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A Configurational Approach to Information Technology Outsourcing

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Abstract
As scholarly interest in IT outsourcing has gained momentum recently, the ability to integrate this line of research into a coherent and consistent body of evidence seems to have been constrained by the difficulty of reconciling the contradictory findings that have emerged from outsourcing studies. This paper suggests that the recurring call for an integrative view of outsourcing can be addressed by breaking away from the reductionistic approach of contingency theory toward the holistic approach of configurational theory. The paper adopts a configurational approach to develop a framework of IT outsourcing effectiveness. Drawing on the relational view of the firm and taking a process view of outsourcing, the framework identifies four high-level dimensions that correspond 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. A novel structured method is used to identify the congruent (internally consistent) outsourcing configurations within the range of possible outsourcing configurations based on the interdependencies among the four dimensions. Furthermore, a settheoretic approach and Boolean algebra are applied to formally demonstrate the logic underlying the framework. Three congruent outsourcing configurations, labeled as asset dependence, relational dependence, and independence, emerge from this analysis. Drawing on the assumptions of configurational theory about organizational change and taking a dynamic perspective, the framework is extended to describe how organizations transition between outsourcing configurations over time. The discussion concluding this paper uses the framework to demonstrate how a configurational approach can effectively address the limitations of the outsourcing literature and advance outsourcing research. While configurational theory offers a holistic and multifaceted way of modeling the intricate interactions between IT and organizational attributes, previous IT studies have drawn on it to a limited extent, primarily as a lens to describe frequently recurring patterns of attributes. Hence, an important contribution of this paper is to demonstrate the potential value of comprehensively adopting a configurational approach for IT research in general and outsourcing research in particular.

Keywords: IT outsourcing, configurational theory, relational view of the firm, set-theoretic methods

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ABSTRACT

As scholarly interest in IT outsourcing has gained momentum recently, the ability to integrate this line of research into a coherent and consistent body of evidence seems to have been constrained by the difficulty of reconciling the contradictory findings that have emerged from outsourcing studies. This paper suggests that the recurring call for an integrative view of outsourcing can be addressed by breaking away from the reductionistic approach of contingency theory toward the holistic approach of configurational theory. The paper adopts a configurational approach to develop a framework of IT outsourcing effectiveness. Drawing on the relational view of the firm and taking a process view of outsourcing, the framework identifies four high-level dimensions that correspond 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. A novel structured method is used to identify the congruent (internally consistent) outsourcing configurations within the range of possible outsourcing configurations based on the interdependencies among the four dimensions. Furthermore, a set-theoretic approach and Boolean algebra are applied to formally demonstrate the logic underlying the framework. Three congruent outsourcing configurations, labeled as asset dependence, relational dependence, and independence, emerge from this analysis. Drawing on the assumptions of configurational theory about organizational change and taking a dynamic perspective, the framework is extended to describe how organizations transition between outsourcing configurations over time. The discussion concluding this paper uses the framework to demonstrate how a configurational approach can effectively address the limitations of the outsourcing literature and advance outsourcing research. While configurational theory offers a holistic and multifaceted way of modeling the intricate interactions between IT and organizational attributes, previous IT studies have drawn on it to a limited extent, primarily as a lens to describe frequently recurring patterns of attributes. Hence, an important contribution of this paper is to demonstrate the potential value of comprehensively adopting a configurational approach for IT research in general and outsourcing research in particular.

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INTRODUCTION

Over the past two decades, the growth in the practice of information technology (IT) outsourcing has been one of the most widespread developments in meeting organizations' IT needs (Dibbern et al., 2004). As interest in this phenomenon has gained momentum, researchers have drawn upon a variety of theories to gain a deeper understanding of outsourcing[1] decisions and their consequences. The resource-based view, resource dependence perspective, knowledge-based theory, transaction cost theory, social exchange theory, and agency theory have been among the most commonly used theories in outsourcing research (Cheon et al., 1995; Dibbern et al., 2004; Goo et al., 2007; Hancox and Hackney, 2000; Kern et al., 2002; Tiwana and Bush, 2007). Other theories, such as institutional theory (Vitharana and Dharwadkar, 2007), innovation diffusion theory (Hu et al., 1997), and residual rights theory (Lee et al., 2004), have been used less frequently. These theoretical frameworks have been applied within three distinct streams of research reflecting a strategic, economic, or social perspective of outsourcing (Goo et al., 2007; Lee et al., 2003).

I submit that while this theoretical proliferation has been valuable in advancing understanding of outsourcing as a unique form of interorganizational relationship, it may have also contributed to the main shortcomings of the contemporary outsourcing literature. First, it appears that this literature cannot be easily integrated into a coherent and consistent body of evidence, primarily because of seemingly irreconcilable contradictions in its findings. For example, studies have shown that firms with a strategic view of IT – where the firm's IT capability is critical to the implementation of the business strategy and the attainment of business goals – prefer insourcing to outsourcing (e.g., Apte and Mason, 1995; Currie and Willcocks, 1998; Quinn and Hilmer, 1994; Teng et al., 1995). This finding is theoretically underpinned by

[1] Throughout this paper, the term 'outsourcing' refers to IT outsourcing.

resource theories, which argue against the externalization of strategically valuable resources. In contrast, other studies have suggested that firms may rely on outsourcing to gain a strategic IT capability (e.g., DiRomualdo and Gurbaxani, 1998; Elmuti et al., 1998; Lee et al., 2004). This finding is theoretically underpinned by interorganizational relationship theories, which draw attention to the advantages of fostering strategic alliances.

Second, efforts to integrate multiple theories within the framework of a single model have sometimes resulted in oversimplified models. The outsourcing literature reflects a favorable increase in the number of studies drawing on multiple theories. However, the integration of different theoretical perspectives is a challenging endeavor. A way to surmount this challenge is to use a straightforward conceptual model to offset the theoretical complexity. One example is the recent study by Tiwana and Bush (2007), who conducted a comparison of transaction cost, agency, and knowledge-based predictors of outsourcing decisions. While tapping into three theoretical streams, their research model described the straightforward association between the predictors and the likelihood of outsourcing. Another example is the recent attempt made by Goo et al. (2007) to investigate the factors that influence the duration of outsourcing relationships by drawing on strategic, economic, and social perspectives. In a similar manner, their research model described the association between the factors and relationship duration.

Third, outsourcing researchers have commonly invoked theory to underpin static associations between variables, and have seldom developed theoretically-anchored models of dynamic associations. One reason for this propensity may be the theory itself, which sometimes lacks a dynamic dimension. For instance, the resource-based view has been criticized for not explaining how firm resources are developed and renewed in response to shifts in the business environment (Eisenhardt and Martin, 2000). Another reason may be the difficulties inherent in the longitudinal research designs necessary to corroborate dynamic hypotheses. A third reason

may be the focus of studies on particular stages or events in the evolution of an outsourcing relationship. During most of the 1990s, there was a strong focus on positivist empirical research on the determinants of outsourcing (Dibbern et al., 2004). Naturally, focusing on the outsourcing decision, which takes place in the early stages of an outsourcing relationship, does not require a dynamic view of how the relationship evolves over time.

In this paper, I adopt a configurational approach and draw on the relational view of the firm (Dyer and Singh, 1998) to develop a framework of outsourcing effectiveness. In doing so, I demonstrate how the three limitations of outsourcing research described in the preceding paragraphs may be mitigated by applying a theoretical approach that has yet to be significantly applied in outsourcing research. The remainder of this paper proceeds as follows. First, I discuss the merits of adopting a configurational approach in organizational research in general and in outsourcing research in particular. Next, I describe the relational view of the firm and how it bridges the strategic, economic, and social perspectives of outsourcing. The configurational approach and relational view are then used as conceptual building blocks in the development of the framework. A novel configurational method and conventional set-theoretic methods are used to structure the process of framework development. Because the framework depicts static relationships, I extend it to incorporate a dynamic perspective of the trajectories of change in outsourcing relationships. The framework draws its predictive value from seven propositions that are formulated as part of the static and dynamic analyses. Finally, I discuss the implications of the framework and its underlying approach for practice and research.

A CONFIGURATIONAL APPROACH

"It is the theory which decides what we can observe" – Albert Einstein

Configurational theory suggests that organizations are best understood as coherent clusters of distinct attributes that commonly occur together (Meyer et al., 1993; Miller, 1986; Mintzberg and Lampel, 1999). Because of the tendency of organizational attributes to fall into coherent patterns, the configurational approach rejects previously dominant perceptions of organizations as complex amalgams of multiple attributes that can vary independently and continuously (Meyer et al., 1993). It is concerned with how the configuration (pattern) of multiple independent variables, rather than each individual independent variable, is related to organizational performance (Delery and Doty, 1996). Its key prediction is that a small number of congruent configurations should describe a large proportion of high-performing organizations (Miller, 1986).

To describe the unique assumptions underlying configurational theory, Meyer et al. (1993) contrast it with contingency theory. Contingency research perceives organizations as loosely coupled aggregates of attributes. It represents a reductionistic analysis of unidirectional linear relationships between external contingencies and internal attributes. To statistically isolate the effects of each variable, it downplays complex forms of interaction. It views adaptive change as being gradual and continuous. In contrast, configurational research perceives organizations as tightly coupled amalgams of attributes. It represents a holistic analysis of bidirectional nonlinear relationships among organizational attributes and seeks to identify complex forms of interaction. Finally, it views organizational change as episodic and discontinuous.

Configurational theory regards configurations ('gestalts' or 'archetypes') as tight constellations of mutually supportive elements of strategy, structure, and environment (Miller, 1986). While various areas of organizational research integrate elements of strategy, structure,

and environment, a configurational approach is particularly valuable for understanding organizational phenomena that require a comprehensive and holistic approach toward the integration of the three. One such area of research is outsourcing. Strategic elements play a key role in outsourcing research, as evident from the dominance of studies on the strategic decision to outsource, which may have a profound influence on organizational performance (e.g., Currie and Willcocks, 1998; DiRomualdo and Gurbaxani, 1998; Hall and Liedtka, 2005; Lee et al., 2004; Loh and Venkatraman, 1992; Quinn and Hilmer, 1994; Teng et al., 1995). Structural elements are paramount because outsourcing is essentially an alternative mechanism for the management of organizational processes and because of its potential effects on organizational governance and coordination. Environmental elements are important because outsourcing is a form of interorganizational relationship (Goles and Chin, 2005; Kern and Willcocks, 2000) and because it is significantly influenced by factors external to the organization (Ang and Cummings, 1997; Hu et al., 1997). The comprehensive literature review on outsourcing performed by Dibbern et al. (2004) demonstrates the key role attributed to strategic, structural, and environmental elements in the outsourcing literature. A thorough understanding of outsourcing effectiveness therefore requires a holistic and balanced consideration of all these elements. One avenue to gain such an understanding is to adopt a configurational approach.

Outsourcing research can also benefit from applying the other assumptions underlying configurational theory. Two key configurational assumptions are nonlinearity and equifinality. Nonlinearity means that "variables found to be causally related in one configuration may be unrelated or even inversely related in another" (Meyer et al., 1993, p. 1178). Equifinality refers to a situation where two or more configurations can be equally effective in achieving high performance (Delery and Doty, 1996; Fiss, 2007). These assumptions can provide more degrees of freedom when efforts are made to reconcile the intricate, and sometimes seemingly

contradictory, findings of outsourcing research. Nonlinearity may aid in explaining, for example, why the strategic role of IT affects the degree of outsourcing positively in one context and negatively in another. Equifinality may assist in explaining why several outsourcing relationships are equally effective despite having very different organizational and relational attributes. Another important configurational assumption, which may advance outsourcing research, is concerned with the mode and temporal distribution of organizational change. Configurational theory assumes that change is frame-breaking and that it transpires in episodic bursts (Meyer et al., 1993). It appears that change in outsourcing relationships has these characteristics considerably more than it is incremental and continuous, as assumed by contingency theory.

A RELATIONAL VIEW

The integration of strategic, economic, and social perspectives is a prerequisite for gaining an integrative view of outsourcing (Goo et al., 2007; Lee et al., 2003). Therefore, another avenue for advancing outsourcing research is to draw on organizational frameworks that are rooted in these perspectives. One such framework, which has yet to be significantly used in outsourcing research, is the relational view of the firm (Dyer and Singh, 1998). This view is an extension of the resource-based view, which attributes differential firm performance to the heterogeneity and immobility of firm resources (Barney, 1991; Peteraf, 1993; Wernerfelt, 1984). While the resource-based view perceives the firm as the primary unit of analysis and seeks to identify strategic resources within firm boundaries, the relational view considers the dyad/network as the unit of analysis and acknowledges that strategic resources may be embedded in interfirm assets and routines. This relational perception is consistent with the significant increase in the number of studies that turn to resources generated through interfirm relationships, instead of those housed

within the firm, as potential sources of competitive advantage (e.g., Das and Teng, 2000; Eisenhardt and Schoonhoven, 1996; Lavie, 2006).

Dyer and Singh (1998) identify four determinants of relational rents, each associated with two subprocesses that facilitate relational rents. Following the logic that asset specialization is necessary for rent generation (Amit and Schoemaker, 1993), the first determinant of relational rents is *relation-specific assets*, defined as investments in assets that are specialized to the interorganizational relationship. The two subprocesses facilitating relational rents are the duration of safeguards and the volume of interfirm transactions. As interorganizational learning is often associated with superior performance, the second determinant is *knowledge-sharing routines*, defined as interfirm processes that facilitate the exchange of knowledge between the partners. The two relevant subprocesses are partner-specific absorptive capacity and incentives to encourage transparency and discourage free riding. The third determinant, *complementarities*, refers to the ability of firms to leverage their partners' complementary resources – resources that collectively generate greater rents than the sum of those obtained from their individual use. The two subprocesses are the ability to identify and evaluate potential complementarities and the role of organizational complementarities in accessing the benefits of strategic complementarity. The fourth determinant, *effective governance*, concerns the enforcement mechanisms of the relationship because these mechanisms influence transaction costs and the motivation to engage in rent-generating initiatives. The two subprocesses are the ability to employ self-enforcement rather than third-party enforcement governance mechanisms and the ability to employ informal versus formal self-enforcement governance mechanisms.

The relational view of the firm integrates strategic, economic, and social streams of research. Being an extension of the resource-based view and focusing on the sources of differential firm performance, it is deeply rooted in the strategy field. Its economic orientation is

reflected in the adoption of the assumptions underlying transaction cost economics. Its social orientation is reflected in the strong emphasis it puts on concepts such as social networks, social controls, and trust. By offering a multifaceted view of interorganizational relationships and their association with organizational performance gains, the relational view of the firm has the potential to advance understanding of outsourcing phenomena.

A FRAMEWORK OF IT OUTSOURCING EFFECTIVENESS

In the previous sections, I have argued that a configurational approach and a relational view can advance outsourcing research. In this section, I marry the two to develop a framework of outsourcing effectiveness.

Configurational theory is concerned with how the configuration of multiple organizational attributes that commonly occur together is related to organizational performance. Therefore, the adoption of a configurational approach in a particular organizational context requires the identification of both the criterion of organizational performance and the organizational attributes that potentially influence it. As the scope of the framework developed here is limited to the context of outsourcing relationships, organizational performance is defined in terms of outsourcing effectiveness.

The literature offers a multitude of definitions of IT outsourcing. While these definitions vary to some extent, they generally refer to an organization's decision to turn over the management of part or all of its IT resources and activities to one or more external IT providers (e.g., Altinkemer et al., 1994; Cheon et al., 1995; Hall and Liedtka, 2005; Hu et al., 1997; Willcocks and Kern, 1998). The literature, however, is more limited when it comes to defining the effectiveness of outsourcing relationships. This limitation requires drawing on more general definitions of organizational effectiveness, which associate it with goal-attainment. Lacity and

Willcocks (2001) identify six strategic objectives underlying the outsourcing decision – financial restructuring (or cost efficiency), core competence, technology catalyst, business transition, business innovation, and new market. Based on established definitions of organizational effectiveness as the extent to which an organization fulfills its objectives (Georgopoulos and Tannenbaum, 1957), I define outsourcing effectiveness as the degree to which the predefined strategic objectives of outsourcing are realized.

The identification of the main attributes that potentially influence outsourcing effectiveness requires a broader conceptualization. Outsourcing represents a lengthy and multifaceted interorganizational process, where the influence of particular attributes may vary as the process progresses from phase to phase. Therefore, it is first necessary to break down this process into its comprising phases and then to identify the main attributes that influence its effectiveness in each phase. Dibbern et al. (2004) describe outsourcing as comprising two phases, decision and implementation. In the decision phase, an organization weighs up the advantages and disadvantages of outsourcing, considers the alternative outsourcing arrangements, and ultimately makes a decision. In the implementation phase, the organization chooses a provider, negotiates a contract, and manages the outsourcing relationship. To develop a framework that offers a comprehensive view of outsourcing relationships, it is necessary to address both phases and identify the attributes that are most significant in each phase.

Organizational Attributes in the Outsourcing Decision Phase

The decision phase does not involve any specific provider and the outsourcing process is not relational at this early stage. Basically, the main task facing the organization is deciding on the arrangement that would best serve its IT needs, given the IT resources available to it. Therefore, the key attributes at this point are those that are pertinent to the comparison between

needed and available IT resources. The needed IT resources are primarily contingent upon the strategic role of IT in the organization, defined as the importance of IT for the implementation of the business strategy and the attainment of business goals. Organizations with a strategic view of IT need a significantly more advanced set of IT resources compared to organizations that do not view IT as strategic for their performance. This notion is best captured by the strategic grid framework (McFarlan et al., 1983) and it is also valuable for understanding why organizations decide to outsource. A general theme in outsourcing research has been that organizations prefer not to externalize their IT resources when these have a strategic impact on their performance (Apte and Mason, 1995; Currie and Willcocks, 1998; Quinn and Hilmer, 1994; Teng et al., 1995). This finding implies that the strategic level of IT needs is negatively associated with the degree of outsourcing. However, the extant literature also supports a positive association between the two (DiRomualdo and Gurbaxani, 1998; Elmuti et al., 1998; Lee et al., 2004). A way to resolve this apparent contradiction is to take into account the available IT resources.

The available IT resources are primarily contingent upon the quality of the organization's technical and human IT assets (Bharadwaj, 2000; Ross et al., 1996). The quality of technical IT assets is reflected in the existence of well-defined architecture and standards for sharable technical platforms (Ross et al., 1996) and in the ability of the IT unit to provide extensive firm-wide IT services (Weill et al., 2002). The quality of human IT assets is reflected in the technical, behavioral, and business skills of the organization's IT personnel (Fink and Neumann, 2007). Technical skills are defined as the technical abilities of IT personnel based on their specific expertise in technical areas; behavioral skills are defined as their interpersonal and management abilities to interact with and manage others; business skills are defined as their abilities to understand the overall business environment and the specific organizational context. Research

has shown that inferior IT assets increase the likelihood of outsourcing IT activities (DiRomualdo and Gurbaxani, 1998; Teng et al., 1995).

Relational Attributes in the Outsourcing Implementation Phase

Specific providers come into play once a decision to outsource is made. Only at this later phase the outsourcing process becomes relational. This is the context in which the relational view of the firm can advance understanding of outsourcing effectiveness. Because outsourcing is a form of interorganizational relationship (Goles and Chin, 2005; Kern and Willcocks, 2000), the relational view can be applied in its entirety to describe how particular attributes of outsourcing relationships are associated with outsourcing effectiveness.

The relational view would suggest that the four relational rent determinants and their subprocesses are positively associated with outsourcing effectiveness. Explicitly, higher levels of relation-specific assets (long safeguard duration and high transaction volume), knowledge-sharing routines (absorptive capacity and knowledge-sharing incentives), complementarities (strategic and organizational complementarity), and effective governance (informal governance mechanisms) should lead to higher outsourcing effectiveness. One of the two subprocesses of effective governance – the ability to employ self-enforcement rather than third-party enforcement governance mechanisms – has been omitted because of the inclination of outsourcing relationships to involve a contractual agreement, which is subject to third-party enforcement.

Beyond applying the relational view in the context of outsourcing relationships, I extend this view by further categorizing the four relational rent determinants as reflecting either relational assets or relational capabilities. The distinction between relational assets and capabilities builds on equivalent distinctions between firm assets and capabilities, made by resource-based theorists who sought to distinguish between different types of firm resources.

Wade and Hulland (2004) note that assets and capabilities define the set of resources available to a firm. Assets are defined as anything tangible or intangible the firm can use in its processes, whereas capabilities are repeatable patterns of actions in the use of assets (Sanchez et al., 1996; Wade and Hulland, 2004). While assets are the basic units of analysis, a capability is the capacity for a group of assets to perform, in cooperation and coordination, a task or an activity (Grant, 1991). I define relational assets as firm assets that are acquired to serve a particular interorganizational relationship. They are thus conceptually similar to relation-specific assets. I define relational capabilities as repeatable patterns of actions in the use of relational assets. They thus include the other three determinants of relational rents – knowledge-sharing routines, complementarities, and effective governance. This extension of the relational view suggests that two context-dependent mechanisms underlie the ability to gain performance advantages through interorganizational relationships; one involves investments that are specialized to the relationship and the other involves action patterns that leverage these investments.

The Integrative Framework

To go forward with the development of the framework, it is first necessary to integrate the organizational and relational attributes discussed thus far. The integrated list of attributes influencing outsourcing effectiveness is presented in Table 1, and its conceptual basis is depicted in Figure 1.

---------- Insert Table 1 about here ----------

---------- Insert Figure 1 about here ----------

As can be seen in Table 1, a hierarchy of attributes, determinants, and dimensions is used to conceptually organize the various factors that potentially influence outsourcing effectiveness. The attributes represent the observed mechanisms of the determinants, equivalent to the relationship

between subprocesses and determinants in Dyer and Singh (1998). The dimensions represent a higher level of conceptualization and refer to the organization's resource position in four key areas: *organizational IT value position* (strategic role of IT in the organization), *organizational IT asset position* (quality of the organization's technical and human IT assets), *relational asset position* (level of relation-specific assets), and *relational capability position* (level of knowledge-sharing routines, complementarities, and effective governance). As depicted in Figure 1, organizational IT value and IT asset positions respectively correspond to the level of needed and available IT resources considered in the decision phase, and relational asset and capability positions correspond to the level of outsourced IT resources in the implementation phase.

The question that remains to be addressed is how are the four organizational and relational dimensions associated with outsourcing effectiveness? I answer this question by adopting a configurational approach to identify a small number of congruent (internally consistent) configurations of the four dimensions that are highly predictive of outsourcing effectiveness. I propose a novel structured method for identifying congruence within configurations. This method follows three steps: (a) mapping the range of possible configurations, (b) formulating a parsimonious set of propositions to describe interdependencies among attributes, and (c) applying these propositions to pin down the congruent configurations, which should dominate the range of possible configurations and outperform incongruent configurations.

The first step involves mapping the range of possible configurations. To refrain from engaging in an insurmountable analysis, I assume that each of the four dimensions is dichotomous. This assumption generates 16 possible configurations – 2 (strategic or non-strategic organizational IT value position) × 2 (strong or weak organizational IT asset position) × 2 (strong or weak relational asset position) × 2 (strong or weak relational capability position). Configurational theory predicts that a small number of congruent configurations should describe

a large proportion of high-performing organizations (Miller, 1986). Therefore, the predictive power of the framework depends upon the ability to identify which of the possible configurations is congruent and which is not. This classification of the possible configurations into congruent and incongruent is infeasible unless it is guided by a set of "coherent patterns" describing the interdependencies among the dimensions. Once such a set of patterns is at hand, it can be used to test the congruence within each possible configuration, where congruent configurations are those in which all the patterns are found.

Because the extant outsourcing literature does not offer sufficient and unequivocal evidence on the interdependencies among the four dimensions, the second step involves formulating a parsimonious set of propositions concerning these interdependencies. Three propositions are formulated below.

First, I propose that organizations are unlikely to maintain a strong IT asset position for long periods of time when their IT value position is non-strategic. The strategic role of IT significantly influences the patterns of IT resource acquisition and deployment (Johnston and Carrico, 1988; Porter and Millar, 1985; Teng et al., 1995). Gaining and maintaining a strong IT asset position is a complex and demanding undertaking for any organization because it involves a combination of large IT investments, superior IT management capabilities, and significant senior management attention. An organization should have little motivation to go through the effort involved in enhancing its IT asset position, unless it views IT as strategic for its performance. This logic implies that configurations are considered incongruent when a non-strategic IT value position is associated with a strong IT asset position. The reversed association – a strategic IT value position with a weak IT asset position – is considered congruent, because organizations may be strategically motivated to maintain a strong IT asset position but may fail to do so.

Proposition 1. *The organizational IT asset position is weak if the organizational IT value position is non-strategic.*

Second, I propose that relational assets are acquired to complement or substitute organizational IT assets. This proposition relies on a fundamental motivation for outsourcing – externally acquire what is difficult to internally develop – and is supported by the outsourcing literature (e.g., Clark et al., 1995; DiRomualdo and Gurbaxani, 1998; Nam et al., 1996; Teng et al., 1995). Consequently, configurations are considered incongruent either when both the organizational IT asset position and the relational asset position are weak or when both are strong. In the former situation, the organization has little to gain from choosing to outsource. In the latter situation, the organization has little motivation to maintain a strong IT asset position when it relies on the outsourcing relationship to provide the needed IT assets.

Proposition 2. *The relational asset position is strong if and only if the organizational IT asset position is weak.*

Third, I propose that organizations are unlikely to maintain a strong relational capability position when the relational asset position is weak or when their IT value position is non-strategic. A strong relational capability position represents an ability to sustain complex interorganizational practices, such as knowledge-sharing routines, organizational complementarities, and informal governance mechanisms. The motivation to attain and maintain such a position should be derived from the strategic importance of the outsourcing relationship to the organization. A weak relational asset position implies that the outsourcing relationship is not a significant source of strategic value. A non-strategic IT value position implies that IT is not a significant source of strategic value. In either case, the organization should have little motivation to go through the effort involved in attaining and maintaining a strong relational capability position. Only when both IT and the outsourcing relationship are considered strategically

important, the benefits of a strong relational capability position may outweigh the effort involved in its development. Accordingly, configurations are considered incongruent when there is an inconsistency between the relational capability position and the combination of relational asset position and organizational IT value position.

Proposition 3. *The relational capability position is strong if and only if the relational asset position is strong and the organizational IT value position is strategic.*

Once the interdependencies among the dimensions have been described in a parsimonious set of propositions, the third step involves applying these propositions to separate the congruent configurations from the incongruent ones. The congruent configurations are defined as those for which all three propositions are confirmed. Table 2 presents the 16 possible configurations and the results of congruence testing using the propositions. Table 3 presents the three congruent configurations that emerge from this test.

---------- Insert Table 2 about here ----------

---------- Insert Table 3 about here ----------

The first congruent configuration, Configuration 3 labeled "asset dependence", characterizes organizations that turn to outsourcing to complement their weak IT assets (Proposition 2). Because these organizations view IT as non-strategic, they are willing to invest in relational assets to accommodate their IT needs, which cannot be met internally (Proposition 1), but are unwilling to strengthen the relational capabilities (Proposition 3). The second congruent configuration, Configuration 12 labeled "relational dependence", characterizes organizations that likewise use outsourcing to complement their weak IT assets (Proposition 2). However, because these organizations view IT as strategic, they seek to strengthen both relational assets and capabilities (Proposition 3). The third congruent configuration, Configuration 13 labeled "independence", characterizes organizations with a strategic view of IT and strong IT

assets. These organizations seek to maintain their independence by avoiding being locked-in as a consequence of significant investments in relational assets or capabilities (Propositions 2 and 3).

Configurational theory makes a fundamental prediction about the association between configurational congruence and organizational performance – it predicts that congruent configurations will outperform incongruent configurations (Bensaou and Venkatraman, 1995; Delery and Doty, 1996; Ketchen et al., 1997; Lee et al., 2004; Miller, 1986; Snow et al., 2005). This prediction, rooted in contingency and configurational assumptions about the performance consequences of fit and alignment, was confirmed in a meta-analysis of the association between organizational configurations and performance (Ketchen et al., 1997). The congruent configurations of outsourcing relationships presented in Table 3 are the product of applying a set of propositions to test the congruence of each possible configuration. As these propositions represent logically consistent associations between outsourcing strategy and structure, the congruent configurations represent coherent outsourcing relationships, whereas the incongruent configurations may be characterized by inefficiencies, over-investment, missed opportunities, or other symptoms of inconsistencies between strategy and structure. Therefore, a fourth proposition is formulated to describe the differences in outsourcing effectiveness (i.e., the performance criterion) between congruent and incongruent configurations.

Proposition 4. *Congruent outsourcing configurations outperform incongruent outsourcing configurations in terms of outsourcing effectiveness.*

Configurational theory incorporates two types of predictability, internal and external. Internal predictability – predictability of elements within the configuration – refers to the ability to predict organizational attributes based on a partial description of the configuration and the presence of other organizational attributes (Miller, 1981, 1986). External predictability – predictability of elements outside the configuration – refers to the ability to make predictions

about organizational performance (Ketchen et al., 1993). In the framework developed in this section, the internal predictability is derived from Propositions 1 through 3 and the external predictability is derived form Proposition 4.

A Set-Theoretic Approach

A methodology that has become increasingly associated with a configurational approach involves the use of set-theoretic methods and Boolean algebra to formally describe the associations among organizational attributes (e.g., Fichman, 2004; Fiss, 2007; Kogut et al., 2004; Ragin, 1987; Roscigno and Hodson, 2004). The advantages of these methods lie in their ability to "contribute to theory building by providing a rigorous way to combine verbal statements with logical relationships that differs from the conventional correlational view, allowing for the expression of complex causal relations in ways that generate new insights for organizational theory and strategy research" (Fiss, 2007, p. 1181). In the present section, I apply set-theoretic methods and Boolean algebra to transform Propositions 1 through 4 into logical statements and to offer an alternative, more formal method for identifying the congruent configurations when the interdependencies among organizational attributes are known.

To formulate the logical statements, consider the four dimensions of organizational IT value position (A), organizational IT asset position (B), relational asset position (C), and relational capability position (D) and their possible values – "0" to denote a non-strategic position in A and a weak position in B, C, or D, and "1" to denote a strategic position in A and a strong position in B, C, or D. Additionally, consider P_1, P_2, and P_3 as reflecting whether Propositions 1, 2, and 3 respectively are false ("0") or true ("1"). Finally, consider outsourcing effectiveness (E) and its possible values – "0" to denote inferior effectiveness and "1" to denote superior effectiveness. The following four logical statements correspond to Propositions 1 through 4 respectively:

$$\sim(\sim A \cdot B) \rightarrow P_1 \;=\; A + \sim B \rightarrow P_1 \qquad (1)$$

$$B \oplus C \rightarrow P_2 \;=\; B \cdot \sim C + \sim B \cdot C \rightarrow P_2 \qquad (2)$$

$$\sim(D \oplus (A \cdot C)) \rightarrow P_3 \;=\; \sim(D \cdot \sim(A \cdot C) + \sim D \cdot (A \cdot C)) \rightarrow P_3 \qquad (3)$$

$$P_1 \cdot P_2 \cdot P_3 \rightarrow E \qquad (4)$$

where "~" denotes logical negation, " · " denotes the logical operator AND, "+" denotes the logical operator OR, "⊕" denotes the logical operator XOR (exclusive OR), and "→" denotes the logical implication operator. Using Boolean logic, the above logical statements are susceptible to logical reduction, which can simplify the associations between the dimensions and outsourcing effectiveness. Such logical reduction is beyond the scope of the present analysis.

Table 3 shows that there are three configurations of A, B, C, and D associated with superior outsourcing effectiveness (i.e., a value of "1" for E). Therefore, the following logical statement, which describes the three congruent configurations, is equivalent to statement (4):

$$\sim A \cdot \sim B \cdot C \cdot \sim D + A \cdot \sim B \cdot C \cdot D + A \cdot B \cdot \sim C \cdot \sim D \rightarrow E \qquad (5)$$

The use of set-theoretic methods here is different from the way they have typically been used in organizational research.[2] Nevertheless, their application here demonstrates how they can be used in conjunction with a configurational approach to simplify and structure the construction of theoretical frameworks characterized by complex causality.

CONFIGURATIONAL CHANGE: A DYNAMIC PERSPECTIVE

The assumptions of configurational theory about organizational change represent a departure from established perceptions of how change transpires in organizational settings.

[2] Typically, a precondition for using set-theoretic methods is knowledge of the complete truth table, including the value of the outcome variable for each possible configuration. Only then, Boolean logic comes into play to determine commonalities among the configurations that lead to the outcome and to generate statements that are susceptible to logical reduction (Fiss, 2007). In this paper, the logical statements are formulated based on theory to determine the value of the outcome variable for each possible configuration.

Instead of viewing organizational change as incremental and continuous, configurational theory views it as frame-breaking and episodic (Meyer et al., 1993). The internal consistency among organizational attributes, characterizing congruent configurations, may be viewed as a momentum-preserving mechanism that aims at maintaining states of organizational equilibrium. The introduction of change to one attribute might jeopardize the congruence of the configuration and the performance advantages associated with it. Organizations would therefore be motivated to preserve states of configurational congruence as long as change is not perceived as a strategic necessity. However, as the need for change becomes increasingly apparent, organizations would prefer a trajectory that transitions from one congruent configuration to another, by introducing change to multiple attributes while trying to preserve the alignment among them.

In line with this reasoning, configurational theorists assume that organizational changes occur in rapid transformations from one comparatively stable state to another, and "expect organizations to alternate between disequilibrium and equilibrium, with discontinuous change punctuating periods of stability" (Meyer et al., 1993, p. 1178). According to Miller and Friesen (1980), organizational change transpires when an initial key event or decision causes an imbalance that requires or facilitates a series of subsequent changes. After the necessary adjustments have been made, the impetus for change is reduced until the next major unsettling event. Consequently, a transition is defined as "a package of changes that occur between the onset of the imbalance or stress and the time when some equilibrium or tranquil interval is reached" (Miller and Friesen, 1980, p. 271). Miller (1990) extends this definition by distinguishing between first-order and second-order organizational changes. First-order changes are small-magnitude, evolutionary changes that maintain the prevailing direction and orientation. In contrast, second-order changes are dramatic, revolutionary changes that represent a reorientation in the fundamental purpose and strategy.

Configurational theory's approach toward organizational change can add a dynamic dimension to the framework developed in this paper. Thus far, I have proposed that outsourcing relationships can be categorized according to four key organizational and relational dimensions, and that such a categorization results in the emergence of three dominant, internally-consistent configurations associated with superior outsourcing effectiveness. The question that still remains unanswered is how do outsourcing relationships change over time? Assuming that the configurations discussed up to this point correspond to the initial outsourcing arrangements that follow the decision to outsource, how do these arrangements change in response to evolving organizational and environmental conditions? These questions can be answered by drawing on configurational assumptions about organizational dynamics.

Taking a dynamic perspective, I propose that organizations are motivated to maximize the configurational congruence characterizing their outsourcing relationships over time. This motivation is a direct consequence of the association between congruence and effectiveness described in Proposition 4.

Proposition 5. *Organizations aim at maximizing the configurational congruence characterizing their outsourcing relationships over time.*

This proposition has implications for the way organizations enter outsourcing relationships, as well as for the way these relationships evolve over time. In the early stages of the outsourcing relationship, after the decision to outsource has been made, the organization seeks to attain configurational congruence in its initial outsourcing arrangement. In terms of the framework, the organization seeks to set up one of the three congruent outsourcing configurations described in Table 3. The selection of a specific configuration among the three should subscribe to the logic described in Figure 1 – identifying the organizational IT value and IT asset positions prior to deciding on the preferred relational asset and capability positions. For example, an organization

with a strategic IT value position and a weak IT asset position should seek to establish a configuration characterized by "relational dependence", and thus should invest in attaining strong positions for both relational assets and capabilities. If the organization is successful in entering a congruent configuration, it will benefit from superior outsourcing effectiveness, which in turn will enhance the motivation to maintain a state of equilibrium. If this objective is not met, the inferior outsourcing effectiveness associated with an incongruent configuration will drive the organization to seek change before long.

At this point, Miller's (1990) terminology of first-order and second-order organizational changes can advance the discussion on the plausible trajectories of change. In the context of outsourcing relationships, I define first-order changes as changes that involve only the two relational dimensions (relational asset and capability positions) and second-order changes as changes that involve primarily the two organizational dimensions (organizational IT value and IT asset positions). The relational dimensions serve the organizational dimensions and are determined by them, as implied by Figure 1. The larger the discrepancy between what the organization needs and what it has in terms of IT resources, the more it has to rely on relational arrangements to provide the lacking IT resources. An organization whose outsourcing relationship falls short of providing the needed IT resources is expected to try to adjust the relationship before it tries to adjust its IT strategy. Therefore, when the organization has difficulty reaching a steady state of configurational congruence, it will initially launch first-order efforts to change the relational dimensions to better accommodate the organizational dimensions. Only after these efforts are deemed unsuccessful in aligning the four dimensions, it will launch second-order efforts to change the organizational dimensions. In accordance with Miller (1990), first-order changes in the relational dimensions are evolutionary because they preserve the prevailing organizational IT strategy, whereas second-order changes in the organizational dimensions are

revolutionary because they involve a strategic reorientation. To demonstrate this distinction further, consider the example presented previously in this section about the organization that seeks a "relational dependence" type of outsourcing relationship because of its strategic IT value position and weak IT asset position. Based on the framework, I have already concluded that the organization should invest in attaining strong relational positions. However, what if, for instance, the organization succeeds in acquiring relation-specific assets but fails in developing strong relational capabilities? In other words, what if the organization targets Configuration 12 but only reaches Configuration 11 (see Table 2)? In line with Proposition 5, the configurational incongruence characterizing such a situation will drive the organization to seek change toward one of the three congruent configurations. The most practicable transition is to Configuration 12, which requires additional efforts to develop strong relational capabilities. As this transition involves changing only a relational dimension, it represents a first-order change. The other two plausible transitions involve changes in organizational dimensions, and therefore they represent second-order changes. A transition to Configuration 3 ("asset dependence") requires changing the organizational IT value position from strategic to non-strategic. A transition to Configuration 13 ("independence") requires the internalization of external IT resources and the development of strong IT assets. Clearly, such changes in the organizational dimensions are revolutionary and require a strategic reorientation.

> **Proposition 6.** *Organizations lacking configurational congruence in their outsourcing relationships seek to exhaust the possibilities for first-order changes (changes in relational dimensions) before they consider second-order changes (changes in organizational dimensions).*

Interestingly, as can be seen in Table 3, no two congruent configurations are similar in their organizational dimensions, and thus a transition from one congruent configuration to another

involves a second-order change. What are the dynamic implications of this observation for organizations that have already reached a state of equilibrium? Proposition 5 implies that organizations seek to maximize periods of congruence and minimize periods of incongruence. Accordingly, they should resist transitioning from a congruent configuration to an incongruent one. Proposition 6 implies that organizations seek to avoid second-order changes. If all the paths between congruent configurations involve second-order changes, then organizations should also resist transitioning from one congruent configuration to another. The conclusion is that organizations in a state of equilibrium are expected to preserve this state, unless something dramatic occurs in their organizational environment that demands configurational change. For instance, the introduction of a new technology may warrant moving from a non-strategic to a strategic view of IT.

Furthermore, no two congruent configurations are similar in their relational dimensions, and thus a transition from one congruent configuration to another involves a change in multiple dimensions. The dynamic implication of this observation is that when organizations are strategically forced to get out of equilibrium, they may have to go through a certain period of configurational incongruence because of the difficulty of synchronizing changes in multiple dimensions. Changes in one dimension (e.g., relational capability position) may require more time and effort than changes in other dimensions (e.g., relational asset position), implying a certain period of disequilibrium before equilibrium is regained.

Proposition 7. *Organizations strategically forced to transition from a congruent configuration inevitably go through a certain period of configurational incongruence.*

IMPLICATIONS FOR PRACTICE

While being conceptual, the framework constructed in this paper has important implications for managers involved in the design and implementation of outsourcing arrangements. A major implication is directly related to the holistic orientation of the underlying configurational approach. The framework clearly conveys the message that it is the gestalt of attributes, rather than any single attribute by itself, that determines the effectiveness of outsourcing relationships. Managers seeking to identify the attributes relevant for outsourcing-related decisions should therefore take an inclusive approach. They should consider the organizational attributes that relate to the outsourcing decision as well as the relational attributes that relate to its implementation. In addition, they should consider attributes that relate to strategic issues as well as attributes that relate to economic and social issues. However, managers' approach should be inclusive not only in the sense of considering a larger number of attributes, but also in the sense of considering how the attributes are interrelated. In the quest for congruence among attributes, a good strategy would be to first evaluate the discrepancy between needed and available IT resources and then to determine the appropriate level of investment in relational assets and capabilities. The framework serves to demonstrate that configurational congruence is considerably more important than any of the attributes comprising the configuration. This conclusion implies that managing outsourcing relationships demands the persistent monitoring of configurational congruence to gain outsourcing effectiveness.

Another major implication relates to the issue of change in outsourcing relationships. Managers must acknowledge that outsourcing relationships, despite their contractual nature, are far from being static arrangements. While this observation is not new, the framework departs from traditional perceptions of organizational change by perceiving change as episodic and frame-breaking. The implication for managers is that they should constantly monitor the external

environment for potential equilibrium-breaking events, which may indicate an imminent decline in outsourcing effectiveness. When this happens, managers ought to be prepared to initiate efforts to reinstate configurational congruence in a timely manner. This is where the flexibility of the outsourcing arrangement becomes strategically valuable, because it allows the organization to avoid being locked into an incongruent arrangement. However, in light of the practical inability to fully synchronize changes in multiple attributes, managers should be prepared for the likely possibility of facing a certain period of disequilibrium. These predictions of the framework, based on the dynamic assumptions of configurational theory, seem to offer managers valuable insights into how to gain long-term outsourcing effectiveness.

CONTRIBUTIONS TO RESEARCH

Toward a Configurational View of IT Outsourcing

In the introduction, I have asserted that the adoption of a configurational approach could mitigate three of the main limitations of outsourcing research. In this section, I demonstrate the validity of this assertion with the framework developed in this paper.

The first limitation discussed in the introduction is the relatively high proportion of seemingly contradictory findings across outsourcing studies. I argue that these contradictions can be attributed to two common research practices: (a) using a reductionistic analysis rather than a holistic synthesis as the dominant mode of inquiry, and (b) using assumptions of linearity and unifinality rather than assumptions of nonlinearity and equifinality to describe the associations among organizational attributes.

A reductionistic approach allows researchers to describe the complexity of real-life organizational situations through a set of bivariate or circumscribed multivariate associations. However, as researchers focus their attention on a narrow set of organizational attributes, they

may disregard other attributes whose associations with the focal attributes may be important for understanding the organizational outcome. The holistic approach of configurational theory alleviates this concern to a large extent by allowing researchers to take a significantly larger number of attributes under consideration, thus reducing the chances of missing out on an important main or interaction effect. To demonstrate this point, consider the contradictory findings presented in the introduction about the way the strategic role of IT affects the degree of outsourcing. The framework suggests that the contradiction may have been caused by the frequent disregard of the organizational IT asset position, which accounts for significant variance in organizations' outsourcing strategies. Two organizations with the same strategic view of IT may make different outsourcing decisions because of their different IT asset positions, as demonstrated by comparing Configurations 12 and 13, for instance.

The typically used assumptions of linearity and unifinality offer another explanation for the contradictory findings in outsourcing research. An assumption of linearity implies that attributes should be either positively or negatively associated with outsourcing effectiveness. An assumption of unifinality implies that only one combination of attributes should be associated with superior outsourcing effectiveness. Configurational theory relaxes these assumptions. It suggests that outsourcing effectiveness is contingent upon the congruence among attributes, and thus acknowledges nonlinearity and equifinality. This point can be demonstrated with the framework in a straightforward manner. Looking at the congruent configurations in Table 3 makes it clear that the association between each of the four dimensions and outsourcing effectiveness is nonlinear. It is also clear that equifinality is at play since there are three congruent configurations that are associated with superior effectiveness and not just one. Thus, a configurational approach has the potential to resolve many of the contradictions plaguing the findings of outsourcing research.

The second limitation of outsourcing research discussed in the introduction is the oversimplification of research models that may result from efforts to integrate multiple theories within the framework of a single model. A practical way to surmount the challenge of integrating different theoretical perspectives is to use a simple model to offset the theoretical complexity. Configurational theory, with its holistic approach and its assumptions of nonlinearity and equifinality, offers an alternative way by accommodating highly complex patterns of associations among organizational attributes. The framework developed in this paper integrates the relational view of the firm with extant IT and outsourcing conceptualizations, as can be seen in Table 1. In doing so, the framework demonstrates the advantages of using a configurational approach as an infrastructure for theory integration.

Finally, the third limitation discussed in the introduction is the paucity of dynamic views of how outsourcing relationships evolve over time. I have attributed this limitation to the focus of research on a single phase in the outsourcing process – the outsourcing decision phase – as well as to the static orientation of the theoretical frameworks used in outsourcing studies. As demonstrated throughout the development of the framework, configurational theory offers a promising avenue to address this limitation and advance understanding of outsourcing dynamics. The holistic stance of configurational theory calls for the balanced consideration of all outsourcing phases and turns attention to a wide range of attributes that potentially influence outsourcing effectiveness. Moreover, the unique assumptions of configurational theory about organizational change can be applied to introduce a dynamic dimension to static views of outsourcing relationships, as done in this paper to describe how organizations transition between outsourcing configurations. Therefore, this paper demonstrates how a configurational approach may be used to extend the conceptual breadth and dynamic depth of organizational frameworks.

Additional Research Contributions

Beyond offering a promising avenue to address the limitations of outsourcing research, this paper makes additional contributions to IT research in general and outsourcing research in particular. First, despite the wide range of theories applied in outsourcing research, the relational view of the firm has yet to be systematically applied to advance understanding of outsourcing relationships. While "understanding the relationship that arises in IT outsourcing is critical … the area in IT outsourcing that has received the least research attention so far is the outsourcing relationship, and more precisely the characteristics that describe such a relationship" (Kern and Willcocks, 2000, p. 322). The few studies taking a relational approach to outsourcing have mostly drawn on the marketing literature and on such social theories as social exchange theory (e.g., Goles and Chin, 2005; Kern and Willcocks, 2000; Klepper, 1995). The relational view of the firm, despite its apparent applicability to the study of outsourcing relationships, has rarely been the theory of choice for outsourcing researchers. An important contribution of this paper therefore comes from using the relational view as the core theory in explaining why particular outsourcing relationships outperform others.

Second, a configurational approach is adopted to explore IT-related phenomena. To date, there have been few studies in which researchers have adopted this holistic approach to examine how IT attributes and organizational attributes combine to yield superior organizational performance (e.g., Bensaou and Venkatraman, 1995; Brown and Magill, 1994; Ferratt et al., 2005). The low profile of configurational theory in IT research comes in contrast to its potential contribution. Miller (1981) uses the following sentences to describe the prevailing approach in research on organizational structure and adaptation:

> *"There is too much emphasis given to making minor modifications to atomistic hypotheses, a process that has often been prompted by conflicting findings concerning*

the linear associations among small sets of variables. But the myriad conflicts in the field seem to be pointing to the need for more than minor adjustments. A radically different approach to discovering predictive regularities in organizational data and a new view of organizations seem to be required." (Miller, 1981, p. 1)

These sentences accurately echo a problem that seems to hinder the progress of many areas of IT research. While configurational theory has proved to be valuable in advancing research on the relationship between organizational strategy and structure, it has had little impact on IT research. In this paper, I demonstrate how a configurational approach can advance research in a specific area. Nevertheless, this account may be useful for researchers who wish to adopt a configurational approach to study other IT-related phenomena.

Last, while previous IT studies have drawn on configurational theory to a limited extent, this paper demonstrates the full range of its implications. Very few studies have applied configurational theory to investigate outsourcing relationships (Cullen et al., 2005; Lee et al., 2004). These studies have focused on attributes that reflect the dimension of relational asset position (i.e., attributes that characterize the outsourcing arrangement, such as its scope and duration). They have generally not addressed attributes that reflect the other three dimensions, analyzed the interdependencies among the attributes as a source of congruence, or incorporated a dynamic perspective of the relationship. In this context, the contribution of the present paper is twofold – it significantly broadens the scope of attributes that should be considered in the analysis of outsourcing relationships, and it takes the adoption of configurational theory to a new level. The latter contribution is particularly important because it shows how the many facets of configurational theory, including set-theoretic methods and dynamic assumptions, can be applied in a consistent and integrative way to explain the organizational impacts of IT.

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Table 1. Organizational and Relational Attributes Influencing IT Outsourcing Effectiveness		
Dimension	**Determinant**	**Attribute** ***(Definition)***
Organizational IT value position	Strategic role of IT	Strategic role of IT *(The importance of IT for the implementation of the business strategy and the attainment of business goals)*
Organizational IT asset position	Technical IT assets	Range of IT services *(The ability of the IT unit to provide extensive firm-wide IT services that support the firm's business processes)*
	Human IT assets	Technical skills *(The technical ability of IT personnel based on their specific expertise in technical areas)*
		Behavioral skills *(The interpersonal and management ability of IT personnel to interact with and manage others)*
		Business skills *(The ability of IT personnel to understand the overall business environment and the specific organizational context)*
Relational asset position	Relation-specific assets	Safeguard duration *(The length of the governance arrangement (contract) designed to safeguard against opportunism)*
		Transaction volume *(The total volume of transactions between client and provider, which is indicative of the degree of outsourcing)*
Relational capability position	Knowledge-sharing routines	Absorptive capacity *(The ability of collaborating firms to identify valuable knowledge and then transfer it across organizational boundaries)*
		Knowledge-sharing incentives *(The alignment of incentives that encourage the collaborating firms to be transparent and to transfer knowledge)*
	Complementarities	Strategic complementarity *(Compatibility in the resources that are strategic to the relationship (IT resources) – relates to the potential for relational rents)*
		Organizational complementarity *(Compatibility in the organizational mechanisms (processes, structure, and culture) necessary to facilitate coordinated action – relates to the realization of relational rents)*
	Effective governance	Informal governance mechanisms *(Informal social controls (self-enforcing agreements) that rely on trust, goodwill, or reputation as governance mechanisms)*

Table 2. The Possible Configurations and Congruence Testing Using the Propositions

No.	Dimensions				Propositions		
	(A) Organizational IT Value Position	(B) Organizational IT Asset Position	(C) Relational Asset Position	(D) Relational Capability Position	P1	P2	P3
1	Non-strategic	Weak	Weak	Weak	✓	×	✓
2	Non-strategic	Weak	Weak	Strong	✓	×	×
3	Non-strategic	Weak	Strong	Weak	✓	✓	✓
4	Non-strategic	Weak	Strong	Strong	✓	✓	×
5	Non-strategic	Strong	Weak	Weak	×	✓	✓
6	Non-strategic	Strong	Weak	Strong	×	✓	×
7	Non-strategic	Strong	Strong	Weak	×	×	✓
8	Non-strategic	Strong	Strong	Strong	×	×	×
9	Strategic	Weak	Weak	Weak	✓	×	✓
10	Strategic	Weak	Weak	Strong	✓	×	×
11	Strategic	Weak	Strong	Weak	✓	✓	×
12	Strategic	Weak	Strong	Strong	✓	✓	✓
13	Strategic	Strong	Weak	Weak	✓	✓	✓
14	Strategic	Strong	Weak	Strong	✓	✓	×
15	Strategic	Strong	Strong	Weak	✓	×	×
16	Strategic	Strong	Strong	Strong	✓	×	✓

✓ - Proposition is confirmed for the configuration
× - Proposition is not confirmed for the configuration

Table 3. Congruent Configurations of IT Outsourcing Relationships

No.	Dimensions				Label
	(A) Organizational IT Value Position	(B) Organizational IT Asset Position	(C) Relational Asset Position	(D) Relational Capability Position	
3	Non-strategic	Weak	Strong	Weak	Asset dependence
12	Strategic	Weak	Strong	Strong	Relational dependence
13	Strategic	Strong	Weak	Weak	Independence

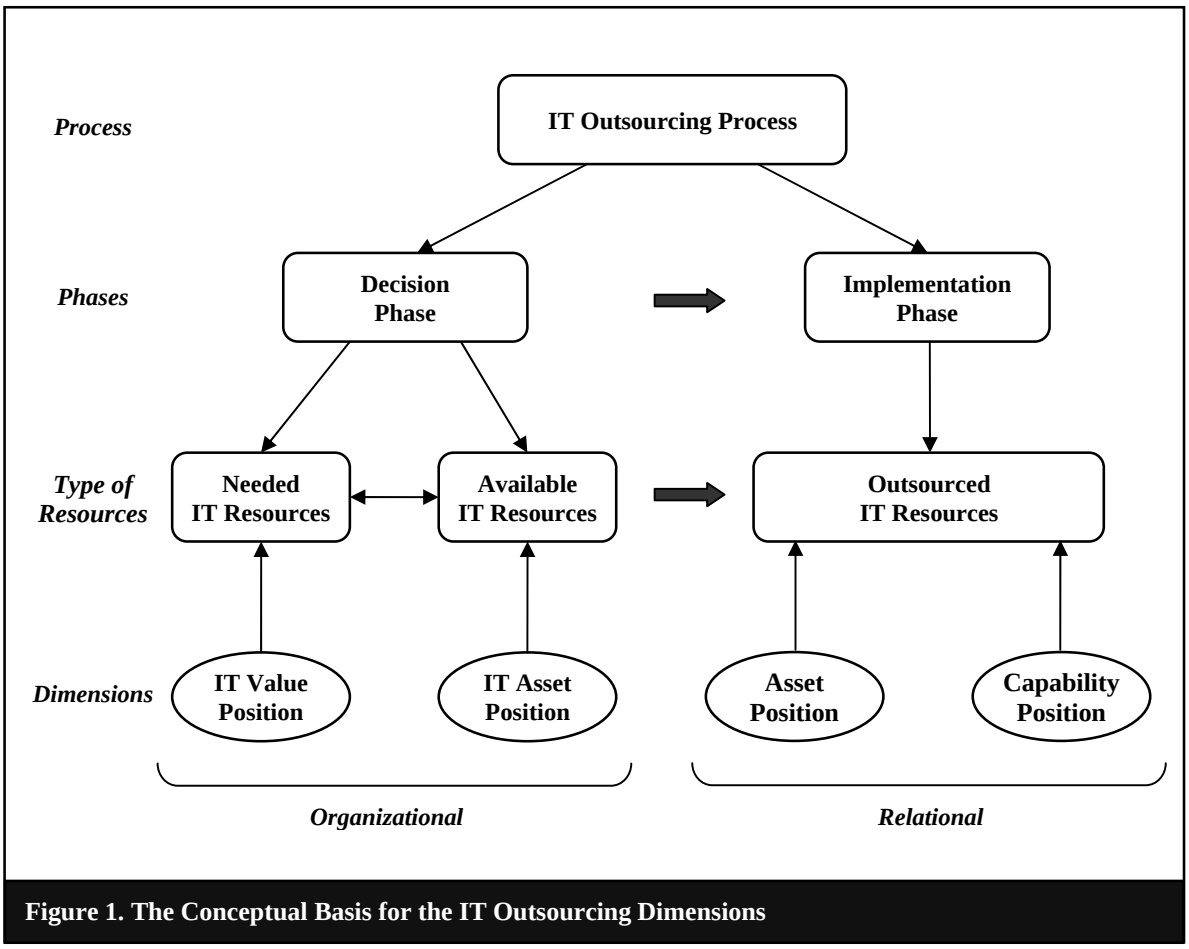

Figure 1. The Conceptual Basis for the IT Outsourcing Dimensions

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