



EDI in strategic supply chain: impact on customer service

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Abstract

Many inter-organizational systems are increasingly using electronic data interchange (EDI) to support the strategic supply chain by way of delivering and processing business documents. In a vendor–customer relationship, EDI can provide many benefits to both organizations; one such benefit is improved customer service. This study examines the impact of EDI on customer service, when the vendor and customer utilize EDI in their distribution operations. The primary hypothesis is that EDI improves customer service. A number of secondary hypotheses dealing with specific components of customer service were also tested. Data was obtained by administering survey instruments to purchasing managers of firms in the automobile and pharmaceutical industries.

The results provide strong support for most of the hypotheses. Specifically, EDI contributes to the following customer service components: *order cycle time*, *product availability*, *distribution flexibility*, *distribution information*, and *distribution malfunction*. An impact on *post-sale product support* was not discernible from the data. In addition, some industry influences were also observed on the impact of EDI.

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1. Introduction

Electronic data interchange (EDI) is a rapidly growing technology, even though it has been widely available since the beginning of the 1980s. The number of registered EDI users, according to *EDI Yellow Pages International*, has shown impressive gains in the past several years, well in excess of a 50% annual growth rate. Among the many benefits of EDI are: faster processing speed, greater accuracy, reduced costs, competitive advantage, improved operations, security, tracking and control, intra and inter company communications, and customer service (Craig,

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1989; Gourley, 1998; Hansen & Hill, 1989; Kimberley, 1991; Mele, 1999; Richardson, 1988). Due to its capabilities to support inter-organizational systems, EDI has made a special contribution to the strategic supply chain of companies. One important aspect of the supply chain is the customer–supplier relationship. In this article, we focus on EDI's impact on “customer service”. It should be noted that many other benefits of EDI manifest into customer service. For example, customer service offers a powerful basis for establishing competitive advantage (Jackson, Lewis, & Cannon, 1991; Kyj & Kyj, 1989). Customer service may also represent the best opportunity for a firm to increase its market penetration and profitability (Lambert & Harrington, 1990).

EDI can have significant bearing on customer service. EDI provides a faster, more accurate, and less costly method of communication with customers compared to other methods, such as mail, telephone, and personal delivery (Crum, Johnson, & Allen, 1998; Emmelhainz, 1989). Iacovou, Benbasat, and Dexter (1995) insist that integrated EDI systems increase customer service in addition to operational efficiency. One should be careful in sweeping generalizations, however. For example, EDI may weaken the level of customer service due to the locking of a buyer into a very limited number of suppliers and subsequent pressures on the suppliers (La Londe and Emmelhainz, 1985; Sokol, 1989; Suzuki & Williams, 1998). In any case, the various pronouncements of EDI's impact on customer service are based on rhetorical power and anecdotal evidence, and need to be investigated in detail and with rigor.

2. EDI and customer service: background and a model

2.1. Definition of EDI

Crum et al. (1998) describe EDI as “the direct computer-to-computer communication of inter-company and intra-company business documents in a machine-readable standard format”. The inter-organizational aspect of EDI has received much attention. For example, Hill and Swenson (1994) emphasize the role of EDI in the electronic exchange of information between business partners in a structured format. EDI can be distinguished from other forms of electronic communication, such as fax and electronic mail, as variations of forms, from unstructured to highly structured (Hansen & Hill, 1989).

This study is concerned with the inter-organizational use of EDI in the strategic supply chain. Accordingly, EDI in this study is limited to the computer-to-computer exchange of machine readable business documents *between* organizations (e.g., the vendor and the customer organization) in a standard format.

2.2. Definition of customer service

In their two books, La Londe and Zinszer (1976), La Londe, Cooper, and Noordewier (1988), developed standards to measure customer service. While customer service is defined differently in different disciplines, La Londe et al. (1988) synthesize three aspects of customer service. First, in an organizational context, customer service is defined as a set of functions, such as the customer service department, which is responsible for all service operations. Second, customer service is defined as performance expectations, for example, “deliver 99% of orders within 10 days”.

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