Developing Inter-Organizational Trust in Business-to-Business E-Commerce Participation–Case Studies in the Automotive Industry

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EXECUTIVE SUMMARY

Inter-organizational-systems such as EDI have been the main form of business-to business e-commerce participation in the automotive industry for the last two decades. Previous studies in EDI adoption mostly examined environmental, organizational and technological factors. This study draws insights developed within the sociology of technology, in which innovation is not simply a technical-rational process of solving problems, but involves economic, behavioral and political processes required for building inter-organizational trust. The transition to cooperative relationships between buyers and suppliers may be more difficult for automotive companies because of complexity, compatibility, long lead times and ingrained adversarial supplier relationships (Langfield-Smith & Greenwood, 1998). Therefore, trust is important as organizations need to cooperate, collaborate and communicate timely and relevant information, in order to facilitate EDI that entails not only techno-logical proficiencies, but also trust between trading parties, so that business transactions are sent and received in an orderly fashion.

An analysis of the trust behaviors that influence EDI adoption will be useful for evaluating EDI participation. The aim of this study is to address the following intriguing questions:
* How does trading partner trust impact EDI participation?
* How do issues relating to coercive power among trading partners impact inter-organizational trust?, and
* What is the importance of trust within an inter-organizational dyad.

Ford has been using EDI since the electronic data transmissions commenced in 1988. The aim of EDI is to communicate production requirements of five car manufacturers (namely, Ford, General Motors Holden, Toyota, Mitsubishi and Nissan), to their component suppliers in order to meet the demands of the Australian and overseas motor vehicle markets. The automotive industry had more experience than other industries in developing inter-organizational relationships. Ford Australia was nationally and internationally popular because motor vehicles were exported to New Zealand and the Asia Pacific region.

BACKGROUND

EDI implementation at Ford started with the Button Car Plan in the mid-1980s. The objectives of the Button Car Plan included:

- Creating a timeframe to restructure and modernize (1985-1992);
- Increasing the industry's efficiency;
- Holding down vehicle price rises to no more than raises in the consumer price index;
- Minimizing disruption during restructuring; and
- Reducing job losses and providing job stability (Mackay & Rosier, 1996).

In 1984, the Federation Chamber Automotive Industries (FCAI) was formed to set up a standard procedure for adopting EDI. FCAI committee members discussed business issues, ramifications, and operations before negotiating with General Electrics in Information Services (GEIS) and Telstra Tradelink to create an EDI Value-Added-Network (VAN) system.

Ford was one of the earliest innovators of EDI inter-organizational network technology. In late 1987 and early 1988, the company conducted acceptance testing of EDI business transactions was carried out. Telstra developed the Tradelink software in 1988. EDI messages such as Materials Requirements Schedule (MRS) and Advanced Shipping Notice (ASN) were initially implemented followed by other documents. Thus, by 1997, EDI use at Ford was in a mature stage. Ford aimed to streamline its business processes and optimize its supply chain management activities. Ford implemented two EDI systems and many application systems across its five branches: Parts and Accessories, Original Equipment, Non-production, Purchasing, Ford Credit and Finance. Ford's parent company in America was two to three years ahead of their Australian counterparts and supervised EDI implementation in Australia.

The automotive industry remains a major segment of the Australian manufacturing sector, despite a general decline in the manufacturing output in Australia. It is particularly important in Victoria, where Ford Australia, General Motors Holden, and Toyota have their headquarters and principal assembly plants. Although it is only a small part of the global motor vehicle industry, the Australian automotive industry makes an important contribution to the gross domestic product of Australia. In this research, the original manufacturers are subsidiaries of large transnational corporations based in the USA or Japan.

Figure 1 demonstrates the flow of EDI transactions between Ford and Toyota (the manufacturers) and their first tier supplier (Patent Brakes and Replacement Ltd). For example, the supplier sends an Advanced Shipping Notice (ASN) to the manufacturer before supplying the parts. At the same time, a copy of the ASN is sent to the Transport Company for the truck driver to deliver the right quantity. The truck driver also brings a copy of the ASN that was sent electronically to the manufacturer. The completed motor vehicle is sent to the finance company and they collaborate with motor vehicle dealers and arrange credit terms for selling the motor vehicles.

SETTING THE STAGE

EDI is one form of business-to-business e-commerce inter-organizational system (IOS) which transmits standard business documents electronically among trading partners. EDI allows firms' to fundamentally change the way they do business, thereby improving the firm's performance and enhancing its competitive advantages (Emmelhainz, 1990). While EDI clearly provides economic benefits, it may be costly to implement, particularly when an organization lacks hardware or software compatibility. Security becomes an important issue because EDI systems do not operate unilaterally. Organizations motivated to adopt EDI must either find similarly motivated trading partners or persuade and/or coerce their existing trading partners to adopt EDI (Hart and Saunders, 1998; Webster, 1995). One key barrier to this is the lack of trading partner trust derived from uncertainties, lack of open communications and information sharing (Cummings & Bromiley, 1996; Doney & Cannon, 1997; Ganesan, 1994; Gulati, 1995). Despite the assurances of technological security mechanisms, trading

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