

Chapter 1.6

The Evolution of Trust in Business-to-Business E-Commerce

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INTRODUCTION

E-commerce is defined as a means of conducting business electronically via online transactions among trading partners. Forrester Research predicted that B2B (business-to-business) e-commerce could be worth \$5.7 trillion by the end of 2004. This study aims to examine the evolution of e-technologies and its impact on trust. Trust refers to reliance on and confidence in one's business partner (Mayer, Davis, & Schoorman, 1995). We discuss the evolution of e-technologies in light of the evolution of trust in technology trust (or transactional trust) and relationship trust or (relational trust). Electronic data interchange (EDI) was the prominent technology used in the 1970s and '80s. As we approached the 21st century and with the advent of the Internet, businesses feared that the lack of presence on the Internet would hinder their competitive and strategic advantages. Internet competition in most industries is forcing businesses to search for ways to improve product

quality, customer service, and operation efficiency in supply chain management (SCM) in order to remain competitive. Today e-commerce has moved beyond EDI via value-added networks (VANs) by leveraging into the Internet and extending into Web technologies. The Internet is transforming and reshaping the nature of interorganizational commerce by enabling new types of interorganizational relationships. The business benefits include lower costs and more flexible systems that provide a facilitating structure for virtual relationships, enabling the easier identification of suppliers and products and more integrated supply chain management (Dai & Kaufmann, 2000). The Internet has impacted the SCM e-commerce environment by creating a centralized, global business and management strategy (e.g., make to order, assemble to order, and make to stock), and online real-time, distributed information processing to the desktop, thereby providing total supply-chain information visibility and the ability

to manage information not only within firms, but also across firms and industries.

On the other hand, uncertainties, technical complexities, and concerns about trust have kept many firms from participating actively in B2B e-commerce. Uncertainties reduce the confidence both in the reliability of online B2B transactions and more importantly in the trading parties themselves. In a survey of 60 procurement trading partners involved in supply chain management at U.S. firms conducted by New York-based Jupiter Media Metrix Inc. in 2001, the findings indicated that 45% of the trading partners suggest a lack of trust prevented them from buying goods and trading online more frequently. In the next section we discuss the evolution of e-technologies, followed by its role in supply chain management and impact on trust.

THE EVOLUTION OF E-TECHNOLOGIES AND TRUST

We discuss the evolution of e-technologies from traditional EDI via VANs to Internet-based EDI, extranets, e-marketplaces, and Web services commonly used in supply-chain activities today. Further, we link these e-technologies and their impact on trust. The study provides a novel discussion on how management is affected by using e-technologies for SCM activities. More importantly, we discuss how the evolution of different types of e-technologies impacts the evolution of trust. The next section describes the e-technologies.

Traditional EDI via Value-Added Networks

The traditional EDI-via-VANs technology has been used for almost three decades and has brought its users significant advantages resulting in increased productivity and efficiency. EDI is defined as the computer-to-computer exchange of intercompany business documents and infor-

mation through standard interfaces that requires hardware, software, and communications technology that permit computers to transfer the data electronically (such as purchase orders, invoices, shipping notices, and price lists).

Organizations that used EDI relied mostly on VANs and private messaging networks, both characterized by relatively high costs and limited connectivity. As an automated information exchange, EDI standardizes documents such as purchase orders, invoices, and shipping documents into an agreed-upon open-coded format. Connectivity to VANs was available only for large organizations that relied mostly on mailbox services. VANs were considered too expensive to implement, and smaller suppliers were pressured to adopt EDI (Langfield-Smith & Greenwood, 1998). Furthermore, recent research reflects reluctance on the part of traditional EDI trading partners to adopt the Internet due to the newness of the Internet technology, potential Internet legislations, the lack of Internet standards, and the lack of reliability and security of data transmission within the Internet environment.

Internet-Based EDI

Alternatively, Internet-based EDI, with significantly fewer implementation constraints, plays an important role in extending EDI benefits to a wider spectrum of businesses. Internet-based EDI differs from traditional EDI as it uses proprietary flat files in HTML (hypertext markup language) formats and it establishes two types of connections. The first is a direct connection that requires front-end translation software to transmit and display documents or interfaces with existing in-house application systems. Second is through a third-party Internet VAN (IVAN) that sets up a Web page to perform translations and exchanges among trading partners.

What was once cost effective for only large corporations conducting e-commerce in EDI format is today feasible for all organizations

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