

DEVELOPMENT OF AN ELECTRONIC DATA INTERCHANGE MODEL FOR CHANNEL MANAGEMENT

James E. Ricks, Southeast Missouri State University
jricks@semo.edu

Dana Schwieger, Southeast Missouri State University
dschwieger@semo.edu

ABSTRACT

In this paper, the authors propose a new paradigm for distribution management based upon research and data collected over an eighteen month period through contributions made to an online conference sponsored by the Journal of Business and Industrial Marketing. Technological linkages between value chain partners using Electronic Data Interchange (EDI) and Automatic Data Collection (ADC) offers firms significant potential for the transformation of interorganizational relationships. Electronic data transfers offer considerable benefits and responsibilities for all participants and, with the increasing technical literacy of the customer-base, are becoming a requirement for sustaining operations rather than a competitive advantage. The growing importance and ubiquitousness of ADC and EDI in logistics and distribution is considered as well as the need for additional conceptual consideration in strategic business pedagogy.

INTRODUCTION

Electronic Data Interchange (EDI) and Automatic Data Collection (ADC) technologies are becoming increasingly prevalent in daily operations of the business environment. Using an online survey form and requests for e-mailed comments, data was collected from industry professionals regarding their viewpoints concerning twelve ADC and EDI concepts. Approximately 1,498 individuals posted comments on the conference web site regarding the concepts addressed, however, no one contributed any new concepts to those already listed. Upon review of the posted comments, six of the twelve concepts received enough support to consider as propositions. Generally, respondents felt that EDI and ADC were valuable tools that would increasingly become a necessity for potential players in the world marketplace.

Based upon a relevant review of the literature and the information that was collected from the survey, six propositions concerning the use of EDI and ADC technologies in distribution management were developed. The propositions focused upon the underlying interrelationship between EDI/ADC, process and channel participation. A model was developed from the three most highly supported propositions focusing upon the political-economic paradigm and the pressures applied by both customers and competitors. With the increasing reliance upon interorganizational relationships and the influence that each of the partners holds, it is important to continue to research this area as well as further incorporate these concepts in strategic business curricula.

PROPOSITIONS

Individuals were encouraged by the author to visit the website or, coincidentally, found it while searching the MCB publication website. They were encouraged to register and e-mail comments to the posted article. The article explained that the conference was in response to the vast shift in logistics management toward utilization of electronic data interchange and automatic data

collection. The described movement in industry required additional theoretical underpinnings and distillation of procedural knowledge. The article also explained that procedures for instituting EDI linkages and a new paradigm for distribution management would be developed based on results from the Internet conference sponsored by the *Journal of Business and Industrial Marketing*. The conference paper presented twelve theoretical hypotheses and procedural guidelines for improved logistical linkages. Approximately 1498 individuals posted comments on the conference web site and an unknown number of others read all or portions of the Internet conference. Although a large audience commented upon a few concepts, they did not contribute new concepts to those already listed. Generally, respondents felt that EDI and ADC were valuable tools that would increasingly become a necessity for potential players in the world marketplace. Six of the hypotheses received enough support to consider as new propositions.

P1 The higher the level of uniqueness of the EDI-Inventory system for a channel of distribution, the higher the political exit costs for channel members.

P2 The more unique and individualized the EDI-Inventory system, the more power the channel leader will possess over other channel members.

P3 EDI-Inventory systems will provide consumers with more value for their purchases. The distribution system will become more efficient as EDI expands. As EDI/ADC expands, consumers will demand this level of value and service of all firms.

P4 Retailers will be inclined to join channels with manufacturers who can deliver more computerized, custom-made products efficiently, than manufacturers who cannot customize.

P5 Major retailers will encourage the development of common EDI-inventory control systems or software to accomplish the same goals so that the exit costs associated with changing suppliers will be lower.

P6 Computerization will lead to more product proliferation with an increase in custom-made products.

MANAGERIAL IMPLICATIONS AND CONCLUSION

The business and its trading partners must discuss and decide upon the overall strategic objectives and standards that the EDI system is to follow. Product related customer service and possibly, product customization, will become high priority concerns in the future. Further, the EDI standard should be consistent with the needs of all channel members and possibly the final customer as well. Data transmissions set the "format of electronic transactions, ensuring the verifiability and audit-ability of each" (Tageldin, 1994). These standards work as the engines of EDI by transforming data into a format that is understood by all computer systems in the channel, however, they "must be consistent with the needs of all interested parties" (Ali, 1994).

Once the system is running properly and efficiently, the business can expand the system. EDI conversion should start with a narrow focus to diminish political resistance and then expand as workers adjust to the new systems. Additional trading partners and transaction sets can be acquired to improve and strengthen the system (Cannon, 1993). The firm's "high-tech communications" capability can be used as a marketing and promotional selling point. This will help the channel

members realize great economies of scale and many other EDI benefits. These benefits can be used to attract other channel members and hold them in the system.

Marketing theory has been moving in the direction of increased channel cooperation, relationship marketing and a need for special alliances like the Japanese keiretsu. In Leenders and Blenkhorn's (1988) book regarding reverse marketing, they described the advantages of greater cooperation and integration of suppliers into a major system. EDI is expected to energize these new and improved channel structures and alliances thus necessitating further investigation.

It is critical that all channel members in the merchandise flow are capable of both making the connections and handling the EDI system. Thus, before application of EDI, businesses must confirm that there are "mature information technology systems at both ends of the transaction and that both systems are well equipped for transmission" (Ali, 1994, p. 17). It is imperative to ensure the integrity, reliability and operability of the existing and planned environments before the implementation of EDI. EDI will not improve ill-conceived business procedures and will not refurbish poorly designed systems. In fact, the introduction of EDI into an unstable channel environment will probably worsen the situation by accelerating the rate of information transfer. Eventually, poorly designed systems will become overburdened and fail (Ali, 1994 p. 17).

Before implementing EDI, both the initiating business and its trading partners must have a well-structured business environment with current and stable information technology systems. Implementation of ADC and EDI as part of the corporate strategy is a challenge. The business must understand the time and costs involved in implementation and the extent of impact it will have on the business functions. All corporate levels in the organization will absorb the pressure of preparing the business to implement an EDI system. Therefore, it is a major political and economic decision for all firms involved as shown by the model and will require everyone's complete cooperation and effort. The first step is to receive top level corporate support. One way to build corporate support is through third party, corporate-wide presentations to educate the company. Once the presentations have been conducted, the organization should schedule additional meetings to determine if EDI is right for them. Throughout these meetings, they should discuss issues that could become implementation obstacles and answer questions regarding application of the technology to business processes.

Next, approval should be sought for the EDI project and funding (Cannon, 1993). Once the EDI project has been approved, the next step is to establish a trading relationship with the businesses that will participate in the EDI exchange (Porter, 1990). Power retailers are politically and economically forcing these reforms on channel members. Although portions of past theory and empirical research support some aspects of this model, the relationships proposed in this model demand further empirical examination. Further, the conceptualization and proposed propositions in this model demand further anecdotal analysis relative to distribution issues.

REFERENCES

- Ali, M. F. (1994). Electronic Data Interchange--A Management Primer. *CMA Magazine*. 68, 16.
- Cannon, E. (1993), *EDI Guide: A Step by Step Approach*, New York: Van Nostrand Reinhold. University of Michigan Institute for Social Research, Ann Arbor, MI.
- Leenders, M. and D. Blenkhorn (1988), *Reverse Marketing the New Buyer Supplier Relationship*, The Free Press, New York, NY.
- Porter, R. (1990), The Basics of Electronic Data Interchange. *Purchasing*, 109(3), 26-28.
- Tageldin, S. (1994), Taking Advantage of EDI. *American City and County*. 109(11), 12.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.