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A comparative analysis of e-commerce governance mechanisms

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Abstract

This research-in-progress compares the effectiveness of various governance mechanisms used by organizations to implement e-commerce initiatives. The research uses economic theories to develop refutable hypotheses regarding the different governance mechanisms. The hypotheses will be tested using an event-study methodology.

Introduction

Organizations may choose from among a diverse array of mechanisms to undertake e-commerce initiatives. These include but are not limited to internal development, grafting (Huber 1991), selective outsourcing and complete outsourcing (Lacity and Willcocks 1998; Rao et al. 1996). This study addresses the issue of studying the comparative advantages of different governance mechanisms used to implement e-commerce initiatives.

Hypothesis development

In the last few years, the pace of technological innovation in industry has become very rapid and is a recurring theme in management literature (Bettis and Hitt 1995). Consequently, the need to compete on the basis of time as a critical resource has been recognized in the last decade or so (Quinn and Paquette 1990). For example, Morris-Suzuki (Morris-Suzuki 1984) described as “perpetual innovation” the rapid and continuous change that has occurred as information-intensive technologies have replaced older technologies. This change is so pronounced in fact that authors such as Kalakota (Kalakota and Robinson 1999) even suggest that the principal source of competitive advantage in the “Internet age” is constant adaptation of the business model itself. This time sensitivity in the world of electronic commerce and the Internet has even led to the coining of the term, “Internet time” (Cusumano and Yoffie 2000).

Electronic commerce is an innovation that requires organizations to adapt and change, a process that requires them to develop new skills and capabilities continuously and at a very rapid pace. Developing these capabilities internally requires learning, that has consistently been found to be path dependent and time consuming. Cohen and Levinthal provided the basic framework for this path dependence of learning in their theory of absorptive capacity (Cohen and Levinthal 1990). Teece (Teece 1998) argues that firms tend to develop new resources in areas

closely related to their existing technological base and are most likely to learn new skills in areas where they already have prior knowledge. Some organizational research even suggests that fast learning is sometimes disadvantageous (Huber 1991). Since electronic commerce involves many fundamental changes in business and IT practices combined with extreme time pressures, the above arguments imply that it can be extremely difficult for organizations to develop significant levels of competence in developing e-commerce capabilities in the available time using internal resources alone. Hence, we argue that:

Hypothesis 1: Firms that decide to acquire technological competence required to develop e-commerce capabilities from outside sources will do better than firms that choose to develop these skills internally.

Firms that choose to acquire e-commerce capabilities from outside have a number of available choices. They may graft knowledge (Huber 1991) by hiring new organizational members who possess the required knowledge not previously available within the organization or by buying specific technology products. Alternately, they may outsource the required services from service vendors. The choice between grafting knowledge versus outsourcing services from the market comes down to the fundamental make vs. buy question analyzed by transaction cost economists. Williamson’s (Williamson 1989) analysis of this issue hinges around the concept of asset specificity. Asset specificity is the extent to which resources associated with one transaction lose their value when deployed in another transaction. As Williamson points out, asset specificity affects governance costs and production costs.

Both these effects favour buying services from the market (buy) when asset specificity is low and developing capabilities (make) when asset specificity is high. Therefore, following this analysis, the efficient mechanism for firms to acquire e-commerce capabilities is based on whether e-commerce capabilities are highly transaction-specific or not significantly so. If e-commerce capabilities are highly transaction-specific, transaction cost analysis predicts that acquiring capabilities would be the efficient governance mechanism and if e-commerce capabilities were not transaction-specific, buying them from the market, or outsourcing them would be the efficient governing mechanism.

One of the major driving forces behind the growth of e-commerce and the Internet are open standards.

Standards like TCP/ IP for communication, ODBC for database transactions and other such standards facilitate the exchange of information between diverse information systems. Hence, systems that facilitate e-commerce and e-business over the Internet exhibit low asset-specificity than systems like EDI and other proprietary information exchange networks. As long as the services market for electronic commerce in an industry is large enough, asset-specificity k as defined by Williamson (Williamson 1989), is low since the capabilities of a vendor in the industry can be effectively redeployed with other clients. Also, from the client’s point of view, if the number of vendors is high, research has shown that clients do not find a lock-in effect to a specific outsourcing vendor (Rao et al. 1996). Hence in developing e-commerce capabilities, technology outsourcing is a superior governance mechanism compared to the acquisition/grafting of capabilities. Hence:

Hypothesis 2: In developing e-commerce capabilities, firms that outsource their technology functions perform better than firms that acquire these capabilities.

Transaction cost economics (TCE) is often complemented by Agency theory to investigate the efficiency of governance modes (Williamson 1988). Agency theory stresses the importance of measurement costs and is based on two central constructs – information asymmetry and task programmability. Programmable tasks are routine activities that can be technically decomposed and monitored in-house. If the tasks assigned to agents (vendors) are not programmable, it lowers the effectiveness of monitoring, increases measurement uncertainty and reduces the efficiency of outsourcing. This phenomenon has also been described in terms of the complexity of product description and is independent of asset specificity (Malone et al. 1987). Research suggests that other factors being equal, products with complex descriptions are more likely to be produced in-house than obtained from the market primarily due to the cost of communicating information about the product. Following the above argument, firms are more likely to derive advantage by selectively outsourcing their programmable e-commerce requirements than by outsourcing complex functions such as application development that involve dynamic and complicated communications. Hence:

Hypothesis 3: Firms that selectively outsource their programmable e-commerce requirements will perform better than firms that outsource complex requirements.

Methodology

In this research, we test the above hypotheses using an event-study methodology to measure the impact of decisions by firms to outsource their e-commerce operations. Event study methodology is very useful tools for management researchers because it obviates the need to analyze accounting-based measures of profit (McWilliams and Siegel 1997; Subramani and Walden

1999). The methodology derives legitimacy from the efficiency of capital markets (Fama et al. 1969). If an e-commerce outsourcing announcement is expected to enhance future cash flows, the capital market would respond favorably to e-commerce outsourcing announcements by firms. This response can then be measured by the positive movements in stock prices subsequent to the announcement.

Data

The event being studied is defined as “a public announcement of an e-commerce outsourcing initiative by a publicly traded company”. This data will be collected from a full text search of company announcements during the period November 1 1999 and December 31, 1999 from 2 leading news sources: PR Newswire and Businesswire. These sources provide comprehensive coverage of public announcements by firms and are available on the Dow Jones Interactive database that can be accessed electronically. After going through a number of candidate announcements to identify a suitable search string, we created the following search string:

(‘electronic commerce’ or ‘e-commerce’) and (develop or subsidiary or division or internal or outsource or hire or contract or provide or deliver or partner or acquire or collaborate or buy or purchase or host or implement or outsourcing or establish or construct or organize) and Nasdaq

A search between December 14, 1999 and December 31, 1999 has resulted in 101 separate announcements. A categorization of some of these announcements is as follows:

Table 1: Categorization of sample announcements

Firm description	In-house	Grafting	Selective	Complex
Internet professional services firm			*	
Online brokerage		*		
Imaging services firm	*			
Global medical company	*			
Healthcare intelligence provider		*		
Communications soln. provider			*	
Web-branding firm	*			
Life sciences solution provider				*
Gift expressions provider			*	
Internet job site				*

Following the standard event-study procedure (Fama et al. 1969; Loderer and Mauer 1992; Loh and Venkatraman 1992; McWilliams and Siegel 1997; Subramani and Walden 1999), we will study the cumulative abnormal returns to firms over an event window surrounding the announcement date compared to the average rate of return for the company's stock over an estimation interval.

Currently, we are collecting data on public announcements that will be used for the study. We are also developing a content-analytic classification scheme to classify the announcements precisely (Krippendorf 1980; Meindl et al. 1985; Morris 1994; Salancik and Meindl 1984).

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