

Chapter 6.10

The Impacts of Electronic Collaboration and Information Exploitation Capability on Firm Performance: Focusing on Suppliers Using Buyer–Dominated Interorganizational Information Systems¹

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ABSTRACT

We defined electronic collaboration as consisting of two major activities: electronic information sharing (EIS) and electronic cooperation (ECo). We evaluated the extent of EIS and ECo that suppliers contribute to their development of an information exploitation capability (IEC). This capability enables them to utilize internally both information and knowledge created from

electronic collaboration. We assessed the effects of electronic collaboration activities and IEC on a firm performance. We collected surveys from 169 firms, and conducted a Structural Equation Model analysis. The results of the statistical analysis indicated that electronic information sharing exerts a clear effect on electronic cooperation. Electronic information sharing and electronic cooperation are major sources for the development of information exploitation capabil-

ity. Both electronic cooperation and information exploitation capability result in improved company performance. We determined that the information exploitation capability has a partial mediating effect between electronic information sharing and electronic cooperation on firm performance. [Article copies are available for purchase from InfoSci-on-Demand.com]

INTRODUCTION

Because of recent advances in Internet and information technology resulting in communication innovations, firms no longer use telephone or mail in the performance of their primary business activities. Using interorganizational information systems (IOIS), they are able to perform many cross-organizational tasks with large savings in terms of manpower, time, and costs. In buyer-supplier relationships, large firms implement IOIS in order to do business with suppliers that are small and medium enterprises (SMEs; Hart & Saunders, 1998). Relatively less powerful firms use IOIS as a means of maintaining business relationships with their more powerful buyers. Many studies have focused on such relationships by attempting to identify key factors that would encourage suppliers to adopt IOIS or to discover prior determinants to increasing the level of usage (Hart & Saunders; Iacovou, Benbasat, & Dexter, 1995). Although these studies focused on the supplier's perspective in a dyadic relationship, they did not show that suppliers could also develop capabilities that could allow them to differentiate themselves from competitors and to obtain additional benefits by participating in a high level of electronic collaboration based on IOIS. More recently, a few researchers have recognized the importance of suppliers' benefits derived from IOIS. They uncovered and verified evidence suggesting that the benefits suppliers can obtain would be increased if suppliers increased their

IOIS usage (Mukhopadhyay & Kekre, 2002; Subramani, 2004).

Currently, IOIS is recognized as a general infrastructure. This infrastructure allows suppliers to transact beyond their companies' boundaries among external trading partners. Therefore, IOIS, in itself, cannot be considered effective as a unique or proprietary means of creating differential advantages. In order to obtain superior benefits or to create differential capabilities by using IOIS, both the buyer and supplier need to exert additional effort to expand the scope and extent of the benefits and capabilities of exploiting IOIS beyond merely adopting it.

In this study, we first looked into suppliers who obtained benefits by engaging proactively in electronic collaboration based on IOIS. Electronic collaboration is comprised of two major activities: electronic information sharing (EIS) and electronic cooperation (ECo). EIS refers to the extent that suppliers share information for transactions with buyers using IOIS. On the other hand, ECo refers to the extent that suppliers participate in the decision-making process to coordinate common issues associated with transactions or deal with emerging problems in relationships. We evaluated the effects on firm performance of the two activities comprising electronic collaboration.

Second, we proposed the concept of information exploitation capability (IEC). IEC is defined as the ability to internally exploit information or knowledge derived from electronic collaboration based on IOIS. We tested empirically its role and impact on firm performance. We proposed that IEC performs a mediating function between electronic collaboration and a firm's performance. Many suppliers can benefit from IEC. We suggested that if all suppliers exert effort to improve and utilize this capability, their performance would improve. Suppliers that exert such efforts secure the capability of being able to create differential advantages.

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