



The iron cage exposed: Institutional pressures and heterogeneity across the healthcare supply chain

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ABSTRACT

The healthcare industry has been known to operate in a strong institutional environment (i.e. government regulations), and the implementation of inter-organizational systems (IOS) has followed an institutional process. Extending this perspective across different tiers in the healthcare supply chain, we investigate *how* organizations in different tiers in the supply chain (i.e. hospitals, distributors and manufacturers) respond to institutional pressures when implementing IOS. How institutional dynamics unfold across multiple tiers of a supply chain is an uncharted area of research, and we take the theory-building case study approach using data collected from ten organizations. Because organizations are embedded in their respective tiers, our within-tier analyses are equivalent to cross-organization analyses. In this regard, the cross-case analyses occur at two different levels: at each tier level (i.e. across multiple hospitals, multiple distributors and multiple manufacturers) and across the supply chain (i.e. across all three tiers). The study shows *how* different institutional pressures such as coercive, mimetic, and normative manifest across the tiers. It also demonstrates *how* a differential mix of endogenous and institutional pressures lead to mixed organizational responses across the tiers. The propositions developed from the study enrich institutional theory arguments within the information systems and supply chain management disciplines. They highlight how the IOS implementation dynamics within and across different tiers in a supply chain result in heterogeneous rather than isomorphic consequences, thereby exposing the “iron cage” of institutionalization.

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1. Introduction

Information systems (IS) scholars have recognized that institutional mechanisms play a key role in influencing the adoption and subsequent implementation of technology (Bala and Venkatesh, 2007; Son and Benbasat, 2007; Teo et al., 2003). They have opened the doors for investigating how organizations respond to institutional pressures and whether these pressures continue to perpetuate “isomorphism” (DiMaggio and Powell, 1983) thereby creating iron cages. In response, some scholars have started to question the purported ubiquity of isomorphism by pointing out how the intensity of institutional pressures varies and individual organizations have an internal technical environment that would respond differently (Greenwood et al., 2008; Souitaris et al., 2012). Consequently, the conversations among institutional theorists and IS scholars have converged toward acknowledging heterogeneity—organizations adopt heterogeneous structures and practices in response to the presence of competing institutional

logics within their field (Bala and Venkatesh, 2007; Bunduchi et al., 2008; Dacin et al., 2002).

We intend to extend this line of reasoning by empirically examining the implementation of inter-organization systems (IOS) across three tiers of the healthcare supply chain. The goal is to provide a better understanding of heterogeneity. IOS provides the technology-based infrastructure that acts as a conduit for facilitating transactions, sharing information with trading partners, co-ordinating activities and establishing governance structures between firms. Because IOS requires commitment from trading partners to share resources and align processes, the issues of relational exchanges and co-ordination have gained currency in the IS literature (Grover and Saeed, 2007; Saeed et al., 2011). In our study, we focus on IOS that facilitate exchange of information with trading partners such as suppliers, customers, and distributors using the internet or other digital technologies. Examples of such systems include enterprise resource planning (ERP) systems, bar-coding, electronic data interchange and other similar technologies (Choudhury, 1997; Saeed et al., 2011). It is through this information exchange mechanism that organizations are no longer saddled in “iron cages” (DiMaggio and Powell, 1983).

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We collect data from organizations that operate in the healthcare industry that face a strong institutional environment through various regulatory agencies (Ruef and Scott, 1998). The IOS implementations in this industry have occurred largely in response to government mandates and pressures from trading partners. These mandates have met with varying degrees of successes and failures (Bhakoo and Chan, 2011; Blumenthal, 2011; Ford et al., 2008; More and McGrath, 2002). Given the different types of services provided across the supply chain and severity of consequences associated with failures, the healthcare industry provides a unique and challenging service operations context, particularly when implementing IOS and investigating heterogeneous organizational consequences (Shah, 2004; Venkatesh et al., 2011). Naturally, scholars have called for technology adoption issues to be thoroughly investigated within the healthcare supply chain (Chopra et al., 2004; Jarrett, 2006; Venkatesh, 2006).

We respond to this call and investigate how organizations across a healthcare supply chain respond heterogeneously to institutional pressures and identify organizational conditions under which IOS implementations can be successful. Further, studying across the three tiers in the supply chain will provide a theoretically richer understanding of heterogeneity and the underlying reasons for it. Scholars who subscribe to the institutional school propose that organizations respond to demands of their external stakeholders (i.e. government and trading partners) that promote IOS implementations in order to acquire legitimacy and goodwill within their institutional environment (Barratt and Choi, 2007; Lai et al., 2006; Teo et al., 2003).

To take this body of literature to the next level, we need to address several unresolved issues that provoke a deeper understanding of institutional theory within an IOS context. First, an institutional rationale would argue that when the catalyst for technological implementations is purely in response to the regulatory climate and pressure from external constituents, then the organization is most likely to implement IOS largely in a “ceremonial” way (Kostova and Roth, 2002; Meyer and Rowan, 1977). However, some other scholars within the institutional school argue that institutional legitimization of practices may promote a culture of efficiency within organizations (Kennedy and Fiss, 2009; North, 1990). Therefore, we ask, if technology is implemented due to institutional pressures, then under what conditions is the organization able to translate such changes and make a real impact on operations? Such operations are what some institutional theorists (i.e. Meyer and Rowan, 1977) have called “technical core” where actual value-adding activities occur such as actual patient care.

Second, we must note that organizations in different industries would respond differently to the institutional pressures to implement IOS. This is largely because they have their own, unique set of norms, business practices and administrative complexities (DiMaggio, 1991; Hoffman, 1999; Scott, 2008). Therefore, by extension, organizations at different tiers in a supply chain may perceive institutional pressures differently. The crucial question then becomes how an organization's internal responses to implement IOS may vary across the supply chain. This would have implications for the managers in organizations across the supply chain and policy makers at the government or professional organizations that set operational standards (Ruef and Scott, 1998; Scott, 2008).

Third, IS scholars are cognizant of the fact that the decision to implement IOS occurs in response to both, the broader institutional environment where an organization confronts external pressures (Gosain, 2004; Teo et al., 2003) and the internal organizational environment (Bharadwaj, 2000). For instance, Teo et al. (2003) employed institutional theory to study the influence of DiMaggio and Powell's (1983) three institutional pressures (coercive, mimetic, and normative) on IOS adoption. Their study focused on intentions to adopt and left open (for future research) the

subsequent organizational dynamics once the adoption activities take place inside the organization. Bala and Venkatesh (2007) have pushed this stream of research further and identified the role of internal contingencies and institutional mechanisms in the implementation of business standards for dominant and non-dominant firms. Our intention is to extend our understanding of these complex mechanisms (institutional dynamics and factors endogenous to organizations) that are at play within the health informatics domain.

We will investigate how institutional pressures and endogenous pressures co-exist for organizations and how organizations across different tiers of the supply chain would cope with these varied pressures. Further, if an organization implements IOS due to institutional pressures, under what conditions would those pressures translate into making the “real changes” at the technical core? This is critical as highlighted by Devaraj and Kohli (2003) who have strongly argued that it is the actual “usage” of technology that results in an organization's performance.

In our study, we focus our attention on these unresolved theoretical issues in the literature and propose the following research question:

How do organizations embedded within different tiers in the supply chain respond to the presence of institutional and endogenous pressures when implementing IOS?

In this study we conceptualize IOS implementation as the process that unfolds in the organization after the decision to adopt the technology has been made. In this process, the organization develops new procedures, installs the technology and incites the users to engage with the technology so as to realize the intended benefits (if any) from the technology (Cooper and Zmud, 1990; Munkvold, 1999). The responses that we seek to examine are whether organizations are responding in a purely ceremonial fashion or making real changes thereby affecting the technical core of the organization. An examination of these responses across the tiers will facilitate building our understanding on how heterogeneity manifests across the healthcare supply chain.

2. Literature review

We use existing literature on neo-institutional theory to help us develop our theoretical arguments (DiMaggio and Powell, 1983; Meyer and Rowan, 1977; Zucker, 1987). We focus on how organizations respond to the presence of organization-level endogenous and field-level institutional pressures within the context of IOS implementation. The isomorphism school of thought led by DiMaggio and Powell (1983) informs us about the type of institutional pressures that impinge on organizations. Contrarily, the institutional decoupling arguments led by Meyer and Rowan (1977) discuss what happens inside an organization once it succumbs to an institutional pressure and decides to respond to it. In discussing the endogenous drivers for implementing IOS we also draw heavily on arguments put forth by scholars in the IS discipline with a specific focus on the health informatics domain (Agarwal et al., 2010; Chaudhry et al., 2006; Goh et al., 2011; Menachemi et al., 2007).

2.1. Institutional pressures

One of the widely accepted tenets of neo-institutional theory is the concept of institutional isomorphism (DiMaggio and Powell, 1983; Heugens and Lander, 2009). According to DiMaggio and Powell (1983), organizations perceive three types of institutional pressures—coercive, mimetic, and normative. These pressures are responsible for organizations conforming to institutional prescriptions, thereby leading to isomorphism. For instance, many

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