



Chapter XV

**Technology Trust in
Internet-Based
Interorganizational
Electronic Commerce**

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ABSTRACT

Trust in Internet-based Business-to-Business (B2B) e-commerce is an important issue for both practitioners and academicians. Whereas the traditional notion of dyadic interfirm trust primarily focuses on trust in a trading partner firm, trust in e-commerce also implicitly incorporates the notion of trust in the transaction infrastructure and underlying control mechanisms (technology trust), which deals with transaction integrity, authentication, confidentiality, non-repudiation, and best business practices. This research explicitly examines this new institutional character of trust in B2B e-commerce, arguing that business value realization is heavily dependent on the dimension of technology trust, captured as perceived benefits and actual organizational performance, even after controlling for the positive effects of partner trust. Given the absence of adequate metrics to capture the notion of technology trust in B2B e-commerce, this research develops and validates a measure for technology trust and tests its effect on benefits and performance. This chapter

contributes to theory by bridging the gap between technological solutions (technology trust) from an institutional trust perspective, trading partner trust (relationship trust) and business value (perceived benefits and organizational performance). The proposed theoretical model is tested in organizations actively involved in B2B e-commerce using survey methodology. The findings from 288 firms validated the importance of technology trust for organizational success in B2B e-commerce.

INTRODUCTION

Internet-based information technology has revolutionized the way information is shared among organizations, resulting in radical transformations of organizational practices for procurement, deliveries, and financial transactions. The Internet is also promoting the inception of a major directional change in inter-organizational relationships, which encompasses relational contracting, working partnerships, and trust-based relationships (Dwyer, Schurr & Oh, 1987; Morgan & Hunt 1994, Cannon & Perrault 1999). Previous research suggests that trust in Internet-based business to business (B2B) e-commerce is an important factor for both practitioners and academicians alike (Heil, Bennis & Stephens, 2000; Hoffman, Novak & Peralta 1999, Keen, 2000, Pavlou 2002). In sum, the literature on inter-organizational relationships has shown that trust is a key factor for relationship success. Trust is a key element of social capital (Mayer et al., 1995), and it has been related to desirable outcomes such as supplier performance (Ganesan, 1994) conflict reduction, (Zaheer et al., 1998), satisfaction (Geyskens et al., 1998), and competitive advantage (Barney & Hansen, 1994).

Whereas the traditional notion of trust has predominantly focused on trust in the trading partner, trust in e-business implicitly incorporates the notion of technology trust, which is broadly described as the subjective probability by which organization assess that the underlying technology infrastructure and control mechanisms are capable of facilitating inter-organizational transactions according to their confident expectations (Ratnasingam & Pavlou, 2002). Drawing upon the rich trust literature and recent conceptualizations of the role of trust in business relationships and e-commerce (e.g., Lee & Turban, 2001; Tan & Thoen, 1998), trust is explicitly viewed both from the traditional social (trading partner trust), and also from a technological perspective (technology trust). As described in this article, the technological perspective draws from the notions of institution-based trust (Zucker, 1986), structural assurances and situational normality (McKnight et al., 1998; Pavlou & Ratnasingam, 2003), and impersonal structures (Shapiro, 1987).

The proliferation and hype of the Internet for B2B e-commerce has increased the focus of trust on e-commerce technologies. The confidence that large trading partners had in using EDI via value-added-networks (VANs) in the late 1980s was not an issue because the VANs came with embedded security mechanisms that provided formal acknowledgements and locked the registered trading partners. On

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