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A Strategic Fit Model for IT Outsourcing Success: An Exploratory Approach

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Abstract

During the last decade, outsourcing has emerged as a major strategic alternative in information systems management. Although various outsourcing strategies have been appeared, most of studies have focused on one or two dimensions of outsourcing strategies without consideration of their combination effects. Being perhaps the first attempt, this exploratory study identifies major four dimensions for outsourcing strategy, and seeks to examine the concept of fit or congruence to describe the nature of the interrelationships among them using a Korean sample. The results of cluster analysis support the notion of gestalt fit by grouping six clusters. The results also suggest that organizations in congruent groups (clusters one, two, and six) appear to realize a greater degree of outsourcing success than those in non-congruent groups (clusters three, four, and five). Interestingly, cluster six (total outsourcing based on long-term partnership with multiple vendors) displays the highest outsourcing achievement among them.

Keywords: *Outsourcing Strategy, Outsourcing Success, Fit or Congruence, Cluster Analysis*

1. Introduction

Information Technology (IT) outsourcing is one of the major issues of facing organizations in today. According to the International Data Center, the worldwide outsourcing market size is estimated to rise from $100 billion in 1998 to $152 billion by 2005, with an annual growth rate of 12.2%. With this kind of growth, IT outsourcing warrants top-level attention. However, the decision to outsource IT functions is not an easy task. This is because outsourcing can have a profound and far-reaching impact on an organization's market share and its technical leadership. That is, outsourcing is not just an operational decision but a strategic one with far-reaching consequences.

When a company decides whether to outsource or not, the company has to carry out an assessment of the existing IT resources and capabilities. If existing information technology capabilities are limited and economies of scale may accrue, then outsourcing makes sense. If the company decides to outsource, the outsourcing strategic details must be selected as the following questions: Should outsourcing include all information services or just a few of the services?; Should outsourcing relationship be a contractual or partnership-based?; Should the period of outsourcing be long- or short-term?; and Should the number of vendor for outsourcing be a single or multi-vendor?

The success of outsourcing requires a set of processes for effectively formulating outsourcing strategies in the early stage. However, deciding the degree of outsourcing, seeking a contractual or partnership relationship, entering into a long-term or short-term outsourcing, or selecting a single or multi-vendor are not simplistic strategic options. This is because these factors must be considered in conjunction with one another and other organizational factors. Although some research has begun to examine the effective outsourcing strategies (Lacity and Willcocks, 1998; Saunders, Gebelt and Hu, 1997), most of studies have focused on one or two dimensions of outsourcing strategies without consideration of their combination effects. In short, adequate guidelines for organizing

effective outsourcing strategies do not exist. Furthermore, no large scale empirical study exists in the outsourcing literature that explores the fit between the relevant outsourcing strategies and its success.

The objective of this study is to examine how the concept of fit can be applied to complex outsourcing strategies. Specifically, this study focuses on the nature of interrelationships among four outsourcing strategies and their impacts on outsourcing success. These four outsourcing strategies include; degree of outsourcing – total or selective outsourcing; relationship type – contractual or partnership relationship; period of outsourcing – long-term or short-term outsourcing; and number of vendor – single or multiple vendors outsourcing. I expect that congruence among these four strategies will enable organizations to reap greater outsourcing benefits and propose a number of congruent combinations. In this study, cluster analysis is used to identify groups of organizations that share common features along the four outsourcing strategies. This analysis method is most useful for examining fit among a number of variables.

2. Conceptual Framework

The success of outsourcing can manifest in several different ways. Success may be reflected by the degree to which predefined objectives are realized. In most outsourcing cases, outsourcing objectives relate to the strategic, economic and technological benefits. Then the success of outsourcing should be assessed in terms of attainment of theses benefits (Loh and Venkatraman, 1992). Such objectives include outsourced system's efficiency, user and business satisfaction for outsourced systems, service quality, cost reduction, etc. (Arnett and Jones, 1994; Benko, 1993; Grover, Cheon and Teng, 1996; Lacity and Hirschhein, 1993; Lee and Kim, 1999).

As the scope and complexity of outsourcing projects expand, the importance of well-organized outsourcing strategy developed in the initial stage has been on the rise. The limited amount of research in this area suggests that typical outsourcing strategies that could affect outsourcing success include degree of outsourcing, relationship type, period of outsourcing, and number of vendor as described in the following sections (Lacity and Hirschhein, 1993; Ngwengyama and Bryson, 1999; Pinnington and Woolcock, 1995; Willcocks, Lacity and Fitzgerald, 1995).

2.1 Degree of Outsourcing

What is the optimal degree of outsourcing for our organization? Companies make their outsourcing decisions for many reasons, ranging from a simple focus on cost reduction to the improvement of business performance. Broadly, outsourcing decision can be viewed as being either efficiency-based or politically driven (Aubert, Rivard and Patry, 1996; Smith, Mitra, and Narasimhan, 1998). The driving force behind the efficiency-based perspective is to maximize profits or to minimize costs when deciding outsourcing options. For the political motivation, outsourcing decisions are motivated by difficulties in managing IT functions such as the lack of efficiency of IT department, the low quality of services, the difficult of improving business performance using current IT functions, etc.

Based on the motivation of outsourcing, organizations may decide their possible candidates and suitable amount for outsourcing. Some IT activities are critical contributors to business operations (core functions), whereas others merely provide necessary functions (commodity functions). Both the core and commodity functions can be evaluated for organizational outsourcing potential (Quinn and Hilmer, 1994). The identification of the functions that organizations wish to outsource can be done by considering whether a particular activity is critical to our value chain or our desired competitive focus.

For instance, some companies contribute their resources on a set of core functions and strategically outsource other functions (Quinn and Hilmer, 1994), while some may outsource their core functions because they lack the talent and skills to develop potential core differentiating applications (McFarlan and Nolan, 1995). Specifically, organizations may choose total outsourcing strategy, selective outsourcing strategy, or total insourcing strategy (Lacity and Willcocks, 1998). However, there is no exact answer about which functions are appropriate candidates for outsourcing and what extent of outsourcing is optimal for an organization. By understanding the outsourcing motivation coupling with business and IT strategies, organizations should decide the optimal outsourcing scope, which lead to best achieve the success of outsourcing.

2.2 Relationship Type

What kind of outsourcing relationship is appropriate for our organization? Many different types of contracts are used to govern IT outsourcing relationships between the service receiver and provider. Basically, IT outsourcing relationship can be categorized three major types: fee-for-service contract; partnership; and buy-in contract (Lacity and Willcocks, 1998). Fee-for-service contract represents that a service receiver pays a fee to a service provider in exchange for the management and delivery of specified IT products or services. Partnership is the collaboration interorganizational relationships involving significant resources of two or more organizations to create, add to, or maximize their joint value, while buy-in contract indicates that a service receiver buys in vendor resources to supplement in-house capabilities but the vendor resources are managed by in-house business and IT management.

For example, some companies are opting to establish partnerships with their service providers based on long-term commitments that allows firms to share risks and benefits and to better manage complex outsourcing relationships (Diromualdo and Gurbaxani, 1998). Some studies, however, insist that outsourcing providers cannot be strategic partners because they do not share the profit (Lacity and Hirschheim, 1993). Further, the nature of partnership on outsourcing is something different because outsourcing relationship itself includes the hierarchical relationship based on contract (Saunders, Gebelt and Hu, 1997). Thus, partnership might only be appropriate under conditions of high uncertainty when flexible contracts and a good working relationship become important (Fitzgerald and Willcocks, 1994).

We should keep in mind that the achievement of outsourcing is not assured and all relationship between the service receiver and provider are always subject to dissolution. Thus, the relationship with the service provider must be aligned with the strategic intent underlying the outsourcing initiative. The best way to minimize the risk of outsourcing failure is to develop an appropriate outsourcing relationship with the service provider in accordance with the outsourcing objective. That is, management must choose the appropriate relationship type and successfully implement and sustain it if outsourcing is to succeed.

2.3 Period of Outsourcing

Which one is better for our organization, long- or short-term outsourcing? To this question, the results of the previous studies and practices show conflicting conclusions. Some prefer long-term outsourcing whereas others pursue short-term outsourcing. A long-term contract improves financial predictability and reduces the risk and uncertainties associated with the important business functions (McFarlan and Nolan, 1995; Martinsons, 1993). This in turn reduces the superfluous complexity and bureaucracy of the service receiver and reassigns internal staff from mundane operational tasks to value-added functions. On the contrary, a short-term contract allows companies to adequately analyze the cost implications of their

outsourcing decision, to motivate vendor performance because vendors realize the service receiver could switch vendors when the contract expired, and to recover faster from mistakes (Lacity and Willcocks, 1998).

In the past, outsourcing duration had been associated with both outsourcing type and scope. When an organization decided a contractual and selective outsourcing, it was natural that the outsourcing project was based on short-term or mid-term contract (Lacity, Willcocks, and Feeny, 1996). On the other hand, long-term contracts resulted from partnership relationship based on mutual trust (Lee and Kim, 1999; McFarlan and Nolan, 1995). However, these assumptions are gradually changing. For instance, a recent study predicts that long-term relationships with a short-term contract will be an emerging practice in the field of outsourcing (Lacity and Willcocks, 1998). Even if each party intends for a long-term relationship, the original commitment could be a short-term contract with renewable options. To survive a long-term contract, it must have mechanisms to allow adjustment to circumstances that cannot be fully foreseen at the time the contract is written. Thus, organizations should carefully choose an appropriate period of outsourcing coupling with their outsourcing objectives and motivations in order to assure the success of outsourcing.

2.4 Number of Vendor

Which way should we adopt, a single vendor or multi-vendor approach, to minimize risks and maximize value through outsourcing? As in Kodak outsourcing case, we can adopt multi-vendor strategy (Applegate and Montealegre, 1991), but the most common form is the single vendor approach in the field of outsourcing (Ngwenyama and Bryson, 1999).

If so, what are the reasons that some companies contract with a single vendor while others contract with several? The use of multi-vendor strategy would low cost, high vendor performance and increased bargaining power for the service receiver (Porter, 1985). The basic assumption of the multi-vendor outsourcing strategy holds that each vendor is induced to provide a high level of performance because the service receiver has a credible threat to switch vendors. Having established a relationship with more than one vendor, the service receiver can switch or shift business between the vendors without incurring switching cost.

In the single vendor outsourcing strategy, the service receiver develops a strong relationship with one vendor. Although the single vendor strategy leaves a firm open to opportunistic bargaining and performance failure vulnerability, some have argued that it can be effective in developing a highly integrated long-term relationship with a single vendor (Ngwenyama and Bryson, 1999). Since poor vendor performance is the result of poor communication and coordination, it is more costly to monitor and coordinate the activities of multiple vendors than for a single vendor.

In sum, the single vendor outsourcing can minimize performance assurance costs and then total cost and maximize switching cost, whereas multi-vendor outsourcing strategy can minimize switching cost but maximize the difficulty of communication with vendors. Even if the number of vendor is considered important in outsourcing decision, few have investigated this issue in outsourcing context. With other three outsourcing strategies, organizations have to seriously think about it, and make a decision in accordance with firms' outsourcing objective and motive to reap the greatest outsourcing benefit.

2.5 Pattern of Outsourcing Strategies

Some firms have achieved success with their outsourcing strategies, but others have been dismal failures. An empirical study found that in 53 out of 61 outsourcing cases, managers reported an unsatisfactory outcome (Lacity and Hirschheim, 1993). One explanation for some of the failure is the complexity of outsourcing transactions because outsourcing decisions involve many factors such as balancing the needs of different organizational functions,

establishing and managing a relationship, and making a decision with incomplete information (Loh and Venkatraman, 1992). Another explanation that has been given for outsourcing failures is the limited selection of decision models to help managers systematically analyze outsourcing decisions (Ngwenyama and Bryson, 1999)

While some firms have achieved varying degrees of outsourcing success with any of these strategies, many have encountered significant difficulties. A wrong decision can result in loss of competencies and capabilities, exposure to unexpected risks, and business failures. In spite of the fact, no studies have been done to guide what effective combinations exist among various outsourcing strategies. In this study, I try to empirically find some patterns of outsourcing strategies and which patterns are expected to be associated with greater outsourcing success. Hence, this study proposes that the success of outsourcing depends on the proper fit among these four strategic dimensions. A model describing such congruence is shown in figure 1.

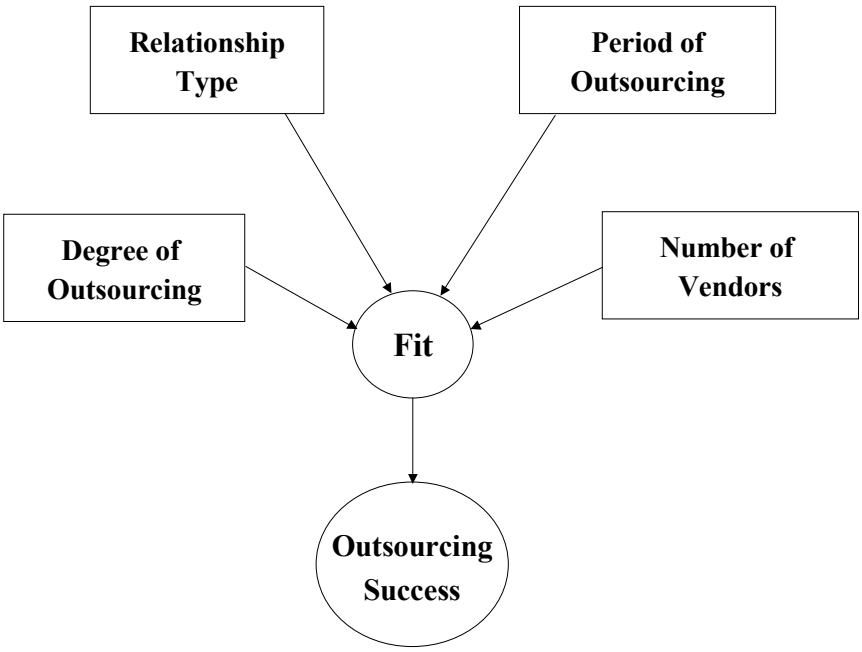

Figure 1. A model of fit between outsourcing strategies and its success

The notion of congruence reflected in the proposed model suggests that an outsourcing decision within these four strategies affects the extent of outsourcing success. For instance, when an organization strategically pursues total outsourcing, the need for coordination and control of outsourcing transactions is much higher. In such a context, it appears prudent in building a partnership with preferred service providers to minimize future uncertainty and maximize its value. Also, the partnership implies forming a mutually beneficial relationship with competent vendors based on trust, while being considered in the context of long range planning. Furthermore, in such an environment, it appears logical to use multiple vendors for outsourcing in order to maximize utilizing each vendor's expertise and human and technical resources through efficient combinations of several external vendors, and to increase market opportunities and relationship safety. This leads ***a total outsourcing, partnership, long-term and multi-vendor strategy***.

On the other hand, if the selective outsourcing strategy is selected, then the need for coordination and control of outsourcing relationships is low relative to total outsourcing. The need for detailed fee-for-service contract including service levels, measures of performance,

penalties for non-performance, the decrease of IT budget after the given period, or business requirements is much higher. In such an environment, organizations try to make mid-term contracts for 4 to 7 years. The reason is that they may not have a long-term technology and business requirements, which lead not to fully describe specified requirements in contract. Additionally, in these conditions, companies want to develop a strong relationship and to communicate intensively and effectively with one vendor, not several. In sum, it indicates ***a selective outsourcing, fee-for-service contract, mid-term, and single vendor strategy***.

Finally, in case of that an organization decides total insourcing strategy, the need for coordination and control of outsourcing relationship is nearly not necessary compared to the total and selective outsourcing. In such a context, since organizations decide to retain most of the management and provision for IT services internally and the scope of outsourcing is relatively small, they try to make a short-term contract with a single competent vendor. Firms in these conditions will select ***a total insourcing, buy-in contract, short-term, and single vendor strategy***.

However, not all organizations achieve congruence among all of the four outsourcing strategies. For instance, consider an organization with a total outsourcing, buy-in and long-term contract with several vendors. While there is congruency among three strategies, this outsourcing strategy is non-congruent with partnership relationship. Although this firm will be able to function, it is easy that the non-congruence will lead to considerable inefficiencies in responding to outsourcing initiatives for maximizing the joint value among participants. Hence, three types of outsourcing strategies are likely to lead to greater outsourcing success. With these three outsourcing strategies, there may be other congruent combinations, while various type of non-congruence may also exist which can hamper the success of outsourcing.

Thus, I posit that the congruent combinations of four outsourcing strategies are expected to be associated with the success of outsourcing. Such a view is in accordance with the notion of fit as a gestalt (Venkatraman, 1989). The following proposition is proposed:

> ***Organizations with congruent combinations of the four outsourcing strategies - degree of outsourcing, relationship type, period of outsourcing, and number of vendor – will show greater outsourcing success than those without such congruence.***

3. Research Methodology

3.1 Measures

The survey instrument was developed based on the construct that have already been used and validated by other researchers. This study employed objective measures for four outsourcing strategies and perceptual measures for outsourcing success. In particular, the degree of outsourcing was measured by the actual amount of the outsourcing as a percentage of total IT budget - total outsourcing (more than 80%), selective outsourcing (20 to 80%), total insourcing (less than 20%) - in each organization (Lacity, Willcocks and Feeny, 1996), while actual data were required for the period of outsourcing and number of vendor.

The relationship type can be categorized into major three types – fee-for-service contract (1 to 4), partnership (5), and buy-in contract (6) (Lacity and Willcocks, 1998). Further, fee-for service contract can divide into four contract types such as standard contracts (1), detailed contracts (2), loose contracts (3), and mixed contracts (4). For the relationship type, respondents were asked to select one among above assigned numbers from 1 to 6 based on their outsourcing contracts. Finally, to examine the impact of fit among four outsourcing strategies, Grover, Cheon and Teng (1996)'s instrument was adopted to assess the degree of achieving outsourcing benefits such as focusing on core business, IT competence, skilled

personnel, economies of scale in human and technical resources, control of IT expenses, avoidance of obsolescence risk, accessing to key IT, and overall satisfaction.

An initial version of the survey instrument was subsequently refined through extensive pretesting with seven academics having significant expertise in outsourcing. The instrument was further pilot tested with fifteen organizations in Korea that have outsourced their IT functions to external service providers. I interviewed a CIO and a representative in charge of the firm's IT operations in each organization in Seoul, Korea. The multiple phases of instrument development resulted in a significant degree of refinement and restructuring of the survey instrument as well as establishing the initial face validity and internal validity (Nunnally, 1978).

3.2 Data Collection and Measurement Reliability

Data were collected from organizations in Korea through a survey instrument. Since larger organizations are more likely to have outsourcing experiences, *Annual Corporation Reports*' 1,000 companies published by *Maeil Business Newspaper* (1999), which is the leading economic daily newspaper in Korea, served as the target population. These firms were checked in the *Book of Listed Firms* published by the *Korea Stock Exchange* to obtain the name of the CIO in each firm. Finally, the survey questionnaire was personally addressed to 1,000 CIOs of the firms.

Table 1. The profile of responding companies

(a) Industry

Industry Type	Frequency	Percent
Manufacturing	81	26.0
Banking/Finance/ Insurance	65	20.9
Distribution	45	14.5
Construction	40	12.9
Transport/Warehousing/ Communication	32	10.3
Research	25	8.0
Information Technology	23	7.4
Unanswered	0	0
Total	**311**	**100**

(b) Number of total employees

Range	Frequency	Percent
Less than 100	31	10.0
100 – 200	28	9.0
201 – 500	40	12.9
501 - 1,000	49	15.7
1,001 - 3,000	62	19.9
3,001 - 5,000	38	12.2
5,001 - 10,000	27	8.7
10,001 - 30,000	18	5.8
30,001 and above	10	3.2
Unanswered	8	2.6
Total	**311**	**100**

(c) Total sales revenue

Range	Frequency	Percent
Less than $50 million	38	12.2
$50 - $100 million	42	13.5
$100 - $500 million	85	27.3
$500 - $1 billion	33	10.6
$1 - $5 billion	47	15.1
$5 - $10 billion	26	8.4
$10 billion and above	24	7.7
Unanswered	16	5.2
Total	**311**	**100**

(d) Type of IT outsourcing

Type	Frequency	Percent
Application development	61	19.6
Application maintenance	69	22.2
Data center	35	11.3
Network	46	14.8
Desktop	24	7.7
Help Desk	18	5.8
IT Consulting	42	13.5
Unanswered	16	5.1
Total	**311**	**100**

Following the Total Design Method of Dillman (1991), to increase the response rate, a post-card follow-up was conducted one week after the original mailing, and the same questionnaire was mailed again four and seven weeks after the original mailing. After the four rounds of solicitation, a total of 390 responses were received, providing a response rate of 39%. Among them, 54 responses that did not have an IT outsourcing arrangement were discarded, 25 responses were removed from analysis due to incomplete data, and 311

responses could be used for the final analysis. The respondent characteristics are summarized in Table 1.

Content validity of the survey instrument was established through the adoption of standard instruments, suggestions in the literature, and pretesting with experts in the field of outsourcing (Kerlinger, 1986). Since measures of outsourcing strategies tried to gather fact data from respondents using one question, I did not need to do any reliability and validity tests for them. Outsourcing success was measured by the perception of CIOs about their outsourcing projects using nine items. Hence, factor analysis was conducted to check the unidimensionality of the items. There were no items with a factor loading lower than 0.5, the factor loadings ranged from 0.805 to 0.883, and internal consistency (Cronbach's alpha) was 0.946, which was acceptable.

4. Analyses and Findings

4.1 Method of Analysis

The fit (or congruence) among the four outsourcing strategies can be considered within a multivariate perspective as one of gestalt rather than one of a bivariate fit between each pair of factors. As proposed in the conceptual model, the congruence among outsourcing strategies is expected to be related to the success of outsourcing. To examine such a fit, the most appropriate statistical technique is cluster analysis (Venkatraman, 1989), which is a technique for grouping objects based on the characteristics they possess into some groups. Cluster analysis differs from discriminant analysis primarily because of the data inductive approach in deriving the number and attributes of the groups (or clusters) that are not known prior to the analysis (Hair et al., 1995). It must be noted that this statistical technique is exploratory in nature. In cluster analysis, the resulting groups (or clusters) should show high internal homogeneity and high external heterogeneity. This study used the K-Means clustering technique using the Quick Cluster routine produced by SPSS 10.0 software.

4.2 Testing Results

To derive a parsimonious set of clusters that could be clearly distinguished from one another, this study tried to extract a different set of clusters consisting of two, three, four, five, six, and seven groups using different options such as Euclidean and Mahalanobis distance. To assess the distinctiveness of each cluster, equality of variable means between the clusters was tested by the F-test. Finally, a six-cluster solution was selected based on the results of F-test. Table 2 shows means and standard deviations of each variable in the six clusters from column 2 to 7. In column 8, F-value and the level of its significance related to the test result for equality of variable means between clusters are shown, while the last column shows the result of the significant pair of clusters between the variable means tested by Dunnett's Multiple Range.

As in Table 2, both the F-tests and the results of tests of significance of pairwise contrasts explain that the group means of these six clusters are significantly different. Clusters one, two, and six appear to be internally congruent while the remaining three clusters are non-congruent. Cluster one represents a group of firms with total insourcing (less than 20%), buy-in contract (almost 6), short-term period (less than 4 years), and single vendor strategies. Cluster two shows a firm group with selective outsourcing (20 to 80%), fee-for-service contract (detail contract (2) or loose contract (3)), mid-term period (4 to 7 years), and single vendor strategies. Cluster six, which is opposite characteristics against the group one, represents a group of firms with total outsourcing (more than 80%), partnership (5), long-term period (more than 7 years), and multi-vendor strategies.

Table 2. The result of cluster analysis: Six clusters

Variables	Cluster Groups; Mean (S.D.)						F (df, sig.)	Dunnett Multiple Range Test
	Congruent Groups			Non-Congruent Groups				
	Group 1 (n=52)	Group 2 (n=48)	Group 6 (n=54)	Group 3 (n=51)	Group 4 (n=48)	Group 5 (n=58)		
Degree of Outsourcing	7.81 (3.06)	54.79 (5.35)	95.44 (4.65)	19.31 (2.30)	41.10 (2.06)	80.17 (4.66)	4027.83 (5, 0.00)***	1-2****; 1-3****; 1-4****; 1-5****; 1-6****; 2-3****; 2-4****; 2-5****; 2-6****; 3-4****; 3-5****; 3-6****; 4-5****; 4-6****; 5-6****
Relationship Type	5.92 (0.55)	2.42 (1.14)	4.76 (0.58)	3.06 (2.23)	3.12 (1.76)	4.05 (0.94)	47.92 (5, 0.00)***	1-2****; 1-3****; 1-4****; 1-5****; 1-6****; 2-5****; 2-6****; 3-5*; 3-6****; 4-5**; 4-6****; 5-6****
Period of Outsourcing	1.86 (0.79)	4.54 (0.92)	7.76 (2.05)	4.29 (1.30)	3.35 (0.98)	6.39 (2.02)	109.63 (5, 0.00)***	1-2****; 1-3****; 1-4****; 1-5****; 1-6****; 2-4****; 2-5****; 2-6****; 3-4****; 3-5****; 3-6****; 4-5****; 4-6****; 5-6****
Number of Vendor	1.00 (0.00)	1.06 (0.24)	2.29 (0.77)	1.00 (0.00)	1.06 (0.24)	1.39 (0.53)	79.45 (5, 0.00)***	1-5****; 1-6****; 2-5****; 2-6****; 3-5****; 3-6****; 4-5****; 4-6****; 5-6****

****p < 0.001; ***p < 0.01; **p < 0.05; *p < 0.10

Table 3. The summary of cluster analysis: Four outsourcing strategies

Variables	Cluster Groups; Mean (S.D.)					
	Congruent Groups			Non-Congruent Groups		
	Group 1 (n=52)	Group 2 (n=48)	Group 6 (n=54)	Group 3 (n=51)	Group 4 (n=48)	Group 5 (n=58)
Degree of Outsourcing	Total insourcing	Selective outsourcing	Total outsourcing	Total insourcing	Selective outsourcing	***Total outsourcing***
Relationship Type	Buy-in-contract	Fee-for-service	Partnership	***Fee-for-service***	Fee-for-service	Fee-for-service
Period of Outsourcing	Short-term	Mid-term	Long-term	***Mid-term***	***Short-term***	Mid-term
Number of Vendor	Single vendor	Single vendor	Multi vendors	Single vendor	Single vendor	Single vendor

. Bold and Italic Font in Group 3, 4, and 5 shows non-congruent outsourcing strategies

Table 4. One-way ANOVA across six cluster groups for outsourcing success

Dependent Variables	Cluster Groups; Mean (S.D.)						F (df, sig.)	Dunnett Multiple Range Test
	Congruent Groups			Non-Congruent Groups				
	Group 1 (n=52)	Group 2 (n=48)	Group 6 (n=54)	Group 3 (n=51)	Group 4 (n=48)	Group 5 (n=58)		
Outsourcing Success [a]								
1. Focus on core business	4.84 (0.75)	4.93 (0.88)	5.12 (0.89)	4.50 (0.97)	4.25 (0.84)	4.41 (0.95)	7.64 (5, 0.00)***	1-4**; 2-4**; 2-5*; 3-6**; 4-6****; 5-6****
2. IT competence	4.90 (0.82)	4.89 (0.83)	5.18 (0.78)	4.76 (0.95)	4.50 (0.87)	4.67 (0.84)	3.91 (5, 0.00)**	4-6***; 5-6**
3. Skilled personnel	4.81 (0.84)	5.04 (0.74)	5.14 (0.90)	4.72 (0.80)	4.50 (1.03)	4.50 (0.99)	4.79 (5, 0.00)***	2-4*; 2-5**; 4-6**; 5-6***
4. Economies of scale in human resources	5.06 (0.85)	4.79 (0.87)	5.12 (1.10)	4.43 (0.96)	4.62 (1.08)	4.50 (1.25)	4.16 (5, 0.00)**	1-3**; 1-5*; 3-6**; 5-6*
5. Economies of scale in technical resources	4.94 (0.87)	5.00 (0.82)	4.98 (0.86)	4.39 (1.02)	4.44 (1.11)	4.24 (0.96)	7.05 (5, 0.00)***	1-3*; 1-5***; 2-3**; 2-4*; 2-5****; 3-6**; 5-6***
6. Control of IT expenses	4.86 (0.91)	4.91 (0.85)	4.90 (0.83)	4.33 (0.95)	4.37 (0.98)	4.31 (0.96)	5.84 (5, 0.00)***	1-3*; 1-5**; 2-3**; 2-4*; 2-5**; 3-6**; 4-6*; 5-6***
7. Avoidance of obsolescence risk	5.03 (0.81)	4.98 (0.89)	5.07 (0.95)	4.55 (1.02)	4.52 (0.87)	4.27 (0.81)	7.49 (5, 0.00)***	1-4**; 1-5****; 2-5***; 4-6**; 5-6****
8. Access to key IT	5.02 (0.85)	4.83 (0.81)	5.00 (1.01)	4.62 (1.04)	4.42 (0.92)	4.34 (0.87)	5.30 (5, 0.00)***	1-4**; 1-5****; 2-5**; 4-6**; 5-6***
9. Overall satisfaction	5.00 (0.71)	4.89 (0.80)	5.09 (0.94)	4.57 (0.85)	4.44 (0.87)	4.40 (0.88)	6.70 (5, 0.00)***	1-4***; 1-5***; 2-5**; 3-6**; 4-6***; 5-6****
Overall Outsourcing Success	4.94 (0.69)	4.92 (0.70)	5.07 (0.76)	4.54 (0.80)	4.45 (0.80)	4.41 (0.72)	7.79 (5, 0.00)***	1-4**; 1-5***; 2-4**; 2-5***; 3-6**; 4-6***; 5-6****

[a] The measure employs a seven-point-Likert scale from "extremely low" to "extremely high"

****p < 0.001; ***p < 0.01; **p < 0.05; *p < 0.10

Further, table 2 shows that three groups - clusters three, four, and five – depict firms with varying levels or types of non-congruence among outsourcing strategies. Cluster three firms pursue total insourcing, fee-for-service contract, mid-term period, and single vendor strategies. Whereas total insourcing and single vendor strategies are congruent, this pattern is non-congruent with free-for-service contract and mid-term period. Cluster four displays selective outsourcing, fee-for-service contract, and single vendor strategies, which fits with the mid-term period of outsourcing. However, these firms exhibit the short-term outsourcing period leading to a fair degree of non-congruence. Cluster five represents total outsourcing, fee-for-service contract, mid-term period and single vendor strategies. The source of non-congruency for firms in this cluster is their total outsourcing strategies. Table 3 presents the summary of cluster analysis in terms of the four outsourcing strategies.

The objective of this study was that organizations with congruent outsourcing strategies would achieve greater outsourcing benefits than those organizations that lack of such congruence. To do so, one-way ANOVA was used to assess for the differences of outsourcing performance among the six clusters. In terms of both nine items to measure the degree of achieving outsourcing benefits and their summates, the results are shown in Table 4. Columns 2 to 7 display the mean values and the standard deviations of respective outsourcing success measures for each of the six clusters. Column 8 exhibits the F-values, degree of freedom, and significance levels. In columns 9, clusters where the mean values are significantly different from each other are identified and shown.

As in Table 4, the results appear to fully uphold the central thesis of the study. The F-tests indicate that the group means of these six clusters are significantly different on all composite measures of outsourcing benefits. Moreover, the group means also significantly different on the overall outsourcing success. Clusters one, two, and six, which displayed a high congruency among the four outsourcing strategies, appear to have realized high levels of outsourcing success. In other word, these firms in the three clusters show higher mean ratings on all measures of outsourcing benefits as well as overall outsourcing success. Among them, cluster six displays the highest level of meaning ratings on the measures of outsourcing benefits except economies of scale in technical resources (highest in cluster two), control of IT expenses (highest in cluster two), and access to key IT (highest in cluster one). In contrast, firms represented by the remaining three non-congruent clusters (three, four, and five) generally represent lower levels for achieving outsourcing benefits.

5. Discussion and Implications

According to the results obtained from cluster analysis, organizations (clusters one, two, six) with internally congruent combinations of four outsourcing strategies show greater outsourcing success than those (clusters three, four, five) without such congruence, which strongly supports the proposed proposition.

Cluster one represented firms with low-range IT outsourcing. Firms in this cluster want to internally retain most of the management responsibility for IT services. Since they buy resources from a vendor to supplement in-house capabilities but the resources are managed by in-house business and IT management, they need more clear and obvious outsourcing strategies like short-term, buy-in contract, and single vendor. With respect to firms in cluster two, they pursue mid-range IT outsourcing. In this case, they just want to pay a fee in exchange for delivery of specified IT services. Furthermore, the fee-for-service prefers more controllable outsourcing contract period (4 to 7 years) and number of vendor (one vendor). Organizations represented by cluster six have outsourcing strategies opposite those organizations in cluster one. These firms transfer assets, staffs and management responsibilities for IT services to their service providers. This permits the long-term

beneficial relationship between the service receiver and provider. Moreover, considering market opportunities and relationship safety, they combine and utilize several vendors' expertise and resources.

Overall, clusters one, two and six firms appear to be highly congruent and yet strategically different from each other, as indicated in Table 2 and 3. The results further indicate that organizations within these clusters have achieved the higher level of outsourcing success than non-congruent clusters three, four, and five as indicated in Table 4. The results appear to reinforce the concept that the fit or congruence among a set of outsourcing strategies yields greater outsourcing.

The results of this study can be affected by the nature of industry and the size of organizations. Therefore, it is discreet to examine the potential effects of such factors on the relationship of the fit among the four dimensions of outsourcing strategies and outsourcing success. Hence, the study investigated differences among the six clusters in terms of industry representation and organizational size. The results indicate that there are no differences between the firms in the congruent and non-congruent clusters on these two demographic characteristics. Thus, the results of this study are not confounded by these demographics.

One of the interesting results is that cluster six (total outsourcing, partnership, long-term, and multi-vendor) exhibits the highest outsourcing achievement among the three congruent groups. It is inconsistent with a recent research conducted by Lacity and Willcocks (1998). Their findings were that selective, short-term, and fee-for-service outsourcing decisions achieved expected cost savings with a higher relative frequency than other types of outsourcing strategies. The divergent result in findings may be caused by different perspective. While that study mainly focused on each outsourcing strategy, this study examined the fit or congruency among the outsourcing strategies.

With the increasing attention to IT outsourcing, it is imperative that organizations recognize the importance of the congruence among outsourcing strategies to reap the greatest outsourcing benefits. Although the previous studies make great contributions for an effective outsourcing, they could not provide deep understanding about interrelationship among the dimensions of outsourcing strategy since they have primarily focused on each dimension. Therefore, the result of this study provides a meaningful guidance model for organizations in deciding their outsourcing strategies. Further, the congruent outsourcing strategies identified in this study provide organizations with a benchmark against which they can compare their current own outsourcing strategies.

6. Conclusions

The objective of this study were to provide meaningful guidelines about outsourcing strategies for organizations in terms of degree of outsourcing, relationship type, period of outsourcing, and number of vendor by introducing the concept of fit and examining their impacts on outsourcing success. The results of this study show that the congruence among the four outsourcing strategies enables organizations to achieve greater outsourcing benefits than non-congruent combinations. Moreover, among the congruent sets of outsourcing strategies, total outsourcing based on partnership relationship with long-term and multiple vendors enable organizations to reap the greatest outsourcing achievement.

A good deal of research has discussed outsourcing strategies, but such studies handled one or two dimensions of outsourcing strategies respectively and did not consider their combination effects on outsourcing success. Thus, previous research has yielded a variety of sometimes conflicting conclusions. Recently, however, many organizations have begun to interest in formulating effective outsourcing strategies. In this context, this study is both timely and significant. This study is one of earliest attempts to conceptualize fit as gestalt and

empirically validate such a view using cluster analysis. However, being exploratory in nature, it should be considered as setting the stage for further work in outsourcing domain.

There are some limitations associated this study. First, this study was restricted to only four key dimensions for outsourcing strategies. These are not necessarily the only dimensions of importance. Other dimensions can be considered. Second, this study surveyed only the CIO of each organization. While having a high level of confidence in the quality of information gathered, selection bias could still exist due to the single respondent for the antecedent and dependent variables. Finally, the results of this study may include some bias since the sample was restricted to Korea. Hence, the results of this study have to be carefully interpreted.

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