992) also suggested that the company’s ability to effectively evaluate the strength and weakness of its resource position could result in a stronger basis for competitive advantage. Being able to choose appropriate governance mechanisms for each outsourcing scenario translates to a better use of limited resources, which often means delivering a better result for the company than it otherwise can experience. Depending upon the underlying philosophy of how the business exchanges are being enforced, governance mechanisms can be grouped into two major categories, namely

formal and informal (Behrens, 2006). The following sections discuss these two distinct forms of governance mechanisms in detail.

### 3.2.1 **Formal governance mechanisms**

Formal mechanisms are those that can be codified by contract or explicitly embodied within the regulatory framework of a relationship. They include depersonalized exchanges, which are considered to be open market purchases (Williamson, 1991), as well as “a reliance on financial parameters, and the drafting and implementation of formal contracts” (Ferguson, Paulin, & Bergeron, 2005, p. 217), with the most frequently analyzed mechanism being that of formal contracts (Jahner, Bohmann, & Krcmar, 2006). However, even though formal contracts have been analyzed frequently by scholars, Jahner et al. (2006) showed that they are not always useful as an explanatory variable because of their consistency and widespread use. Additionally, some contracts have proven to be both costly and inflexible for both parties (Gil, 2009), sometimes hampering future adaptation.

A type of formal governance mechanisms includes financial commitment. Williamson (1985) has stated that financial commitment is another approach that can help reduce the incentive for opportunism. Yu, Liao, and Lin (2006) defined financial commitment as any type of business ties involving commitments of financial resources. Scholars such as De Vita et al. (2010) suggested that vendors’ financial commitment to their engagements contributed positively to their relationship with their customers. As such, mutual financial commitment between the outsourcer and the outsourcee should have a positive effect on managerial perceptions of IT outsourcing performance.

If one company has a financial commitment to a business arrangement, it likely will have additional incentives to maintain relationships. Much literature has supported the importance of financial commitment. According to Williamson (1985), financial commitments may mitigate adversarial relationships between cooperative partners. Zaheer and Venketraman (1995) also claim that financial commitments are similar to hostage-taking in the sense that they are designed to eliminate opportunistic behavior. De Vita et al. (2010) concluded that service providers' dedicated asset-specific investments contributed significantly to their relationship with their customers.

Yu, Liao, and Lin (2006) also believe that financial commitments are useful in protecting unethical behavior and unchecked self-interest. From the perspective of the Relational View, Dyer (1996) indicated that site-specific investments created physical proximity, which provided interfirm cooperation and coordination. This increased relational rents and thereby enhanced performance. The financial commitment also "lengthens the 'shadow of the future' by signaling good-faith intentions and long-term commitments" (Dyer, 1997, p. 548). Because of the additional incentives to maintain a harmonistic relationship when customers have made a financial commitment into the outsourcing projects, managers will be more willing to work with their vendors during their outsourcing engagements. The outsourcing experience for purchasing managers will also be further enhanced when their vendors do not exhibit opportunistic behavior because those vendors have dedicated asset-specific investments in their projects and do not want to jeopardize their relationship with their customers. Therefore:

*H1: Financial commitment in the form of dedicated asset-specific investments by both the outsourcer and the outsourcee is positively related to managerial perceptions of IT outsourcing success.*

### **3.2.2 Informal governance mechanisms**

Informal governance mechanisms include three general categories: trust, which is composed of benevolent trust and calculative trust, commitment, and relational contracting (Behrens, 2006; Goo, Kishore, Nam, Rao, & Song, 2007; Granovetter, 1985; Yu, Liao, & Lin, 2006).

As stated by Ness and Haugland (2003) informal mechanisms of calculative trust and benevolent trust can affect the development and expansion of inter-firm relationships, and have strong impact on outsourcing success. Calculative trust has been defined through the perception of trust as a form of economic exchange (Lewicki & Bunker, 1996). Individuals are assumed to be economically rational beings motivated by their desire to maximize expected gains or minimize expected losses in their transactions (Kramer, 1999). With that in mind, calculative trust is an ongoing, market-oriented economic evaluation where each party assesses the benefits and costs to be derived from creating and sustaining a relationship (Lewicki & Bunker, 1996). As calculative trust is being evaluated constantly throughout the partnership, initial trust between service receiver and service provider is important to both parties in maintaining ongoing trust in their relationship (Lee & Choi, 2011). Furthermore, Ali et al. (2007) found that cultural understanding, communication strategies, contract conformance, and timely delivery were also crucial in maintaining ongoing trust.



Interviews conducted by Muehlberger (2005) indicated that the success of longer term relationships was positively affected by calculative trust. Dyer and Singh (1998) also stated that when business partners found creditable assurances that they would be rewarded for staying within the partnership, they would be more likely to engage in sharing tacit knowledge and unique resources. Further, calculative trust has been shown to act as a moderating factor between formal governance mechanisms and transaction-specific investments and has a significant impact on single transaction outsourcing relationships (Yu et al., 2006). Subsequently, Goo et al. (2007) developed a multi-level model and indicated that change management and foundation characteristics contributed positively and significantly to the development of calculative trust. Further, they found that, as a governance mechanism, calculative trust contributed to managers' perceived success of IT outsourcing. Thus:

*H2: Calculative trust is positively related to managerial perceptions of IT outsourcing success.*

In addition to calculative trust, benevolent trust also has been explored in the literature. Behrens (2006) suggested benevolent trust could enhance outcomes in complex outsourcing projects with high uncertainty. The main theme of Behrens' (2006) study was that perceptions of outsourcing outcomes was "a function of the congruence - or fit - between the governance scheme employed to manage it and the characteristics of the relationship's context" (Behrens, 2006, p. 108). For the outsourcing projects that have high uncertainty and structural complexity, "the establishment of mutual trust and relational norms between the outsourcing partners becomes crucial" to the success of these engagements (Behrens, 2006, p. 111). Previous studies of interorganizational

relations or networks have been able to show that trust can produce economic value through the prevention of opportunistic behavior and incomplete contracting (Muehlberger, 2005). McEvily, Perrone, and Zaheer (2003) also suggested that trust has positive effect on the performance of inter-organizational exchanges.

Black (2008) defined benevolent trust as the extent to which one party believes, given the possibility of unforeseen conditions, that the other party has intentions and motives that will benefit both parties. Larzelere and Huston (1980) asserted that mutual trust could only exist to the extent that one party believes the other is benevolent and honest. McAllister (1995) further explored the emotional aspect of benevolent trust and stated that emotional ties between two parties could provide the basis for trust. Kiessling and Harvey (2004) later added that the benevolent dimension of trust emphasizes the motives and intentions of the outsourcing partner. This governance mechanism also focuses on the qualities, intentions, and characteristics attributed to the other party as opposed to specific behaviors (Ganesan, 1994). Since then, The results of an empirical study on the impact of this construct has been mixed. After analyzing 115 valid responses from their survey conducted with companies in mainland China, Tian, Lai, and Daniel (2008) found that prior interactions with a service provider, the provider's relationship-specific investment, the provider's information sharing, and the provider's reputation are key determinants of logistics users' level of trust towards their third party providers. Ali Babar, Verner, and Nguyen (2007) also identified that cultural understanding, creditability, capabilities, and personal visits are important factors that customers consider when they engage off-shore service providers. However, Yu, Liao, and Lin (2006) did not find significant relationship between benevolent trust and transaction-

specific investments. White (2005) also reported that benevolence was not a strong driver on purchasing decision. Given these inconsistent results, and the high correlation between benevolent trust and commitment discovered by other scholars such as Morgan and Hunt (1994), this study will not include benevolent trust and will focus on the impact of commitment to the managers' perception of outsourcing success instead.

When investigating the determinants of IT outsourcing success, Goo et al. (2007) found that commitment was one of the key components that contributed to that outcome. Commitment has been defined as “an implicit or explicit pledge of relational continuity between exchange partners” (Dwyer et al., 1987, p. 13). It has further been specified, similar to trust, as multidimensional, including calculative and attitudinal factors (Black, 2008). The calculative aspect relates to the extent to which one firm or organization is bound to another firm or organization through extraneous interests as opposed to a favorable disposition towards the organization (Srinivasan & Brush, 2006). Similar to calculative trust, the rational aspect of cost-benefit analysis plays a significant role in the formation of calculative commitment (Srinivasan & Brush, 2006).

On the other hand, attitudinal commitment indicated that one firm would identify with its outsourcing partner(s) and therefore be committed to maintaining the relationship to pursue the interests of both itself and its outsourcing partner(s) (McGee & Ford, 1987). This governance mechanism can be defined as an affective attachment to the outcomes of not only the initiating firm, but also the partner firm in the outsourcing relationship (Allen & Meyer, 1990). Poppo and Zenger (2002) also suggested that IT outsourcing is a good candidate for the use of commitment to help overcome the adaptive limits of formal contracts. It further stressed that this type of relational governance mechanism “may help

overcome the adaptive limits of contracts: a bilateral commitment to ‘keep-on-with-it’ despite the unexpected complications and conflicts” (Poppo & Zenger, 2002, p. 708). Itami (1987) stated that commitment can help supplement formal contract in partnership management because of the nature of having commitment, where two organizations cooperate toward ambiguous outcomes that involve the exchange of invisible assets. Drawing on the self-enforcement governance style of the Relational View, Ndbubisi (2011) studied conflict handling typologies that affect trust and commitment in B2B outsourcing relationship and found that commitment had significant impact on conflict handling in outsourcing relationship. Thus:

*H3: Attitudinal commitment is positively related to managerial perceptions of IT outsourcing success.*

Relational contracting focuses on cumulative contributions of individual business transactions within larger economic and social interactions between firms (Granovetter, 1985). Instead of relying on third party intervention to deter opportunism, relational contracting uses reputation (Gil, 2009; Larson, 1992; Weigelt & Camerer, 1988), continuity (Carson, Madhok, & Wu, 2006), and trust (Powell, 1990; Sako, 1991; Uzzi, 1997) to sustain the inter-organizational business transactions. However, relational contracting is unlikely to serve sufficiently as a sole governance mechanism in the outsourcing exchanges with external vendors. Instead, Poppo and Zenger (2002) have argued that legal contracts and relational governance should complement each other instead of replacing one another.

Poppo and Zenger (2002) observed that relational governance supported by mutual trust was commonly viewed as a substitute for complex contracts in inter-

organizational exchanges. They further discovered that governance, emerging from values and agreed-upon processes found in social relationships, could be an effective way of minimizing the transaction costs that a company might have to spend on more elaborate contracts. By relying on relational governance, customers can reduce the risk of inadequate contractual provision, which will in turn increase the chance of outsourcing managers having better working experiences from their outsourcing projects. Thus, informal governance mechanisms will have a positive effect on perceptions of IT outsourcing performance.

With incomplete contracts, ex-post negotiations sometimes subject a company to delays. For the previously mentioned scenarios, a sociological approach suggests that a better tactic to combat such uncertainty depends less on extensive traditional contracting and more on relational contracts to facilitate adaptation (Carson et al., 2006). Baker, Gibbons, and Murphy (2001) described relational contracts as informal agreements that were sustained by the value of future relationships. The Relational View also suggested longer term relationships, as well as greater volume (scale) and breadth (scope) could have positive effects on protecting business partners against opportunism (Dyer & Singh, 1998). Dyer (1997) found that suppliers for Japanese automakers with more specialized suppliers group, such as Toyota, were more willing to invest heavily in relation-specific assets. This type of automaker also enjoyed lower transactions costs than their competitors with less specialized suppliers group. The expectation of long-term relationships, which provided a longer payback period during which suppliers could earn a return on the investments, was the reason provided that allowed automakers to “simultaneously achieve the twin benefits of asset specialization and lower transaction costs” (Dyer, 1997,

p. 552). Gil (2009) added that relational contracts “emphasize future cooperative behavior, reciprocity, and mutual dependence” (p. 145). As part of the larger business relationship, opportunism may be reduced because of possible spillovers from one bad transaction to another. Similarly, some scholars also argued that relational contracting is the most effective and least costly governance mechanism to manage a complex exchange (Sako, 1991; Uzzi, 1997) because it helps reduce transaction costs incurred through negotiation and monitoring efforts, thereby enhancing perceived performance (Barney & Hansen, 1994; Sako, 1991).

*H4: Relational contracts in the form of continuing possible future business relationships are positively related to managerial perceptions of IT outsourcing success.*

The above-mentioned formal and informal governance mechanisms are used in the current study as independent variables for the first four hypotheses. The formal mechanisms—financial commitments—were chosen for their consistency and frequent use (Jahner et al., 2006; Williamson, 1985). The informal mechanisms—calculative trust, attitudinal commitment, and possible future business relationships—were chosen because of their previous widespread use in the literature and their relationships with other factor variables, such as outsourcing experience (Leiblein & Miller, 2003).

### **3.3 Moderating Effect of Internal Technological Capability**

As mentioned earlier, a company achieves sustainable competitive advantage when it implements a value-creating strategy not simultaneously being implemented by any current or potential competitors and when these other firms are unable to duplicate the benefits of this strategy within a foreseeable future. The RBV suggests that unique, tangible resources and intangible resources and capabilities are the foundation for an

organization to gain competitive advantages in the marketplace (Fahy, 2000; Grant, 1991). Furthermore, strategy researchers have argued that achieving sustained competitive advantage depends upon the firm's ability to use existing stocks of resources (Grant, 1996), refine its existing knowledge stocks (Kang, Morris, & Snell, 2007), and accumulate new resource stocks more efficiently and effectively relative to its competitors (Penrose, 1959; Wernerfelt, 1984). The RBV perceives the firm as a unique bundle of idiosyncratic resources and capabilities. Any input that is either owned or controlled by the company and that contributes to the production of goods and services should be considered part of that firm's resources (Amit & Schoemaker, 1993). The primary task of management is to maximize value through the optimal deployment of existing resources and capabilities, while developing the firm's resource base for the future (Grant, 1996).

In the case of outsourcing, the firm is moving a critical function out of the organization because of cost considerations, per TCE; however, moving the entire function out leaves the firm at risk because effectiveness may be lost, per the RBV. Kor and Mahoney (2005) also stated that a firm's past investments in its technical skills could have continued economic value in the present and in the future because these investments could help that firm absorb new knowledge more efficiently. Thus, it is necessary for a firm to retain internal technological capabilities in order for it to optimize its experience and enjoy more benefits from its outsourcing arrangement. It can thus be deduced that a firm's internal technological capability will moderate the relationship between governance mechanisms and managerial perceptions of IT outsourcing success.

Knowledge asymmetry is known to be one of the potential drivers of opportunism (Flinders, 2010); a more knowledgeable technical team can help in narrowing the knowledge asymmetry between the outsourcing company and its vendors. Reducing knowledge asymmetry will enhance executives' visibility of their outsourcing initiatives, which can help them manage these projects better.

Furthermore, Arrow (1962) suggested that hands-on experience provided learning opportunities that would enhance a firm's production capabilities: "Such experientially derived capabilities improve subsequent production along a given trajectory in terms of both efficiency and technical performance" (Leiblein & Miller, 2003, p. 846). However, outsourcing can reduce client's learning-by-doing experience, which can have negative impact on the client's ability to integrate their IT activities into their business functions (Cha, Pingry, & Thatcher, 2009). Experience with related technology has found to help companies enjoy a slower knowledge decline rate when they outsource their IT functions to their external vendors because internal technical capabilities helped the outsourcing client be better able to acquire a portion of its service provider's relevant and useful knowledge (Cha et al., 2009).

Lazonick and Prencipe (2005) found that an internal ability to strategically control financial commitments is a necessary condition for innovation. In order to exercise strategic control, companies must have a sufficient internal technological capability to understand and execute their visions. By the same token, companies with sufficient internal technical capability are more able to monitor and guide the usage of their financial commitment for their outsourcing engagements. Technical expertise has been



found to be an important factor that directly impacts the quality of one's decision and reduces the uncertainty linked to adverse selection (Ferrary, 2003).

However, in the case of asset-specific investments, these often are done by the outsourcee, rather the outsourcer, per se. Thus, the direct effects on perception of the outsourcer are less apparent. Being better at allocating and monitoring their outsourcee partners' asset-specific commitments may help companies to maintain control and to mitigate potential risk, which in turn will enhance the perceptions of outsourcing success. Because the impact of technological capabilities on the outsourcing manager's perceived outsourcing experience occurs indirectly through the outsourcee's asset-specific commitments, asset-specific commitments in this study are behaving as a moderator. (A moderator is a qualitative or quantitative variable that affects the direction or strength of the relation between a predictor variable and an outcome (Baron & Kenny, 1986). It addresses "when" or "for whom" a predictor is more strongly related to an outcome (Frazier, Tix, & Barron, 2004). In some cases, it can be used to provide explanation of unexpected weak or inconsistent relations between a predictor and an outcome (Baron & Kenny, 1986)). Thus:

*H5a: A firm's technological capabilities moderates the relationship between asset-specific investments and managerial perception of IT outsourcing success.*

Besides being able to better handle their financial commitments, companies with higher technological capabilities are also in a better position to evaluate another party's ability to meet their obligations (Doney & Cannon, 1997). Dyer and Singh (1998) also suggested that firms with higher levels of expertise might "have a more precise view on the kinds of partner/resource combination that allow them to generate supernormal

returns” (p. 667). This critical information can help outsourcers weigh the costs and benefits of staying with their vendors, which is the foundation of calculative trust. Technical competence is said to be an important factor in the emergence of trust between companies (Abrams, Cross, Lesser, & Levin, 2003). This is especially true during the early stage of partnership, when ambiguities and uncertainties often exist (Kelly, Schaan, & Joncas, 2002). In the context of employing formal governance mechanisms, Mayer and Salomon (2006) suggested that companies with strong technological capabilities would be better equipped to design outsourcing contracts with the right amount of detail, including contingency planning and incentives. This helps companies to set proper expectations and to avoid misunderstanding. They further stated that "Strong technological capabilities may even help a firm craft better ex ante contracts to clearly define the roles and responsibilities of each party, specify the knowledge to be exchanged, identify appropriate milestones, stipulate monitoring mechanisms, and introduce appropriate pecuniary incentives" (Mayer & Salomon, 2006, p.945). With better contracts and monitoring mechanisms in place, outsourcing managers will feel more at ease because they have better control via the ability to rely on relevant contractual clauses in case their service providers do not behave in accordance to their agreements. Thus:

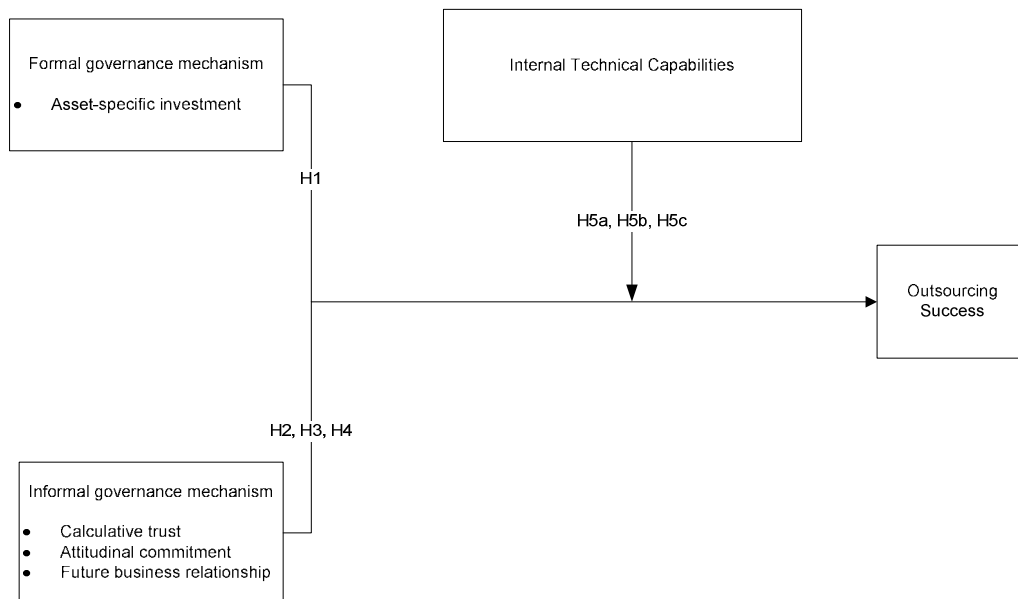
*H5b: A firm's technological capabilities moderates the relationship between calculative trust and managerial perception of IT outsourcing success.*

As mentioned previously, attitudinal commitment is the amount that the outsourcing firm can identify with its services providers, which affects the degree that the outsourcing firm will commit to maintaining the relationship. Because IT outsourcing

service providers all are technology companies in nature, outsourcing companies with higher technological capabilities will be able to relate to these partners better and will be more willing to make attitudinal commitments to their relationships. This aligns with one of the findings in the work by Gulati and Sytch (2008), who found that similarity significantly enhanced the ability of exchange partners to translate this familiarity factor “into a stock of trust” (p.165). Furthermore, outsourcers who possess higher technological capabilities can reduce information asymmetries between business partners (Ferrary, 2003). Because knowledge is accumulative (Cohen & Levinthal, 1990), Dyer and Singh (1998) stated that the ability to exploit outside sources of knowledge is largely a function of the absorptive capacity of the outsourcer. Lichtenthaler & Lichtenthaler (2009) also echoed that observation and suggested that the higher a company’s internal technological capabilities are, the easier it is to learn relevant skills through exchanges with service providers during outsourcing engagements, which is important for sustaining a competitive advantage. Zahay and Handfield (2004) also indicated that learning capability was an important asset that managers recognize as key to successful deployment of relationship structuring, material flows, and information system deployment. In the context of informal governance mechanisms, knowledge sharing between service providers and outsourcing clients have been found to promote initial trust and ongoing trust within the outsourcing relationship (Lee & Choi, 2011). In addition, shared learning (a.k.a. team orientation) was also among the four organizational learning dimensions that were found to have significant impact on relationship commitment in the sourcing process (Zahay & Handfield, 2004). On the other hand, insufficient technological capability can hinder the relationship building between two

parties during outsourcing progress. For example, Dupont found that its inadequate architecture planning capability had caused it to not being able to have informed discussions with its vendors (Willcocks & Feeny, 2006). Therefore, it is hypothesized that technological capability of an outsourcing company will affect the development of attitudinal commitment, which in turn will impact the managerial perception of IT outsourcing success.

*H5c: A firm's technological capabilities moderates the relationship between attitudinal commitment and managerial perception of IT outsourcing success.*



**Figure 1: Proposed Model**

## **CHAPTER IV**

### **Research methods**

#### **4.1 Sample**

The population for the current study is comprised of business professionals who are members of the Information Systems Community of Practice in the Project Management Institute (PMI). PMI is the world's leading not-for-profit membership association for the project management profession, with more than 600,000 members (PMI, 2012a). In order to promote members' interaction and to build the body of knowledge in different industries and business areas, this organization has created 37 communities of practice in total for their members. Based on members' own business foci and interests, they are encouraged to participate in these communities. Information Systems Community of Practice is a community that networks members who are "interested in, working in, or impacted by developments in information systems project management" (PMI, 2012b). Its community members are likely to have extensive experience in the IT area and, thus, are an appropriate target for this study. In order for the managers to qualify for the study, they had to have direct involvement in their

organizations' IT outsourcing initiatives. Through their direct involvement, these professionals had to have first-hand knowledge of their outsourcing engagements.

#### **4.1.1 Sampling plan**

The sampling frame for the study was comprised of managers who had managed IT outsourcing engagements in the past 24 months. When comparing results from a study done by the Forrester Research in 2010 and similar studies done by DiamondCluster International in 2005 and 2006, executives from the customer firms gave higher scores to their IT outsourcing vendors in 2010 than in earlier years (Martorelli, 2010; Thibodeau, 2006; Weakland, 2005). This indicates users experiences in IT outsourcing engagements may be changing over time. By limiting the research pool to the managers who had managed IT outsourcing in the past 2 years, this study included data based on more recent experience. Based on previous studies, control variables such as organizational size, and revenue have not been found to affect outsourcing tactics (Grover, Cheon, & Teng, 1996). Therefore, this study did not control for these size variables.

For this study, the directory from the PMI Information Systems Community of Practice was used as the base for potential subjects. Surveys were distributed via email to all members of the Information Systems Community of Practices, whom are employed in varying industries.

#### **4.1.2 Sample size**

Sample size of any study is an important consideration, as having a large enough sample size makes it possible to generalize the target population, as well as have enough statistical power to be confident of the results. Furthermore, insufficient sample size reduces the likelihood of finding statistical significance. This increases the possibility of

researchers making a Type II error, or failing to find statistical significance when it actually exists (Balkin & Sheperis, 2011). For this current study, an “a priori” power analysis is being used to determine the minimum sample size by using appropriate power, effect size, and statistical significance. The power of the study is defined as the probability of rejecting a false null hypothesis (Cohen, 1988). It "is considered [as] an essential element in designing and evaluating quantitative findings for research" (Balkin & Sheperis, 2011). In order to reject the null hypothesis, the power should be at least 0.80, which is the number that many researchers have used to ensure adequacy (Tabachnick & Fidell, 2006). Cohen (1988) suggested that the Type II error risk should be four times as great as the Type I error risk to ensure adequate analyses, without having to use unrealistically high sample sizes for social science research. Type I error refers to the issue of stating a statistical relationship between dependent and independent variables when one does not exist. Power levels lower than 0.80 will increase the chance of a Type II error to greater than 20% and higher levels of power may suggest higher sample sizes than necessary (Balkin & Sheperis, 2011). Therefore, Balkin and Sheperis (2011) also stated that the recommended adequate power is 0.80.

Effect size is another essential element when calculating minimum sample size. It is the desired magnitude or strength of relationship between the predictor and dependent variables (Cohen, 1988). When determining the effect size, Cohen (1988) suggested three different levels: small, medium, and large, which correspond to the correlation values of 0.10, 0.30, and 0.50 respectively. According to Cohen (1988), for the purpose of “a priori” power analysis to determine a minimum sample size, the medium effect size is appropriate.

Lastly, the statistical significance criterion is the possibility of having a substantial result when the null hypothesis is true. One of the most commonly used levels of significance is 0.05. In this case, by adopting a power of 0.80, effect size of 0.30, and level of significance equal to 0.05 through the power analysis performed using the statistical G\*Power software, the required sample size was calculated to be 64. Although this may seem to be a small sample, it is statistically representative of larger samples and was meant to serve as a base for developing further survey responses if necessary.

While “a priori” power analysis is conducted prior to the research study for estimating sufficient sample sizes to achieve adequate power, post-hoc power analysis is conducted after a study has been completed to determine the power that the obtained sample size has provided. Scholars such as Onwuegbuzie and Leech (2004) have been advocating the use of post hoc power analyses because it "would help researchers determine whether low power threatens the internal validity of findings" (p. 204). Battle, Cowan, and Rakow (2000) also stated that researchers should “give readers a clearer picture of their findings by reporting the power post hoc.” For this study, a post hoc power analysis was conducted using the statistical G\*Power 3 tool, as Faul, Erdfelder, Lang, and Buchner (2007) suggested. Scholars including Onwuegbuzie and Leech (2004) also credited G\*Power as an “extremely useful” (p. 208) statistical software program that conducts power analyses. By using the same effect size of 0.30 (medium effect), and the level of significance to 0.05, the power of the observed sample size of 122 was calculated to be 0.9078, which was higher than the widely accepted value of 0.80 (Balkin & Sheperis, 2011). When running the post hoc power analysis with the effect size of 0.30,



observed sample size of 122, and the level of significance at 0.01, the power was calculated to 0.8022, which also reached the 0.80 threshold.

#### **4.2 Data Collection**

By following standard psychometric scale development procedures (Churchill 1979), a structured survey instrument has been developed after studying other scholarly research with similar concepts to this one. This survey instrument contains existing measures and customized questions that are relevant to the constructs of this study. A two-step process has been implemented in order to enhance the content validity of this survey instrument. First, an intensive literature review has been conducted to identify valid measurements for the related constructs. Existing measures that have been employed in other published studies are adopted as much as possible. Second, the preliminary instrument was pre-tested by three managers with extensive experience in managing outsourcing projects. Feedback from these reviewers have been incorporated into the final version of the survey instrument. Appendix B shows the archetype of the survey instrument for this study. As already noted, managers who had direct involvement with IT outsourcing engagements were selected as individual participants because they represented some of the most knowledgeable people regarding the overall outsourcing experience of their organizations (Hambrick, 1981; Snow & Hrebiniak, 1980; Zajac & Shortell, 1989).

Also noted earlier, the data-gathering procedure used email to solicit participation in the study from business professionals who were members of the PMI Information Systems Community of Practice. The solicitation explained the purpose of the study and provided assurances of confidentiality for participants. A few days later, a separate email

with the link to the survey instrument was emailed to these executives for completion. If the completed questionnaire was not returned after one week, a reminder email was sent. After one more week, a second reminder was sent to the subjects who had not yet returned their questionnaires. A week later, the third reminder was sent to those who still had not yet completed their survey. If the questionnaire was not returned four weeks after it was sent, the participant was considered a non-respondent.

In this study, managers were distributed a survey instrument designed to measure the outsourcing experience of the organization, as well as the governance mechanisms that are employed by the firm. The raw survey data was captured and stored in the database of the company that hosted the survey.

### **4.3 Variables**

#### **4.3.1 Dependent Variable**

The dependent variable in this study is the IT managers' perceptions of outsourcing success. This variable is operationalized as a continuous variable that was based on the results obtained from the nine-question survey instrument created by Grover et al. (1996). See Table I for the Dimensions and Items of Outsourcing Success.

The survey instrument was based on questions where higher scores indicated that the subject agreed more with the statements that expressed higher measurements for outsourcing success. With the seven-point Likert scale used in the survey, the lowest obtainable score would be one (meaning that the respondents selected "strongly disagree" for all nine questions) and the highest obtainable score would be seven (meaning that the respondent selected "strongly agree" for all nine questions). The responses to the nine questions from Grover et al.'s instrument were added and averaged in order to provide an

overall measurement of the outsourcing success of the organization. The higher the observed average score the organization received, the higher was the outsourcing success that the organization indicated.

**Table I. Dimensions and Items of Outsourcing Success**  
(from Grover, Cheon, and Tang, 1996).

<b>Dimension of Outsourcing Success</b>	<b>Item (Strongly disagree, Strongly agree, 7 anchors)</b>
Strategic benefits	We have been able to refocus on core business We have enhanced our IT competence
Technical benefits	We have increased access to key information technologies We have reduced the risk of technological obsolescence
Economic benefits	We have enhanced economies of scale in human resources We have increased access to skilled personnel We have enhanced economies of scale in technological resources We have increased control of IT expenses
Overall satisfaction	We are satisfied with our overall benefits from outsourcing

As previously explained, outsourcing success has been evaluated by other scholars through single-item measures such as satisfaction (Kim & Chung, 2003; Rouse & Corbitt, 2003), cost saving (Karpathiou & Tanner, 1995; Lacity & Willcocks, 2001; Saunder, Gebelt, & Hu, 1997), and vendor performance (Kern, 1999). However, a study done by Grover, Cheon, and Teng (1996) was able to develop and assess a psychometric measure of outsourcing success that involves three general types of benefits—strategic, technical, and economic. Three years later, Grover et al.’s nine-item instrument of outsourcing success was validated by Lee and Kim (1999), and Lee (2001), and was adopted by other scholars such as Han et al. (2008) and Wang (2002). (Validity refers to the degree to which an observed result of an instrument can be relied upon and not attributed to random error within a sample. An independently validated instrument provides further confidence that the results observed are indeed reflecting what the instrument is supposed

to measure.) Content validity of the survey instrument previously was established through the adoption of validated instruments by other researchers in the literature and by the simple pretest conducted herein using three IT managers from different corporations.

To examine the internal consistency of measuring outsourcing success with the Grover et al. (1996) instrument, Lee (2001) calculated Cronbach's alpha to validate the reliability of the instrument. (Cronbach's alpha is a coefficient of reliability and can have any value less than or equal to 1. A higher Cronbach's alpha signifies higher reliability, which is more desirable.) After evaluating 223 responses, the Cronbach's alpha for outsourcing success was calculated to 0.903 from the Lee (2001) study. Han et al. (2008) also reported a 0.928 reliability level for the outsourcing success items. In addition, Lee (2001) examined convergent validity (which refers to the degree to which multiple attempts to measure the same concept are in agreement) by evaluating the correlation of each item to the sum of the remaining items, this study found that all of the correlations are significant at the 0.001 level and in the range of 0.582 and 0.720 (Lee, 2001).

#### **4.3.2 Independent Variables**

The independent variables in this study include both a formal contract mechanism (financial commitment in the form of asset-specificity), and informal contract mechanisms (calculative trust, attitudinal commitment, and future business relationship), as well as technological capabilities of the company. Each of these will be discussed in the following paragraphs.

Financial Commitment. A three-item measure developed by Tian, Lai, and Daniel (2008) was used to capture the amount of financial commitment that customers receive from their vendors. Tian et al. (2008) adapted this measure from Corsten and

Kumar (2005) to identify a vendor's willingness to dedicate relationship-specific physical, process, and human assets sufficient to meet the current and long-term needs of its logistics outsourcing customer. The construct reliability was assessed using the Cronbach's alpha coefficient. The Cronbach's alpha for this particular construct was 0.805, which was higher than the 0.700 threshold that was commonly being used as acceptable reliability by other scholars (Nunnally & Bernstein, 1994). The Tian et al. (2008) study also examined item reliability by means of factor loadings of the construct items. With the factor loadings in the range of 0.832 and 0.841, these items were confirmed to have adequate item reliability because their loadings were higher than 0.700, which was accepted as having sufficient item reliability (Fornell & Larcker, 1981). The same measure was customized to meet the context of this study and was used to gauge relationship-specific investment from outsourcing service providers.

Calculative Trust. To measure calculative trust, this study used three items from the N'Goala (2010) study that investigated long-term relationships between corporations and their customers. Convergent validity of the three items that were used to measure this construct was established because the Average Variance Extracted (AVE) was greater than 0.50, which meant the variance of each construct was better explained by its measures than by error (Fornell and Larcker, 1981). In addition, the N'Goala (2010) study also used the Root AVE index to examine the discriminant validity of its survey instrument. Its result showed that the Root AVE index of each construct was higher than any other correlation with other latent variables, which confirmed discriminant validity (N'Goala, 2010).

Commitment. The survey instrument in Han et al. (2008) contained four items that measure commitment. The Cronbach's alpha for these measurements was 0.890, which was higher than the 0.700 threshold. The AVE of this construct was 0.669, which also was higher than the commonly accepted 0.500 threshold (Han et al., 2008). In addition, Han et al. (2008) assessed discriminant validity by examining the square root of AVE, and reported that the square root of AVE for each construct was greater than the correlations between all other constructs.

Future Business Relationship. A 4-item measures used in the Carson, Madhok, and Wu (2006) was being employed in this study. By using LISREL VII, the goodness-of-fit index (GFI), as well as Bentler and Bonett's (1980) delta statics all indicate acceptable fit. Carson, Madhok and Wu (2006) also reported that reliability was measured to 0.81, which exceeded the 0.60 guideline as suggested by Bagozzi and Yi (1988).

Technological Capability. The survey instrument in Han et al. (2008) contained three items that measure internal technological capability in terms of ability to integrate IT and the ability to understand the trend of IT. The Cronbach's alpha for the Han et al. (2008) measurements was 0.902, which was higher than the 0.700 threshold. The AVE of this construct was 0.570, which also was higher than the commonly accepted 0.500 threshold (Han et al., 2008). The square root of AVE for this construct was greater than the correlations between all other constructs as well. All survey instruments for financial commitment, calculative trust, attitudinal commitment, and technological capability are included in Appendix B, Survey Instruments.

### **4.3.3 Control Variables**

This study included industry and managers' outsourcing experience as control variables in the analysis. Industry, measured by using the breakdown according to the U.S. Census, might affect managers' perception on the IT outsourcing success because some industries have a longer history in IT outsourcing than others (Adelakun, 2004). Recently, Volek (2012) reported an outsourcing maturity curve in 2011 that showed that the insurance industry and the banking industry were both advanced in outsourcing maturity when compared with other industries such as healthcare, and life sciences. This finding echoed Ang and Straub (1998), who stated that the banking industry was an industry with a long history of IT outsourcing. Following those breakdowns from the US Census, the industries were listed as forestry, fishing, hunting or agriculture support; mining; utilities; construction; manufacturing; wholesale trade; retail trade; transportation or warehousing; information; finance or insurance; real estate or rental and leasing; professional, scientific or technical services; management of companies or enterprises; administration, support, waste management or remediation services; educational services; health care or social assistance; arts, entertainment or recreation; accommodation or food services; other services (except public administration); and unclassified establishments.

Furthermore, this study also controlled for managers' outsourcing experience using the three-item measures from Ho, Ang, and Straub (2003), which asked its respondents to evaluate how well their service providers delivered what they promised in terms of: meeting their deadlines; conducting key activities, such as application development, software maintenance, or infrastructure support; and fulfilling their overall obligations as stated in their Service Level Agreements (Ho et al., 2003). These questions were used in this study to measure managers' overall outsourcing experiences from their

previous engagements. Research found that manager's previous experience impacted their perception of similar events in the future (Wang, 2010). After studying athletes' perceived susceptibility to sports-related injury, Stephan, Deroche, Brewer, Caudroit, and Le Scanff (2009) concluded that previous experience did impact athletes' perception at a later time. It stated that previous experience led people to believe that "if it happened in the past, it can happen again" (Stephan et al., 2009, p.681). Cowley (2007) also reported that consumers used previous experience as a proxy for their liking of later experiences. It further stated that consumers were not consciously aware of the interfering effect of previous experience and they did not realize their reliance on previous experience when constructing memory (Cowley, 2007). This study thus controlled for industry and managers' outsourcing experience in order to extract possible confounding effects from these variables.

#### **4.3.4 Profile Variables**

The research instrument for this study also contains several profile variables to capture relevant information from the subject. Following Schwarz, Hirschheim, Jayatilaka, and Goles (2009), the job title breakdown used in this study are manager, director, EVP/vice President, CIO, CTO, COO, CEO, and others.

Appendix C provides detail reliability and validity information for all variables of interest in this study,

#### **4.4 Hypotheses Testing**

The hypotheses for this study are:



*H1: Financial commitment in the form of dedicated asset-specific investments by both the outsourcer and the outsourcee is positively related to managerial perceptions of IT outsourcing success.*

*H2: Calculative trust is positively related to managerial perception of IT outsourcing success.*

*H3: Attitudinal commitment is positively related to managerial perception of IT outsourcing success.*

*H4: Relational contracts in the form of continuing possible future business relationships are positively related to managerial perceptions of IT outsourcing success.*

*H5a: A firm's technological capabilities moderates the relationship between asset-specific investments and managerial perception of IT outsourcing success.*

*H5b: A firm's technological capabilities moderates the relationship between calculative trust and managerial perception of IT outsourcing success.*

*H5c: A firm's technological capabilities moderates the relationship between attitudinal commitment and managerial perception of IT outsourcing success.*

Multiple regression analyses were used to examine managerial perceptions of outsourcing success with asset-specific commitment, future business relationship, calculative trust, and attitudinal commitment. Multiple linear regression is a commonly used method for exploratory data analysis (Craven & Stamper, 1972; Wheatley & Chiu, 1977). Through reviewing statistical means, this exploratory technique identifies the best sub-set of independent variables from the overall set to include in a model (McIntyre, Montgomery, Srinivasan, & Weitz, 1983). The relationship between the variables was

assessed by examining the parameter estimate of each independent variable that was included in the model. If the parameter estimate was found to be significant, this would indicate that the independent variable did have an impact on the dependent variable (Moore & McCabe, 2006), which in turn signified there was a positive or negative relationship between the independent and dependent variables of the model.

In order to determine whether the parameter estimate was significantly different from zero, an F-test is implemented on the parameter estimate. If the resulting test statistic is found to exceed the critical value, then one would be able to conclude that the independent variable is significantly related to the dependent variable. On the other hand, if the resulting test statistic is not greater than the critical value, it would be considered to be not significant (Mendenhall, Beaver, & Beaver, 1999). The critical value for the test statistic in a linear regression model is determined by the level of significance and the degrees of freedom for the given model. In general, the level of significance is 0.05 while the degrees of freedom for a regression model would be  $n - 2$ , where  $n$  is the number of observations in the dataset (Tabachnick & Fidell, 2006). This test would allow the researcher to determine whether the relationship was significant and to determine the direction of the relationship.

To be able to address the direct relationship between each independent variable and the dependent variable of this study, the following model was used:

$$\hat{Y} = c + X_1\beta_1 + X_2\beta_2 + X_3\beta_3 + X_4\beta_4 + e$$

where

$\hat{Y}$  = outsourcing success,

$c$  = constant,

$X_1$  = financial commitment in the form of dedicated asset-specific investments,

$\beta_1$  = parameter estimate for the asset-specific investments,

$X_2$  = calculative trust,

$\beta_2$  = parameter estimate for the calculative trust,

$X_3$  = attitudinal commitment,

$\beta_3$  = parameter estimate for the attitudinal commitment,

$X_4$  = relational contracts in the form of possible future business relationship,

$\beta_4$  = parameter estimate for the possible future business relationship, and

$e$  = random error term with a mean of zero and a common variance  $\sigma^2$  (Keuhl, 2000).

The significance of the independent variable would be indicated in the estimate  $\beta$ .

If there was a significant positive coefficient, then this would indicate that as the scores for the independent variables increase, the perception of a successful IT outsourcing endeavor would also increase. Alternatively, if there was a significant negative coefficient, then this would indicate that as the investment of the independent variables increases, the perception of a successful IT outsourcing effort would gradually be reduced. By using the linear regression model, the researcher would be able to determine the perceived impact of using asset-specific investments, calculative trust, and attitudinal commitment on managers' perception on the success of IT outsourcing. This statistic procedure was used to test hypothesis 1, 2, 3, and 4 because these hypotheses are concerned with relationships between a dependent variable that was continuous and independent variables that were continuous.

For the remaining hypotheses 5a, 5b, and 5c, a statistical method used by Baron and Kenny (1986) was used to assess the moderator effects of other independent variables. In this method, the test for the moderator effect is to perform an analysis similar to that of a multiple regression model. The idea behind this method was to find out whether there is a significant interaction between the variables within the study (Barron & Kenny, 1986). For hypotheses 5a, 5b, and 5c, the independent variables of interest were the asset-specific investment, calculative trust, and attitudinal commitment. The dependent variable was the perceived outsourcing success of the organization. In order to determine whether internal technological capabilities provided a moderating effect on the execution of the governance mechanism, the interactions between internal technological capabilities and each of the three independent variables were included in the model.

The model that is used for this assessment is:

$$\hat{Y} = c + X_1\beta_1 + X_2\beta_2 + X_3\beta_3 + X_4\beta_4 + X_1X_5\beta_5 + X_2X_5\beta_6 + X_3X_5\beta_7 + e$$

where

$\hat{Y}$  = outsourcing success,

$c$  = constant for this model,

$X_1$  = financial commitment in the form of asset-specific investments,

$\beta_1$  = parameter estimate for the asset-specific investments,

$X_2$  = calculative trust,

$\beta_2$  = parameter estimate for the calculative trust,

$X_3$  = attitudinal commitment,

$\beta_3$  = parameter estimate for the attitudinal commitment,

$X_4$  = relational contracts in the form of possible future business relationship,

$\beta_4$  = parameter estimate for the possible future business relationship,

$X_5$  = buyer's internal technological capabilities,

$X_1X_5$  = interaction of the asset-specific investments and the buyer's internal technological capabilities,

$\beta_5$  = parameter estimate for the interaction between the asset-specific investments and the buyer's internal technological capabilities,

$X_2 X_5$  = interaction between calculative trust and the buyer's internal technological capabilities,

$\beta_6$  = parameter estimate for the interaction between the calculative trust and the buyer's internal technological capabilities,

$X_3 X_5$  = interaction between attitudinal commitment and the buyer's internal technological capabilities,

$\beta_7$  = parameter estimate for the interaction between the attitudinal commitment and the buyer's internal technological capabilities, and

$e$  = random error term with a mean of zero and a common variance  $\sigma^2$ . Based on the results of this final model, hypotheses 5a, 5b, and 5c were analyzed.

## **CHAPTER V**

### **Empirical Results**

#### **5.1 Results**

As Podsakoff, MacKenzie, Lee, and Podsakoff (2003) discussed in depth, the use of subjective and retrospective self-report measures can raise a concern of having common method bias in the collected data. Although collecting self reported data from a single source at one time might yield unwanted correlations among data, conducting survey using managers who had managed IT outsourcing projects was the only way to gather relevant data for this study, such as manager's perception of IT outsourcing success. As stated by Parkhe (1993), conducting same source self reported measures may be inevitable in some context. Furthermore, Lance, Dawson, Birkelbach, and Hoffman (2010) reported that although common method variance did show an inflationary effect on observed relationships, this effect was "almost completely offset by the attenuating effect of measurement error" (p. 435). The Harman single-factor test (1967) argued that if a substantial amount of common method variance exists, a single factor that accounts for

most of the variance will emerge from the factor analysis when all of the variables are entered together.

After forcing observed data into a single factor, results from the principal component analysis shown in Table II indicated that this single factor only accounted for 35.023% of the variance. This signified that there was not a substantial amount of common method variance present (Goo, Huang, & Hart, 2008). In order to ease the concern of the common data source issue, testing for interaction effects of the constructs was employed in this study, per Evans (1985).

**Table II: Results of the Harman’s single-factor analysis.**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	Variance %	Cumulative %	Total	Variance %	Cumulative %
1	10.157	35.023	35.023	10.157	35.023	35.023
2	3.370	11.621	46.645			
3	2.597	8.955	55.600			
4	1.742	6.008	61.607			
5	1.576	5.436	67.043			
6	1.514	5.221	72.264			
7	1.199	4.133	76.397			
8	.949	3.274	79.671			
9	.644	2.222	81.893			
10	.624	2.152	84.045			
11	.575	1.983	86.028			
12	.471	1.623	87.651			
13	.426	1.470	89.121			
14	.404	1.394	90.515			
15	.324	1.118	91.633			
16	.296	1.021	92.654			
17	.265	.913	93.567			
18	.253	.872	94.438			
19	.235	.809	95.248			
20	.215	.740	95.988			
21	.197	.681	96.668			
22	.181	.624	97.292			
23	.168	.578	97.870			
24	.132	.455	98.325			
25	.122	.420	98.745			

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	Variance %	Cumulative %	Total	Variance %	Cumulative %
26	.117	.404	99.149			
27	.093	.322	99.471			
28	.080	.277	99.748			
29	.073	.252	100.000			

Item validity was assessed by conducting principal component analysis with varimax rotation. This technique was chosen because it allowed for interpretation of relevant factors and the varimax rotation was also the most used rotation technique in research (Norusis, 1993). Similar to the majority of researchers reported in Costello and Osborne (2005), the Kaiser criterion (all factors with Eigenvalues greater than one) was used to decide the number of factors to be retained for rotation. Table III provides the results after suppressing the absolute value of the factor loading coefficient below 0.30, which was considered to be having a small effect. The results generated seven components with minimal cross loading for most measures.

**Table III. Results of Principal Component Analysis for All Variables  
Rotation method: Varimax with Kaiser normalization**

Survey Item		Component						
		1	2	3	4	5	6	7
Asset-Specific Investment	AI-1			.333				.561
	AI-2							.803
	AI-3							.816
Future Business	FB-1		.395	.729				
	FB-2			.811				
	FB-3			.697				
	FB-4			.711				.386
Calculative Trust	CT-1					.770		.312
	CT-2			.355		.781		
	CT-3					.900		



Survey Item		Component						
		1	2	3	4	5	6	7
Attitudinal Commitment	AC-1		.784					
	AC-2	.400	.780					
	AC-3		.785					
	AC-4		.778					
Manager Experience	ME-1				.802			
	ME-2		.325		.810			
	ME-3				.839			
Techno- logical Cap,	TC-1						.849	
	TC-2						.849	
	TC-3						.858	
Outsourcing Success	OS-1	.364	.449					
	OS-2	.709	.345					
	OS-3	.803						
	OS-4	.849						
	OS-5	.873						
	OS-6	.647	.433					
	OS-7	.690	.361					
	OS-8	.727	.418					
	OS-9	.468	.630		.321			

Because measures for outsourcing success had moderate cross loading on a second component, a separate principal component analysis was conducted with just these nine measures to confirm the number of components generated from these measures. As shown in Table IV, a single component emerged from the measures for outsourcing success.

**Table IV: Results of Principal Component Analysis for Outsourcing Success**  
**Rotation method: Varimax with Kaiser normalization**

<b>Outsourcing Success</b>	<b>Single Component</b>
OS-1	.598
OS-2	.806
OS-3	.832
OS-4	.760
OS-5	.858
OS-6	.826
OS-7	.794
OS-8	.841
OS-9	.781

In order to evaluate convergent validity, the average variance extracted (AVE) was calculated for each of the measures. As shown in Table V, the AVE measurement values ranged from 0.5412 to 0.7259 while the commonly accepted threshold for acceptable convergent validity is 0.5 (Han et al., 2008). This confirmed that the variance of each construct was better explained by its measures than by error (Fornell & Larcker, 1981). Lastly, discriminant validity was assessed by examining the square root of the AVE. The square root of the AVE for each construct as shown in Table V was greater than the correlations between all other constructs, which confirmed the discriminant validity of these measures.

**Table V: Results of Average Variance Extracted (AVE) and Root AVE**

<b>Variable</b>	<b>AVE</b>	<b>Root AVE</b>
Asset-specific investments	0.5412	0.7356
Calculative trust	0.6710	0.8191
Attitudinal commitment	0.6111	0.7817
Future business	0.5451	0.7383
Manager experience	0.6677	0.8171
Technological capabilities	0.7259	0.8520
Outsourcing success	0.6270	0.7918

The 841 members in the Information System Community of Practice in the Project Management Institute were sampled for this study. As mentioned in Popo and Zenger (2002), response rates among IT executives usually are low. The 148 responses received for this study represents a 17.60% response rate. Out of the 148 responses, 34 of them were reported by service providers. Because this study was focused on management from the outsourcing companies' point of view, those responses from service providers were not included in further analysis. Furthermore, because one of the responses did not report whether it was from a customer or a service provider, it also was removed from further analysis. In order to gather a more useful data set, this survey instrument was purposely designed to allow respondents to provide input for up to three separate IT outsourcing engagements. From all the responses, ten respondents provided data for their second IT outsourcing project. However, because three of them were from service providers, these three were not included in the final analysis either. Lastly, two other respondents also provided data for their third IT outsourcing engagements. Therefore, the additional effort of setting up the survey to gather information for more than one set of data yielded nine more useful data sets for the final analysis. This addition was significant when considering the initial count of 113 questionnaires received from managers who purchased outsourced services. The final result set contains 122 completed questionnaires, which was higher than the required sample size of 64 that was calculated in the 'a priori' power analysis as started in the previous section.

The data collection yielded a heterogeneous sample covering a broad range of industries and revealed no indication of systematic bias (Bode, Wagner, Petersen, & Ellram, 2011). Table VI provides a detailed industry breakdown of the sample. Most of

the respondents were managers with extensive IT outsourcing experience. On average, the managers had 8.50 years (s.d. = 4.565) of IT outsourcing experience and had managed on average 6.84 (s.d. = 6.184) IT outsourcing projects. In addition, 53.3 percent of these individuals were in their current positions for at least 6 years.

**Table VI: Industry Breakdown**

Industry	Frequency	Percentage
Manufacturing	24	19.8
Professional, scientific or technical services	20	16.5
Finance or insurance	16	13.2
Health care or social assistance	14	11.6
Information	8	6.6
Transportation or warehousing	6	5.0
Educational services	6	5.0
Utilities	5	4.1
Retail trade	4	3.3
Construction	3	2.5
Arts, entertainment or recreation	3	2.5
Mining	2	1.7
Management of companies or enterprises	2	1.7
Accommodation or food services	1	0.8
Others	7	5.8

Missing data often occurs in survey studies. This study also observed records with missing data. A separate variance t test was conducted to identify variables with patterns of missing values, which may be influencing this study. The results of this test showed only six questions that had missing values and all six questions were related to internal technological capability. Review of the dataset indicated that three questionnaires had missing data in all six questions, while all other questions in these questionnaires had data in them. This observation led to a belief that this missing data might have been caused by computer error. The survey instrument was delivered to test subjects on-line through web browsers. Questions representing each hypothesis were showing in different web pages. After respondents finished answering one set of questions, they would need to

click the Next button to forward to the next set of questions. It could be a computer-related issue that caused the page containing questions related to internal technological capability to not display to these users. Therefore, this missing data can be seen as missing completely in random. While few statistically valid approaches exist in handling missing data, the list-wise deletion approach to omit those cases with missing data and to compute analyses on what remains is the most commonly used technique (Howell, 2009). This study also employed the list-wise deletion approach when analyzing its data.

In addition to missing data, this study also took extra steps to estimate for nonresponsive bias, which has been a concern of researchers who conduct questionnaire survey since 1838 (Lambert & Harrington, 1990). Nonresponse bias refers to the prejudice differences between the answers from respondents to a survey and the answers that researchers might have received from those who did not respond in terms of demographic or attitudinal variables (Sax, Gilmartin, & Bryant, 2003). Groves & Peytcheva (2008) further explained that nonresponse bias is “a function of whether the likelihood of survey participation is related to the variable underlying the estimate” (p. 169). Within a single survey, some estimates can be subject to large nonresponse biases, while others can be subject to negligible biases. As Lambert and Harrington (2006) stated, the “larger the bias, the more caution the researcher should exercise in generalizing results of the respondent sample to the entire population” (p. 6). While scholars have introduced a number of methods for estimating nonresponse bias, extrapolations are considered to be those that lead to better outcomes (Armstrong & Overton, 1977).

To identify whether significant bias exists in this study, time trends extrapolation were conducted. Responses from early-returned questionnaires and late-returned questionnaires on a number of variables: industry, dedicated asset-specific investments, future business relationship, calculative trust, attitudinal commitment, technical capabilities, and managerial perception of outsourcing success, were compared. This procedure was recommended by Armstrong and Overton (1997) and was adopted by many scholars, such as Guthrie (2001), and Poppo and Zenger (2002). The assumption of this analysis is that late respondents share similar characteristics and response biases as nonrespondents (Armstrong & Overton, 1997; Guthrie, 2001). Analyses as shown in Table VII indicate that there no significant mean differences existed between early and late respondents.

**Table VII: Comparison between Early Responders and Late Responses.**

<b>Variables</b>	<b>Early Responses</b>	<b>Late Responses</b>
Dedicated asset-specific investments	4.1167	4.2022
Future business relationship	4.4057	4.4057
Calculative trust	3.9781	3.5738
Attitudinal commitment	5.4959	5.5164
Technological capabilities	5.0000	4.9836
Managerial perception of outsourcing success	4.8725	5.0333

Table VIII presents the means, standard deviations, and zero-order correlations among independent variables. While results show that there was some correlation among these variables, the magnitude of the observed correlations suggested that these variables were not simply redundant measures, (i.e., the correlations range from 0.018 to 0.520 and thus provide evidence of discriminant validity). There was moderate correlation between dedicated asset-specific investments and possible future business. This indicated a higher

tendency of partners investing financially into their relationship when there was a higher possibility of future business prospects. Following procedures conducted by Tian et al. (2008), discriminant validity was further assessed by examining the 95 percent confidence intervals around all possible pair-wise construct correlations. Results showed that the construct correlations range in value from 0.002 to 0.690. Because none of the confidence intervals encompass 1.0; it suggested discriminant validity among the constructs (Anderson, 1987).

**Table VIII: Descriptive statistics and zero-order correlations**

Variable	Means	s.d.	AI	CT	AC	FB	TC	OS
Asset-specific investments (AI)	4.159	1.588	1.000					
Calculative trust (CT)	3.776	1.481	.418**					
Attitudinal Commitment (AC)	5.506	1.145	.318**	.202*				
Future Business (FB)	4.405	1.457	.520**	.420**	.425**			
Technological capabilities (TC)	4.991	1.140	.095	.018	.271**	.192*		
Outsourcing success (OS)	4.952	1.121	.366**	.244**	.702**	.345**	.181	1.000

n=119 – 121, \* p < 0.01, \*\* p < 0.05,

In addition to the correlation between variables, multicollinearity is another concern that researchers often assess. Multicollinearity occurs when there are high correlations among the latent exogenous constructs (Grewal, Cote, & Baumgartner, 2004), which can provide redundant information about the response. High multicollinearity can reduce reliability of the tested model (Blalock, 1963) and can cause misleading results. For this study, variance inflation factors (VIF) were calculated for each predictor. The result showed that VIFs were in the range of 1.169 and 2.644. Because none of the values were higher than or equal to 10, which was the most commonly used rule of thumb as a sign of severe or serious multicollinearity (O'Brien, 2007), it was concluded that there was no multicollinearity among these independent variables.

To examine the internal consistency of the variables being used in this study, Cronbach's alpha coefficients were calculated for each of the variables. As stated by Reynaldo, J. and Santos A. (1999), Cronbach's alpha is appropriate for illustrating the reliability of factors extracted from both dichotomous and scales variables. A split-half analysis by calculating Spearman-Brown Coefficient was also performed. As shown in Table IX, the Cronbach's alpha values ranged from 0.735 to 0.924, with all higher than the 0.7 threshold that is commonly considered as acceptable reliability (Nunnally & Bernstein, 1994). This indicated that all six variables do have acceptable reliability.

**Table IX: Internal Consistency Calculation for Dependent and Independent Variables**

Variable	Cronbach's alpha	Spearman-Brown Coefficient
Outsourcing success	0.924	EL <sup>a</sup> :0.882 UL:0.883
Asset-specific investments	0.735	EL:0.790 UL:0.805
Calculative trust	0.835	EL: 0.874 UL: 0.885
Attitudinal commitment	0.908	EL: 0.923 UL: 0.923
Future business relationship	0.819	EL:0.762 UL:0.762
Technological capabilities	0.844	EL: 0.814 UL: 0.829
Managers' outsourcing experience	0.865	EL: 0.912 UL: 0.921
Note: EL stands for Equal Length, UL stands for Unequal Length.		

## 5.2 Analysis

Given that previous research has suggested that industries were known to be at different maturity levels in terms of IT outsourcing (Adelakun, 2004), this study also controlled for industry prior to examining the relationships of interest. Existing literature also suggested that previous experience could affect perception of similar events in the



future. Therefore, this also controlled managerial outsourcing experience prior to examining the relationships of interest in order to extract possible confounding effects. This procedure provided a stronger test of the theory developed in this study.

To examine the moderating effect of technological capabilities on the relationship between the asset-specific commitment, calculative trust, and attitudinal commitment, and managerial perception of outsourcing success, all independent variables were centered before further calculation was conducted. This was done by creating a new variable for each of the selected independent variables. The values of these variables were calculated by subtracting the original value by its mean. These centered independent variables were then multiplied by the moderator variable to create interaction variables. Lastly, hierarchical regression was performed to determine a potential moderating effect.

In the first hierarchical regression model, only the control variables of industry sector and managers' outsourcing experience were included. In the second regression model, the independent variables of asset-specific investments, calculative trust, attitudinal commitment, and expectation of future business were added to the model. Afterward, three sets of interaction variables were added to the third model. Following Baron and Kenny (1986), a "moderator effect can be represented as an interaction between a focal independent variable and a factor that specifies the appropriate conditions for its operation" (p. 1,174). These interaction variables were the interaction between technological capabilities and asset-specific investments, the interaction between technological capabilities and calculative trust, and the interaction between technological capabilities and attitudinal commitment. This step added the multiplicative product of each pair of these variables into the third model in order to find out their impacts to the

overall model. The result of this multiple regression is shown in Table X. All effects were significant at the  $p < 0.01$  level.

**Table X: Results of Hierarchical Regression Analysis for Moderating Effects**

<b>Predictors of Managerial Perceptions of Outsourcing Success</b>	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>
<i>Control Variables</i>			
Industry	-.131 <sup>a</sup> (.451) <sup>b</sup>	-.028 (.845)	-.027 (.851)
Managerial experience	1.315 (.000)	.480 (.023)	.401 (.057)
<i>Main Effects</i>			
Asset-specific investment (AI)		.297 (.082)	.273 (.104)
Calculative trust (CT)		.014 (.935)	.244 (.199)
Attitudinal commitment (AC)		1.224 (.000)	1.361 (.000)
Future business (FB)		-.054 (.706)	-.134 (.347)
Technological Capabilities (TC)		-.023 (.911)	.056 (.781)
<i>Moderator Effects</i>			
TC * AI			.036 (.411)
TC * CT			-.064 (.195)
TC * AC			.108 (.010)
<i>Predicted Model Results</i>			
F-value	18.621	17.323	13.634
R <sup>2</sup>	.248	.529	.565
Adjusted R <sup>2</sup>	.235	.498	.523
Δ Adjusted R <sup>2</sup>	.235	.263	.025

Note: <sup>a</sup> Unstandardized regression coefficients ( $\beta$ ), <sup>b</sup> p-value

Results showed that all models were statistically significant ( $p < .001$ ). Model 1 indicated that control variables explained a portion of the variance ( $R^2 = .248$ ). Model 2 captured the factors that were hypothesized to have direct impact on managerial perception of IT outsourcing performance.

When independent variables, asset-specific investments, calculative trust, attitudinal commitment, and expectation of future business, were included in the model, the variance explained increased significantly ( $\Delta R^2 = .281$ ,  $p < .001$ ). This study first asked whether financial commitment in the form of asset-specific investments is positively related to the managerial perception of IT outsourcing success (H1). Following

previous research, unstandardized regression estimates were used to evaluate the direct relationship between variables (Bode, Wagner, Petersen, & Ellram, 2011). Results showed that asset-specific investments did positively affect managerial perception ( $b = .273, p \leq .01$ ), which provided marginal empirical support for H1.

Next, the direct effect of calculative trust on managerial perception was analyzed (H2). Results as shown in Table X indicate that calculative trust also are positively related to managerial perception of outsourcing success ( $b = .244, p = .199$ ). The prediction of calculative trust indicated a direct and positive relationship, and thus, managerial perception of outsourcing success is not supported. Attitudinal commitment also was hypothesized to be positively related to managerial perception (H3). The results showed that attitudinal commitment are positively related to managerial perception of IT outsourcing success ( $b = 1.361, p < 0.001$ ). Thus, the results provided empirical supported for H3 as well. Lastly, the fourth factor hypothesized to be positively related to managerial perception of outsourcing success was the expectation of future business relationships (H4). Contrary to the prediction, the results suggested a negative coefficient for the expectation of future business ( $b = -.134$ ). Therefore, the positive relationship between expectation of future business and managerial perception of outsourcing success was not supported.

Model 3 introduced the moderator effects of internal technological capabilities. The inclusion of the interaction terms explained a small but highly significant additional amount of variance ( $\Delta R^2 = .036, p < .001$ ). This study first addressed the moderator effect of internal technological capabilities on the relationship between asset-specific investments and managerial perception of outsourcing success (H5a). Results indicated

that the internal capabilities and asset-specific investments interaction term was significant ( $b = .036$ ,  $p = .411$ ). Thus, H5a was not supported. Next, the moderation effect of internal technological capabilities on the relationship between calculative trust and managerial perception of outsourcing success was evaluated (H5b). The results revealed that the interaction effect of internal technological capabilities and calculative trust was significant and in the negative direction ( $b = -.064$ ,  $p = .195$ ). Therefore, H5b was not supported. Finally, the moderation effect of internal technological capabilities on the relationship between attitudinal commitment and managerial perception of outsourcing success (H5c) was evaluated. Results showed a positive and significant regression coefficient for the technological capabilities and attitudinal commitment interaction term ( $b = .108$ ,  $p = .010$ ). This provided empirical support to the H5c.

### **5.3 Discussion**

The results of this study provide partial support for the hypotheses regarding the directional linkages among the model variables. The data provided strong support for the positive relationship between asset-specific investments and managerial perception of management success; as well as a positive relationship between attitudinal commitment and managerial perception of outsourcing success.

However, results also showed that the internal technological capabilities were moderating the relationship between calculative trust and managerial perception of outsourcing success in a negative direction, which contradicted the hypothesis in this study. This was surprising, yet some literature also found this artifact. Cohen and Levinthal (1990) mentioned that when employees shared specialized language, coding scheme, or expertise, this technical strength “impedes the incorporation of outside

knowledge and results in the pathology of the not-invented-here (NIH) syndrome” (p.133). Ridby and Zook (2002) also reported that two out of five executives surveyed indicated that their companies suffered from the NIH syndrome (Katz & Allen, 1982). This had impacted a company’s willingness to adopt external ideas and knowledge. Furthermore, Hansen and Nohria (2004) indicated that the NIH syndrome was one of the key barriers to collaboration. When a company had a strong internal technical team, it might suffer the same syndrome, and not be open to external ideas or not fully cooperate with external service providers (Bettencourt, Ostrom, Brown, & Roundtree, 2002). The Relational View also stressed that business partners’ capabilities needed to be complementary to each other in order to generate relational rents (Dyer & Singh, 1998). Simply having higher technological capabilities might not be sufficient to help outsourcers better enjoy knowledge sharing among business partners.

Conflicts between internal and external IT capabilities could diminish the overall productivity of organizational IT (Nevo, Wade, & Cook, 2007, p. 6), which in turn hindered the impact of an outsourcing project. Dyer and Singh (1998) further specified that technological capability was just one of the two important factors that were required for enhancing outsourcer’s partner-specific absorptive capability. Outsourcing companies also need to develop interaction routines that maximize the frequency and intensity of sociotechnical interaction before they can enjoy supernormal relational rents. In addition, strong internal technological capabilities might enable companies to step in and complete the project internally, in the event that their service providers were not performing as expected, or threatening to walk away from a project (Mayer & Saloman, 2006). This may impact managerial perceptions negatively regarding the benefits that they receive

from their partners. External contractors also might not be able to receive legitimacy if their knowledge and expertise did not differ substantially from that possessed by the in-house IT team (Nevo et al., 2007). Furthermore, companies with strong internal technological capabilities may be more likely to outsource functions that are repetitive and non-strategic in nature. As suggested by Lacity and Willcocks (2000), one of the key benefits of outsourcing is to be able to redirect internal staff to focus on tasks that are more strategic in nature. Managers who oversaw IT outsourcing projects that were non-strategic or less challenging than their internal projects might not value their service providers' contribution as much as if these projects were mission critical. Lastly, because non-strategic outsourcing projects would likely not be as visible to upper management as other critical initiatives, managers who handled these engagements might not appreciate their partners as much. These factors could impact the outsourcing projects negatively and might explain the negative moderation impact that the internal technology capabilities had on the relationship between the calculative trust and managerial perception of outsourcing success.

Another surprising finding was that the hypothesized positive relationship between expected future business and managerial perception of outsourcing success was not supported. Basic economics might provide an explanation in this case.

The most recent global recession has had a tremendous impact on companies across the globe. As stated in Gregg and Wadsworth (2010), "the recession of 2008-2009 inflicted a larger cumulative loss of UK output than any of the other post-war recessions" (p.61). While companies were going through their recovery process from this global recession that started in 2008 (Sisko, Truffer, Smith, Keehan, Cylus, Poisal, Clemens, &

Lizonitz, 2010), managers were having added pressures from constantly shrinking budgets and from increasing demands on needing to get their expected rate of return from their investments. Recession might also limit business partners' abilities and willingness to invest in relation-specific assets, which is considered as one of the key sources of inter-organizational competitive advantage (Dyer & Singh, 1998). In addition, a challenging economic outlook also could impact contract length negatively, which, according to the Relational View, would also reduce partners' willingness to invest in relation-specific assets. Dyer and Singh (1998) stated that alliance partners needed to assess whether or not they would be able to recoup the return on investment during the length of the contract. Shortened contract duration might not allow sufficient time for cost recovery and thus negatively impact such investments in the partnership. Bladen and Morrow (2010) also reported that there were "severely diminished levels of engagement and loyalty across industries" during the post-recession period. Furthermore, the shrinking economy also heightened the competition among service providers (Liu & Nagurney, 2011). Customers often benefit from increasing vendor rivalry and needs of clients (Michell & Fitzgerald, 1997) and thus the once-valued loyalty between customers and their outsourcing partners might not be as important at this juncture. Therefore, the expectation of possible future business relationship might not contribute to managers' perception of outsourcing success as originally predicted in this study. Instead, Conley (2003) reported that success could act as an antecedence of enhanced partnerships. Alford (2011) also stated that experience of success increased people's willingness to take on further work. To test for whether manager's perception of outsourcing success had any significant impact to the expectation of future business, a mediator test was performed.

Mediation is said to occur when a causal effect of independent variables on an outcome is explained by an intervening variable. (Shrout & Bolger, 2002). According to Thonis (2011), the conditions that need to be met when proving a mediation effect include: (1) the relationship between independent variable(s) and mediator variable is significant; (2) the relationship between the mediator variable and dependent variable(s) is significant; (3) the relationship between the independent variable(s) and dependent variable(s) is significant; and (4) the relationship between the independent variable(s) and dependent variables is reduced when the mediator variable is being introduced into the equation. After running hierarchical regression procedures in accordance with the Thonis (2002) steps, asset-specific investments, calculative trust, attitudinal commitment, and technological capabilities were significantly related to the managerial perception of IT outsourcing ( $R^2 = .561$ ,  $p < 0.001$ ), which satisfies condition 1. Results from regressing managerial perception of outsourcing success and expected future business showed a significant relationship ( $R^2 = .111$ ,  $p < 0.01$ ), which satisfies condition 2. Model 2 in Table XI showed that independent variables were significant related to the managerial perception of IT outsourcing ( $R^2 = .565$ ,  $p < 0.001$ ), which satisfies condition 3. Lastly, the model 3 in Table XI showed the adjusted  $R^2$  of .366 after the mediator variable was added to the regression between the independent variables and dependent variable was also lower than the prior adjusted  $R^2$  of .367. This satisfies condition 4. Because the addition of the mediator variable only reduced, instead of fully eliminated, the significance of the model, it thus indicated a partial mediation effect.

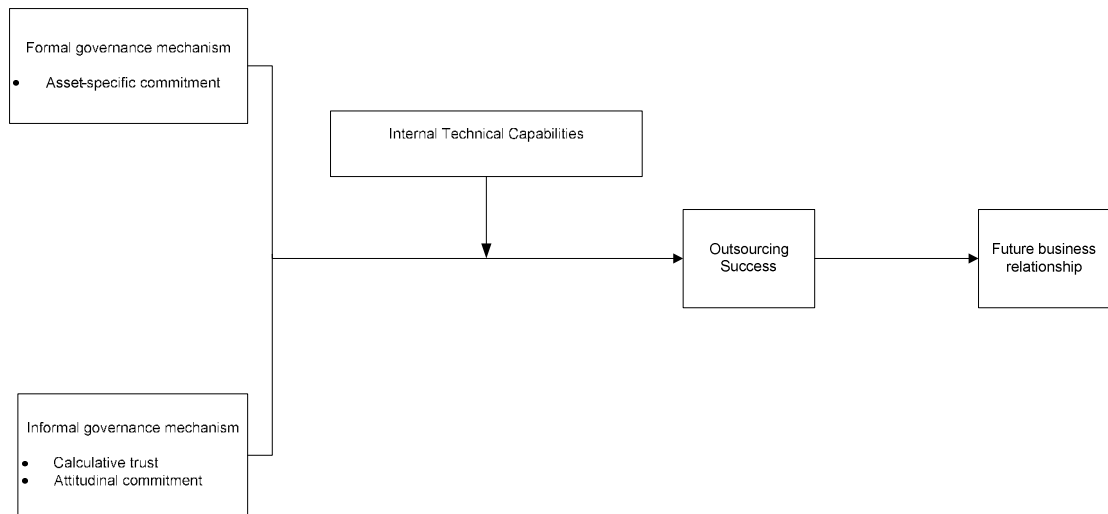


**Table XI: Post Hoc Analysis: Mediated Regression Results for Effect of Outsourcing Success**

Predictors of Managerial Perception of Outsourcing Success	Model 1	Model 2	Model 3
<i>Control Variables</i>			
Industry	-.081 <sup>a</sup> (.485) <sup>b</sup>	.007 (.939)	.006 (.953)
Managerial experience	.352 (.016)	-.169 (.235)	-.143 (.326)
<i>Main Effects</i>			
Asset-specific investment (AI)		.404 (.000)	-.143 (.000)
Calculative Trust (CT)		.399 (.002)	.411 (.001)
Attitudinal commitment (AC)		.386 (.002)	.469 (.002)
Technological Capabilities (TC)		.182 (.186)	.184 (.182)
<i>Moderator Effects</i>			
TC * AI		.014 (.649)	.016 (.599)
TC * CT		-.043 (.198)	-.047 (-.166)
TC * AC		.045 (.107)	.052 (.075)
<i>Mediator from Post Hoc Analysis</i>			
Outsourcing success			-.063 (.347)
F-value	3.149	8.398	7.639
R <sup>2</sup>	.053	.416	.421
Adjusted R <sup>2</sup>	.036	.367	.366
Δ Adjusted R <sup>2</sup>	.036	.331	-.001

<sup>a</sup> Unstandardized regression coefficients (β), <sup>b</sup> p-value

Because outsourcing success acted as a partial mediator on future business, a new model based on the finding was created (see Figure 2).



**Figure 2: Post Hoc Model with Outsourcing Success Mediating Future Business Relationships.**

The findings of this study indicate that the dedicated asset-specific investments, calculative trust, and attitudinal trust are positively related to managerial perceptions of outsourcing success. This further strengthens the observation that formal and informal governance mechanisms do work in concert during IT outsourcing engagements (Poppo & Zenger, 2002 TCE). This study contributes to previous research in that it highlights the complementary explanation power that TCE and the RBV bring together in the arena of IT outsourcing. In addition, the results of this study also contribute to the literature by identifying specific types of trust that have higher correlation to managers' perception of outsourcing success, which have mixed findings in past research.

The partial mediating effect of outsourcing success on future business indicates that, from a practitioner perspective, service providers who are interested in future client relationships should ensure that their performance impacts managerial perceptions of success because higher perception could lead to future business.

Furthermore, out of the few key governance mechanisms that this study has examined, attitudinal commitment is the most important contributor to the outsourcing success. This is consistent with observations by other studies, such as Ahmed and Salas (2009) that stated that there is substantial evidence that in-group feelings have a significant effect on individual behavior. This study contributes to practice by highlighting the interconnectedness of governance mechanisms and outsourcing success. An implication for practice is that purchasing companies should devote attention in building trusting relationships and creating an environment to promote win-win situation for both parties, particularly when faced with difficult financial turbulence. As suggested in Obadia (2010), purchasing companies should communicate intensively about their

actions to promote trust and long-term relationships in order to build up perceptions of commitment from their partners. These perceptions will then in turn enhance the business relationship among both parties and will benefit the outsourcing project in the end. Lastly, the confirmed moderation effects that internal technological capabilities possess also encourage outsourcing companies to continue devote sufficient resources to maintain or even build up their own IT departments, while engaging their service providers to handle some of their IT functions.

#### **5.4 Limitations and Areas for Future Research**

Several limitations of this study should be noted. First, because this study gathered self-reported data from a single source at one time, common method variance due to single-source bias could be a concern and might have inflated the magnitude of the relationships found. Second, the relatively small datasets used for this study may limit the ability to generalize its findings. Third, this study only focused on the managers from the receiving end; future studies should investigate from the service providers' point of view to find out whether similar effects would be observed. Fourth, because no objective data on each company's outsourcing outcome was collected, it was not certain how well managers' perceptions align with their companies' financial results. A comparative study of managerial perception and financial impact is suggested.

Furthermore, Ahmed and Salas (2009) also suggested that trust and its impact differs across cultures. As reported by TPI, a global IT sourcing advisory firm that tracks larger IT deals worldwide, the IT outsourcing market in the United States only accounted for 32.5% of the total \$95 billion global contract values in 2011 (Maitra, 2012). During that year, the EMEA market jumped 27 percent to \$55.30 billion while the American

continent market, on the other hand, contracted 20 percent to \$31 billion (Maitra, 2012). This shifting dynamic further highlights the importance of studying this subject in countries other than the United States to determine whether cultural differences will have any significant impact to the governance mechanisms and the managers' perception of outsourcing success.

While IT is one of the key business functions that corporations have been outsourcing to service providers, companies have been outsourcing business functions such as engineering (Zirpoli & Becker, 2011), manufacturing (Bardhan & Kroll, 2003), and R&D (Mol, 2005), to other business partners as well. R&D-intensive industries traditionally have been seen as an impediment to outsourcing because these industries usually have sufficient scale advantages to allow for vertical integration (Harrigan, 1985), and the proprietary nature of R&D has increased the risk of opportunities (Williamson, 1985). However, the Relational View provided a contradictory viewpoint and suggested that outsourcing should become more and more favorable in the context of R&D-intensive firms (Mol, 2005). According to the Relational View, the complementary inter-sector technological specialization will provide mutual benefits to both outsourcers and vendors (Dyer & Singh, 1998). The increasing popular use of self-enforcement governance mechanisms also promotes effective exchanges of technological know-how among the outsourcing partners (Barthelemy, 2003). After empirically testing the 3-digit level census data of Statistics Netherlands on 52 industries, Mol (1995) concluded that "the relational view appears to be an appropriate portrait of empirical reality as it has been developing" (p. 593). Scholars should look into the impact of governance

mechanisms to the managers' perception of outsourcing success in these transactions, as well.

Lastly, the finding of this study indicate that managerial years of experience in IT outsourcing had a significant effect on the impact of governance mechanism to managerial perception of outsourcing success. Instead of looking at experience at the individual level, Littlepage, Robison, and Reddington (1997) indicated that group experience could also increase performance by facilitating recognition and utilization of member expertise. Future studies should investigate the effect of experience from the corporation level to find out whether that has even bigger impact than experience of individual manager.

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# APPENDIX A

## OUTSOURCING TYPES

As mentioned in Chapter I, the following paragraphs describe the types of outsourcing arrangements.

**Body shopping** refers to a common practice in which companies bring in supplemental laborers from temporary employment agencies, such as Manpower, Inc., to help take care of daily IT operations (Mastakar & Bowonder, 2005; Pattnaik, 2005). While the U.S. economy is still improving, following its downturn in 2002 and again in 2008, many companies have opted for this approach to minimize the long-term commitment in human resources expenditures. This practice also is what Lacity et al. (1996) have referred to as one example of insourcing, in which companies bring in external staff and resources and manage them under in-house administration. Although temporary workers are not employees of the purchasing companies, they do take job assignments directly from the purchasing company's management. This approach allows companies to retain control because they manage the assets, including labor power, required to do the work (Brooks, 2006).

Body shopping often is used when companies possess sufficient internal skills to manage those supplemental staff and monitor the work that they do. However, when it is time to handle new initiatives for which companies lack internal expertise or they want to preserve their internal staff for executing other tasks, companies can choose to engage service providers in short-term consulting projects. These projects involve requesting

their service providers to perform some clearly defined IT-related activities that will be completed in one year or less (Cartus, 2010).

**Short-term consulting** refers to the practice of bringing in teams of professionals on occasion to supplement staff shortages or skill gaps in order to complete some predefined projects or assignments, such as application development or implementing a new accounting system (Meyskens et al., 2009). The time duration for this type of engagement is usually less than one year (Cartus, 2010; Petrovic, Harris & Brewster, 2000). In order to bring in fresh ideas, supplement skill gaps, and shorten time to delivery, companies may outsource the design, development, or testing to outside consultants. Typical projects in this area are designing and developing web sites for internal employees or external customers and business partners and customizing business applications (Meyskens et al., 2009). While short-term outsourcing engagements are projects that can be defined clearly, evaluated, and completed within one year or less (Petrovic et al. 2000), those projects that are more extensive in scope or have greater time commitments can be termed as either selective outsourcing or comprehensive outsourcing (Lacity et al., 1996).

**Selective outsourcing** is “the practice of outsourcing select IT applications to vendors while retaining other IT applications in-house” (Lacity et al., 1996, p. 14). By using this delivery model, selected IT functions, accounting for between 20–80% of the IT budget, are being outsourced to external providers. Lacity and Willcocks (1998) found that firms predominantly engage in selective outsourcing and are able to realize greater cost savings than those that use short-term consulting engagements or comprehensive levels of outsourcing. It should be noted that while the cost savings are



better for selective outsourcing, lower costs resulting in increased efficiency may not result in an increase in effectiveness. This dissertation differs from previous literature in that it is designed to consider both costs and other associated benefits or detriments.

In selective outsourcing, the company signs a single contract with an external service provider for the provision of all operations within a category of services, such as the entire helpdesk support function (Cohen & Young, 2006). Commodity functions, such as e-mail filtering, data centers, and disaster management, are also good candidates for using this approach (Gibson, 2006). Transaction-intensive processes that are high in volume, but add minimal value to the company, lend themselves to outsourcing as well (Beulen, Baas, Dain, Hudson, Reitsma, Symonds, & Van Der Zee, 2004). One example of such a process is payroll processing (Gibson, 2006). Furthermore, selective outsourcing also is a preferred option for Business Process Outsourcing (BPO) contracts when significant asset transfer and complex integrated processes are involved (Tyler, 2004).

Depending on the nature of services rendered, delivery models do vary (Gibson, 2006). They can be performed onsite, offsite (which could mean internationally), or a combination of both (Beulen et al., 2004). For example, while an IT helpdesk call center likely is to be operated offsite and increasingly operate offshore where costs are often lower, desk-side IT support usually is handled onsite (Beulen et al., 2004). This option provides the benefits of accessing technical skills, enjoying economies of scale, and requiring less complex project management when compared to using multiple vendors. However, because the purchasing company only deals with a single vendor, this approach

potentially can limit the company's exposure to the best-of-breed capabilities (Levina & Su, 2008).

**Comprehensive outsourcing** is the classic outsourcing model that predominated throughout the 1980s and most of 1990s (Lacity et al., 1996). Lacity et al. (1996) defines comprehensive outsourcing as a practice that involves transfers from internal IT functions to third-party vendors of IT assets, leases, staff, and management responsibility for delivery of IT services, which account for at least 80% of the IT budget. A small minority of companies adopt this IT outsourcing approach and form close partnerships with their IT vendors. Some examples of these types of partnership including the Inland Revenue and Electronic Data Systems (EDS) (Kern, Willcocks, & Van Heck, 2002), the London Stock Exchange and Anderson Consulting (Clark, 2000), as well as British Aerospace and CSC (Willcocks & Lacity, 1999).

Comprehensive outsourcing contracts often involve complex technical disciplines such as the case in which the contracted service provider will act as a prime contractor and tap into multiple providers for delivering the outsourced services (Capgemini, 2006). While this practice of sub-contracting will help organizations gain best-of-breed experience, it increases the risk that the prime contractor will fail to act effectively as the project manager or liaison between service recipient and subcontractors.

Another variation of the service provider composition is that a company will contract out its IT functions to a number of service providers, also known as multi-sourcing (Cohen & Young, 2006; Levina & Su, 2008). Either the customer or one of these service providers will have the overall project management responsibility throughout the outsourcing period.

In either of these arrangements—either simple or multi-sourcing—security issues, liabilities, and possible higher transaction costs are considerations (Cohen & Young, 2006; Trent & Monczka, 2003). For example, General Motors Corporation (GM) renewed two long-term contracts with Capgemini in June 2010. The combined 5-year agreements were valued at approximately US\$250 million, which replaced two of the six previously signed 5-year mega-size multi-sourcing contracts that took effect in June 2006 (Capgemini, July 28, 2010). Three additional 5-year contracts valued at US\$100 million were later signed on December of the same year to extend three other existing contracts. Previously in 2006, as part of a continuous outsourcing effort, GM awarded six vendors approximately \$7.5 billion worth of IT work over a five-year period. Among these six vendors, Capgemini was charged to manage application development and integration across the automaker's business units and, on an enterprise-wide basis, to ensure that all the work follows GM's standard (Capgemini, 2006). Under this arrangement, Capgemini also was charged to manage other vendors who were selected to do some of the application development projects (Schaffhauser, 2007). This included monitoring other service providers to ensure they adhere to GM standard, which range from common technology standards to processes for system verification, validation and project management (Mitchell, 2006). During an interview, Ralph Szygenda, who was the chief information officer and group vice president of GM, told a reporter that GM outsourced most of its IT operations, but had maintained 2,000 employees to handle "strategic management of information technology" (Mitchell, 2006, p. 1). He believed making suppliers adhere to a similar set of standards created a win-win for all parties involved. Szygenda explained "You take all of the mundane IT processes that really aren't

innovation for GM or the IT company and make all that simple," (Mitchell, 2006).

Furthermore, Szgenda said implementing a single set of operating standards would allow GM to improve global collaboration, while assuring reliability of its computing systems and cutting costs. "It lets GM focus on innovation rather than spending a lot of time on managing its suppliers." he said at a press conference (Hamm, 2006). In addition, it was reported that the significant cost savings through its multi-sourcing arrangement allowed GM to reduce its annual IT budget from US\$4 billion in 2000 to approximately US\$2 billion in 2010 (Reid, 2009).

In a comprehensive outsourcing environment, service providers are responsible for all aspects of the IT infrastructure that they are charged to handle, including server center, network, security, system administration, application development, and maintenance (Lacity et al., 1996). This approach works better for medium- to large-sized corporations because they can command service providers' attention when service-related issues surface (Mitchell, 2006). However, smaller organizations probably do not have the same purchasing power to demand a similar amount of responsiveness from their vendors, especially when dealing with large service providers. Under this arrangement, the selected service provider usually controls the IT operation that was once controlled by the customer (Lacity et al., 1996). Depending on the nature of the outsourced operation, the staff of the services provider may work on the same premises as the employees of the clients (Lacity et al., 1996) or they may work off-site or offshore while performing their functions (Herath & Kishore, 2009). A few multi-national corporations, such as General Electric (Mamgain & Mishra, 2010) and IBM Corp., (Northrup, 2003) have been outsourcing services globally for decades. As reported by Mamgain and Mishra (2010),

one of GE's outsourcing initiatives was started by Jack Welch who established an outsourcing alliance in India for GE's healthcare business approximately two decades ago. In its 2002 Annual Report, GE announced its intention of outsourcing \$5 billion in contracts to Chinese vendors by 2005 (GE, 2004). Sending work to offshore locations became common practice in the late 1990s, when there were shortages in IT skills in both Europe and North America, particularly those required for fixing Y2K and Euro conversion programs (Morrison & Macia, 2005). Lewin and Peeters (2006) defined offshoring as a company practice that relocates a business-related activity to a wholly owned company or independent service provider in another country, which often incurs lower costs for the outsourcer. Jain, Kundu, and Niederman (2008) believed that offshoring can be established through different channels, including:

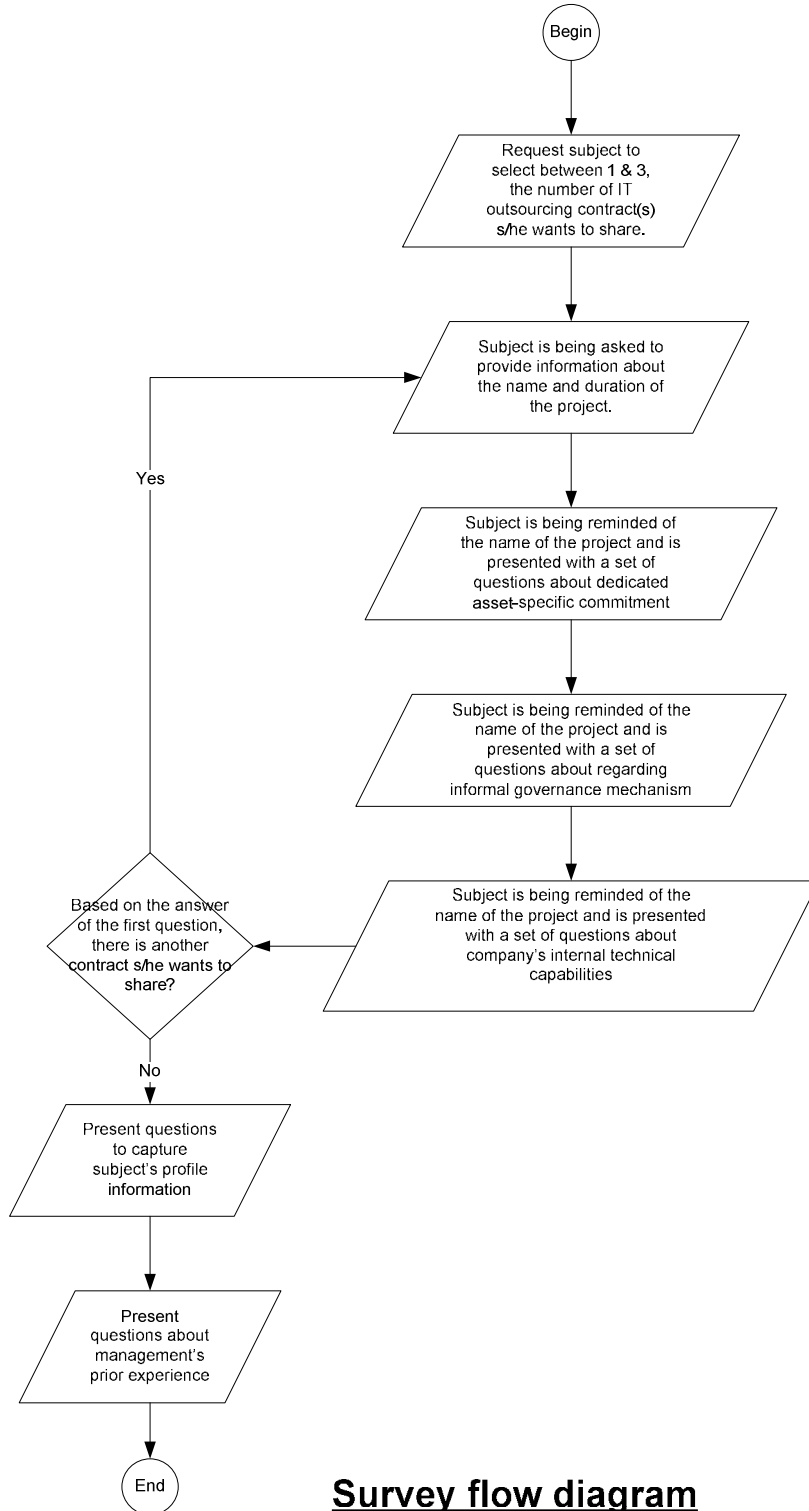
1. Creating a subsidiary abroad and transferring work to that new internal organizational unit,
2. Acquiring a subsidiary in another country,
3. Hiring individual workers in another country directly,
4. Hiring an external service provider that operates in a foreign country, or
5. Contracting with a multi-national service provider with the intention of using their labor forces abroad (Jain, Kundu, & Niederman, 2008). Among these five distinct channels of offshoring that Jain et al. mentioned, this dissertation is concerned with only the last two channels as they are describing services that actually are being outsourced to external service providers. These two means of relocating production of goods and services to facilities in other countries have also been called offshoring (Lovvorn, Kedia, & Lahiri, 2004). One example of this arrangement is the five-year

IT management services outsourcing agreement that Atos Origin has with the Belgian mobile telecommunications providers BASE, which is the wholly owned subsidiary of KPN (Atos Origin, 2007).

As part of the outsourcing process, approximately 40 BASE employees were transferred to Atos Origin. Under this agreement, Atos Origin was responsible for the IT infrastructure, including data center, service desk, security management, and storage. In the application management area, BASE transferred all applications management services, including corrective maintenance and third-party management to its service provider (Atos Origin, 2007). While BASE continued to influence the strategic orientation of its IT activities, Atos Origin took care of all operational support for BASE. Because of the documented benefits, such as lower cost of skilled workers (Sattineni, 2007), increased shareholders' value (Hanna & Daim, 2009), greater focus on core competencies (Kakumanu & Portanova, 2006), improved process efficiencies and quality, and the ability to scale operation up and down as needed (Claire, Gupta, & Tarsh, 2010), many of the fully outsourced contracts ended up operating in locations outside of the customers' home location (Hanna & Daim, 2009). This practice, offshore outsourcing, continues to gain popularity (Kakumanu & Portanova, 2006). As Sattineni (2007) stated, "back office work such as human resources, accounting, auditing, advertising, telemarketing and customer relations" (p.1) were among candidates that US corporations outsourced to vendors in foreign countries.

# APPENDIX B

## SURVEY INSTRUMENT



**Survey flow diagram**

<b>Demographics</b>	
<b>1) Management Level:</b> Manager _____ Director _____ EVP / Vice President _____ CIO _____ CTO _____ COO _____ CEO _____ Others _____	<b>4) Education:</b> Less than High School _____ High School / GED _____ Some College _____ 2-year College Degree _____ 4-year College Degree _____ Masters Degree _____ Doctorate Degree _____ Professional Degree (JD, MD) _____
<b>2) Age:</b> Under 15 _____ 15-24 _____ 25-34 _____ 35-44 _____ 45-54 _____ 55-64 _____ 65 and older _____	<b>5) Years at Current Position:</b> Less than 2 _____ 2 to 5 _____ 6 to 10 _____ 11 to 15 _____ 16 to 20 _____ More than 20 _____
<b>3) Gender:</b> Male _____ Female _____	

### Control Variables

**Question:** Which of the following categories does your business fall under?

- |                          |                                       |                                      |
|--------------------------|---------------------------------------|--------------------------------------|
| 1. Banking and Finance   | 2. Manufacturing                      | 3. Information and telecommunication |
| 4. Retail and Wholesale  | 5. Construction                       | 6. Services                          |
| 7. Public Administration | 8. Agriculture, Forestry, and fishing | 9. Others                            |

**Question:** Please provide approximate details about your organization and yourself:

Total amount of sales volume (as of the previous financial year): ( )

Year when IT outsourcing was first adopted: ( )

Year of the IT outsourcing project that you last managed: ( )

On average, the IT outsourcing project that you have managed takes: ( ) months

The following questions were based on a seven-point Likert scale that range from a value of 1 to 7, as follows:

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree

### Financial commitment in the form of dedicated asset-specific investments

- 1) You and your vendors have invested in related facility to better serve the needs of both parties.
- 2) You and your vendors have reengineered relevant business processes to fit the specific requirements of both parties.
- 3) You and your vendors have had trained employee assigned to handle that particular relationship only.



### **Future business partnership**

- 1) The parties expect to work together on future projects.
- 2) The parties were expected to focus on long-term goals in the relationship.
- 3) Our involvement with this contractor is open ended.
- 4) We expect this contractor to grow into a lifelong partner.

### **Calculative trust**

- 1) We cannot leave this service provider because of the amount of money, time, and energy we have invested in the relationship.
- 2) Transferring existing IT project to a different vendor would cause my company significant problems.
- 3) We maintain our relationship with our vendors because leaving them would mean significant sacrifices.

### **Attitudinal commitment**

- 1) We and our vendor do our best to maintain the relationship.
- 2) The relationship between us and our vendor is strengthened.
- 3) We and our vendor always try to keep each other's promises.
- 4) We and our vendor are willing to continue the relationship.

### **Overall managerial perception of IT outsourcing**

- 1) How well your contractors have delivered what they have promised in terms of meeting deadlines specified in the Service Level Agreement.
- 2) How well your contractors have delivered what they have promised in terms of providing key activities such as applications development, software maintenance or infrastructure support, specified in the Service Level Agreement.
- 3) How well your contractors have delivered what they have promised in terms of meeting the overall Service Level Agreement.

### **Technological capability**

- 1) Our IT team has developed a scheme for IT standardization.
- 2) Our IT team has the ability to integrate IT.
- 3) Our IT team understands the trend of IT.

### **Outsourcing Success**

- 1) We have been able to refocus on core business.
- 2) We have enhanced our IT competence.
- 3) We have increased access to skilled personnel.
- 4) We have enhanced economies of scale in human resources.
- 5) We have enhanced economies of scale in technological resources.
- 6) We have increased control of IT expenses.
- 7) We have reduced the risk of technological obsolescence.
- 8) We have increased access to key information technologies.
- 9) We are satisfied with our overall benefits from outsourcing.

## APPENDIX C

### Reliability and validity information from the questionnaire sources

Question	Source	Construct reliability	Item reliability	Convergent validity	Discriminant validity
<p><b><u>Asset-specific investments</u></b></p> <ul style="list-style-type: none"> <li>You and this service provider have invested in a related facility to better serve the needs of both parties.</li> <li>You and this service provider have reengineered relevant business processes to fit the specific requirements of both parties.</li> <li>You and this service provider have trained employee assigned to handle that particular relationship only.</li> </ul>	Tian, Lai, and Daniel (2008)	Cronbach's alpha = 0.805.	Item reliability was conducted by means of factor loadings of the construct items. Factor loading is significant at 0.01 significance level. The factor loading for these questions was in the range of 0.832 and 0.841.	By running a confirmatory factor analysis (CFA) with the measurement model, fit indexes suggested an acceptable, reasonable fit of the model to the data (normed fit index [NFI] = 0.985; non-normed fit index [NNFI] = 0.982; comparative fit index [CFI] = 0.991; root mean square error of approximation [RMSEA] = 0.064).	Inter-correlations between the constructs were not very high. By examining the 95 percent confidence intervals around all possible pair-wise construct correlations, the construct correlations range considerably in value from 0.111 to 0.565 suggesting discriminant validity among the constructs.
<p><b><u>Future Business relationship</u></b></p> <ul style="list-style-type: none"> <li>The parties expect to work together on future projects.</li> <li>The parties were expected to focus on long-term goals in the relationship.</li> <li>Our involvement with this service provider is open ended.</li> <li>We expect to grow into a long term relationship with this service provider.</li> </ul>	Carson, Madhok, and Wu (2006)	Cronbach's alpha = 0.81		RMSEA = 0.03.	By examining the difference in chi-square values between constrained and unconstrained models, test statistics for each pair were all highly significant ( $p < 0.01$ ), suggesting discriminant validity.

Question	Source	Construct reliability	Item reliability	Convergent validity	Discriminant validity
<p><b><u>Calculative trust</u></b></p> <ul style="list-style-type: none"> <li>• We cannot leave this service provider because of the amount of money, time, and energy we have invested in the relationship.</li> <li>• Transferring existing IT project to a different service provider would cause my company a lot of trouble, worry and problems.</li> <li>• We maintain our relationship with this service provider because leaving this service provider would mean significant sacrifices.</li> </ul>	N'Goala G. (2010)	CFA showed a high level of reliability with the $\rho$ index between 0.76 and 0.90.		Average Variance Extracted (AVE) is greater than 0.50.	Root AVE = 0.72.
<p><b><u>Attitudinal commitment</u></b></p> <ul style="list-style-type: none"> <li>• We and this service provider do our best to maintain the relationship.</li> <li>• The relationship between us and this service provider is strengthened.</li> <li>• We and this service provider always try to keep each other's promises.</li> <li>• We and this service provider are willing to continue the relationship.</li> </ul>	Han et al. (2008)	composite reliability = 0.890		AVE = 0.669	Root AVE = 0.82

Question	Source	Construct reliability	Item reliability	Convergent validity	Discriminant validity
<p><b><u>Managers' experience in outsourcing</u></b></p> <ul style="list-style-type: none"> <li>• How well your contractors have delivered what they have promised in terms of meeting deadlines specified in the Service Level Agreement.</li> <li>• how well your contractors have delivered what they have promised in terms of providing key activities such as applications development, software maintenance or infrastructure support, specified in the Service Level Agreement.</li> <li>• how well your contractors have delivered what they have promised in terms of meeting the overall Service Level Agreement.</li> </ul>	Ho et al. (2003)	Cronbach's alpha = 0.90	Item loading was significant at the 0.05 level.	AVE = 0.833, which was larger than the cross-correlations with other constructs.	
<p><b><u>Technical capabilities</u></b></p> <ul style="list-style-type: none"> <li>• Our IT team has developed a scheme for IT standardization.</li> <li>• Our IT team has ability to integrate IT.</li> <li>• Our IT team understands the trend of IT.</li> </ul>	Han et al. (2008)	composite reliability = 0.902		AVE = 0.570	Root AVE = 0.75

Question	Source	Construct reliability	Item reliability	Convergent validity	Discriminant validity
<p><b><u>Manager perception of Outsourcing success</u></b></p> <ul style="list-style-type: none"> <li>• We have been able to refocus on core business.</li> <li>• We have enhanced our IT competence.</li> <li>• We have increased access to skilled personnel.</li> <li>• We have enhanced economies of scale in human resources.</li> <li>• We have enhanced economies of scale in technological resources.</li> <li>• We have increased control of IS expenses.</li> <li>• We have reduced the risk of technological obsolescence.</li> <li>• We have increased access to key information technologies.</li> <li>• We are satisfied with our overall benefits from outsourcing.</li> </ul>	Grover, Cheon, and Teng (1996)	Cronbach's alpha = 0.908		Convergent validity was evaluated by measuring the correlation of each item representing the construct with the aggregate measure for that construct less the focal item. With the correlation ranging between 0.589 and 0.817, convergent validity was confirmed.	Factor analysis was used to confirm discriminant validity when items were load onto single factors with loadings of greater than 0.50.