IT Outsourcing Strategies: Universalistic, Contingency, and Configurational Explanations of Success

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Focus on individual outsourcing decisions in IT research has often yielded contradictory findings and recommendations. To address these contradictions, we investigate a holistic, configurational approach with the prevailing universalistic or contingency perspectives in exploring the effects of IT outsourcing strategies on outsourcing success. Based on residual rights theory, we begin by identifying three dimensions of IT outsourcing strategies: degree of integration, allocation of control, and performance period. We then develop a model of fit-as-gestalt, drawing from literatures on strategy, governance, interorganizational relationships, and outsourcing.

Next, based on data from 311 firms in South Korea, we test universalistic and contingency perspectives in explaining the relationship between IT outsourcing strategies and outsourcing success. We then identify three congruent patterns, or gestalts, of IT outsourcing strategies. We term these strategies independent, arm’s-length, and embedded strategies. To establish the predictive validity of these gestalts and the viability of a configurational perspective, we then explore the effects of these congruent gestalts vis-à-vis noncongruent patterns on three dimensions of outsourcing success: strategic competence, cost efficiency, and technology catalysis. We also contrast the effects of each of the three gestalts on each of the three dimensions of outsourcing success. Our findings indicate the superiority of the configurational approach over universalistic and contingency perspectives in explaining outsourcing success.

Key words: IT outsourcing; outsourcing success; fit; congruence; strategy; knowledge sharing; arm’s-length; embeddedness; partnership

Introduction

“Success is a consequence and must not be a goal.”
—Gustave Flaubert

Research on information technology (IT) outsourcing has identified several crucial ways in which clients relate to their IT outsourcing providers that influence outsourcing success. These have included: the extent to which IT functions are outsourced (e.g., Lacity and Willcocks 1998), the duration of the outsourcing, and the type of relationship (Nam et al. 1996). While prior research has utilized knowledge about strategic management to identify elements of an IT outsourcing strategy that lead to success, and to offer recommendations about the manner in which an outsourcing deal should be structured, there is currently little insight into how individual elements of outsourcing strategies interplay with each other. Nor is there a clear recognition that disparate strategies may result in different, yet equally desirable, outcomes.

Configurational approaches facilitate such exploration of the interplay among strategic elements. This approach views organizational strategy as “coherent clusters of characteristics and behaviors” (Mintzberg and Lampel 1999, p. 25) that are related to organizational success (e.g., Doty et al. 1993). The notion of coherence or congruence in conditions and choices is central to configurational argument. Such congruence...
denotes strategic “fit.” This paper contrasts such a configurational approach against universalistic and contingency perspectives in explaining the effects of IT outsourcing strategies on different outsourcing outcomes, in hopes of reconciling understanding how outsourcing choices circumscribe other choices and the different nature of outcomes promoted by different strategies. The premise underlying this manuscript is that the configurational perspective explains the IT outsourcing phenomenon better than universalistic or contingency perspectives do.

IT outsourcing has been defined as “the provision of services by a vendor firm to a client” (Klepper 1995, p. 249); the “act of subcontracting a part, or all, of an organization’s IS work to external vendor(s), to manage on its behalf” (Altinkemer et al. 1994, p. 252); and “managing a firm’s IT infrastructure through… governance mechanisms with other firms” (Loh and Venkatraman 1992, p. 8). As such, outsourcing entails cultivation of an interorganizational relationship between client and provider; it is therefore an inherently relational approach to the provision of IT services. This study focuses on outsourcing decisions that reflect a client’s strategy in its relationships with its providers, and the effects of different strategies on different aspects of outsourcing success. In the following sections, we identify dimensions of an outsourcing strategy based on residual rights theory. Following Delery and Doty (1996), we articulate universalistic and contingency hypotheses regarding these dimensions. We then introduce the concept of “fit” among the outsourcing decisions that represent dimensions of an outsourcing strategy, and develop a model of “fit” in IT outsourcing. We explore literature on interorganizational relationships (IORs) for preliminary insights into how outsourcing decisions might aggregate to define different IT outsourcing strategies. The dataset for this study consists of Korean firms that outsourced their IT functions. Following initial hypothesis testing of the universalistic and contingency perspectives, we identify salient outsourcing strategies and interpret them based on literatures on governance and IORs, in order to attest to their descriptive validity (Venkatraman 1989). We then explore the predictive validity of the outsourcing strategies identified: We demonstrate that “fit” strategies outperform “misfit” strategies, and relate “fit” strategies to distinctive patterns of outsourcing outcomes (Miller 1981). We conclude by identifying the limitations of this research and offer suggestions for practice and directions for future research.

### Modeling “Fit” in IT Outsourcing Strategies

In developing a model of “fit” for IT outsourcing strategies, we first need to develop several building blocks. Specifically, we require a clear understanding of what is meant by strategy. We then need to identify decisions that distinguish among alternate outsourcing strategies, i.e., outsourcing strategy dimensions. Next, we explore alternate meanings of “fit” and choose an approach for assessing “fit” among strategy dimensions. Based on literatures on governance and IORs, we then anticipate that specific strategies will show distinctive advantages over other strategies. The ensuing model of strategic “fit” in IT outsourcing is summarized in Figure 1.

#### Defining Strategy

Studies on strategy address determinants of firm success (e.g., Porter 1991). Conventional wisdom underlying much of the research on strategy is that strategy guides organizations in their achievement of objectives. For example, Chandler (1963) defines strategy as “determination of the basic long-term goals and objectives of an enterprise, and adoption of courses of action and the allocation of resources necessary for carrying out these goals” (p. 13). Such articulation
of goals, objectives, tactics, and resource allocations serve to coordinate activities of organizational members. However, Mintzberg (1978) proposes that strategy may not always be intentional, i.e., plans that guide action, as suggested by Chandler and others; strategy may also be realized, i.e., a pattern reflected in a stream of decisions. With this notion of strategy in mind, we define an IT outsourcing strategy as the logic visible in a firm’s portfolio of IT outsourcing decisions. This logic may either have served to guide decisions regarding outsourcing of specific functions or may simply be revealed in the cumulative pattern visible in individual outsourcing decisions. Thus, strategy need not be a single decision that is consciously made, but rather the manifestation of multiple decisions.

Early research on organizational effectiveness attended to effects of different organizational contexts, e.g., firm size and industry type, on firm choices and performance (e.g., Pugh et al. 1969). The legacy of this early approach is still apparent today in the variables treated as “controls” in strategy research. Three distinct perspectives then emerged in the intellectual tradition of “strategy” research. In the univer-
salistic perspective, researchers attempted to identify “best practices”—processes that positively affect firm performance (e.g., Delery and Doty 1996). The contingency perspective suggests that neither structural features nor firm choices directly impact performance; rather, contextual or structural features moderate the efficacy of choices or work practices (e.g., Hofer 1975). The configurational perspective allows for multiple pathways to success, i.e., relative equifinality among internally congruent strategic and contextual conditions (e.g., Mintzberg and Lampel 1999).

Dimensions of IT Outsourcing Strategies
Having defined strategy as the logic underlying a firm’s outsourcing decisions, we now need to identify the decisions that are salient in constituting or reflecting an IT outsourcing strategy. As a make-or-buy scenario, IT outsourcing choices may be understood within the light of theories of the firm and governance. In the IT literature, outsourcing decisions have frequently been regarded through the lens of transaction cost economics (TCE) (e.g., Ang and Straub 1998). TCE is concerned with transaction costs, i.e., the costs associated with ensuring satisfactory completion of the transaction. In its initial formulation, TCE focuses mainly on the issue of ownership, i.e., who owns the means of production, and behavioral and situational conditions that increase transaction costs with external ownership (Williamson 1985). Consequently, it emphasizes only a single decision element in the governance of a transaction, i.e., a vertical integration decision or the decision to make or buy. However, Williamson suggests that ownership of an asset and control of its use can and should be viewed separately. In its focus on control, residual rights theory provides a valuable complement to TCE.

Residual rights theory proposes that transactions that are vertically integrated or insourced in order to minimize transaction costs may induce the integrated firm to underinvest in the transaction, while the integrator overinvests (Grossman and Hart 1986). In the context of an IT outsourcing decision, the integrator is the firm and the integrated is the internal IT function. The implication of the Grossman and Hart logic in this context is that an internal IT function may have fewer incentives to invest in IT development than an external IT provider. They propose that a clearer understanding of the distinction between specific and residual rights is therefore essential to sound integration decisions.

In contracting, specific rights are “specifically mentioned in the contract” (Grossman and Hart 1986, p. 695). Residual rights, i.e., those that cannot be specified in advance and are not explicitly assigned by the contract, are a function of asset ownership—the party that owns the asset has the right to exercise control of its use (Hart and Moore 1990). Residual rights therefore refer to the allocation of control of decisions that cannot be contractually stipulated before the start of fulfillment. Additionally, control of such residual rights may be reconsidered after a performance period, when “relevant aspects of the production allocation become clear and the parties can negotiate or recontract over these costlessly” (Grossman and Hart 1986, p. 696). This enables one to contractually stipulate decisions that were previously noncontractible. In regard to any given set of transactions, firms therefore make decisions on the extent to which transactions will be vertically integrated (degree of integration), the extent to which they will relinquish control of transaction fulfillment (allocation of control), and the duration
### Table 1 Dimensions of IT Outsourcing Strategies (Outsourcing Decisions)

<table>
<thead>
<tr>
<th>Vocabulary</th>
<th>IT outsourcing research</th>
<th>Definitions (categories)</th>
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<tbody>
<tr>
<td><strong>Transaction cost economics</strong></td>
<td><strong>Residual rights theory</strong></td>
<td><strong>Decision scope</strong></td>
</tr>
<tr>
<td>Ownership</td>
<td>Degree of integration</td>
<td>Decision scope</td>
</tr>
<tr>
<td>Control</td>
<td>Allocation of control</td>
<td>Contract type</td>
</tr>
<tr>
<td>—</td>
<td>Performance period</td>
<td>Contract duration</td>
</tr>
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for which they will commit to a transaction decision (*performance period*). These are summarized in Table 1.

*Degree of integration* has been the focus of much research on IT outsourcing. This focus stems from a recognition that the integration of the IS function is not an all-or-none activity. Outsourcing initiatives may be categorized as comprehensive, selective, and minimal outsourcing (e.g., Lacity et al. 1996). Lacity and Willcocks (1998) found that firms predominantly engage in selective outsourcing, and that such selectivity yielded economies of scale, and resulted in the expected cost savings more often than comprehensive or minimal levels of outsourcing.

**Hypothesis 1a.** *Selective outsourcing will be more successful than comprehensive or minimal outsourcing."

*Allocation of control* in outsourcing relationships refers to the manner in which compensation or reward structures are set up and the manner in which authority is exercised in the relationship. One control structure is the buy-in contract (Lacity and Willcocks 1998). This entails the hiring of hourly workers, thereby subjecting them to the day-to-day authority of the client. Here, the client firm retains residual rights of control because it owns the assets, including labor power, necessary for the completion of work. A second control structure is a fee-for-service contract, which stipulates detailed bases for compensation.

Here, residual rights of control are implicitly allocated to the provider firm that owns resources necessary for work completion. Finally, partnerships rely on complementary resources (Dyer and Singh 1998) and voluntary resource allocations so as to benefit the partnership (Khanna et al. 1995). Authority tends to be internalized within the relationship. Residual rights of control are therefore shared by client and provider firms. Under ideal conditions, the integrative nature of a partnership orientation minimizes problems stemming from equivocal contracts or uncertainty (Ang and Beath 1993). However, as the interests of the client and provider diverge, partnerships may prove to be problematic (Lacity and Willcocks 1998).

**Hypothesis 1b.** *Buy-in or fee-for-service controls will be more successful than partnerships."

Research on specified performance periods indicates that short-term contracts yield cost savings more often than long-term contracts (Lacity and Willcocks 1998). Short-term contracts motivate providers toward higher performance and allow clients to quickly recover from contractual mistakes (Lacity and Willcocks 1998). Furthermore, it is difficult for the client to completely anticipate long-term requirements, and client and provider interests are likely to diverge over time (Klepper 1995).

**Hypothesis 1c.** *Short-term outsourcing relationships will be more successful than medium- or long-term relationships."

**The Mitigating Role of Contextual Factors**

The hypotheses developed above represent a universalistic perspective, suggesting that specific strategies will consistently explain success across organizations (Delery and Doty 1996). The competing contingency...
perspective suggests that the success of a strategy will vary based on contextual variables. In addition to industry type and organization size, which are typically believed to be important contextual variables in the study of organization strategy (Pugh et al. 1969), we consider the size of the IT function, which has been viewed as important in the study of outsourcing practices.

Industry type is characterized in terms of Thompson’s (1967) industry typology, based on three types of underlying technologies. Long-linked technologies focus on prescribed ordering of tasks; such technologies are visible in industries characterized by assembly lines and in the transportation industry (Chatman and Jehn 1994). In such industries, work tends to be highly routinized and “removed from environmental contingencies” (Thompson 1967, p. 108). In other words, the nature of work is not specific to an organization. Mediating technologies focus on categorizing clients and inputs and standardizing processes for each category. Industrial exemplars include product-engineering firms, banks, insurance, and accounting. Jobs in these industries tend to be less routinized than those in industries characterized by long-linked technologies. Finally, intensive technologies attempt to address project-specific demands, requiring extensive customization and problem solving. Archetypes of this group include R&D units, hospitals, and consulting firms.

These three industry categories represent “a continuum ranging from long-linked through mediating to intensive” technologies (Chatman and Jehn 1994, p. 526). Industries characterized by long-linked technologies will be able to articulate IT needs more completely than mediating and intensive technologies industries. This is expected to translate into more complete, and therefore more successful, longer-term and fee-for-service outsourcing contracts. In such industries, long-term, comprehensive outsourcing contracts with low retention of control by the client will enable providers to transfer gains from economies of scale and learning to client firms. In industries characterized by mediating technologies, low routinization of jobs will make it difficult for providers to leverage economies of scale and learning to clients’ advantage. Constant customization and problem solving required in intensive technology industries will preclude successful comprehensive outsourcing.

**Hypothesis 2a.** *Industry type will moderate the effects of IT outsourcing strategy dimensions on outsourcing success.*

Organization size, a critical factor in strategy research, will moderate the effects of IT outsourcing strategies. Larger organizations tend to have access to more resources (Pfeffer and Salancik 1978) and to engender economies of scale in comprehensive outsourcing relationships. This will facilitate the success of comprehensive outsourcing. Large organizations also have more influence over external constituencies and enjoy greater visibility and legitimacy (Pfeffer and Salancik 1978). This will facilitate the deterrence of opportunistic provider behavior and the successful management of long-term partnerships. Larger organizations also face greater uncertainty (Penrose 1959), complexity (Baker and Cullen 1993) and monitoring difficulties (Child 1974), and may therefore be expected to incur higher transaction costs in comprehensive outsourcing arrangements and long-term partnerships.

**Hypothesis 2b.** *Organization size will moderate the effects of IT outsourcing strategy dimensions on outsourcing success.*

IT function size is an important contextual factor in the study of IT outsourcing. Large IT functions may enable economies of scale in-house comparable to those obtainable from a provider (Lacity and Willcocks 1998). In contrast, firms with small IT functions may need to structure longer-term relationships so as to attain economies of scale from the provider and motivate higher levels of provider performance.

**Hypothesis 2c.** *The size of the IT function will moderate the effects of IT outsourcing strategy dimensions on outsourcing success.*

**Fit as Gestalts**

The third strategy perspective outlined by Delery and Doty (1996) is the *configurational perspective*, i.e., the notion of “fit” or congruence among critical strategic and structural dimensions that influence performance (Mintzberg and Lampel 1999). With more than two strategy dimensions, fit may be explored in terms of gestalts or profile deviations (Venkatraman 1989). The
former was deemed more appropriate to our study of IT outsourcing.\footnote{First, in defining gestalts as “feasible sets of internally consistent” configurations, Venkatraman (1989, p. 432, emphasis added) implies that certain strategy dimensions inhere together—that strategy dimensions are not deliberately packaged in certain ways to induce favorable outcomes, but appear together because a choice on one strategy dimension limits the available choices on other dimensions. This is certainly true of outsourcing strategies—partnerships cannot realistically be developed by a company that largely insources, or within a short period of time. Venkatraman’s definition of gestalts as feasible configurational sets also implies that gestalts are observable. In contrast, the ideal types underlying fit-as-profile-deviation are essentially “unrealistic or abstract” analytical entities that serve a theoretical purpose (Weber 1978, p. 21), but would not be observable. Analysis of the degree of integration and performance period data collected on a continuous scale may reveal abstract and unobservable patterns. However, outsourcing researchers, e.g., Lacity and Willcocks (1998), have typically considered these dimensions in terms of categories, e.g., short-, medium-, and long-term performance periods. This suggests that there is no meaningful difference between relationships structured around two- versus three-year contracts, or the outsourcing of 65% versus 68% of a firm’s IT functions. Analysis based on these categories, then, reveals real, observable patterns, not abstract combinations.

Second, what constitutes “misfit,” and how that “misfit” comes about, differs. For fit-as-profile-deviation, every observable case represents varying degrees of misfit. This misfit occurs as actors apply logic that is not “purely rational and oriented to economic ends alone” (Weber 1978, p. 21). In fit-as-gestalt, we are likely to see more cases that represent gestalts than misfits, because the former are simply more feasible. Misfit occurs in actors’ pursuit of incongruent, and therefore difficult to integrate, choices—i.e., when they attempt the impossible. Here, fit and misfit represent binary events: A strategy is either one or the other—not more or less.

Finally, the connotation of predictive validity differs. Venkatraman stresses the criterion-based nature of fit-as-profile-deviation. While he suggests that gestalts are criterion-free, the notion of fit implies the possibility of “misfits,” which are then likely to underperform relative to “fits.” Thus, the first connotation of predictive validity in regard to fit-as-gestalt is that congruent patterns of outsourcing decisions, i.e., gestalts, will evince higher levels of overall outsourcing success than incongruent patterns, i.e., misfits. The second connotation of predictive validity for gestalts is that, with a partial description of a gestalt, one should be able to “accurately predict many of its other features” (Miller 1981, p. 9).

Given the mutually constraining nature of IT outsourcing choices, incongruent patterns of choices will be less efficient and effective as the client and provider seek to implement incompatible decisions. External forces also constrain the success of such strategies. The density-dependence argument suggests that since the number of firms pursuing a strategy comprised of incompatible choices is likely to be low, such strategies will enjoy lower legitimacy in the field of outsourcers and providers, and will therefore be predisposed to failure (e.g., Carroll and Hannan 1989). This leads us to the following hypothesis.

**HYPOTHESIS 3.** Gestalts (i.e., feasible sets of internally consistent configurations) will outperform non-gestalts (i.e., incongruent configurations) with respect to outsourcing success.

### Gestalts of IT Outsourcing Strategies

Earlier, we highlighted three dimensions of a firm’s outsourcing strategy: degree of integration, allocation of control, and performance period. However, configurational patterns are defined not solely in terms of strategic decisions, but also in terms of conditions under which decisions are made and conditions that the decisions generate (e.g., Miller 1981). Thus, strategic choices represent only a partial specification of gestalts of outsourcing strategies. We can understand these gestalts more completely in terms of the desired or realized outcomes associated with each of them. In this section, we first examine the different benefits of IT outsourcing. We then identify gestalts of outsourcing strategies and their respective outcomes from literatures on governance and IORs.

IT outsourcing benefits include enhanced efficiency and cost savings, infusion of cash, reduced capital expenditure, quicker development of applications, improved services, access to new IT knowledge and technologies, and greater flexibility in IT resource management (Weill and Broadbent 1998). Based on their observations of organizations’ use of outsourcing, Lacity and Willcocks (2001) categorize the desired benefits of IT outsourcing in terms of six strategic foci: (1) financial restructuring (or cost efficiency), (2) core competence, (3) technology catalyst, (4) business transition, (5) business innovation, and (6) new market. These strategic foci may appear individually or in combination. While the last three foci represent potential benefits of outsourcing, they are also reasons why firms should insource. We therefore limit our focus to the first three benefits that may be derived from outsourcing. Strategic or core competence refers to firms’ efforts at “redirecting the business and IT
into core competencies” (Lacity and Willcocks 2001, p. 316); financial restructuring or cost efficiency refers to “improving the business’ financial position” (Lacity and Willcocks 2001, p. 315); technology catalysis refers to “strengthening resources and flexibility in technology service to underpin business’ strategic direction” (Lacity and Willcocks 2001, p. 317).

Residual rights theory is situated in a rich literature on governance. This literature has identified three forms of governance—hierarchies, markets, and networks (e.g., Williamson 1994). Based on these governance forms, we anticipate the three gestalts that are summarized in Table 2.

In a hierarchy or independent approach, relationships with external providers are tenuous, with interactions lasting only a very brief period of time. In that resources are acquired externally, but managed internally, firms pursuing this strategy have lower access to cost efficiency than those that acquire not only resources but also the management of resources on the market. The distinctive advantage of a hierarchy over a market arrangement, however, is the accretion of organizational routines and strategic competence (e.g., Penrose 1959). Firms provide the boundaries within which what is known can be effectively leveraged by converting specialized knowledge to habituated action (Kogut and Zander 1996). This strategy serves to minimize dependence on an external entity for critical organizational resources and competencies (Pfeffer and Salancik 1978). Such a strategy is therefore commensurate with the development of an indigenous strategic competency. We therefore propose:

Hypothesis 4a. Independent gestalts will outperform other gestalts on strategic competence.

A market or arm’s-length approach is based on nonidiosyncratic relationships, i.e., sellers are interchangeable (Dyer and Singh 1998). Here, an easily measurable commodity is traded for money (Dwyer et al. 1987). While such relationships commence with a detailed specification of each party’s obligations, control of unspecified obligations vests with the provider (Uzzi 1997). To minimize exposure to provider opportunism, such relationships are therefore loosely coupled, and long-term commitments are avoided (Baker 1990). In large markets, economies of scale and scope afford neoclassical production cost savings vis-à-vis hierarchies (Williamson 1985). The outcome of such relationships is typically cost efficiency through competitive pricing of services (Baker 1990); in arm’s-length relationships, “costs are everything” (Uzzi 1997, p. 41). This leads to the following hypothesis:

Hypothesis 4b. Arm’s-length gestalts will outperform other gestalts on cost efficiency.

Whereas hierarchies facilitate “knowledge application,” i.e., a firm’s ability to leverage the knowledge of its employees (Kogut and Zander 1996), network or embedded arrangements are superior in their ability to facilitate knowledge transfer and acquisition (e.g., Liebeskind et al. 1996). Economic exchanges occur “through stable networks of exchange partners who maintain close social relationships” (Uzzi 1997, p. 36). In these relationships, “embedded actors satis-fice rather than maximize on price” (Uzzi 1997, p. 37). The relationships “can be so strong that they act as functional substitutes for hierarchy” (Baker 1990, p. 594), thereby enabling firmlike knowledge transfer (Kogut and Zander 1996). The strength and stability of the relationship derives in large part from both parties being committed to a long-term relationship (Dwyer et al. 1987, Jarillo 1988). Opportunism is cur-tailed by the anticipated cost of foregoing a long-term relationship. Personal ties and emergent trust provide the governance substitutes for a detailed and formal contract (Granovetter 1985). Such relationships offer some distinctive benefits. Partners undertake joint problem solving and are motivated to share information and knowledge that may not be available in the

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<tr>
<th>Gestalts</th>
<th>Strategy</th>
<th>Distinctions</th>
<th>Outcome</th>
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<tr>
<td>Independent</td>
<td>Minimal outsourcing</td>
<td>• Strategic competence</td>
<td></td>
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<tr>
<td>(hierarchy)</td>
<td>Buy-in contract</td>
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<td></td>
<td>Short-term duration</td>
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<tr>
<td>Arm’s-length</td>
<td>Selective outsourcing</td>
<td>• Cost efficiency</td>
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<tr>
<td>(market)</td>
<td>Detailed specification of obligations</td>
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<td></td>
<td>Medium-term contract</td>
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<tr>
<td>Embedded</td>
<td>Comprehensive outsourcing</td>
<td>• Technology catalysis</td>
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<tr>
<td>(network)</td>
<td>Unspecified contract</td>
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<tr>
<td></td>
<td>Long-term relationship</td>
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marketplace (Uzzi 1997). We formalize this in the following hypothesis:

**Hypothesis 4c.** Embedded gestalts will outperform other gestalts on technology catalysis.

**Research Methodology**

The sample for this study was drawn from firms in South Korea. Outsourcing providers in Korea are typically members of chaebols, networks of firms with close financial and operational ties (Lee and Kim 1997). These providers differ from independent IT service providers in other countries in that they provide IT services largely to affiliated firms within the same chaebol. In fact, these IT providers were initially spin-offs of internal IT departments from affiliated firms within the chaebol (Lee and Kim 1997). These providers have therefore historically tended toward exclusive relationships with their client firms. In the late 1980s, these chaebol-based providers, recognizing their lack of accumulated IT knowledge, began partnering with non-Korean firms such as IBM and EDS. These partnerships facilitated the transfer of technical knowledge to the Korean firms and of culture-specific business knowledge to the foreign firms. In time, these foreign firms, wishing to develop markets for their services in Asian countries outside Korea, separated from their Korean partners (Lee and Kim 1997). These events and business relationships define the institutional environment of IT outsourcing in Korea.

**Measures**

A survey instrument assessed the degree of integration, the allocation of control, the performance period, and outsourcing success (see Appendix A for a detailed description of each scale). It employed objective measures for the three outsourcing strategies and perceptual measures for outsourcing success. This instrument was based on constructs previously used and validated. Degree of integration was measured by the actual amount of outsourcing as a percentage of the total IT budget. Following Lacity and Willcocks (1998), it was subsequently coded as follows: comprehensive outsourcing—80% or more, selective outsourcing—20% to 80%, or minimal outsourcing—less than 20%.

Again following Lacity and Willcocks, the performance period was classified into three categories: less than four years for a short-term relationship, four but less than seven years for a medium-term relationship, and seven years or more for a long-term relationship. Allocation of control was coded as follows: fee-for-service contracts—standard, detailed, loose, or mixed contracts (responses one to four on the scale), partnerships (response of five), and buy-in contracts (a response of six) (Lacity and Willcocks 1998). Finally, the degree to which firms achieved strategic, economic, and technological benefits from outsourcing was assessed using the instrument developed by Grover et al. (1996).

Following Chatman and Jehn (1994), industry type was coded as based on long-linked technology for manufacturing, distribution, construction, and transport/warehousing/communication firms; as based on mediating technology for banking/finance/insurance; and as based on intensive technology for research and information technology firms. While research has frequently viewed organizational size in terms of both firm revenue and number of employees, due to multicollinearity stemming from the high correlation between these two variables ($r = 0.916$, $p = 0.000$), we used firm revenue alone. Consistent with prior IS research (e.g., Lacity and Willcocks 1998), the size of the MIS function was assessed in terms of the IS budget.

The instrument was initially vetted via a series of personal interviews with seven academics with significant expertise in outsourcing research. The instrument was further pilot tested on 15 Korean organizations that have outsourced their IT functions, via interviews with their CIOs and a representative in charge of the firm’s IT operations. These interviews confirmed the suitability of the adopted questionnaire for studying real-world outsourcing phenomena.

**Data Collection**

Because larger organizations are more likely to outsource, 1,000 companies covered by Maeil Business Newspaper’s 1999 Annual Corporation Reports served as the target population. The CIO of each firm was then identified from the Book of Listed Firms published by the Korea Stock Exchange. The survey questionnaire was then personally addressed to the 1,000 CIOs.

Following Dillman’s (1991) Total Design Method to increase the response rate, a follow-up postcard
was mailed one week after the original mailing, and the same questionnaire was mailed again four and seven weeks after the original mailing. After the three rounds of solicitation, a total of 390 responses were received, providing a response rate of 39%. Of these, since our focus is on outsourcing or relational approaches to the provision of IT services, 54 responses that did not have an IT outsourcing arrangement were discarded; 25 surveys were also eliminated due to incomplete data. This left 311 responses for the final analysis.

The high response rate notwithstanding, analyses of nonrespondent bias were conducted. Respondents and nonrespondents were compared on two key organizational features: total sales volume and number of employees. Fifty companies were randomly selected from the nonrespondents and compared with all respondents, respondents to the first mailing, and respondents to the second mailing, in terms of their total sales and number of employees. The respondents to the first mailing and the second were similarly compared. A t-test showed no difference in any of the four comparisons for each variable at a 0.05 (or a 0.10) significance level.

Measurement Reliability and Sample Characteristics

Content validity of the instrument was established through the adoption of standard instruments, suggestions in the literature, and pretesting with experts in the field of outsourcing (Kerlinger 1986). Reliability and validity tests for the metrics for the three outsourcing strategy dimensions were not applicable because of the factual nature of the data and the concomitant use of a single item to assess the variable. The metrics are provided in Appendix A. The factual nature of the outsourcing strategy dimensions also minimized the possibility of the common method variance problem.

Sourcing success was measured by assessing CIOs’ perceptions about their outsourcing projects using a multi-item, self-report instrument developed by Grover et al. (1996). While these authors present the scale as a single-construct metric, they also suggest three underlying dimensions, i.e., strategic, economic, and technological benefits. Other IT researchers have also alluded to these three dimensions (e.g., Scarbrough 1998). We therefore subjected the first eight items of the scale to further analysis and validation (omitting the ninth, which addressed general satisfaction). This analysis provided support for the anticipated three dimensions. As might be expected though, the three dimensions are highly correlated with each other.3

63.7% of responding firms were in industries characterized by long-linked technologies, 20.9% by mediating technologies, and 15.4% by intensive technologies. The average number of employees was 4,020, with a standard deviation (S.D.) of 8,567. The average sales revenue (in U.S. dollars) was $4,103 (S.D. = 12,591). Of the 311 companies, 88 firms had total sales of 1 billion dollars or more. The MIS budget, as a percentage of total sales revenue, was 1.17% (S.D. = 1.85).

3 Because the success metric has previously appeared in the literature as a single-dimensional construct, we first contrasted the fit of one- and three-factor models using confirmatory factor analysis (CFA) on the covariance matrix (LISREL 8.51). The GFI rose from 0.86 on the one-factor model to 0.96 on the three-factor model and the AGFI rose from 0.75 to 0.91. The difference in the model χ² was highly significant (χ² (48, 414) = 143, p = 0.000).

To assess discriminant validity, CFA was first run on pairs of constructs where the correlation parameter (Φij) between each pair was unconstrained. These models were then contrasted with models where the estimated correlation parameters were constrained to 1.0. The resulting χ² difference statistics indicated that the unconstrained models were significant improvements over the constrained models—χ² (strategic competence versus technology catalysis) = 55.15 (p < 0.001); χ² (strategic competence versus cost efficiency) = 61.13 (p < 0.001); χ² (cost efficiency versus technology catalysis) = 121.14 (p < 0.001) (Joreskog and Sorbom 1993). Second, correlation strengths among the hypothetical constructs (Φij) were examined. The 99% confidence interval around each interconstruct correlation did not include a perfect correlation, thereby satisfying the criterion that the 95% confidence interval excludes 1 to demonstrate distinct constructs (Bagozzi et al. 1991).

Finally, the average variance extracted by each construct and interconstruct correlations were examined as specified by Fornell and Larcker (1981). In keeping with their criteria, we noted that average variances extracted (AVEs) for each exceeded 0.50, demonstrating convergent validity, and the AVEs exceeded the squared interconstruct correlation coefficients, demonstrating discriminant validity.
multivariate analyses, using Roy’s statistic, indicate we first tested a baseline model, exploring only the normality assumption for all dependent variables. Plots be visually inspected to assess distribution. In such situations, it is recommended that probability plots be visually inspected to assess distribution normality. Such inspection indicated no violation of the normality assumption for all dependent variables.

### Analysis and Findings

Descriptive statistics and bivariate interconstruct correlations appear in Table 3. The premise underlying this manuscript is that the configurational perspective explains the IT outsourcing phenomenon better than universalistic or contingency perspectives. To assess the validity of this belief, three different sets of models, based on each of the three perspectives, were analyzed.

A multivariate general linear model\(^4\) was used to assess the hypotheses articulated. The test for homogeneity of variance on the error term was insignificant for all three dimensions of outsourcing success: strategic competence (Levene statistic = 0.888, \(p = 0.747\)); cost efficiency (Levene statistic = 0.991, \(p = 0.529\)); technology catalysis (Levene statistic = 0.837, \(p = 0.837\)). For large samples (\(n \geq 200\)), goodness-of-fit tests such as the Kolmogorov-Smirnov test, which assesses violation of the normality assumption, demonstrate a spurious significance (Norusis 1993). In such situations, it is recommended that probability plots be visually inspected to assess distribution normality. Such inspection indicated no violation of the normality assumption for all dependent variables.

### The Baseline Case—A Structural Perspective

We first tested a baseline model, exploring only the effects of the control (contextual) variables. Results of multivariate analyses, using Roy’s statistic,\(^5\) indicate that IS budget had a significant effect on outsourcing success (\(F = 3.65, p(6, 258) = 0.002\)). The effects of Industry (\(F = 1.067, p = 0.363\)) and Revenue (\(F = 1.528, p(6, 258) = 0.169\)) were insignificant. \(R^2\) was significant for all three dependent variables (SC: \(R^2 = 0.056, p(R^2) = 0.001\); CE: \(R^2 = 0.026, p(R^2) = 0.044\); TC: \(R^2 = 0.062, p(R^2) = 0.000\)).

#### Assessing the Universalistic Perspective

To test the universalistic perspective, we modeled the effect of outsourcing degree, allocation of control, and performance period on outsourcing success. Results indicated significant increments in \(R^2\) with the addition of the strategy constructs for all dependent variables (SC: \(R^2 = 0.180, \Delta R^2 = 0.124, p(\Delta R^2) = 0.000\); CE: \(R^2 = 0.107, \Delta R^2 = 0.081, p(\Delta R^2) = 0.000\); TC: \(R^2 = 0.147, \Delta R^2 = 0.085, p(\Delta R^2) = 0.000\)).

Given the anticipated interdependence among the three outsourcing strategy dimensions and the high correlations subsequently observed (see Table 3), stepwise regressions were conducted to enable retention of only the constructs that contributed significantly to the success dimensions and exclusion of those related to success primarily through other strategy dimensions. Stepwise results indicated the exclusion of degree of outsourcing and allocation of control due to multicollinearity for each of the three dependent variables (tolerances were 0.598 for degree of outsourcing and 0.522 for allocation of control, and VIFs were 1.673 and 1.915, respectively).\(^6\) Only performance period was retained as having a significant effect on each of the three success metrics (SC:

\[^{4}\text{This approach treated each of the three success metrics as separate, though related, dependent variable dimensions. The GLM procedure also constructs the appropriate terms for dummy variables, as was necessary in this analysis.}\]

\[^{5}\text{When dependent variables are strongly correlated, as with our success dimensions, and group sizes on the independent variables are unequal, Roy’s greatest characteristic root (GCR) is most appropriate for assessing multivariate difference, providing the variance homogeneity assumption holds (Hair et al. 1998).}\]

\[^{6}\text{Subsequent multicollinearity diagnostics were contrasted against criteria by Belsely et al. (1980), i.e., a conditioning index > 0.30 coupled with at least two variance proportions for individual variables}\]

### Table 3 Descriptives and Correlations for Outsourcing Strategy and Outcome Dimensions

<table>
<thead>
<tr>
<th>Outsourcing strategy dimension</th>
<th>Mean (S.D.)</th>
<th>DI</th>
<th>AC</th>
<th>PP</th>
<th>SC</th>
<th>CE</th>
<th>TC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree of integration (DI)</td>
<td>54.39 (30.55)</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allocation of control (AC)</td>
<td>—</td>
<td>0.772**</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performance period (PP)</td>
<td>5.16 (2.56)</td>
<td>0.641**</td>
<td>0.701**</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strategic competence (SC)</td>
<td>4.83 (0.81)</td>
<td>0.209**</td>
<td>0.233*</td>
<td>0.304**</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost efficiency (CE)</td>
<td>4.89 (0.83)</td>
<td>0.126*</td>
<td>0.139*</td>
<td>0.188**</td>
<td>0.834**</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>Technology catalysis (TC)</td>
<td>4.81 (0.88)</td>
<td>0.158*</td>
<td>0.175*</td>
<td>0.210**</td>
<td>0.826**</td>
<td>0.798**</td>
<td>1.000</td>
</tr>
</tbody>
</table>

\(\text{**}p < 0.05; \text{*}p < 0.01; \text{***}p < 0.001.\)
standardized $\beta = 0.337; p = 0.000$; CE: standardized $\beta = 0.214; p = 0.000$; TC: standardized $\beta = 0.234; p = 0.000$.

In follow-up analysis, long-term contracts were found to be more successful than short-term contracts ($p$ (Dunnett T3): for SC = 0.000; for CE = 0.021; for TC = 0.002), but not more successful than medium-term contracts ($p$ (Dunnett T3): for SC = 0.325; for CE = 1.000; for TC = 0.457). Medium-term contracts were significantly more successful than short-term contracts ($p$ (Dunnett T3): for SC = 0.000; for CE = 0.002; for TC = 0.022).

The Contingency Perspective
To test the contingency perspective, following a technique recommended by Aiken and West (1991), all independent variables were centered.\(^7\) We then considered the interaction effects between each of the contingency variables and strategy variables via multivariate analysis. Results in Table 4 indicate minimal support for Hypotheses 2a and 2c, and no support for Hypothesis 2b.

In Table 4a, we see that industry has a marginal moderating effect on the degree of outsourcing. Follow-up analysis indicated significant differences in outsourcing success across degrees of outsourcing for industries using long-linked technologies (SC: $F_{(2,195)} = 7.476, p = 0.001$; CE: $F_{(2,195)} = 5.368, p = 0.005$; TC: $F_{(2,195)} = 5.143, p = 0.007$), but not for industries using mediating technologies (SC: $F_{(2,62)} = 1.930, p = 0.154$; CE: $F_{(2,62)} = 1.745, p = 0.183$; TC: $F_{(2,62)} = 1.313, p = 0.276$) or intensive technologies (SC: $F_{(2,45)} = 0.188, p = 0.829$; CE: $F_{(2,45)} = 1.416, p = 0.253$; TC: $F_{(2,45)} = 0.109, p = 0.897$). Post hoc tests (Dunnett’s T3) for industries using long-linked technologies revealed selective outsourcing to be significantly more effective than minimal outsourcing in all

| Table 4  Incremental Effects of Interaction Terms |
|---|---|---|---|---|
| (a) Moderating Effects of Industry |
| Effect | Roy’s GCR | $F$ | $df$ | $p$ |
| INTERCEPT | 16.895 | 1,340.333 | 3,238 | 0.000*** |
| Industry | 0.022 | 1,734 | 3,239 | 0.161 |
| Revenue | 0.047 | 1,875 | 6,240 | 0.086 |
| Budget | 0.103 | 4,132 | 6,240 | 0.001*** |
| Degree of outsourcing | 0.040 | 3,162 | 3,239 | 0.025* |
| Allocation of control | 0.020 | 1,576 | 3,239 | 0.196 |
| Performance period | 0.031 | 2,451 | 3,239 | 0.064 |
| Industry x Degree of outsourcing | 0.045 | 2,700 | 4,240 | 0.031* |
| Industry x Allocation of control | 0.034 | 2,018 | 4,240 | 0.093 |
| Industry x Performance period | 0.023 | 1,360 | 4,240 | 0.249 |

Notes. $R^2$s: Strategic competence = 0.193, $\Delta R^2 = 0.013, p(\Delta R^2) = 0.259$; Cost efficiency = 0.132, $\Delta R^2 = 0.025, p(\Delta R^2) = 0.051$; Technology catalysis = 0.177, $\Delta R^2 = 0.030, p(\Delta R^2) = 0.025$.

(b) Moderating Effects of Organization Size (Revenue)

| Effect | Roy’s GCR | $F$ | $df$ | $p$ |
| INTERCEPT | 14.524 | 1,040.895 | 3,215 | 0.000*** |
| Industry | 0.017 | 1,240 | 3,216 | 0.296 |
| Revenue | 0.065 | 2,366 | 6,217 | 0.031* |
| Budget | 0.091 | 3,267 | 6,217 | 0.004** |
| Degree of outsourcing | 0.015 | 1,048 | 3,216 | 0.372 |
| Allocation of control | 0.026 | 1,877 | 3,216 | 0.134 |
| Performance period | 0.049 | 3,562 | 3,216 | 0.015* |
| Revenue x Degree of outsourcing | 0.053 | 1,053 | 11,217 | 0.401 |
| Revenue x Allocation of control | 0.053 | 1,045 | 11,217 | 0.408 |
| Revenue x Performance period | 0.057 | 1,023 | 12,217 | 0.428 |

Notes. $R^2$s: Strategic competence = 0.277, $\Delta R^2 = 0.097, p(\Delta R^2) = 0.000$; Cost efficiency = 0.211, $\Delta R^2 = 0.104, p(\Delta R^2) = 0.000$; Technology catalysis = 0.242; $\Delta R^2 = 0.095, p(\Delta R^2) = 0.000$.

(c) Moderating Effects of IS Budget

| Effect | Roy’s GCR | $F$ | $df$ | $p$ |
| INTERCEPT | 14.555 | 1,043.141 | 3,215 | 0.000*** |
| Industry | 0.014 | 1,038 | 3,216 | 0.377 |
| Revenue | 0.046 | 1,675 | 6,217 | 0.128 |
| IS budget | 0.068 | 2,464 | 6,217 | 0.025* |
| Degree of outsourcing | 0.023 | 1,642 | 3,216 | 0.181 |
| Allocation of control | 0.015 | 1,065 | 3,216 | 0.356 |
| Performance period | 0.038 | 2,703 | 3,216 | 0.046* |
| IS budget x Degree of outsourcing | 0.084 | 1,650 | 11,217 | 0.087 |
| IS budget x Allocation of control | 0.049 | 0.963 | 11,217 | 0.481 |
| IS budget x Performance period | 0.100 | 1,813 | 12,217 | 0.047* |

Notes. $R^2$s: Strategic competence = 0.294, $\Delta R^2 = 0.114, p(\Delta R^2) = 0.000$; Cost efficiency = 0.202, $\Delta R^2 = 0.096, p(\Delta R^2) = 0.000$; Technology catalysis = 0.238, $\Delta R^2 = 0.141, p(\Delta R^2) = 0.000$.

\(^{7}\) Subsequent multicollinearity diagnostics were contrasted against criteria by Belesly et al. (1980), i.e., a conditioning index $> 0.30$ coupled with at least two variance proportions for individual variables in excess of 0.50, confirming the existence of multicollinearity when the degree of outsourcing and allocation of control were retained, but revealing no multicollinearity when the two constructs were excluded.

\(^{7}\) In excess of 0.50, confirming the existence of multicollinearity when degree of outsourcing and allocation of control were retained, but revealing no multicollinearity when the two constructs were excluded.
Comprehensive outsourcing outperformed minimal outsourcing with respect to strategic competence ($p = 0.003$) and technology catalysis ($p = 0.024$), but not for cost efficiency ($p = 0.220$). Comprehensive and selective outsourcing did not differ significantly on any dimension of outsourcing success ($SC: p = 0.988$; $CE: p = 0.503$; $TC: p = 0.978$).

In Table 4b, we observe no moderating effects for organizational size, i.e., revenue. In Table 4c, we note the moderating effect of IS budget on performance period. Follow-up analysis indicated differences in outsourcing success for performance period among firms with IS budgets below 0.4% of total revenue ($SC: F_{2,117} = 11.001$, $p = 0.000$; $CE: F_{2,117} = 4.156$, $p = 0.018$; $TC: F_{2,117} = 8.334$, $p = 0.000$). Post hoc tests (Dunnett’s T3) suggest that long-term contracts are more successful than short-term contracts ($SC: p = 0.000$; $CE: p = 0.012$; $TC: p = 0.000$) and more successful than medium-term contracts with respect to strategic competence and technology catalysis ($SC: p = 0.001$; $CE: p = 0.317$; $TC: p = 0.015$). For firms with IS budgets above 0.7%, the effects were significant only with respect to strategic competence ($SC: F_{2,96} = 3.731$, $p = 0.028$; $CE: F_{2,96} = 1.172$, $p = 0.314$; $FC: F_{2,96} = 0.318$, $p = 0.728$). Here, post hoc tests indicated that long-term contracts heightened strategic competence in contrast to short-term contracts ($p = 0.025$), though were not different than medium-term contracts ($p = 0.563$); nor were short- and medium-term contracts different ($p = 0.222$).

### The Configurational Perspective

#### Analysis of Gestalts

In contrast to fit-as-profile-deviation, analysis of fit-as-gestalt requires that we first confirm prespecifications of gestalts via an analysis of the frequency distribution of all observed patterns. To assess the predictive validity of the configurational patterns thus surfaced, we then need to test the difference in performance between “fit” and “misfit” patterns and assess the extent to which each gestalt distinctively predicts specific outsourcing outcomes. Despite our belief that fit-as-gestalt represents the appropriate configurational approach for the study of fit in IT outsourcing strategies, we also explore IT outsourcing strategies from the perspective of fit-as-profile-deviation. These results, summarized in Appendix B, indicate the following. First, clusters identified represent the three configurational patterns we expected to observe and are analogous to the three gestals described below. Second, the results do not attest to the predictive validity of the three ideal-types. Thus, the results do not support the fit-as-profile-deviation perspective.

#### Identification of Gestalts

Following Lacity and Willcocks (1998), continuous scales for degree of integration and performance period were reduced to discrete categories. Fit-as-gestalt carries an implication that portfolios of incongruent combinations of strategy dimensions will be observed less frequently. To assess this implication, simple counts of firms utilizing each combination of strategy dimension were obtained. Table 5 displays frequencies and percentages for each pattern of outsourcing strategies, with their means and standard deviations. In all, 18 patterns were observed out of a possible 27 patterns (3 degree of integration categories × 3 allocation of control categories × 3 performance period categories). Based on $\chi^2$ tests, three of the 18 patterns were deemed to be dominant patterns or congruent gestals, and the remaining 15 minor patterns or misfits. Minor patterns included: selective, short-term, fee-for-service outsourcing ($n = 18$); comprehensive, medium-term, partnerships ($n = 17$); comprehensive, medium-term, fee-for-service outsourcing ($n = 13$); selective, short-term, buy-ins ($n = 9$); selective, medium-term, partnerships ($n = 8$); selective, medium-term, buy-ins ($n = 6$); minimal, medium-term, fee-for-service outsourcing ($n = 5$); minimal, medium-term, buy-ins ($n = 4$); selective, short-term, partnerships ($n = 3$); selective, long-term, partnerships ($n = 3$); comprehensive, long-term, fee-for-service outsourcing ($n = 3$); minimal, short-term, fee-for-service ($n = 3$); selective, long-term, fee-for-service ($n = 2$); comprehensive, short-term, partnerships ($n = 1$); minimal, long-term, partnerships ($n = 1$).

As shown in Table 5, the first congruent pattern (minimal outsourcing, buy-in contract, and short-term) accounted for 15.79% ($n = 48$) of total responses. The results show 91 responses (i.e., 29.93%) for the second congruent pattern (selective outsourcing, fee-

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8 The reduction of continuous to categorical data is appropriate when the data are not normally distributed (Kerlinger 1986).
for-service, and medium-term) and 76 responses (i.e., 25.00%) for the third congruent pattern (comprehensive outsourcing, partnership, and long-term).

The $\chi^2$ test assessed whether or not the distribution of firms’ strategy preferences differed from chance. The results indicate that they did ($p(\chi^2_24) = 0.0000$). Further, a test of the difference between the frequency for the smallest dominant pattern ($n = 48$) and the frequency for the largest minor pattern ($n = 18$) established that this too was highly significant ($p(\chi^2_1) = 0.0002$). As per Venkatraman’s (1989) criteria, these results affirm that the three dominant patterns surfaced as gestalts and provide initial support for the descriptive validity of the gestalts.

Next, to examine the stability of the gestalts surfaced, a random subsample of 100 firms was drawn from the initial sample of 311 firms. The gestalts derived from this subsample were consistent with those based on the entire sample ($p(\chi^2_10) = 0.9999$). Descriptive validity through theoretical interpretation appears in the discussion.

As a final test of the stability of the gestalts, we classified high and low performers based on overall success scores less than 4.5 and greater than 5. We then ran an ANOVA, including the performance category and the gestalt category as the two factors. The resulting interaction term, reported in Table 6, was insignificant, indicating the relative stability of the gestalts across performance categories.

**Gestalts’ Contribution to Explaining Outsourcing Success.** To test the configurational perspective and the predictive validity of the gestalts, we developed profiles of dimensions of outsourcing strategies as indicated in Table 5. As per Table 5, Profiles 1–3 represented “fit” or gestalt strategies, while Profile 4 represented all the minor patterns. The results of the analysis appear in Table 7.

While the incremental $R^2$s suggest that the addition of parameters in the earlier models, i.e., universalistic and contingency, explain a significant amount of variance, inspecting the parameters indicates that the most significant coefficient is the Strategy Profile coefficient in the configurational model. Thus, the hierarchical regression suggests that the gestalts identified in the configurational perspective provide a prediction of outsourcing success superior to that of parameters in earlier models.

A second assessment of the predictive validity of our gestalts followed Hambrick’s (1983) approach, testing the hypothesis that misfit patterns would occur more frequently among low performers than among high performers by segmenting the data set based on overall success levels below 4.5 and above 5
Table 8 Effects of “Fit”

<table>
<thead>
<tr>
<th>Effect</th>
<th>Roy’s GCR</th>
<th>F</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERCEPT</td>
<td>18.302</td>
<td>1,555.657</td>
<td>3, 255</td>
<td>0.000***</td>
</tr>
<tr>
<td>Industry</td>
<td>0.013</td>
<td>1.133</td>
<td>256</td>
<td>0.336</td>
</tr>
<tr>
<td>Revenue</td>
<td>0.024</td>
<td>1.027</td>
<td>267</td>
<td>0.048</td>
</tr>
<tr>
<td>IS budget</td>
<td>0.077</td>
<td>3.303</td>
<td>6, 257</td>
<td>0.004***</td>
</tr>
<tr>
<td>“Fit” (major vs. minor pattern)</td>
<td>0.052</td>
<td>4.384</td>
<td>3, 255</td>
<td>0.005***</td>
</tr>
</tbody>
</table>

Notes. R²'s: Strategic competence = 0.093, ΔR² = 0.037, p(ΔR²) = 0.001; Cost efficiency = 0.040, ΔR² = 0.014, p(ΔR²) = 0.003; Technology catalysis = 0.075, ΔR² = 0.013, p(ΔR²) = 0.045. *p < 0.05; **p < 0.01; ***p < 0.001.

Average scores for each of the dimensions of outsourcing success across gestalts and minor patterns or misfit strategies are reported in Table 9(a). Our next step in assessing the predictive validity of the gestalts was to explore the relative effects of each gestalt pattern on each dimension of outsourcing success. Individual ANOVAs and descriptive statistics for each gestalt are presented in Table 9(b). As expected, the second gestalt, i.e., the arm’s-length pattern, manifested the highest level of cost efficiency (supporting Hypothesis 4b), and the third gestalt, i.e., the embedded pattern, yielded the highest benefits in terms of technology catalysis (supporting Hypothesis 4c). However, contrary to Hypothesis 4a, the embedded pattern, not the independent pattern, was also related to the highest level of strategic competence. Analysis of differences among the minor patterns (misfits) revealed them to be insignificant (Roy’s GCR = 0.389, F(14, 55) = 1.530, p = 0.131).

Table 9 Assessing the Predictive Validity of the Gestalts

(a) ANOVAs for Dimensions of Outsourcing Success Across Gestalts and Minor Patterns

<table>
<thead>
<tr>
<th>Patterns</th>
<th>Mean (S.D.)</th>
<th>Strategic competence</th>
<th>Cost efficiency</th>
<th>Technology catalysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gestalt strategies</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(n = 215)</td>
<td></td>
<td>4.865 (0.069)</td>
<td>4.915 (0.073)</td>
<td>4.830 (0.077)</td>
</tr>
<tr>
<td>“Misfit” strategies</td>
<td>(n = 96)</td>
<td>4.534 (0.099)</td>
<td>4.704 (0.105)</td>
<td>4.629 (0.111)</td>
</tr>
<tr>
<td>F(p)</td>
<td></td>
<td>10.558 (0.001***</td>
<td>3.731 (0.055)</td>
<td>3.595 (0.059)</td>
</tr>
</tbody>
</table>

(b) ANOVAs for Dimensions of Outsourcing Success Among Gestalts

<table>
<thead>
<tr>
<th>Patterns</th>
<th>Mean (S.D.)</th>
<th>Strategic competence</th>
<th>Cost efficiency</th>
<th>Technology catalysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>I: Independent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(n = 48)</td>
<td></td>
<td>4.440 (0.136)</td>
<td>4.459 (0.149)</td>
<td>4.426 (0.152)</td>
</tr>
<tr>
<td>II: Arm’s-length</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(n = 91)</td>
<td></td>
<td>4.872 (0.094)</td>
<td>5.032 (0.103)</td>
<td>4.809 (0.106)</td>
</tr>
<tr>
<td>III: Embedded</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(n = 76)</td>
<td></td>
<td>5.136 (0.116)</td>
<td>4.983 (0.127)</td>
<td>5.014 (0.130)</td>
</tr>
<tr>
<td>F(p)</td>
<td></td>
<td>11.048 (0.000***</td>
<td>6.291 (0.000***</td>
<td>5.289 (0.001***</td>
</tr>
</tbody>
</table>

* p < 0.05; ** p < 0.01; ***p < 0.001.
Discussion
The objective of this research was to determine if the configurational approach would better explain outsourcing success than did prior universalistic or contingency models. Table 10 summarizes the results of our hypothesis testing. It indicates that our data provide little support for the universalistic and contingency hypotheses and strong support for a configurational explanation.

Evidence from the Universalistic Perspective
Hypothesis testing based on the universalistic perspective indicated significant differences in outsourcing success with respect to performance period, although not in the anticipated direction. Longer-term relationships were more successful than short-term relationships. However, it may not be entirely surprising that our findings contradicted conventional wisdom with respect to performance period of outsourcing relationships. Kavan et al. (1999) suggest that longer-term contracts are often preferable because they enable initial set-up costs to be distributed over a longer period of time. A long-term contract improves financial predictability and reduces the risk and uncertainties associated with important business functions (Martinsons 1993). Time is a critical dimension in the development of relationships. While time introduces an element of risk in relationships, time also facilitates cooperation among self-interested parties and the development of trust (Coleman 1990). It enables voluntary sharing of resources, with anticipation of deferred compensation. In recursive relationships, motivation to have an ongoing relationship suppresses opportunistic behavior, thereby avoiding inefficiencies of market exchanges. Repetitive interaction over time develops a rich pool of information about the service provider, enabling more accurate assessments of future behavior (Granovetter 1985). Over time, deep social ties tend to emerge from self-interested ties, promoting heightened cooperation (Ring and Van de Ven 1994). This is reinforced by outsourcing research that suggests that clients undertake long-term outsourcing relationships with providers with whom they have had a prior favorable experience (Lee and Kim 1999).

Again, the sociocultural milieu of the data cannot be ignored in interpreting this finding. Culturally, Korean people tend to place a high value on long-term relationships, as evinced by the prevalence of family-, region-, and alumni-based ties, and the invocation of such ties in economic activity (Han and Choe 1994). This cultural premium on long-term relationships may have contributed to the success of such client-vendor relationships.

Evidence from the Contingency Perspective
Industry type weakly moderated the effects of outsourcing degree on outsourcing success. Specifically, we found outsourcing degree to be salient only within the industries using long-linked technologies. Here, selective outsourcing outperformed minimal outsourcing on all dimensions of outsourcing success. Comprehensive outsourcing outperformed minimal outsourcing with respect to strategic competence and technology catalysis. Notably, outsourcing degree was not found to have a significant effect on outsourcing success in other industries. These results support findings by Lacity and Willcocks (1998) that selective outsourcing yields performance improvements over minimal outsourcing, but contradicts their observations that selective outsourcing is also better than comprehensive outsourcing. It suggests that in industries characterized by long-linked technologies, either comprehensive outsourcing or selective outsourcing may prove successful. However, the distinctive advantage of comprehensive outsourcing may be attributable to the institutionalization of relational interdependence in the Korean context (e.g., Cha 1994).

Our results supported our expectation that firms with smaller IT budgets would be more successful with longer-term contracts. However, our results also indicate that firms with larger IT functions reap higher strategic competence benefits from outsourcing through longer-term contracts. Again, this finding may be an artifact of the Korean legacy of chaebol-based relationships, through which IT competence has historically been developed (Lee and Kim 1997).

The Configurational Perspective
Before the dominant patterns identified are conclusively regarded as congruent or “fit” patterns, they must be subjected to additional validation (e.g., Miller 1981). In addition to the two steps taken to establish the descriptive validity of the gestalts or congruent patterns in the prior section, i.e., statistically affirming the number of gestalts and confirming their
robustness via cross-validation, Venkatraman (1989) recommends the gestals identified be interpreted based on the theory used to identify their underlying dimensions. Next, to establish the predictive validity of the gestals, we discuss the results of two analyses—(1) the contrast of gestalt versus “misfit” patterns with regard to overall outsourcing success, and (2) the contrast of the three gestals with regard to each of the three dimensions of outsourcing success.

Interpreting the Strategic Gestals. Based on residual rights theory, we identified three outsourcing strategy dimensions—degree of integration, allocation of control, and performance period. Based on these dimensions, our survey results surface three dominant patterns. Notably, both the cluster analysis and the assessment of the pattern frequency counts led to the identification of the same three patterns. These three gestals of outsourcing strategies are entirely consistent with the patterns anticipated from the governance and IOR literatures.

The Predictive Validity of Gestals. Next, we needed to demonstrate that (1) the gestals identified outperformed minor patterns, and (2) each gestalt identified was associated with a distinct outcome. Our analysis provides support for the first position and partial support for the second.

As anticipated, the arm’s-length approach was found to yield the highest cost efficiency and the embedded approach the best access to technology catalysis. However, contrary to our expectations, independent gestals were not associated with the highest level of strategic competence. In fact, the independent gestalt underperformed the minor patterns on every dimension of success. There are several reasons why this may have occurred. First, firms may pursue an independent strategy in an attempt to develop their own strategic competence. However, firms may also elect to retain their independence from external providers due to an inability to foresee advantages of alternate strategies or to allocate resources necessary to managing them. In other words, the choice of an independent strategy may stem from either a desire for strategic competence or a lack of vision or relationship management capabilities. Thus, all firms in the independent pattern may not actually represent “fit.”

A second explanation for the apparent ineffectiveness of the independent strategy may be that our research did not completely capture outsourcing benefits. Researchers have suggested several benefits not modeled in this study—enhancing the CIO’s credibility and facilitating their access to internal resources (Lacity and Hirschheim 1993); enabling a business transition, innovation, or entry into a new market (Lacity and Willcocks 2001). An independent strategy may help CIOs win the necessary credibility and resources by enabling them to demonstrate their effectiveness at controlling externally acquired resources. Such a strategy may also be necessary for firms seeking new business or market positions (Weill and Broadbent 1998) or those wishing to innovate without a fear of newly created knowledge leaking to the competition (Kale et al. 2000).

A third explanation for this unexpected finding may lie in understanding the institutional climate in Korea. The institutional legacy of governance in Korea is visible in chaebols, networks of densely associated firms. In fact, Korean interorganizational relationships are believed to be even more embedded than relationships among Japanese firms, and are certainly more embedded in comparison to U.S. firms (Dyer et al. 1998). The pursuit of interorganizational strategies that contravene those espoused by one’s institutional environment can result in failure, even when the strategy might otherwise be consistent with the results desired (Uzzi 1997). In addition to normative pressures to conform that stem from the historically legitimized institutional environment, mimetic pressures emerge from the information-sharing relationships among client firms in a chaebol (e.g., Guillen 2002). Thus, the independent approach may have been doomed to underperform given the Korean institutional climate, which favors more relational approaches.

Contrasting the Three Perspectives

An important contribution of this study was the contrast of universalistic, contingency, and configurational perspectives on the outsourcing phenomenon. The support that our data provided for the configurational explanation was entirely consistent with theory on governance and IORs. Specifically, given the interdependence among our independent variables in constituting strategies, a configurational explanation may be most meaningful. When strategy dimensions
independently impact outcomes, a universalistic explanation may be justified. Alternatively, if impacts of strategy dimensions on outcomes are independently constrained by environmental contingencies, a contingency explanation would be called for.

**Limitations of the Study**

Our study has some limitations within which our findings need to be interpreted. First, metrics of outsourcing success clearly need further development. While the prior instruments provide a starting point for assessing strategy dimensions and the relative benefits of alternate outsourcing strategies, stronger metrics may evince clearer distinctions across strategies. Second, in cases where multiple providers had different contract types and contract periods, this study asked the respondent to select the dominant contract type and its period of outsourcing, which may compromise the findings of the study. Third, only the CIO of each organization was surveyed. While information from the CIO should provide a high level of confidence in the quality of the information gathered, selection bias could still exist due to relying on a single respondent for both the antecedent and dependent variables.

Fourth, it is possible that the strategy dimensions that we identified are inadequate in completely specifying gestals. In explaining the lack of support for our hypothesized relationship between independent gestals and strategic competence, we suggest that not all firms assigned to the independent gestalt may actually belong there. Context and process dimensions may also be essential in order to accurately and completely specify the gestals. Fifth, we appropriated an existing outsourcing success metric for our study. While a multidimensional perspective on outsourcing success was essential to our conceptualization of strategic fit, the existing metric was not designed to support our conceptualization. Our results should therefore be viewed in this light.

Finally, results of this study may not be completely generalizable because the sample was restricted to Korea. While IT outsourcing in South Korea is likely to have many characteristics that are similar to U.S. and European environments, the practice of outsourcing in Korea, and its socioeconomic environment, may indeed have played a distinctive role in the findings of this study. In addition to the issue of culture alluded to earlier, the nature of the IT outsourcing arena in Korea is somewhat different. For example, in the United States, while some organizations like IBM provide a variety of outsourcing services, there is a relatively high level of specialization in the services offered by other provider firms, e.g., provision of SAP integration. In contrast, firms within a Korean chaebol would tend to outsource all of their IT functions to their affiliated IT provider. These providers tend to focus on generic systems management services rather than on providing innovative IT solutions tailored to each of their affiliated firms. Thus, what is meant by an embedded strategy would tend to differ between Korean and Western contexts: While an embedded strategy may entail a single provider in Korea, it is more likely to imply close ties with multiple providers in Western contexts.

**Implications for Management Practice**

With increasing attention paid to IT outsourcing, it is imperative that organizations recognize the importance of congruence among their actions. This study emphasized benefits of congruent outsourcing strategies over noncongruent actions. Further, results of this study highlight distinctive outcomes that accrue from the three strategies composed of congruent actions or decisions. Specifically, our results suggest that firms desiring cost efficiency in their outsourcing relationships may best be served by arm’s-length relationships. Those wishing to derive strategic competence or technology catalysis may need to develop network-type relationships with their providers. These distinctive outcomes may prove valuable in guiding managerial choices in regard to outsourcing strategies. Further, the congruent outsourcing strategies identified in this study provide organizations with a benchmark against which they can compare their own outsourcing strategies.

**Suggestions for Future Research**

The results of this study suggest that the concept of fit is indeed viable in studying the phenomenon of IT outsourcing. While many researchers have recognized the importance of fit, this idea has not been adequately leveraged in examining IT outsourcing decisions. This study is therefore a pioneering attempt to adapt the concept of fit to outsourcing research.
This study suggests the following future research directions. First, it is apparent from our analysis of the respective benefits of different outsourcing strategies that expectations based on governance and IOR literatures in regard to cost efficiency and technology catalysis were generally supported. Expectations regarding strategic competence, however, received less support from the data. This may suggest the need for stronger metrics to assess outsourcing outcomes, alternate theory, or the study of our proposed model within an alternate institutional environment. As outsourcing grows in complexity, researchers need to develop more sophisticated metrics to assess the success of outsourcing ventures. Nonetheless, the nature of the metrics alone may not completely account for the high correlations among the dimensions of outsourcing success. Over time, technology catalysis can enhance firms’ strategic competence and spill over into improvements in cost efficiency. Longitudinal research on outsourcing outcomes can tease apart such cumulative effects.

Second, this study concentrated on fit among three dimensions of an outsourcing strategy and three types of outcomes. However, distinctions between market and network governance forms and arm’s-length and embedded relationships rest as much on differences in ongoing processes, e.g., trust, information sharing, and joint problem solving. In addition to congruent outsourcing strategies and relationship processes, the productivity of IT investments also hinges on complementary business strategies and practices. Thus, a more complete specification of gestalts of outsourcing strategies should entail identification of processual as well as business strategy distinctions among the gestalts. Additionally, focusing on downstream success metrics such as firm performance rather than CIOs’ perceptions of outsourcing succession might provide further insight into gestalts of outsourcing strategies.

Third, while residual rights theory is based on the assumed difficulty of delineating specific rights in a contract, future research may wish to explicitly consider this aspect of residual rights theory in understanding IT outsourcing strategies. One meaningful way to explicate specific rights as a dimension of outsourcing strategies is to consider the different types of standards specified in outsourcing contracts. Researchers have highlighted the applicability and specification of behavior-based and outcome-based standards—benchmarks for performance and compensation—that appear in outsourcing contracts.

Fourth, we focused exclusively on strategic competence, cost efficiency, and technology catalysis as outsourcing outcomes. IT outsourcing research suggests additional outsourcing benefits that should be investigated: enhancement of CIO credibility, effecting a business transition, business innovation, or entry into a new market. Furthermore, careful development of a multidimensional metric to assess outsourcing success is essential to progress in IT outsourcing research. Sixth, study data were limited to a Korean sample. Replication of this study over a more extensive, geographically diverse sample may provide further insights. Finally, this study examined the concept of fit mainly from the client’s perspective. An analysis of congruence in terms of the service provider may provide interesting results.

Conclusions
Outsourcing choices represent alternate ways for organizations to leverage available resources to increase the value of IT in meeting corporate objectives. In attempting a holistic analysis of the effects of dimensions on outsourcing outcomes, this study offers guidance to practitioners constituting outsourcing strategies. Our findings suggest that an arm’s-length strategy optimizes firms’ cost efficiency in IT outsourcing. An embedded strategy appears to offer the greatest advantage in terms of access to technological knowledge. Drawing from a broad literature in addition to outsourcing research, we develop and test a model of alternate outsourcing strategies and their relative advantages. Highlighting these distinct outsourcing strategies now opens up several avenues for future outsourcing research: studying the alignment between outsourcing strategies and organizational or IT structure; exploring the alignment between outsourcing strategies and organizational and IT strategies. Such research will allow us to view IT outsourcing not as a decisional island, but rather as inextricably linked with other business and IT decisions.

Acknowledgments
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Appendix A. Details of Survey Instrument

Outsourcing definition provided to survey respondents
The term IT OUTSOURCING refers to the practice of commissioning part or all of an organization’s IT assets, people, and/or activities to one or more external providers. It includes any one or combination of the following: system planning, application analysis and design, application development, operation and maintenance, system integration, data center operation, telecommunication management and maintenance, software, hardware products, facilities management (e.g., PC management), end-user support (e.g., training), and so on.

Degree of integration scale
Definition The total outsourcing expenditure on the basis of the IT budget in a given year.
Instruction Please answer this question considering all sorts of IT expenditure spent in the 2000 financial year, including the purchased human and technical resources and services that are controlled by in-house management or outside service providers, and any capital investment for joint ownership of an entity to do the needed IT activities.

Item
What is the amount of IT outsourcing as a percentage of the total IT budget?

Categories Comprehensive outsourcing (more than 80% of IT budget); selective outsourcing (20% to 80% of IT budget); minimal outsourcing (less than 20% of IT budget).

Allocation of control scale
Definition Type of contract between the service receiver and provider in an outsourcing relationship.
Instruction What kind of relationship (or contract) did you set up with your service provider? Please check only one number considering the contract type with your main outsourcing provider.

Items
1. Standard contracts: Your firm signed the service provider’s standard, off-the-shelf contract.
2. Detailed contracts: The contract included special clauses for service scope, service levels, performance measures, and penalties.
3. Loose contracts: The contract did not provide comprehensive performance but specified the service providers’ performance as “whatever the customer was doing in the baseline year” for the next 5 to 10 years at 10% to 30% less than the customer’s baseline budget.
4. Mixed contracts: For the first few years, requirements of the contract were fully specified (detailed contract), but the technology and business requirements in the long run were not defined (loose contract).
5. Partnership: The relationship involved significant resources of your and your service provider(s) to create, add to, or maximize joint value. Also, the contract included an agreement to furnish a part of the capital and labor for a business enterprise, and each shares in benefits and risks.
6. Buy-in contracts: Your firm bought some resources to supplement in-house capabilities, but the resources were managed by in-house business and IT management.
7. Other (specify).

Categories Fee-for-service contract (1, 2, 3, and 4); partnership (5); buy-in contract (6).

Performance period scale
Definition The duration of the outsourcing contract between the service receiver and provider.
Instruction Please answer this question based on the outsourcing contract with your main IT service provider.

Item
How many years did you make the contract with your service provider?

Categories Short-term (less than 4 years); medium-term (from 4 to 7 years); long-term (more than 7 years).

Outsourcing success scale
Definition The degree to which predefined outsourcing objectives are realized in terms of strategic, economic, and technological benefits of outsourcing.
Instruction Please check the number corresponding to the degree of achievement through IT outsourcing in conjunction with each of following questions [scale ranges from one (lowest) to seven (highest)].

Items
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.

Categories Strategic competence: Items 1–3; Cost efficiency: Items 4–6; Technology catalysis: Items 7–8.
Appendix B. Analysis of IT Outsourcing Strategies from the Perspective of Fit-as-Profile-Deviation

We began our identification and analysis of ideal-types with a cluster analysis. Standardized data for the degree of integration, allocation of control, and performance period were subjected to an initial cluster analysis. Rather than relying on a visual scan of the resulting dendrogram, the agglomeration schedule was consulted to determine the stage at which there was a large distance between clusters combined. Other than for the final one-cluster solution, the agglomeration coefficient was found to increase most steeply after the three-cluster solution (i.e., by 7.24). Therefore, the three-cluster solution was deemed to be the most descriptive of the data. The centers for these three clusters are provided in Table B1.

Notably, the number of clusters and the cluster centers support our expectations in regard to the number and nature of distinct patterns. Analysis of variance of the cluster centers indicated that the clusters were significantly different in regard to degree of integration ($F_{2,300} = 1,968.564, p = 0.000$), allocation of control ($F_{2,300} = 337.534, p = 0.000$), and performance period ($F_{2,300} = 210.392, p = 0.000$). To assess the relative stability of our cluster analysis, we ran it on a subsample of 100 randomly drawn observations. This subsample too yielded a three-cluster solution, with the cluster centers not significantly different from those of the full sample ($t(8) = 0.215, p = 0.835$), each observation being assigned to exactly the same cluster on the full and subsamples.

To assess the validity of the fit-as-profile-deviation approach, we investigated the relationship between observations’ distance from cluster centers and their relative success. The effects of the distance from cluster centers on IT outsourcing success are reported in Table B2.

The results of our cluster analysis suggest that while the clusters identified were distinct, stable, and theoretically consistent, distance from cluster centers did not predict performance. Thus, while the clusters appear to have descriptive validity, they lack predictive validity. Given the criterion-based nature of specifications of fit-as-profile-deviation, our results do not support IT outsourcing strategies as ideal-types from which deviations will result in underperformance.

Table B1 Results of Cluster Analysis

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Cluster 1</th>
<th>Cluster 2</th>
<th>Cluster 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree of integration</td>
<td>11.91</td>
<td>47.24</td>
<td>86.90</td>
</tr>
<tr>
<td>Allocation of control</td>
<td>1.00</td>
<td>2.00</td>
<td>3.00</td>
</tr>
<tr>
<td>Performance period</td>
<td>2.59</td>
<td>4.41</td>
<td>7.42</td>
</tr>
<tr>
<td>Number of observations</td>
<td>74.00</td>
<td>115.00</td>
<td>122.00</td>
</tr>
</tbody>
</table>

*Recoded as: 1 = Buy-in; 2 = Fee-for-service; 3 = Partnership.

Table B2 Effects of Distance from Cluster Center on Outsourcing Success

<table>
<thead>
<tr>
<th>Effect</th>
<th>Roy’s GCR</th>
<th>R</th>
<th>df</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERCEPT</td>
<td>6.178</td>
<td>494.264</td>
<td>3, 240</td>
<td>0.000***</td>
<td></td>
</tr>
<tr>
<td>Industry</td>
<td>0.023</td>
<td>1.811</td>
<td>3, 241</td>
<td>0.146</td>
<td></td>
</tr>
<tr>
<td>Revenue</td>
<td>0.029</td>
<td>1.157</td>
<td>6, 242</td>
<td>0.330</td>
<td></td>
</tr>
<tr>
<td>IS budget</td>
<td>0.069</td>
<td>2.774</td>
<td>6, 242</td>
<td>0.013</td>
<td></td>
</tr>
<tr>
<td>Distance from cluster center</td>
<td>0.095</td>
<td>1.436</td>
<td>16, 242</td>
<td>0.126</td>
<td></td>
</tr>
</tbody>
</table>

*Notes. $R^2$: Strategic competence = 0.093, $\Delta R^2 = 0.037$, $p(\Delta R^2) = 0.001$; Cost efficiency = 0.063, $\Delta R^2 = 0.037$, $p(\Delta R^2) = 0.001$; Technology catalysis = 0.087, $\Delta R^2 = 0.025$, $p(\Delta R^2) = 0.005$.

* * * p < 0.001; ** p < 0.01; *** p < 0.05.

References


