



# Facilitating Conditions and Institutional Trust in Electronic Marketplaces

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## ABSTRACT

*Organizations are capitalizing on new Internet technologies to engage in e-business. Given the uncertainties of today's e-business, we examine the role of institutional trust as an enabler of electronic marketplaces, drawing upon the lessons learned from traditional EDI via Value-Added-Networks. We apply these principles to develop a set of institutional trust-building facilitating conditions, such as (a) IT connectivity, (b) standards, and (c) uniform product descriptions. This research has implications for (1) the nature and role of institutional trust in e-marketplaces, (2) the strategic design of cost-effective trust-building mechanisms in e-marketplaces, and (3) an extension of the literature on institutional trust.*

## 1. INTRODUCTION

E-marketplaces have received a considerable attention in e-business research (Bakos 1998, Palmer, Bailey, and Faraj 2000, Sarkar, Butler, and Steinfeld 1995). E-marketplace is defined as "a virtual place where buyers and sellers meet to exchange goods and services" (Bailey & Bakos, 1997; Segev, Gebauer & Farber 1999). The emergence of e-marketplaces may substantially contribute to advantages of economies of scale and scope, reduction of search costs (Bakos 1998), trust building (Pavlou 2002; Pavlou, Tan, and Gefen 2002), and value-added services (El Sawy and Pavlou 2002).

Despite the interest in e-marketplaces by practitioners and academicians (Business Week, 2000; Kaplan and Sawhney, 2000), there are still many open questions about e-marketplaces, in particular how they differ from traditional B2B e-commerce applications. While, previous research mostly focused on competitive advantages of e-commerce, this study aims to examine how the lessons learned from traditional Electronic Data Interchange (EDI) can engender facilitating conditions for e-marketplace success. Applying the dimensions of institutional trust which means that one believes that there are impersonal structures that enable one to act in anticipation of a successful future endeavor (e.g., Shapiro, 1987; Zucker, 1986), this study develops a model for initial institutional trust through structural assurances, situational normality, and facilitating conditions. Following McKnight et al (1998); Shapiro (1987), and Zucker, (1986), this paper attempts to shed light on initial institutional trust formation by identifying facilitating conditions and dimensions - IT connectivity, standards, and uniform product descriptions for successful e-marketplace participation. The purpose of this study is to analyze and examine the impact of facilitating conditions in e-marketplaces. As such the core research question designed for this study is: How can the lessons learned from the role of institutional trust in traditional EDI impact the successful design of trust building mechanisms in e-marketplaces?

## 2. CONCEPTUAL DEVELOPMENT

### 2.1 Institutional Trust

The institutional view of trust has been widely adopted by e-commerce researchers, in particular because e-commerce brings together organizations with no familiarity and similarity (see McKnight and Chervany, 1998; 2002; Pavlou 2002; Tan and Thoen, 2001; Zucker, 1986). In her seminal study, Zucker (1986) suggests that institutional trust is the most important mode by which trust is created in an impersonal economic environment where familiarity and similarity (communality) does not exist. Zucker (1986) describes two dimensions of institutional trust. First, third party certification, which defines trading partners trustworthiness, and second, escrows that guarantee the expected outcome of a transaction.

Trust, in general, is necessary when expected outcomes cannot be guaranteed; it is the belief that even without enforcement the trusted party will behave as it is expected to (Luhmann, 1979; Gefen, 2002). Because the legal details cannot always be worked out in the finest of details, trust is an essential ingredient of long-term business engagements (Fukuyama, 1995). Under these circumstances, certification and escrows build trust because they add a level of assurance to the expected outcomes from the interaction (Zucker, 1986). Shapiro (1987) describes institutional trust as the belief that a party has about the security of a situation because of guarantees, safety nets, and other performance structures. Pavlou and Gefen (2002) examine the role of institutional structures in building consumer auction marketplaces. Tan and Thoen (2001) proposed the term "control trust" to describe institutionalized procedures. In sum, there is a growing literature on the role of institutional trust in e-commerce success.

McKnight and Chervany (2002) describe institutional trust as a critical part of Internet transactions and defined it as 'the organization's belief that favorable conditions are in place that are beneficial to outcome success.' They describe institution-based trust as a critical part of Internet transactions and introduced two dimensions of institutional trust namely structural assurances and situational normality. Structural assurances refer to beliefs that favorable outcomes are likely because of contextual structures, such as contracts, regulations, and guarantees. Situational normality refers to beliefs that success is anticipated because the situation is normal. Pavlou, Tan and Gefen (2002) examined the role of institutional structures and introduced a third sub-concept of institutional trust called facilitating conditions and the sub-concepts (IT connectivity, standards and uniform product descriptions) to engender relationship continuity. Previous research refers facilitating conditions

to shared standards, relationship values and common beliefs about behaviors and goals (Heide and John, 1990; Jap and Ganesan, 1999; Morgan and Hunt, 1994). Examples of facilitating conditions include standards that support (a) the use of interoperable IT platforms, (b) business message standards like EDI, or (c) common processes for uniform product descriptions. Industry reports have shown a great need for establishing standards (Meehan, 2001). We define facilitating conditions as 'the underlying mechanisms that support transaction success for e-marketplaces based on the lessons learned in EDI.' Ratnasingam and Tan (2002) adapted the third sub-concept facilitating conditions of institutional trust and examined its role in the context of the lessons learned from traditional EDI for e-marketplace participation. In addition, they introduced dimensions of measures for each of the sub-concepts. We believe that facilitating conditions contribute to an orderly manner of transacting electronically and abiding by certain standards and procedures that contribute to best business practices for e-marketplace participation.

## 2.2 Lessons Learned from EDI Adoption for E-Marketplace Participation

Although trust is a central aspect of EDI (Hart and Saunders, 1997), at first glance issues in EDI relationships (EDI) seem quite different from the issues in e-marketplaces such as; Covisint, Chemconnect or World Wide Retail Exchange. E-marketplaces are price discovery methods, whereas EDI solely focuses on efficient processing, in particular ordering just-in-time delivery between companies using VANs. So, why would one expect that EDI adoption highly correlates (positively) with e-marketplace participation? On the other hand, the underlying reason why trust is needed in EDI is actually very much the same as with E-Markets: as with other inter-company alliances and joint projects, it is a subjective belief that the expected outcomes will be achieved when there is no explicit guaranty (Gefen 2002).

Following an extensive literature review on EDI, we identified four lessons learned from EDI that serve as facilitating conditions for successful e-marketplace participation. They include (a) the need for standards, (b) the importance of IT infrastructure, (c) uniform coded product descriptions, and (d) an awareness of coercive power and competitive pressure.

### (a) The Need for Standards

Standards play an important role in EDI adoption as they contribute to uniform business practices, and exchange transactions that include purchase orders, purchase order acknowledgment, and invoices. The American (ANSI X12) standard, the Guidelines for Trade Data Interchange (GTDI) standard in the United Kingdom, and the United Kingdom EDI standard Electronic Data Interchange for Administration, Commerce and Transport (UN/EDIFACT), form the internationally agreed standards (Picard, 1992), that facilitate the smooth flow of EDI transactions.

### (b) The Importance of IT Infrastructure

EDI demands compatible systems between the buyer and their suppliers because the translation software has to convert an organization's internal transactions into the EDI standard format. For example, Telstra Multimedia's Tradelink software allows the translation of data from the internal format generated by a company's application software to the industry specific format, either using the industry standard (ANSI X12) or the international standard (UN/EDIFACT) formats. The EDI translation software provides this conversion between in-house, application software formats and move EDI document formats in two directions, thus facilitating EDI transactions.

### (c) The Need for Uniform Coded Product Descriptions

EDI documents include uniform header and footer codes. It is these codes or reference numbers that are identified by the translation software and decoded into readable format. An error in the header and footer numbers/codes will contribute to a wrong transaction that will in turn frustrate the receiving trading partner. Hence, the sending trading

partner has to re-send the same transaction correctly again, and may test the tolerance of mistakes of the receiving trading partners.

### (d) An awareness of coercive power and competitive pressure

Past research in EDI supports the claim that trading partners experienced competitive pressure (See Chwelos et al., 2001; Hart and Saunders, 1997; Iacovou et al., 1995; Premkumar et al., 1994; 1997). For instance, in the case of Ford, a supplier performance checklist determines whether they should renew the contracts of their suppliers or not. A check on their suppliers' competencies such as; product quality, timeliness of delivery, service quality, and how they resolve disputes were observed. Examples of coercive sources that an automotive manufacturer may exercise include; slow delivery of vehicles, slow payment on warranty work, unfair distribution of vehicles, turn-downs on warranty work, threat of termination and bureaucratic red tape (Ratnasingam, 2000). In all there is considerable evidence of coercion by large manufacturers towards their smaller suppliers.

Although, there was limited research to support the impact of power in e-marketplaces (Bailey, 2001), we assume that the lessons learned on the impact of power in EDI adoption are probably also true for e-marketplaces as was seen in the case of Covisint.com. The intensity of the problem is somewhat mitigated in e-marketplaces because the dominant trading partners tend to have open standards that serve their purpose for e-marketplaces so that access to a large number of trading partners can enable transparency for price comparisons. We believe and predict that the lessons learned from EDI (as in facilitating conditions that include IT connectivity, standards, and uniform product descriptions) in addition to the impact of power will contribute to the success of e-marketplace participation.

## 2.3 E-Marketplaces

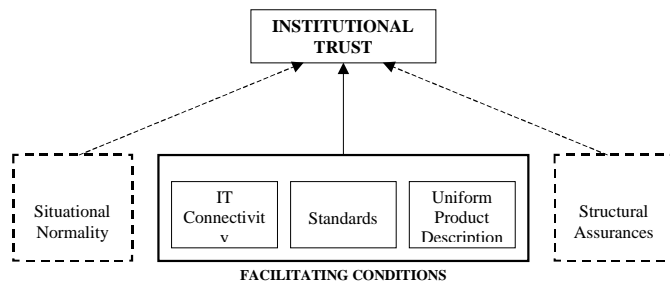
E-marketplaces attract a larger pool of trading partners and deal with multiple participants transacting electronically for the best price in order to increase liquidity and have a variety of price mechanisms, and auctions (Dai and Kauffman, 2001). E-marketplaces primarily focus on obtaining lower prices through large numbers bargaining. According to Bakos (1998), e-marketplaces serve the following three functions: (1) buyer demands or seller products to achieve economies of scale and reduce bargaining asymmetry (Williamson, 1975); (2) protecting buyers and sellers from opportunistic behaviours of other participants on the market; (3) facilitating the market by reducing operating costs; (4) matching buyers and sellers (Malone et al., 1989); and (5) providing an institutional infrastructure that enables the efficient functioning of the market. In all five categories, there is less of a legal guaranty than there is in a traditional business environment, and hence a heightened need for trust.

Figure 1, presents facilitating conditions of institutional trust for e-marketplace participation adapted from Pavlou, Tan and Gefen, 2002. In this research we apply facilitating conditions of institutional trust, by identifying the lessons learned from traditional EDI and how it can be applied for successful e-marketplace participation.

## 2.4 Facilitating Conditions

### 2.4.1 IIT Connectivity

IT connectivity refers to technological mechanisms that enable firms to be IT connected, in order for them to undertake transaction exchanges. Premkumar et al (1994), conducted a study of innovation and diffusion in EDI adoption and their findings revealed that technical compatibility was found to be a major predictor of EDI adoption. Previous research also supports this view (Chwelos et al., 2001; Iacovou et al., 1995; Premkumar et al., 1994; 1997). Ratnasingam and Tan (2002) identify three sub-concepts of IT connectivity namely IT compatibility, IS telecommunication infrastructure, and internal integration. IT compatibility refers to the extent the organizations participating in e-commerce are connected by means of hardware, software and third party servers. IS telecommunication infrastructure in turn facilitates the medium of exchange over the Internet, and internal integration



refers to the extent the organization has integrated their internal IS systems and applications in order to facilitate their in house business operations and back end business processes. Based on the lessons learned from traditional EDI, we argue that a firm's IT connectivity is positively associated with e-marketplace participation.

### 2.4.2 Standards

Establishing the right type of standards both message and industry-specific standards in an e-marketplace relationship can promote trust and contribute to economic efficiencies. Since institutional trust is not based on personal experience between firms, but on more formal impersonal procedures that coordinate standards, and in order to create transparency for e-marketplaces, we need standards for open IT software applications and product description. For instance, Covisint promotes an open IT environment that enables many companies to connect to their marketplace. In addition, Covisint provides an online fulfillment and connection service to exchange transport documents, such as forecasts, shipping schedules, and advance shipping notices that enable the creation of new supply chains. We argue that established message and industry-specific standards are positively associated with e-marketplace participation.

### 2.4.3 Uniform Product Descriptions

Standardized codes play an important role in e-marketplaces as they create uniform product descriptions and a structure to facilitate large numbers of buyers and sellers to trade with each other. Likewise, having the right codes for product descriptions will create sufficient trust that the e-marketplace will fulfil its promise to provide better prices. In an e-marketplace, price comparison is only possible if all the market players use uniform product descriptions. In order to facilitate uniform product descriptions, e-marketplaces provide online catalogs with uniform product descriptions. For example, Covisint offers catalogs, auctions, quote manager, asset control and provides tools and services to convert product information (supplier information) into an electronic catalog. The quote manager (which is an electronic document that manages, analyses and supports the automotive sourcing process), provides an environment to enhance the communication between buyers and potential suppliers. The next section concludes the paper with implications to practice and theory leading to directions for future research.

### 3. DISCUSSION

In this study, we identified and examined facilitating conditions of institutional trust for e-marketplace participation based on the lessons learned from traditional EDI. This research contributes to practice as we introduced a practical framework based on an elaborated notion of facilitating conditions as one of the sub-concepts of institutional trust for successful e-marketplace participation. The study has implications for the survival of online B2B marketplaces, which have gone under great scrutiny and financial problems given their inability to deliver measurable value to their participating organizations (Miller 2001). Similarly, firms that are aiming to initiate long-term online relation-

ships could take advantage of the facilitating conditions and lessons learned from EDI for successful e-marketplace participation.

This research contributes to theory by drawing upon the sub-concepts of institutional trust. In addition, from the lessons learned from EDI we posit three sub-concepts of facilitating conditions namely IT connectivity, standards, and uniform product descriptions for e-marketplace participation. By explicating the lessons learned from EDI for e-marketplace relationships, this paper stresses the strategic role of e-marketplaces. Not only this study provides the rationale for e-marketplace relationships success, but it also prescribes what specific facilitating conditions are most needed for e-marketplace participation (i.e. based on the extent of internal integration and type of industry sector). This study aims to entice future empirical research to examine how the adoption of EDI affects the dimensions of the model (i.e. whether previous use of EDI positively correlates with the sub-concepts and dimensions of facilitating conditions for e-marketplaces). Hence, we aim to examine whether EDI use paves the way for these facilitating conditions. Our future research aims to test the model via multiple case studies comparing organizations that have adopted EDI versus e-marketplaces and organizations that have evolved from EDI to e-marketplaces.

## REFERENCES

1. Bailey, J. and J. Y. Bakos, (1997) "Reducing Buyer Search Costs: Implications for Electronic Marketplaces," *Management Science*, 43, 12, 1676-1692.
2. Bakos, J.Y. (1998), "The Emerging Role of Electronic Marketplaces on the Internet," *Communications of the ACM*, 41, 8, 35-42.
3. Business week (2000) A Business to Business E-Boom, October 25<sup>th</sup>, p 62
4. Chwelos, P., Bensbasat, I., and Dexter, A.S (2001) Research Report: Empirical Test of an EDI Adoption Model, *Information Systems Research*, Informa, Volume 12, Number 3, pp 304-321.
5. Dai, Q., and Kauffman, R.J (2001) Business Models for Internet-based E-Procurement Systems and B2B Electronic Marketplaces: An Exploratory Assessment, Proceedings of the 34<sup>th</sup> Hawaii International Conference on System Sciences
6. El Sawy, O. A. and P.A. Pavlou, "Using a Process-Services Perspective to the Strategic Design of B2B Exchanges," *Working Paper*, University of Southern California, (2002).
7. Fukuyama, F. (1995) *Trust: The Social Virtues & the Creation of Prosperity*, Free Press, NY.
8. Gefen D. (2000), "E-Commerce: The Role of Familiarity and Trust", *Omega: The International Journal of Management Science*, 28(6), 725-737.
9. Gefen, D. (2002), "Customer Loyalty in e-Commerce," *JAIS*, 3, 27-51.
10. Hart, P., and Saunders, C (1997) Power and Trust: Critical factors in the adoption and use of Electronic Data Interchange, *Organization Science*, 8, 1, 23-42.
11. Heide, J.B and John, G (1990) Alliances in Industrial Purchasing, The Determinants of Joint Action in Buyer Supplier Relationships, *Journal of Marketing Research*, 37(1): pp 24-36
12. Iacovou, C.L., Benbasat, I., and Dexter, A.S. "Electronic data interchange and small organizations: adoption and impact of technology," *MIS Quarterly*, (19:4), 1995, pp. 465-485.
13. Jap, S.D. and S. Ganesan (1999), "Control Mechanisms and the Relationship Life Cycle: Implications for Safeguarding Specific Investments and Developing Commitment," *Journal of Marketing Research*, 37, 227-245.
14. Kaplan, S., and Sawhney, M (2000) E-hubs: the new B2B marketplaces. *Harvard Business Review*, Volume 78, Issue 3, pp 97-104
15. Luhmann N. (1979) *Trust and Power*, John Wiley and Sons, Great-Britain.
16. Malone, T.W., Yates, J., and Benjamin R.I (1987) Electronic markets and electronic hierarchies, *Communication of the ACM*, 30, 6, 484-497.
17. McKnight, D.H., L.L. Cummings, and N.L. Chervany (1998).

- "Initial Trust Formation in New Organizational Relationships," *Academy of Management Review*, 23, 3, 473-490.
18. McKnight, D.H. and N.L. Chervany (2002), "What Trust Means in E-Commerce Customer Relationships: An Interdisciplinary Conceptual Typology," *International Journal of Electronic Commerce*, 6, 2, 35-53.
  19. Morgan, R.M., and Hunt, S.D (1994) The Commitment-Trust Theory of Relationship Marketing, *Journal of Marketing*, (58), 20-38.
  20. Palmer, J.W., Bailey, J.P., and Faraj, S (2000) 'The role of Intermediaries in the development of Trust on the WWW: The use and Prominence of Trusted Third Parties and Privacy statements', *Journal of Computer Mediated Communication*, 5, 3, Online.
  21. Pavlou, P.A. (2002), "Institutional Trust in Interorganizational Exchange Relationships: The Role of Electronic B2B Marketplaces," *Journal of Strategic Information Systems*, 11, 4, (forthcoming).
  22. Pavlou, P.A., and D. Gefen (2002) Building Effective Online Marketplaces with Institution-Based Trust, *International Conference on Information Systems*, Barcelona, Spain, (forthcoming).
  23. Pavlou, P.A., Tan, Y. H., and D. Gefen (2003) "The Transitional Role of Institutional Trust in Online Inter-Organizational Relationships", *Hawaii Information Systems Science Conference*, (forthcoming).
  24. Premkumar, G., Ramamurthy, K. and Nilakanta, S. (1994) *Implementation of EDI - An Innovation Diffusion Perspective*, *Journal of Management Information Systems*, 11, 2, 157-186.
  25. Premkumar, G., Ramamurthy, K., and Crum, M. "Determinants of EDI adoption in the transportation industry," *European Journal of Information Systems*, (6), 1997, pp. 107-121
  26. Ratnasingam, P (2000) The Influence of Power among Trading Partners in Business to Business Electronic Commerce, *Internet Research*, 1, 56-62.
  27. Ratnasingam, P., and Tan Yao-Hua (2002) "Institutional Trust and related EDI Lessons for Electronic Marketplaces, *Working Paper*, Free University of Amsterdam
  28. Sarkar, M.B., Butler, B., and Steinfeld (1995) Intermediaries and Cybermediaries: A Continuing Role for Mediating Players in the Electronic Marketplace, *Journal of Computer Mediated Communication*, 1, 3.
  29. Segev, A., Gebauer, J., and Farver, F (1999) Internet based Electronic Markets, *Electronic Markets*, Volume 9, Number 3, 138-146
  30. Shapiro, S.P (1987) The Social Control of Impersonal Trust, *American Journal of Sociology*, 93, 3, 623-658
  31. Tan, Y-H and W. Thoen (2001), "Toward a Generic Model of Trust for Electronic Commerce, *International Journal of Electronic Commerce*, 5, 2, 61-74.
  32. Williamson, O.E (1975) Markets and Hierarchies, Analysis and Anti-trust Implications, *The Free Press*, New York.
  33. Zucker, L.G (1986) Production of trust: Institutional sources of economic structure: 1840-1920. In B.Staw and L.Cummings, (eds) *Research in organizational behavior*, 8, 53-111

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