



A transaction cost model of IT outsourcing

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Abstract

This paper proposes and tests an explanatory model of information technology (IT) outsourcing behavior. Relying on transaction costs and incomplete contracts theories, the model hypothesizes that characteristics of IT operation activities—asset specificity, uncertainty, business skills, and technical skills required to perform the activities—will influence the level of their outsourcing. The model was tested using data from a survey of 335 firms. Results indicate that uncertainty is the major deterrent to outsourcing, while the level of technical skills is the most important reason to outsource. Business skills do not seem to play a significant role. Finally, asset specificity, which is always presented as a constraint to outsourcing, showed inconsistent effects. © 2003 Elsevier B.V. All rights reserved.

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1. Introduction

The information technology (IT) outsourcing phenomenon has been expanding during the past decade and this growth is likely to continue [36]. Outsourcing deals are becoming larger and often involve partners, including offshore suppliers [32]. The relationships implied in outsourcing arrangements are increasingly complex. For example, while acting as client and supplier, Xerox and EDS were engaged in a legal battle on some aspects of their agreement, but they acted as business partners to collaborate on ventures, such as the State of Connecticut's US\$ 1 billion outsourcing deal [21].

Researchers have analyzed IT outsourcing from several angles. Some authors compare outsourcing

to insourcing [15]. Some evaluate if and how in-house services could be reorganized to provide firms with benefits similar to those of outsourcing [12,17]. Others focus on the client–supplier relationship, analyzing its characteristics, its partnership quality, and the impact of these on outsourcing success [19]. Some studies analyze IT outsourcing with a political or social lens, providing alternative explanations (different from economic motives) for outsourcing decisions [16]. Finally, a number of researchers focus on the determinants of outsourcing, that is, on those variables that will influence the outsourcing decision [20,28].

Our study fits in this last group. As IT outsourcing continues to expand, firms have to decide which types of activities are good candidates for outsourcing and which should be kept in-house. Relying on transaction costs and incomplete contracts theories, our study examined the influence of IT operation activities characteristics—asset specificity, uncertainty, business skills, and technical skills required to perform

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the activities—on the level of outsourcing of these activities, in 335 firms.

2. Theoretical background

Outsourcing is the handover of an activity to an external supplier; it is an alternative to internal production. It was first described by Coase [6] who outlined many of the avenues subsequently explored by researchers in transaction costs and incomplete contracts theories. The essence of the argument is that using a market is not frictionless. When buying a service or a product, one incurs costs. If these costs become too high, relying on self-production is more appropriate.

Transaction costs theory has two underlying assumptions: bounded rationality and opportunism. Bounded rationality is the inability of the human mind to find or process all the information about a transaction; therefore, it is conducted with a certain level of uncertainty. Opportunism is more than the simple defense of one's interest or value maximization; it is *self interest seeking with guile* [41]. The combination of these assumptions results in information asymmetry. When parties do not have the same information, they will not share the information they possess, because they wish to use it strategically. In order to strike a better deal, sellers will hide negative characteristics of their products, and buyers will not reveal how much they are prepared to pay. Since both parties know that the other is opportunistic, each will engage in information seeking activities, for example having a product tested before buying it, or asking for warranties and safeguards to protect themselves from potentially false allegations from the other party. All these actions generate transaction costs.

The factors determining the importance of transaction costs are grouped into three broad categories: (1) the specificity of the assets required for performing the transaction, (2) the uncertainty surrounding the transaction, and (3) the origin of the critical investments associated with the transaction and their alignment with the allocation of residual rights.

2.1. Asset specificity

The nature of assets varies. They can be machinery required to manufacture a product, knowledge needed

to perform a service, or even appropriate location convenient for dealing with the other party. While some assets are common, others are dedicated to a particular use and are said to be specific. The degree of specificity can be measured by the difference between the cost of the asset and the value of its second best use [40]. For example, money is not specific. One thousand dollars might be needed for a given transaction but should the transaction not be completed, the US\$ 1000 could be used for another transaction with no loss in value. Here, asset specificity is null. At the other extreme, knowledge is often a specific asset: in acquiring knowledge, one makes an irreversible investment (one cannot “unlearn” and recuperate the time spent). If the knowledge becomes obsolete, it is a lost investment. Similarly, if the knowledge was unique to one trading partner and the relationship terminated, the investment is lost.

Investments in specific assets lead to transaction costs. A party investing in a specific asset will seek a promise from the other party before actually making the investment. Failure to secure such a promise would put the first party in a vulnerable position, since the other party could renege on the agreement by asking for a lower price, for instance. Indeed, accepting a lower price, even if it would make the transaction unprofitable, would be better than losing the specific investment. The investing party could end up paying a quasi-rent to the other party [30]. Generally, the promises take the form of long-term contracts, bonds, and volume guarantees, which enable the investing party to recoup its investment without risk [39]. Implementing all these promises creates transaction costs. As asset specificity increases and contract protection clauses become more numerous and complex, they become increasingly costly to implement. When these costs are too high, it would be more appropriate to conduct the transaction in-house.

2.2. Uncertainty

All transactions are conducted under a certain level of imperfect information. There is demand uncertainty, when parties do not know *ex ante* the exact volume of product that will be required or ignore the form the service will take. This leads to many problems which increase transaction costs. If these costs become too high, the transaction will not occur and

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