Organizational and Relational Resources in IOS Diffusion: A Cross Country Study between Korean and Chinese Supply Chains

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ABSTRACT

This research addresses the theoretically neglected question of how the internal diffusion of inter-organizational systems (IOS) into a firm’s activities and its external diffusion into the supply chain partners influence performance improvement. Drawing on the resource-based view, our research model posits that organizational and relational resources affect both internal and external diffusion, which in turn, influence performance improvement. Survey results from 187 managers in Korean and Chinese firms showed that while the impact of organizational resources on a firm’s performance improvement was fully mediated by IOS diffusion, the diffusion partially mediates the impact of relational resources on performance improvement. This study also revealed a significantly different pattern of diffusion between Korean and Chinese firms, i.e. showing the impact of organizational and relational resources on a firm’s performance through external diffusion of IOS are significantly greater in Korean firms, while the impact of internal diffusion was significantly greater in Chinese firms. In other words, Korean firms tend to externally diffuse IOS toward their business partners, while Chinese firms tend to internally diffuse IOS by deploying IOS from their partners. The implications of these findings for both research and practice are discussed.

Keywords: External Diffusion, Inter-Organizational System, Internal Diffusion, Organizational Resources, Relational Resources

INTRODUCTION

To compete effectively in dynamic global markets, firms need to integrate their operations with those of their partners by using inter-organizational systems (IOS), as performance is hinged on supply chains (Bush et al., 2010). IOS is an automated information system shared by two or more organizations, and was designed to link business processes (Bakos, 1991). It has

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presented firms with significant opportunities in the form of efficient and timely order fulfillment, reduced cycle times, closer relationships with partners and customers, and more opportunities to improve performance of the supply chain (Robey, Im, & Wareham, 2008; Ranganathan et al., 2004; Zhang & Dhalilwal, 2009). It is not surprising that more and more firms are deploying IOS, because a key feature for the successful deployment of the IOS should cover the connection of physical processes through information-based integration across upstream and downstream operations (Zhu et al., 2004).

Most IOSs enable the expansion of a firm’s business scope and the reengineering of inter-organizational business processes (Ranganathan et al., 2004; Zhang & Dhalilwal, 2009). Unlike other types of information technology, IOS cannot be adopted and used unilaterally (Hart & Saunders, 1997). This means that undertaking IOS initiatives would require not only a firm’s internal resources, but also relational resources. If a firm is motivated to use IOS, it must find similarly motivated partners for implementation. Furthermore, once it has been adopted, a firm must continually invest in the technology and implement additional transaction sets to gain coordination benefits. Thus, this implies that supply chain performance can benefit from internal organizational resources as well as externally relational resources, by leveraging IOS.

Regarding the organizational resources, previous studies suggested three types of IT-related resources: IT management support, functional management support, and top management support (Chwelos et al., 2001; Iacovou et al., 1995; Premkumar et al., 1994; Ramamurthy & Premkumar, 1995; Zhang & Dhalilwal, 2009). Similarly, we adopt these three types of IT-related resources as the organizational resources in our study to explain the improvement of supply chain performance due to IOS diffusion. In a dyadic relationship between a buyer and a supplier, the relational resources of a firm are also important, because IOS diffusion by a focal firm does not yield any benefits unless the same IOS is adopted and deployed by at least one of its trading partners. Hence, relational resources are also important for investigating the key drivers of IOS diffusion of a firm in the context of the supply chain. In relation to the above, Bala & Venkatesh (2007) also argued that mutual and synergetic assimilation is important, implying that relational view of the firm is expected to shed light on the IOS deployment. They further suggested 1) relational specificity, 2) relational depth and 3) relational extendibility as the key factors that capture the relational view of a firm in the context of IOS. Likewise, we employed these three factors as the subcomponents of the relational resources of a firm.

In line with this, we applied the resource-based view (RBV) to explore how IOS affects the supply chain performance of firms, to show that organizational resources affect internal diffusion, and that relational resources mainly influence external diffusion. In addition, although Asia Pacific countries such as China and Korea are highly dependent on connection or relationship in general, such relationships are growing weaker in Korea as the economy advances, whereas they are still strong in China (Chen, 2004). Basically, the successful diffusion of IOS could be complicated by the fact that two or more firms need to agree on the adoption of the interconnecting IOS. Namely, it is heavily dependent upon the trading partners of a focal firm. Such phenomena could particularly be revealed in Asia Pacific countries due to the unique nature of business relationships. Given different IS (information systems) resource foundation and dependency on relationships, we expect that the performance improvement in Chinese firms is increased more through internal diffusion due to outside-in demand, while the performance of Korean firms is improved more through external diffusion due to inside-out capabilities. Hence, this research also investigates whether the effects of IOS diffusion on performance improvement are different between Chinese firms and Korean firms. Given the above considerations, this research addresses the following research questions to help understand how IOS can be used for the improvement of firms:
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