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Abstract

This paper proposes a research model for defining and measuring information technology outsourcing risks. The model is based on transaction cost and agency theory as well as on IT outsourcing literature. Risk is defined here as a set of triplets composed of scenarios, their likelihood and consequences. It draws on the behavioral perspective, which associates risk with the magnitude of a negative consequence of a decision. A survey is being conducted to test the model.

Keywords: Outsourcing of IS, IS risk management.
ISRL Categories: EL07, EL08

INTRODUCTION

The reliance on outsourcing as a means of providing information technology (IT) services has been growing steadily during the past decade. It was recently estimated that the outsourcing market would reach US$ 120 billion in 2002 (Willcocks et al. 1999). The fact that firms increasingly turn to external suppliers to meet their IT needs does not mean that outsourcing is a panacea, nor that it is without inconveniences. It has been shown that IT outsourcing may help achieve benefits such as cost savings, increased flexibility, better service quality, and access to new technology (McFarlan and Nolan 1995). However, unsuccessful outsourcing experiences are often reported, wherein suppliers fail to meet expected service levels and to ensure the expected cost savings (Earl 1996; Lacity and Willcocks 1995). While a number of studies have adopted a risk management perspective to analyze IT outsourcing and have provided useful insights into the phenomenon (Aubert et al. 1998, 1999, 2001; Willcocks et al. 1999), systematic studies on the conceptualization and measurement of IT outsourcing risk have been called for (Willcocks et al. 1999). Doing so was the primary motivation of our study. After providing a conceptual definition of risk, this paper presents the theoretical background of our IT outsourcing risk model, describes the research method, and outlines the expected contributions of the study.

THEORETICAL BACKGROUND

Risk can be defined from two different perspectives (March and Shapira 1987). The first is the decision theoretic view in which risk reflects the variance of the gains and losses associated with a particular alternative. The second is the behavioral perspective, which associates risk with the magnitude of a negative consequence of a decision. In this view, a risky choice is one that contains a threat of poor performance. According to March and Shapira, most managers do not treat uncertainty about positive outcomes as an important aspect of risk; rather, they focus on the negative portion of the outcome distribution. Several risk definitions and risk management methods have adopted such a perspective, taking into account the negative consequences of a business decision, their likelihood, and their associated impacts (Aubert et al. 1998, 1999, 2001; Barki et al. 1993). This perspective was adopted for the present study.

To capture the components of risk, we followed Kaplan and Garrick (1981), who conceptualize risk as a set of triplets composed of scenarios (s_i – what can happen?), the likelihood of each scenario (p_i – how is it likely to happen?), and the consequences of each (x_i – the measure of damage)—see Figure 1. Some domains of study, such as insurance, estimate the likelihood of a given scenario from past performance. In other areas, this is not feasible. In such circumstances, risk assessment methods approximate the likelihood of a scenario by identifying and assessing factors—labeled risk factors—that, if they are present, will increase its likelihood (Aubert et al. 1998, 1999, 2001; Barki et al. 1993). This approach was adopted here.

Likelihood	Scenario	Consequence
p_1	s_1	x_1
p_n	s_2	x_2
.	.	.
p_n	s_n	x_n

Figure 1. Risk as a Series of Triplets (Kaplan and Garrick 1981)

A review of the IT outsourcing literature and of transaction cost and agency theory literature led to the identification of two main negative consequences and four main scenarios associated with IT outsourcing. Cost escalation and service debasement are the two most often cited negative consequences of IT outsourcing (Aubert et al. 1998, 1999, 2001; Earl 1996; Lacity and Hirschheim 1993). Costs escalation refers to all inflated costs incurred in the completion of the IS operation which overrun originally contracted costs. Service debasement refers to any decrease in the level of services originally contracted. The four scenarios associated with these consequences are: lock-in, costly contractual amendments, unexpected transition and management costs, and disputes and litigations. Each of the related triplets will be examined in turn.

Scenario 1: Lock-in

Likelihood	Scenario	Consequences
○ Asset specificity ○ Small number of suppliers	○ Lock-in	○ Cost escalation ○ Service debasement

Scenario. A lock-in occurs when a client cannot get out of the relationship without sacrificing part or all of its assets to a supplier. Because of the opportunistic behavior of the supplier to extract a quasi-rent from the client, costs of safeguarding contractual agreements will occur (Grossman and Hart 1986).

Likelihood. Relationship-specific assets are investments that have a much higher value within the relationship than outside (Joskow 1990). If one party were to breach the contract, the value of the investments would fall, creating a lock-in effect (Walker and Poppo 1991). In addition, if there are few suppliers available for the client, the bargaining power of the supplier increases (Walker and Weber 1984).

Scenario 2: Costly Contractual Amendments

Likelihood	Scenario	Consequences
○ Uncertainty	○ Costly contractual amendments	○ Cost escalation ○ Service debasement

Scenario. Costly contractual amendments refer to any redrafting of part or all of the clauses of the contract. Because contracting parties cannot foresee all possible states of the world, they will rely on an incomplete contracts and any amendments will be at a cost (Walker and Weber 1984).

Likelihood. An increase in uncertainty provides the incentive for opportunistic behavior by the supplier when contract clauses should be amended to reflect new circumstances (Pilling et al. 1994; Walker and Weber 1984).

Scenario 3: Unexpected Transition and Management Costs

Likelihood	Scenario	Consequences
○ Uncertainty ○ Degree of the client's expertise with the operation ○ Degree of the client's expertise with outsourcing contracts ○ Relatedness	○ Unexpected transition and management costs	○ Cost escalation ○ Service debasement

Scenario. Unexpected transition and management costs refer to hidden and/or miscalculation of incurred costs (Lacity and Hirschheim 1993). Transition costs include setup costs, redeployment costs, relocation costs, transferring equipment and leases, etc. Management costs include the human resources that have to be put into managing an outsourcing contract (Klepper and Jones 1998).

Likelihood. Clients with little expertise with the outsourced operation and/or outsourcing contracts may incur unexpected transition and management costs (Aubert et al. 1999; Klepper and Jones 1998). Clients may also underestimate the importance of coordinating interrelated activities for achieving superior performance (Earl 1996; Milgrom and Roberts 1992).

Scenario 4: Disputes and Litigation

Likelihood	Scenario	Consequences
○ Degree of the client/supplier's expertise with outsourcing contracts ○ Measurement problems ○ Degree of the supplier's expertise with the operation	○ Disputes and litigation	○ Cost escalation ○ Service debasement

Scenario. Disputes and litigation refer to controversies concerning the representation of the contracting parties in negotiating, fixing, maintaining, changing, or seeking to arrange terms or conditions of the contract, and the process of bringing and pursuing a lawsuit (Klepper and Jones 1998).

Likelihood. The parties may argue on the quality of the measurements instruments used and the evaluation criteria chosen (Aubert et al. 1999; Earl 1996). Disputes may also be the result of misrepresentation of obligations by the IT supplier (Klepper and Jones 1998).

RESEARCH METHOD

The Research Model

The four scenarios described above are certainly not "acts of God." They are within the limits of "feasible" control by the client. Therefore, they can be acted upon by using risk mitigation mechanisms that influence their likelihood, or help avoid them all together (Lyytinen et al. 1998). Hence, risk assessment is meaningful only if the likelihood of a scenario is moderated by a would-be-effective mitigation intervention. In other words, risk measurement requires that these mechanisms are taken into account (see Figure 2). The literature review led to the identification of seven main mitigation mechanisms which may influence the likelihood of the four scenarios in outsourcing IT (see Figure 3).

First, uncertainty and specific investments combined with a sole sourcing may expose the client to a lock-in scenario (Klein et al. 1978). Hence, to influence the likelihood of this scenario, a client may use reciprocal exposure to specific assets (Koss and Eaton 1997) and dual sourcing (Richardson 1993). Second, under conditions of high volatility and to avoid costly contractual

amendments, parties are likely to develop sequential relationships (Heide and John 1988) and they may leave certain parts of a contract open for renegotiation (Harris et al. 1998). Third, when bounded rationality and opportunism are combined with asymmetries in information, perceptions of inequity may arise (Ouchi 1980). Sometimes, the measurement of behavior, outcome, or both may be impossible (Eisenhardt 1989). Thus, clan mechanisms (Ouchi 1980) through socialization and shared organizational norms and values as well as the use of impartial arbitrators (Klepper and Jones 1998) are recommended. In addition, to prevent disputes and litigation, hiring external technical and legal expertise may be needed (Lacity and Hirschheim 1993).

Figure 2. Risk Measurement Model

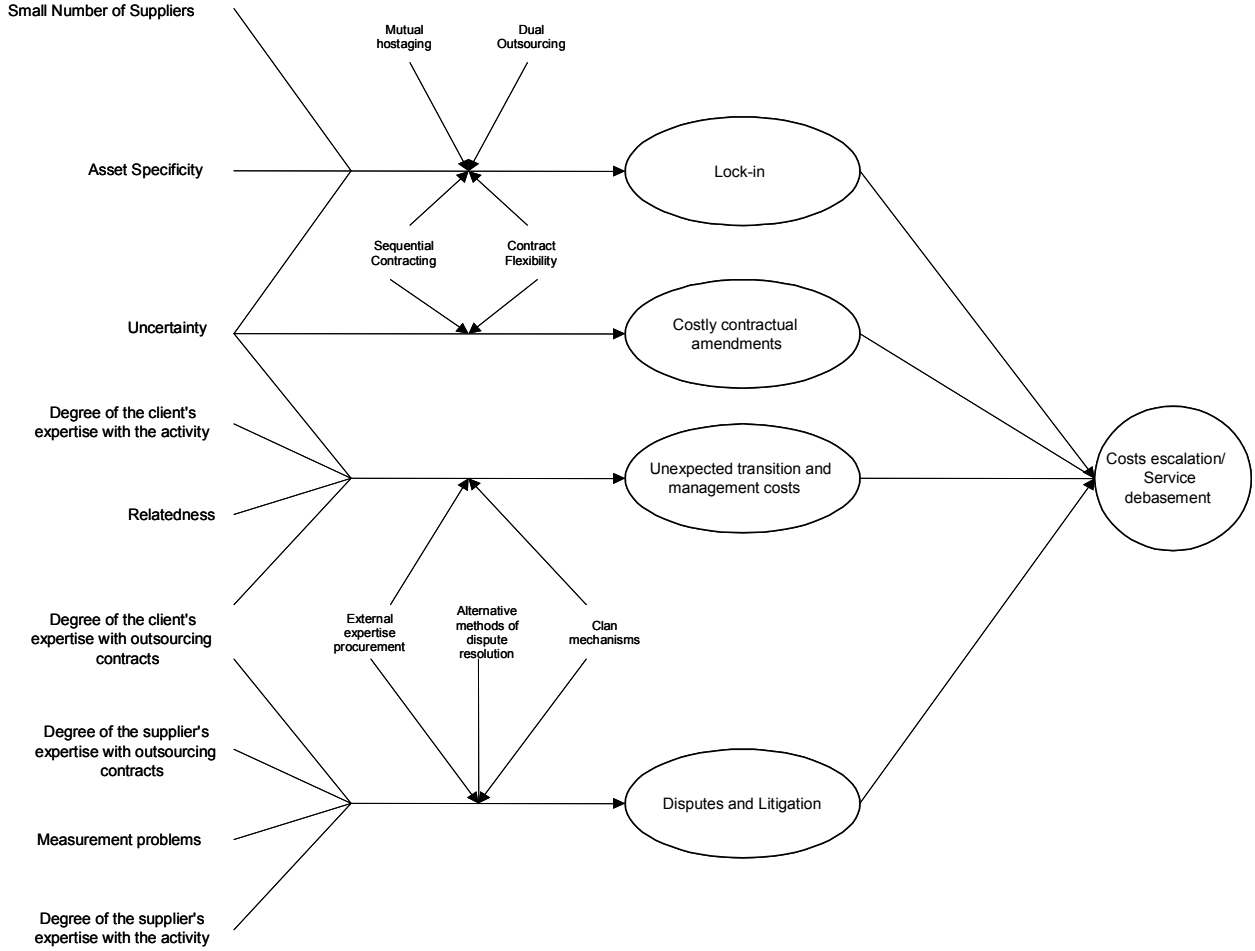

Figure 3. Extended Risk Measurement Model

The Survey

Data were gathered through a survey which sought responses from senior IS executives. To test the research model, we used measures previously validated and we developed new measures based on the literature review. For the latter, we used a card sorting procedure, with ten judges, in a preliminary assessment of construct validity (Moore and Benbasat 1991). Kappa coefficient was used as a measure of the level of agreement in placing items within the target construct. Scores greater than 0.65 are acceptable. We found Kappa to be .88. A pilot test (n = 10) was conducted to gain additional feedback about the questionnaire instrument. Selected respondents were involved directly or indirectly in the management of the outsourcing contract within a time frame of the contract. This study was concerned with the outsourcing of IT operations, defined as any one or a combination of data center operations, network management, system integration, maintenance, disaster recovery and so on (Nam 1995), rather than on system development or integration activities.

IS executives from 1,250 Canadian firms were contacted by phone. Of the 390 who accepted the invitation to participate in our study, 131 completed and returned the questionnaire. Non-response bias will be assessed using T-tests between early respondents' and late respondents' answers. In addition, assets, number of employees, annual sales, and industry sector of operation of participating and non-participating firms are to be compared using T-tests.

Assessment of the research model will be conducted using partial least squares (PLS). Internal item loadings and internal consistency reliabilities will be examined as a test of reliability. For discriminant validity, items should load higher on their own construct than on other constructs in the model, and the average variance shared between the constructs and their measures should be greater than the variances shared between the constructs themselves. Then, we will test our research model and hypotheses by examining the path coefficients as well as the explained variance in the dependent constructs as an indication of model fit.

EXPECTED CONTRIBUTIONS

This study adds value in two ways. First, it contributes to a better understanding, in a systematic manner, of how IT outsourcing risk is defined and measured. Second, it provides a formal tool for the assessment of IT outsourcing risks. The data collection has just been completed and its analysis is underway. At the conference, we will present the results of the survey study and their theoretical and practical implications.

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