The Adoption Drivers of Web-Based B2B Systems:  
A Comparison between Durable and Nondurable Goods-Producing Industries

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ABSTRACT

The purpose of this research is to examine the drivers of Web-based B2B systems adoption from an institutional perspective by means of comparison between durable and nondurable goods-producing industries. A questionnaire survey was developed to collect data from manufacturing firms. Structural Equation Modeling using EQS was conducted to analyze the data. Results revealed that the durability characteristic of goods produced plays a moderating role in the impact of institutional pressures on the top management support of Web-based B2B systems adoption. Results also indicated that top management support, and B2B relationship quality have a direct impact on the extent of adoption and use of Web-based B2B systems. The present study contributes to the continuing discussion about why organizations respond differently to institutional pressures and vary in the level of use of Web-based B2B applications.

KEYWORDS


INTRODUCTION

The use of collaborative Web applications in business is playing an increasingly critical role in supporting the value that collaborative initiatives create and the way organizations interact with each other (Alsaad et al., 2014). Web-based B2B Systems (WB2BS) have become a major trend in today’s business environment even for small organizations (Teo et al., 2006). In parallel with the progressive and continuing transformation of Web services, the adoption of Web-based B2B systems has emerged as one of the most controversial research areas. Thus, for e-business researchers and practitioners, the adoption of B2B systems, while not new, is still an interesting topic worthy of further investigation.

The literature demonstrated two different perspectives to investigate the influencing factors on the adoption of e-business applications; namely, efficiency-choice perspective and institutional perspective (Teo et al., 2003). The first perspective was oriented to study intra-organizational factors emphasizing the rational actions of decision makers who evaluate the innovation characteristics and whether it can provide the organization with a new value. However, many researchers (e.g., Teo et al., 2003; Ranganathan et al., 2011) confirmed that the inconsistency in the literature findings provides a narrow vision of how these factors impact the adoption of e-business applications.

In contrast to the efficiency-choice perspective, institutional perspective has emerged as a powerful explanation to account for the influence of external institutions on organizational decision making. It
assumes that the organization’s decisions and behavior to embrace innovations are not driven purely by rational goals of efficiency and cannot be explained by emphasizing only the rational actions of managers (Scott, 2008). Actually, the literature (e.g., Teo et al., 2003; Liang et al., 2007) reveals that the Institutional Theory permitted to develop a more structural and systematic understanding of how collaborative ICTs are embedded in complex interdependent social, economic, and political networks explaining how the adoption and use of e-business applications are consequently shaped by such broader institutional effects.

Over the past several decades, Institutional Theory (DiMaggio & Powell, 1983) has become an integral reference framework for understanding the organizational adoption of innovations (Zhang & Dhaliwal, 2009). It comprises a rejection of the organizational actors’ rationality and claims that the structure and behavior of an organization are shaped by the characteristics, rules, and trends of the environment they operate in. According to this perspective, organizations within a particular industry are embedded in larger systems of relations-formed by the group of organizations providing similar products or services, suppliers, customers, owners, regulatory agencies, and competitors.

In fact, the Institutional Theory has attracted substantial amounts of logical criticisms. The central question of Institutional Theory is what makes organizations so similar. Although the question has been answered to a large extent, the matter of fact raises a number of converse questions, such as why similar organizations have exhibited diversity with respect to the degree of e-business adoption under a similar institutional environment. In its quest to answer these questions, most of the previous studies have often integrated the Institutional Theory with other theoretical frameworks.

According to DiMaggio and Powell (1983), the firm’s perception of the institutional pressures affects its interpretation of the environment in general and innovation intentions in particular. Teo et al. (2003) concluded that the impact of institutional forces assimilation is mediated by top management, who serves as an organization’s primary human interface to the external environment. The literature (e.g., Liang et al., 2007; Tarofder et al., 2010) highlighted the important role of top management in IT adoption as the primary human agencies that provide the necessary resources and power for the success of adopting any new innovation. This role is usually dependent on managers’ perceptions and beliefs that transforms objective pressures into perceived pressures and translates external influences into managerial actions. Unfortunately, many of the previous studies have ignored this pivotal role in response to the institutional pressures and the extent of adoption of WB2BS.

It is worth noting that institutional studies did not mention the factors that may determine the power and effect level of institutional pressures on the innovations adoption in general, and e-business applications in particular, such as B2B relationship quality and products’ characteristics. Actually, the previous research (e.g., Mantena et al., 2012; Saprikis & Vlachopoulou, 2012) confirms that the nature of the products produced should be taken into consideration in understanding organizations’ strategic moves toward B2B e-marketplaces. It is only recently that ICT researchers have really started paying attention to the impact of goods durability on the IT adoption and use. As yet, a little attention has been paid to investigate the impact of the durability characteristic on the adoption of WB2BS.

This paper aims to address the aforementioned limitations. Drawing on the related literature, the overall research objective is to develop and validate an institutional model to examine the drivers of WB2BSs adoption and use by means of comparing between durable and nondurable goods-producing industries. The research model discusses the factors that may determine the power and effect level of external institutional pressures on the adoption of WB2BS systems. It also takes into consideration the role of top management support that translates the institutional influences into managerial actions.

LITERATURE REVIEW

Although there is a considerable body of literature in the field of WB2BS adoption, a number of important issues in different areas are still sparse. Much of the research into the adoption of e-business categories has used theories of individual decision making such as the Theory of Planned Behavior
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