Perspectives from IOIS, EDI, and Channel Management: Research Issues in E-Procurement

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Abstract

Over the last couple of years, e-procurement has received tremendous attention from researchers and practitioners alike. However, research on e-procurement is still scarce and scattered. This chapter looks into prior research on inter-organizational information systems (IOIS), electronic data interchange (EDI), channel management, and procurement to develop a research framework and identify research issues in e-procurement. It is argued that supply market characteristics and product characteristics can explain the emergence of various e-procurement systems. Further, these e-procurement systems have different impacts on inter-organizational relationships and value generated from e-procurement. However, these impacts are moderated by adoption and implementation risks. Though this model provides us with a holistic view to e-procurement, it is not yet empirically validated, owing to low e-procurement penetration.
Introduction

Before the advent of the Internet, organizations were using electronic data interchange- (EDI) based inter-organizational information systems (IOIS) to share data with trading partners. Venkatraman and Zaheer (1990) defined EDI as the technical platform rooted in the set of standards, which enables informational exchange among participants in a marketplace. Inter-organizational information systems (IOIS) build on these common EDI standards (when necessary) to design and deploy different functionalities that interconnect multiple organizations. Therefore we can view e-procurement as Internet-enabled IOIS used for procurement.

Johnston and Mak (2000) argued that commercial availability of the Internet does more than simply provide a cheaper alternative document transmission channel. By upsetting the balance among the contextual factors, it allows the emergence of a new vision of supply chain featuring a backbone any-to-any network of EDI-compliant technologically-sophisticated trading partners, with Internet-based sub-networks, centered on large players or third parties using proprietary software, development tools, and message formatting to provide connection to unsophisticated players. They also observed that in traditional EDI systems, only 20% of suppliers, by number, who account for 80% of transaction value, participate and thus a large proportion of suppliers, usually small to medium-sized enterprises (SMEs), remain outside the EDI.

Interest in inter-organizational information systems (IOIS) can be traced back to Kaufman’s (1966) prediction that computer networks would improve coordination between organizations and radically alter traditional billing and payment procedures. The term IOIS was born in the early 1980s, as Barrett and Konsynski (1982) used the term “inter-organizational information sharing system” for the first time, and Cash and Konsynski (1985) first coined the term “inter-organizational system.” They defined IOIS as automated information systems shared by two or more companies. A number of studies on IOIS, theoretical as well as empirical, have been carried out during the last two decades. A survey of articles published in the area of e-commerce revealed that around 33% of articles were related to application area, and among them 36% were related to IOIS (Ngai & Wat, 2002). However, rapid growth and innovations in data standards, format, network technology, and computer science made management of IOIS a challenging task. The recent emergence of Internet technologies and e-commerce posed some new managerial challenges. The objective of this chapter is to review literature on IOIS,
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