Driving IT Architecture Innovation: The Roles of Competing Organizational Cultures and Collaborating Upper Echelons

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ABSTRACT

The spotlight on business innovation in growth-oriented organizations has never been hotter. Information systems (IS) innovation, in particular, has become the main focus for many businesses and their CIOs because of its potential for business agility and competitiveness. However, creating a culture that can effectively exploit the innovative forces of an organization is challenging, and no shared guidelines exist. The purpose here is to examine empirically how the competing forces of organizational cultures in tandem with senior executives constructively influence the innovative efforts of organizations. Central to this investigation is the adoption of an IS architecture (SOA) whose implementation may entail radical transformation of traditional business patterns. Data were collected from U.S. top IS executives, and the results suggest that the adopters of SOA (45%) are organizations whose executives embrace certain collaborative behavior, which, in people-oriented and progress-oriented cultures, seems to be a catalyst for change and adoption of transformational IS architecture.

Keywords: Collaboration, Entrepreneurial Culture, IS Adoption, IT Innovation, Organizational Culture, Service-Oriented Architecture, Upper Echelons

INTRODUCTION

Information systems (IS) innovation is vital to connecting information technology (IT) strategically to business processes and to enhancing an organization’s responsiveness to business needs (Milburn, 2009; Prahalad & Krishnan, 2008; Wang et al., 2008). Not surprisingly, IS innovation has become the main agenda for many organizations and their CIOs (Leach, 2007; Merrifield et al., 2008). Particularly, the adoption of novel IT architectures and infrastructures that support a process and network-oriented view of the business has been on top management’s and academicians’ radar for several years and has never been a hotter topic (e.g., Boni, Weingart, & Evanson, 2009; Merrifield et al., 2008; Swanson & Ramiller, 2004).

Innovation and the redefinition of the firm’s strategic IT infrastructure is by no means a purely technical issue and essentially requires companies to rethink their business processes, understand their leadership challenges, and deal with their cultural forces (Jeyaraj et al., 2007;
2006; Wang & Ramiller, 2009). In other words, decisions involving the adoption of complex technology artifacts and infrastructure reflect the potentially strategic nature of the innovation; hence, organizational factors that contribute to a company’s innovation adoption choice are on the forefront of managerial curiosity (Boni et al., 2009; Xiaotong, 2009).

Understanding the factors that lead to critical IT adoption decisions at the organizational level is vital for businesses because of the anticipated organizational benefits (e.g., Tellis et al., 2009). Various theories used in the IT-innovations adoption research have attempted to explain and predict information systems adoption from different viewpoints (Ramdani & Kawalek, 2007; Sabherwal et al., 2006; Wu & Lederer, 2009). But most of these adoption theories have been used to explain user acceptance and diffusion of information technology, and they focus mainly on end-user acceptance of already implemented systems (e.g., Jeyaraj et al., 2003). Hence, those theories do not seem to apply well to cases of strategic adoption and innovation regarding complex IT infrastructure. A more direct examination of the adoption practices of a company’s cultural and managerial challenges may shed light on how firms can create an effective adoption process. By analyzing the organizational cultures of adopters versus non-adopters, this study examines how the dynamics between corporate culture and executives determine the adoption decisions regarding service-oriented architecture (SOA). Both academic and practitioner studies provide evidence of the impact organizational culture has on innovation adoption decisions (Leidner & Kayworth, 2006; Todhunter, 2008). As there is less clarity on how executive leaders are typically involved with and dependent on organizational culture (see Schein, 2004), the current study examines the very relevant relationships.

Amazon, BMW, Cigna, Wal-Mart, Apple, and several other progressive organizations adopted service-oriented IT infrastructure early on (around 2006) to take advantage of the infrastructure’s strong potential for business agility. Yet in 2008, the majority of Fortune 1000-type firms were still not ready to adopt SOA and with it an agile IS infrastructure (see Methods section). Demographic and organizational factors such as age, size, and area population do not adequately explain the differences in adoption behavior and do not necessarily have predictive power (see also Kennedy & Fiss, 2009). Alternatively, there is evidence that organizational culture factors can explain adoption motivation (Hofstede, 2001; Poskiene, 2006; Tellis et al., 2009). Information systems literature suggests that organizational culture influences the strategic innovation decisions of organizations (e.g., Chia & Koh, 2007; Schein, 2004; Smirich, 1983; Pandey & Sharma, 2009). However, the literature is vague in terms of the impact of competing cultures and in terms of the dynamics between culture and executive impact on organizational adoption decisions. Additionally, the literature has not yet explained how the interaction of these organizational forces affects the adoption of complex IT infrastructure.

To address these questions explicitly, I apply the upper echelons theory to the competing values model of organizational culture to differentiate between adopters and non-adopters and develop an understanding of how the interaction of organizational forces shapes strategic adoption decisions. I attempt to answer important questions concerning the strategic nature of infrastructural technology innovations, and try to explain why companies react differently to the uncertainty, ambiguity, and complexity that these innovations create. Answering these questions is relevant to gain insight into how cultural and individual forces affect adoption choices of innovative IT infrastructure that is said to drive value by increasing company flexibility and agility.

In this study, I develop a theoretical extension of the model of competing organizational cultural values which is useful in technology adoption situations because of (1) the considerable uncertainty surrounding complex technology artifacts, (2) the increasing emphasis on the role of organizational culture, (3) the importance of technology adoption decisions,
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