

Monitoring process quality in off-shore outsourcing: A model and findings from multi-country survey

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Abstract

We investigate how recent advances in information technology and telecommunications have led to real-time monitoring of processes at the site of the provider by a buyer located across the globe. We construct a game-theoretic model of the dynamics of the buyer–supplier interaction in the presence of moral hazard and incomplete contracting. We derive the Minimum Quality Threshold (MQT) below which the provider's output will certainly be inspected. Our findings show that the buyer can pick a level of monitoring and thereby force the provider to exceed the quality level of the MQT in output quality and avoid costly and wasteful inspection. Finally, our model explains why the production of processes that are complex and more prone to errors are actually monitored less by the buyers. We furnish the results of a comprehensive, multi-year, multi-country survey of the efficacy of monitoring in off-shore outsourcing projects and demonstrate strong empirical support for the findings of the model.

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1. Introduction

Advances made in information technology and telecommunications in the recent years have enabled firms to create real-time linkages between their information systems and share large data sets at relatively low costs. This trend has given rise to the phenomenon of firms outsourcing their entire back-offices to off-shore (and onshore)¹ third party service providers who execute

these processes for them. Consulting firm Gartner estimates that cross-border Business Process Outsourcing (or BPO for short) will grow into a US\$ 178.5 billion business by 2005 from US\$ 123.6 billion in 2001 (Gartner, 2002). Other estimates suggest that the off-shore BPO industry will grow to over US\$ 230 billion in 2015 (Forrester, 2001). The practice has gained considerable attention from the business media and from policy makers. Several legislations have been proposed to curtail the extent of outsourcing of processes to overseas labor markets. While lot of the media attention has centred on outsourcing of call centres, outsourcing now spans knowledge-intensive functions.

An associated issue is the requirement for effective monitoring of the outsourced functions, to prevent post-contractual opportunistic behavior. While the moral hazard problem in a principal-agent setting has been addressed extensively in the extant literature, this has largely dealt with managerial monitoring of employers in

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¹ The term outsourcing is not used to mean the relocation of processes to a branch of the firm in off-shore labor markets to take advantage of the global wage arbitrage. Firms often relocate processes to their captive centers off-shore which is not considered as “outsourcing”. While outsourcing has some overlap with practice of relocating processes off-shore there exist significant differences between the two practices.

the same firm. In cross border BPO contracts, however, the monitoring problem is inter-firm, and the recent technological advances that have enabled the monitoring of supplier's agents in real-time by the buyer are a relatively new phenomenon. Unlike in the production of physical goods, the production of purely information goods involves just the flow of digitized information. Recent advances in technology and workflow software have made it possible to calibrate the digital flow of information (and therefore workflow) in order to achieve real-time monitoring. For example, Telecorp Products, Inc.'s CentrEE Solution Suite's Quality Monitoring Module allows for managers to observe and assess the quality of agents' interaction with customers, while Voice Print International Inc.'s Activ! IQ software (and several other similar products like HandMetric Inc.'s CCPM or Data Collection Resources Inc.'s CEMS) monitors a call center's performance and quality metrics. In addition to these, our survey revealed a wide variety of custom developed monitoring systems that were deployed by firms such as OfficeTiger, Wipro Technologies, HCL Ltd. (India), Beredium International (Mauritius), IT-One (Thailand). These systems are inter-organizational information systems that allow a client (buyer of services) to monitor the quality of the off-shore provider's finished processes. Thus, the confluence of traditional human intervention with the new real-time software monitoring mechanisms has made it possible to outsource even highly knowledge-intensive functions such as radiology, equity research, cash flow forecasting, third-party logistics and coordination, bioinformatics and tax accounting.

These developments have several implications for the client or the buyer firm, which would like to control costs but nevertheless maintain an optimal level of quality, while the provider firm would like to deliver the requisite quality at the lowest possible cost. An important problem that we choose to investigate in this paper is the impact of monitoring across the boundaries of the firm in real-time, even as the production of services takes place across the globe.

The remainder of the paper is arranged as follows. Section 2 summarizes some of the relevant literature in this area. Section 3 describes the research issues of the paper and Section 4 discusses a model for monitoring outsourced processes. Section 5 discusses the results. Section 6 considers their managerial implications and Section 7 concludes.

2. Literature review

With the rapid growth of outsourcing services, it is no wonder that Chopra et al. (2004) identify research

issues in services, including business process outsourcing, as one of the drivers of future research in operations management. Apte and Mason (1995) analyzed the outsourcing of information-intensive services, and developed a framework for identifying criteria and guidelines for selecting services that can be globally "disaggregated", while Bozarth et al. (1998) studied the various stages of the global outsourcing strategy evolution for 55 different manufacturers. Cachon and Harker (2002) analyzed outsourcing under scale economies within a game-theoretic framework, and concluded that scale economies provided a strong incentive for outsourcing even without cost advantages, and Gunasekaran and Ngai (2005) looked at the build-to-order supply chain management strategy that has improved the competitiveness of many organizations by leveraging the advantages of outsourcing and information technology (IT).

The extant literature in economics has analyzed the problem of governance mechanisms associated with a make-versus-buy decision, and what governance mechanism would optimally define a supply contract. It was Coase (1937) who first challenged the prevailing notion that the natural boundaries of the firm were determined by technology, technological non-separabilities and economies of scale. Coase held that the firm and the market were alternatives for organizing the very same set of transactions. The firm-as-production-function approach and applied price theory combined with technological determinism do not entirely explain all the transactions that take place within the firm (Williamson and Winter, 1993). Klein et al. (1978) extended Coase (1937) by addressing the issue of moral hazard involved in post-contractual opportunistic behavior. Transaction cost economics (TCE) was developed to justify the firm as economizing on transaction cost, i.e., to identify the most economically efficient governance structure (Williamson, 1979). Central to TCE is the role played by transaction frequency, investment idiosyncrasy and uncertainty. These are the critical dimensions of contractual relations that result in transaction costs and thus lead to different governance structures. Furthermore, TCE emphasizes the role of investment idiosyncrasy as the key reason for vertical integration (or long-term contractual relationships) when the transactions are recurrent and are executed under uncertain outcomes. Another research paradigm that explains the boundaries of the firm is incomplete contracts and property rights theory pioneered by Grossman and Hart (Grossman, 1986) and Hart and Moore (Hart and Moore, 1990) (collectively referred to as GHM). Although based on

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