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Lawrence Loh
National University of Singapore

N. Venkatraman
Boston University

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AN EMPIRICAL STUDY OF INFORMATION TECHNOLOGY OUTSOURCING: BENEFITS, RISKS, AND PERFORMANCE IMPLICATIONS

Lawrence Loh

Faculty of Business Administration
National University of Singapore

N. Venkatraman

School of Management
Boston University

Abstract

In this paper, we develop a conceptual model of information technology outsourcing using a set of benefits and risks as determinants and performance as consequences. We then test our model using primary data from a questionnaire survey involving the chief information officers in 159 Fortune 500 corporations, combined with appropriate secondary data from corporate financial statements. Our results show that technical and business benefits as well as control and opportunism risks are critical explanatory factors for outsourcing. In addition, we demonstrate that outsourcing leads to superior performance but this is moderated by cost structure of the firm.

1. INTRODUCTION

The outsourcing of information technology (IT) has recently emerged as an important phenomenon that is accompanied by profound implications for the shape of the new information systems (IS) organization. While the traditional focus of research on the IT function has been internally focused on the relationship between IS and line management (e.g., the centralization-decentralization issue; see King [1983] for a review), the contemporary thrust of this research is beginning to emphasize the external dimension of the organization. This is especially pertinent in view of the need for many firms to acquire IT-based competencies from external sources (Elam et al. 1988).

The significant shift in mode of IT governance was, in fact, proffered in a prognostic article by Dearden (1987), where the IS organization is argued to be "withering away" as end-users gain greater control of their computing environments and, more significantly, as external software specialists take charge of corporate systems development. This radical change in the locus of control for IT responsibility results in an eventual obsolescence of the corporate IS department. A critical impetus underlying this movement has been the economic advantage of software specialists in offering systems solutions at lower costs to corporate clients. Further, as IT gets increasingly sophisticated, corporations need to rely on outside expertise that is more capable in keeping up with leading-edge technologies.

Traditionally, firms manage their IT infrastructure through their in-house IS organizations under what is termed "insourcing." External vendors are involved in limited ways such as supply of hardware and software or operational management on a small-scale contractual basis. Lately, the "outsourcing" of IT has been receiving widespread attention within the IT profession. Related to this trend, the selection of the most appropriate source for IT infrastructure requirements is no longer restricted to the internal IS department, but has been extended to a diverse range of IT vendors such as computer manufacturers, systems integrators, and telecommunications service providers. As aptly summed up in a leading trade periodical,

Nothing is sacred about information technology anymore. Tough times and cutthroat competition are causing many companies to examine spending across the board — including in information systems areas. [Computerworld, September 9, 1991, p. 67]

In line with the recent attention on IT outsourcing as a serious strategic option for corporations, this paper examines the determinants of this form of sourcing based on the perceived benefits and risks as well as the performance implications. For this purpose, we build a conceptual model of outsourcing that is tested with primary data obtained from the chief information officers (CIOs) of 159 Fortune 500 corporations. The thrust of our research model is based on an initial factor analysis of some variables that generated four orthogonal variables: (1) technical benefit; (2) business benefit; (3) control risk; and (4) opportunism

risk. We regressed these variables with alternative measures of outsourcing to discern the corresponding relationships. The next part of the model examines the relationship between firm performance and outsourcing. Accordingly, we performed a test of this relationship with cost structure as a moderator.

Our paper adds to the emerging literature on IT outsourcing that focuses on rigorous economic modeling (Richmond, Seidmann, and Whinston 1992; Whang 1992) and insightful case analyses (Huber 1993; Lacity and Hirschheim 1992). More specifically, this paper extends the existing stream of empirical outsourcing studies of Loh and Venkatraman (1992a, 1992b, 1992c). It develops and tests a conceptual model of outsourcing based on critical benefit and risk determinants; this pushes beyond their cross-sectional model that considers firm-level factors such as cost structure and performance. Further, through its explicit examination of performance impacts with cost structure as a moderator, it provides a further test of their findings that the stock market reacts favorably to the adoption of outsourcing decisions, especially under conditions of high business cost structure and low business performance.

2. OUTSOURCING IN PERSPECTIVE

Outsourcing IT became increasingly significant as rapid advancements in technology renders it exceptionally difficult for firms to cost-efficiently develop the requisite competencies to manage the complex IT function. The diversity and fluctuation of IT requirements associated with end-user departments within the firm make it even more difficult for the IS organization to continually service user needs effectively. Indeed, a radical transformation of the IS organization seems to be in place (Elam et al. 1988). The monolithic centralized IS department is giving way to a streamlined decentralized corporate entity as IT responsibility is increasingly moved toward external vendors.

The recent rise of IT outsourcing is perhaps boosted by the adoption of this administrative practice by large firms. Indeed, the decision made by a Fortune 18 firm, Eastman Kodak, in July 1989, to hand over its entire data center to IBM, its microcomputer operations to Businessland, and its telecommunications and data networks to Digital Equipment Corp. (DEC) and IBM represents a major point of departure for the customary in-house mode of IT governance (Applegate and Montealegre 1991). Due to the prominence of this case, the diffusion of IT outsourcing became more rapid as firms started to consider IT outsourcing as a viable strategic option (Loh and Venkatraman 1992b).

Further, outsourcing has been encouraged by the aggressive push by vendors to win outsourcing contracts. The wide array of marketing efforts used in this respect has been somewhat impressive. For instance, Martin Marietta Information Systems Group ran an advertisement with a creative and certainly thought-

provoking caption: "You don't own a power plant for your electricity....Why own a data center for your information systems?" (Computerworld, June 4, 1990, p. 80). In addition, the extensive and often sensational coverage of outsourcing by the business and trade presses fueled the exploding interest in this strategic recourse.

3. A CONCEPTUAL MODEL FOR IT OUTSOURCING

Beyond the extensive anecdotal affirmation on outsourcing, there is a fundamental need within the IT profession to develop a fuller understanding of the phenomenon based on theory-oriented frameworks and empirical tests. While the conventional wisdom is that outsourcing can be advantageous for the firm, it is necessary for researchers to delineate an adequate yet parsimonious model of this mode of IT governance and to test it rigorously with data obtained from firms. In this spirit, we build an outsourcing model that encompasses both a relevant set of determinants and the performance implications. Figure 1 depicts the model, which is elaborated as follows.

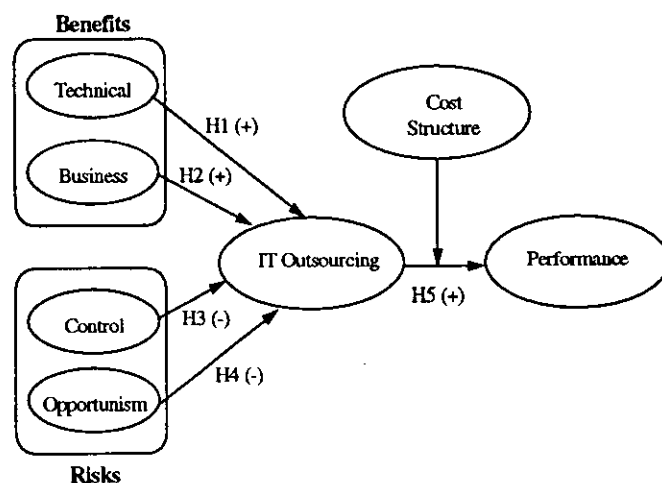


Figure 1. Our Conceptual Model for IT Outsourcing

3.1 Technical Benefit

The technical imperative to acquire IT-based competencies is a widely-cited driver for outsourcing. Traditionally, technology refers to "the information, equipment, techniques, and processes required to transform inputs into outputs in the organization" (Robbins 1987, p. 125). The contemporary view, however, highlights a perspective of "technology as knowledge" (Deiaco, Hornell, and Vickery 1990). Accordingly, this considers the intangible assets and capabilities embodied in the firm's ability to appropriate and benefit from the creation, dissemination, and utilization of know-how (Nelson and Winter 1982).

Because technology, in particular, IT, is a complex and dynamic knowledge resource, firms are often limited in their abilities to be on the leading edge of the technology frontier (Quinn 1992). Further, it is usually costly and inefficient for firms that are undeveloped in their IT capability to be innovative in their implementation of the technology. The acquisition of computing technologies and technical expertise from external sources is a means in response to this need for technological knowledge. Thus:

Hypothesis 1: There is a positive relationship between IT outsourcing and technical benefit.

3.2 Business Benefit

While IT has been traditionally positioned as a purely technical domain that provides administrative support for the corporation, it has recently been established as an integral component of the business strategy (Ives and Learmonth 1984). The effective governance of the IT function is thus intimately linked to an overriding business imperative (Henderson and Venkatraman 1993). In particular, the choice of structural mechanisms to source IT-based competencies is fundamentally rooted in the view to enhance business success in the competitive marketplace.

A key business argument to outsource IT draws from the need for the corporation to focus on core business operations. This relates to core competencies that refer to the collective learning of the corporation and relates centrally on its capability to coordinate diverse production skills and integrate multiple streams of technologies (Prahalad and Hamel 1990). IT may be a critical component in the core competencies of the firm. The management of the IT infrastructure in the information era is indeed a sophisticated activity. Companies are often distracted from their fundamental business strategic thrusts in the marketplace by the ongoing impediments related to the operation of the IT function.

Beside the core competence argument, business drivers to outsource IT also include the basic need to reduce cost of operations. Given the ubiquitous nature of IT that pervades the entire process of transforming input into output (Porter and Millar 1985), the costs associated with a particular IT governance include not only direct technology costs but also indirect costs of supporting the administration of the firm. Thus, a firm with a low cost efficiency will have to consider the available options to reduce its overall level of costs (e.g., materials, labor, marketing, infrastructure) which constitute the business cost structure. This consideration may include reassessing the positioning of its IT infrastructure within the scope of the firm's hierarchy. Here, cost savings can take the specific form of reduction of debt expenses or the more general form of efficiency of the entire business. Hence:

Hypothesis 2: There is a positive relationship between IT outsourcing and business benefit.

3.3 Control Risk

Within the business and IT communities, a major inhibitor that tends to discourage firms from outsourcing IT is the control issue. Firms are, in general, reluctant in shifting the locus of IT competencies toward external suppliers as it means that the decision rights over the assets are vested in vendors that might not share the same goals as the client organization. The crux of the problem of control lies in the agency relationship that develops whenever an outsourcing contract is undertaken between two parties. Agency theory has indeed been advanced as an important conceptual framework to view an economic exchange (see Eisenhardt [1989] for a review).

In the specific context of IT outsourcing, the client becomes the principal while the vendor takes on the role of the agent to whom authority has been delegated. As in any principal-agent setting, problems arise when the goals of the two contracting parties diverge. The crux of the relationship thus lies in the ability of the client to monitor the vendor such that the incidence of goal incongruence is mitigated. To the extent in which this form of control is feasible, there is an inherent risk when IT is being outsourced. For instance, the loss in control may be manifested in the lack of autonomy in decision-making, resource usage, or even security of information assets. Thus:

Hypothesis 3: There is a negative relationship between IT outsourcing and control risk.

3.4 Opportunism Risk

While control risk considers the inability of the client to enforce adequate performance and goal alignment by the vendor, there is another form of risk that relates to the possibility of deliberate opportunistic behavior by vendors. In any business relationship, there is no guarantee that a supplier would not indulge in self-serving behavior before and after the contract is signed.

Indeed, the potential of nuances in any dyadic is a most powerful consideration in the formation of any buyer-seller relationship. These problems at the interorganizational level constitute the thrust of the transaction cost paradigm (Williamson 1975, 1985). Along a broad view, transaction costs refer to the costs connected to the exchange of goods or services across the boundary of the firm. These include the costs of negotiation, monitoring, and enforcement in the contract between the participants of the relationship. Accordingly, the firm exists as a direct consequence of market failure, more specifically, in instances where the transaction costs associated with the market alternative are too high. The transaction constitutes the fundamental unit of organizational analysis and the focus of the transaction cost tenet is the selection of the most efficient governance mechanism.

In the specific setting of IT outsourcing, transaction costs are prevalent when vendors engage in opportunistic behavior. This would then be a significant risk for the client before, during, and after the outsourcing agreement process. The risk of opportunism is especially pertinent given the extensive and complex range of details and contingencies for IT-based contracting (see Brandon and Halvey 1990). For instance, such behavior may involve a biased portrayal of outsourcing advantages (i.e., misrepresentation), a subsequent over-dependence on specific vendors (i.e., "lock-in"), or a violation of terms of contract (i.e., breach). Therefore:

Hypothesis 4: There is a negative relationship between IT outsourcing and opportunism risk.

3.5 Performance Implications

Within a traditional notion based on "make-versus-buy," the stylized view is that a firm evaluates the total costs of maintaining the IT in-house (i.e., insourcing) relative to those of moving it out to vendors (i.e., outsourcing). Thus, the firm selects the most efficient mode of governance to organize its productive activities. Such a choice involves a minimization of all costs at the levels of the firm (client) as well as the dyad (client-vendor); this is synonymous to the maximization of profits.

In the specific context of IT outsourcing, efficiency-based reasonings have been a critical basis for the strategic management of IT. The thrust of our argument is that firms, in general, consider the set of benefits and risks, as stipulated earlier, in making sourcing choices. When the benefits for outsourcing outweigh the accompanying risks, the firm can advantageously seek a vendor to manage its IT. Thus, we maintain that IT outsourcing is positively related to performance (see also Loh and Venkatraman [1992c] which demonstrates a favorable stock market reaction to outsourcing).

However, a general contention that outsourcing unconditionally results in superior performance is unsound. If that is so, all firms should outsource their IT. We argue that the performance impact of outsourcing is moderated by the cost structure of the firm. Our basic argument follows Loh and Venkatraman (1992a, 1992c), which establishes a positive relationship between cost structure and IT outsourcing. Accordingly, the business cost structure is a fundamental component within the competitive strategy of a firm. In the setting of a competitive marketplace, the relative costs of producing and selling the goods critically affect a firm's business success.

When the cost structure is unfavorable, the firm faces the need to restructure its business so as to maintain or regain its fundamental sources of competitive advantage. This may involve a reconfiguration of its organizational infrastructure, including the mode of governing the IT activities. Further, Keen (1991) and

Strassmann (1990) assert that IT is an important business resource with strong implications for its overall cost structure. In other words, the ability to improve performance through IT outsourcing is influenced by the firm's prevailing cost structure. Firms that have an unfavorable cost structure tend to be able to improve their performance through outsourcing. Thus:

Hypothesis 5: There is a positive relationship between performance and IT outsourcing, moderated by cost structure.

4. METHODS

4.1 Data

Our research utilizes primary data derived from a questionnaire administered to the CIOs of the participating corporations as well as secondary data obtained from corporate financial statements. In first phase of our data collection, we wrote to the chief executive officers (CEOs) of the Fortune Industrial and Service 500 corporations with an invitation for them to participate in our study. The CEOs were requested to provide the names of the CIOs (or an equivalent senior manager). To mitigate any selection bias from companies that have or have not outsourced or are considering whether to outsource, our research project was entitled "Study on Information Technology Strategy." The final result was a set of 226 corporations that agreed to participate.

In the second phase, we mailed our instrument directly to the CIOs of these corporations. In this correspondence, we emphasized that their corporations had agreed to participate in our study through the office of the CEO. In addition, these CIOs were specially nominated by their CEOs as the most knowledgeable managers for the study. To further encourage response, we indicated that the participants would be invited for a special symposium as well as receive an executive report, both of which would be useful for their company in the strategic management of IT. We obtained useable responses from 159 CIOs, representing a return rate of 70.4%.

4.2 Key Informant Considerations

In most primary data collection processes, the use of key informants is a crucial component of the research design (Phillips and Bagozzi 1986). Here, the respondents of the survey are asked to provide information pertaining to the unit of analysis; in other words, they are required to furnish details of organizational characteristics that may involve aggregation and interpretation. Traditionally, researchers have ascribed three sources of validity threats in the use of key informants, namely: (1) motivational barrier; (2) perceptual and cognitive limitations; (3) lack of information (Huber and Power 1985).

We mitigated these threats as follows: First, our study reduced motivational barrier by indicating to the respondents that they had been specially chosen by the CEO. We also provided an assurance of confidentiality. As mentioned before, we encouraged participation by stating that all respondents would be invited for an IT strategy symposium and would receive a managerial report. Second, we minimized perceptual and cognitive limitations through detailed pretesting prior to the survey. The pretest helped in the development of the specific questions in the survey in terms of both content and format. It involved twelve practitioners from various user, vendor, and consulting corporations who were potential respondents or are familiar with our research topic as well as ten academicians who were experts in survey methodology or IT strategy. Third, the lack of information was circumvented by the use of the most knowledgeable senior managers as identified by the CEO. The typical respondent for the study is the CIO of the corporation; in cases where there is no CIO, the respondent is typically the vice-president for information systems or the most senior IT director.

4.3 Analysis

The test of our conceptual model involved two sets of multiple regression. The first phase considered the effects of the determinants — benefits and risks — on IT outsourcing. We had a total of twelve indicators for the benefits and risks. To mitigate the potential problems of multicollinearity, we obtained orthogonal determinants through a factor analysis of these indicators. In this respect, we used the scores derived from a factor rotation for the regression with three alternative measures of outsourcing. The second phase examined the performance implications of outsourcing. Our analysis here involved a moderator, cost structure, that forms a multiplicative term with outsourcing. This interactive variable was then used for the regression with two measures of performance.

4.4 Operationalization

The detailed operationalization of the determinants — technical benefit, business benefit, control risk, and opportunism risk — is shown in the appendix; this takes into consideration the results of our factor analysis. Essentially, the respondents were asked to rate the relevance of a set of benefits and risks in the context of their firm. For technical benefit, the key impetuses to outsourcing may entail access to critical technologies, expertise, or technological innovations. For business benefit, these may include the need to focus on core businesses as well as cost savings in operations and financing. For control risk, the major inhibitors of outsourcing may encompass the loss of control in decision-making, in use of resources, or in security of information assets. For opportunism risk, these may involve vendor-based nuances such as biased representation of deliverable advantages, breach of contract, and excessive dependence of specific IT suppliers.

The outsourcing variable was operationalized in three ways. One, the CIOs were requested to rate the overall degree of outsourcing for three important IT domains — application development, data center management, and telecommunications/network management — with reference to their counterparts in the same industry. Our measure was constructed as the average of the degree of outsourcing in the three domains. Two, the CIOs were asked to rate the change in the degree of outsourcing for the three domains over the last three years. Again, we developed a measure based on the average of the domains. Three, we formed a ratio of outsourcing expenditures with the total IT expenditures using the figures provided by the CIOs.

As for performance, we used objective data obtained from Standard and Poor's Compustat. This mitigates the disadvantage of perceptual evaluation that might be potentially supplied by the key informants. We employed two measures of performance. First, we applied a hybrid market-based measure of performance through the ratio of the average market value with the book value for the fiscal year ending after the survey was administered. This approach is consistent with Loh and Venkatraman (1992c), which considers the impact of outsourcing on market value of firms. Second, we utilized a pure accounting-based measure of performance, namely, return on equity. This is the ratio of net income with shareholder equity and is in line with previous studies that examine the relationship between performance and outsourcing (Loh and Venkatraman 1992a).

In examining the effects of outsourcing on performance, we have postulated a moderating influence from the firm's cost structure. Following Loh and Venkatraman (1992a), this cost structure is operationalized as the sum of the cost of goods sold and the selling, general, and administrative expenses normalized by firm size. Further, interactive variables are constructed to account for the moderating effects of cost structure. As in standard regression analyses involving interaction, such variables are formed by the multiplication of the appropriate outsourcing variable with the cost structure variable.

5. RESULTS

The results pertaining to the factor analysis of the determinants and risks are shown in Table 1. This analysis is based on a principal component method and a varimax factor rotation. Four factors were extracted and these corresponded to the benefit and risk determinants developed in our conceptual model. These are (1) technical benefit (eigenvalue = 3.31); (2) control risk (eigenvalue = 2.39); (3) opportunism risk (eigenvalue = 1.32); and (4) business risk (eigenvalue = 1.12). We used the factor scores derived from this analysis as determinants for the multiple regressions with outsourcing.

Table 2 summarizes the descriptive statistics — mean, standard deviations, and correlations. Interestingly, we observe that the

Table 1. Factor Analysis Results

	Factor 1	Factor 2	Factor 3	Factor 4
	Technical Benefit	Control Risk	Opportunism Risk	Business Risk
Eigenvalue	3.313	2.386	1.319	1.116
Cum. Prop. Of Var. Explained	0.276	0.475	0.585	0.678
Indicators	Rotated Factor Pattern			
Benefit #1	0.8479	0.0089	-0.0789	0.1155
Benefit #2	0.8918	0.0338	-0.0696	0.0301
Benefit #3	0.8179	-0.0982	-0.0510	0.1512
Benefit #4	0.4711	-0.3001	0.1051	0.5632
Benefit #5	-0.0379	0.1827	-0.1748	0.8361
Benefit #6	0.2802	-0.2171	0.1309	0.7480
Risk #1	-0.0828	0.8326	0.2778	0.0462
Risk #2	-0.0317	0.8726	0.0738	-0.1164
Risk #3	0.0193	0.6475	0.3109	-0.0424
Risk #4	-0.0102	0.2800	0.7303	0.1076
Risk #5	-0.1189	0.2064	0.6046	0.0155
Risk #6	-0.0242	0.0625	0.7988	-0.1191

Note: See the appendix for the full definition of the indicators for benefits and risks.

average degree of outsourcing is below 4 on a Likert seven-point scale but the average change in outsourcing in the last three years is greater than 4. This is an indication that IT outsourcing is expected to increase with respect to time. From the correlation matrix, we can see that the directionalities of the correlations all conform to our expectations; these correlations are also generally significant. Interestingly, the correlation of the two performance measures — market value-book value and return on equity — is not strong; this may reflect the very different nature and thrust of the indicators.

In Table 3, we depict the results pertaining to the three sets of multiple regressions for alternative measures of outsourcing as dependent variables. We can see that Hypotheses 1 to 4 are supported and the results are robust across different regressions. Table 4 (a, b, c) presents the regression results for discerning the performance implications of outsourcing. All six regression coefficients are significant in the expected direction. Based on these coefficients, support for Hypothesis 5 is suggested.

6. DISCUSSION AND CONCLUSION

Scholarly works in IT outsourcing are in the formative stage. On the theoretical side, the research has been rooted in the economic concept of rationality and optimality. Richmond, Seidmann and

Whinston build an incomplete contracting model for IS development outsourcing that is based on corporate decision makers adopting rational investment choices. Whang uses a game-theoretic model to show that outsourcing can be an optimal outcome aligning incentives of the contracting parties under asymmetric information.

On the empirical side, outsourcing research takes on two directions. First, it adopts an interpretive approach in examining the qualitative aspects of the phenomenon. In this respect, Lacity and Hirschheim employ a multiple case study methodology to dispel several conventional myths associated with outsourcing. Huber illustrates the decision-making process of outsourcing for a major bank. Second, the research utilizes a positivist approach in understanding the phenomenon based on a statistical analysis of large samples. For instance, the stream of research by Loh and Venkatraman (1992a, 1992b, 1992c) applies secondary data to investigate (1) the determinants of outsourcing using a cross-section of firms, (2) the diffusion of outsourcing using a longitudinal examination of adoption influences, and (3) the impact of outsourcing decisions on the market value of firms.

This paper is in line with the positivist thrust of empirical research. However, it differentiates itself from the existing studies

Table 2. Descriptive Statistics

Table 2(a)

	Mean	Std. Dev.	Correlations		
			Ave. Degree of Outsourcing	Ave. Change in Outsourcing	Ratio of Outsourcing
Ave. Degree of Outsourcing	3.3753	1.2910	1.0000		
Ave. Change in Outsourcing	4.3517	0.8507	0.3574***	1.0000	
Ratio of Outsourcing	0.0962	0.1604	0.4297***	0.3243***	1.0000
Technical Benefit	-0.0239	0.9850	0.1905*	0.3024***	0.1605*
Business Benefit	-0.0037	1.0244	0.3262***	0.0328	0.3001***
Control Risk	-0.0717	0.9966	-0.1864*	-0.1869*	-0.2129**
Opportunism Risk	0.0677	0.9683	-0.1184+	-0.1369+	-0.2713***

Table 2(b)

	Mean	Std. Dev	Correlations	
			Market Value-Book Value	Return on Equity
Market Value-Book Value	0.6444	0.7866	1.0000	
Return on Equity	0.0522	0.3267	0.1067	1.0000
Outsourcing Degree * Cost Structure	2.7144	2.8479	0.2015*	0.1347+
Outsourcing Change * Cost Structure	3.4532	3.0535	0.2554**	0.1501+
Outsourcing Ratio * Cost Structure	0.0612	0.1174	0.1281+	0.2644**

Note: +p < 0.1; *p < 0.05; **p < 0.01; ***p < 0.001

Table 3. Benefit and Risk Determinants of Outsourcing

	Average Degree of Outsourcing		Average Change in Outsourcing		Ratio of Outsourcing Expenditures	
	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error
Technical Benefit	0.2538**	0.1072	0.2662**	0.0722	0.0268*	0.0130
Business Benefit	0.3947***	0.1032	0.0144	0.0695	0.0441**	0.0125
Control Risk	-0.2271*	0.1061	-0.1650*	0.0714	-0.0322**	0.0129
Opportunism Risk	-0.1424+	0.1091	-0.1146+	0.0734	-0.0431**	0.0132
Constant	3.3762***	0.1057	4.3542***	0.0712	0.0976***	0.0128
R ²	0.1844		0.1483		0.2242	
F	6.865***		5.309***		8.813***	
N	127		127		127	

Note: +p < 0.1; *p < 0.05; **p < 0.01; ***p < 0.0001

Table 4. Performance Implications of Outsourcing

Table 4(a)

	Market Value-Book Value		Return on Equity	
	Mean	Std. Error	Mean	Std. Error
Outsourcing Degree * Cost Structure	0.0557*	0.0256	0.0154+	0.0107
Constant	0.4933***	0.1003	0.0103	0.0421
R ²	0.0406		0.0181	
F	4.739*		2.069	
N	114		114	

Table 4(b)

	Market Value-Book Value		Return on Equity	
	Mean	Std. Error	Mean	Std. Error
Outsourcing Degree * Cost Structure	0.0658**	0.0235	0.0161+	0.0100
Constant	0.4173***	0.1083	-0.0032	0.0460
R ²	0.0652		0.0225	
F	7.812**		2.580	
N	114		114	

Table 4(c)

	Market Value-Book Value		Return on Equity	
	Mean	Std. Error	Mean	Std. Error
Outsourcing Degree * Cost Structure	0.8586+	0.6278	0.7358**	0.2536
Constant	0.5919***	0.0828	0.0072	0.0335
R ²	0.0164		0.0699	
F	1.870		8.418**	
N	114		114	

Note: +p < 0.1; *p < 0.05; **p < 0.01; ***p < 0.001

by getting access to primary data generated through a questionnaire survey. Thus, being a first study in this respect, it adds significantly to the outsourcing literature. In fact, the results obtained pertaining to our conceptual model have been very encouraging, judging from the strong support for the five hypotheses.

Specifically, we have demonstrated that both technical and business benefits are significant motivators of outsourcing. This implies that firms adopt outsourcing whenever they can maximally leverage from this mode of IT governance in terms of technical and business benefits. We have also shown that both control and opportunism risks are significant inhibitors of

outsourcing. This indicates that outsourcing can be discouraged whenever firms cannot effectively maintain control of the relationships or are subject to vendor-based nuances. In addition, our results lend credence to those of Loh and Venkatraman (1992c) since we have found that outsourcing is associated with favorable firm-level performance, moderated by cost structure.

The overall thrust of our results suggests that outsourcing has been effectively exploited, at least in the descriptive sense. Firms do consider the relevance of particular benefits in making choices in the level of outsourcing; at the same time, they are also aware of the risks that accompany this mode of IT sourcing. Considering that our study indicates the importance of out-

sourcing as a serious mode of IT governance, there might be broader implications for the future shape of the IT organization

First, while vendors have traditionally been considered as “arm’s length” suppliers of IT products and services, the performance improvement potential of outsourcing tends to point to the need to coopt external partners in delivering the required IT competences. Most of the existing agreements have, however, been predicated on the underlying logic of a dichotomous choice of whether to make (i.e., insourcing) or to buy (i.e., outsourcing). Accordingly, firms merely have to select the appropriate source for IT requirements; in other words, they make a decision in “rightsourcing.”

We propose that firms might need to move away from a make-versus-buy perspective. For instance, they could adopt a portfolio of relationships with external vendors that include strategic partnerships (Henderson 1990). The rationale for this approach is a basic recognition of the need to implement long-term governance mechanisms with key vendors that go beyond the supply of resources but encompass a wider influence in the business mission of the user firm. In this light, we believe that the emphasis for the new IS organization could change from the old “rightsourcing” mode to an emerging “cosourcing” mode. Given that it is unrealistic to expect the IS organization to be able to furnish all corporate IT requirements alone, it is necessary for the firm to be continuously formulating and implementing a partnering practice for governing its IT function. Within the cosourcing viewpoint, the future IS organization has to develop the important capability of maintaining good suppliers and, more fundamentally, of being a good customer.

Second, our study suggests that the external dimension to the IS organization is emerging to be equally critical beside the traditional emphasis on the internal domain (i.e., centralization-decentralization issue). Consistent with Dearden’s provocative prediction that the IT organization is withering away due to the shifting of IT-based responsibilities, our results suggest that the mode of IT governance is undergoing elementary transformations. In one extreme, the traditional monolithic IS organization as a core provider for corporate information requirements is giving way to an organizational entity characterized by a nexus of governance arrangements with vendors. With the obfuscation of the physical separation of the IS organization with the external environment, the boundaries have become blurred. In line with Rockart and Short (1991), it seems that the future IS organization is changing into a networked institution, or more radically, into a “virtual” organization.

Given this possible restructuring of the posture of the IS organization, what does it mean for the IS field? The implication is that it would require a whole new way of looking at the IS organization. We have to change our traditional association of the IS organization as a “glasshouse” to that of perhaps a

“clearing house” where relationships are continuously formed and shaped. The management of the IS organization in the next century would then demand a totally new skill set. Beyond the technical knowledge of today, the IS professional of tomorrow needs to be well-versed in the management of relationships. Above all, the job would entail the “soft skills” in human relations more than the “hard skills” of technological operations.

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Appendix

Details of Operationalization

Technical Benefit

Benefits #1 to #3:

Outsourcing has been said to be beneficial for firms. However, not all benefits may be applicable to every firm. How relevant (or irrelevant) are the following *benefits* of outsourcing for your firm?

	Irrelevant						Relevant
Access to critical computer technologies	1	2	3	4	5	6	7
Access to technical expertise	1	2	3	4	5	6	7
Promoting innovation in IT usage	1	2	3	4	5	6	7

Business Benefit

Benefits #4 to #6:

Outsourcing has been said to be beneficial for firms. However, not all benefits may be applicable to every firm. How relevant (or irrelevant) are the following *benefits* of outsourcing for your firm?

	Irrelevant						Relevant
Focus on core business operations	1	2	3	4	5	6	7
Reduction of debt financing	1	2	3	4	5	6	7
Savings in operating the entire business	1	2	3	4	5	6	7

Control Risk

Risks #1 to #3:

The risks of outsourcing affect firms in different degree. How significant (or insignificant) would the following be considered as potential *risks* in IT outsourcing for your firm?

	Insignificant Risk			Neutral			Significant Risk
Loss of autonomy in decision making	1	2	3	4	5	6	7
Loss of control over resources	1	2	3	4	5	6	7
Loss of security over computer assets	1	2	3	4	5	6	7

Opportunism Risk

Risks #4 to #6:

The risks of outsourcing affect firms in different degree. How significant (or insignificant) would the following be considered as potential *risks* in IT outsourcing for your firm?

	Insignificant Risk			Neutral			Significant Risk
Breach of contract by vendors	1	2	3	4	5	6	7
Dependence on specific vendors	1	2	3	4	5	6	7
Biased portrayal of benefits by vendors	1	2	3	4	5	6	7

Outsourcing

Outsourcing #1:

How do you rate the *overall* degree of outsourcing for the following specific IT areas in your firm?

	Low relative to other firms in our industry			Same	High relative to other firms in our industry		
Loss of autonomy in decision making	1	2	3	4	5	6	7
Loss of control over resources	1	2	3	4	5	6	7
Loss of security over computer assets	1	2	3	4	5	6	7

(This measure is computed as the average of the 3 scores).

Outsourcing #2:

How has the outsourcing of IT requirements *changed* for the following specific IT areas in your firm?

	Decreased over last 3 years			Same	Increased over last 3 years		
Application development	1	2	3	4	5	6	7
Data center management	1	2	3	4	5	6	7
Telecoms/network management	1	2	3	4	5	6	7

(This measure is computed as the average of the 3 scores)

Outsourcing #3:

Please provide the following information on your firm:

(a) annual *total* it expenditures _____

(b) annual *outsourcing* expenditures _____

(This measure is computed as the ratio of the 2 expenditure levels.)