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Linking EDI Implementation to Corporate Strategy

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Abstract

A corporate strategy provides the key thrusts the business must select in order to profitably provide a product or service that customers will want to buy. Electronic Data Interchange (EDI) can be described as a way to automate the information transfers that must be undertaken to complete the tasks identified in value chain analysis. EDI applications therefore should be linked to corporate strategy. In this paper we describe the relationship between a firm's core strategy and EDI efforts.

Introduction

Electronic Data Interchange (EDI), the electronic exchange of information between units of two organizations, has been described as the "technical platform on which reengineering efforts are planned, implemented, maintained and, sustained" (Massetti and Zmud, 1996). While the overall strategic importance of EDI is obvious to most researchers, the links between specific business goals and the use of EDI are less understood. In this paper, we explore the relationship between IS efforts in the area of EDI and the company's overall strategic intent. We explore the relationship between corporate strategy and EDI applications. We hypothesize that the EDI effort should be focused in those areas of the business tied most closely to the firm's strategic goals.

Literature Review

The relationship between corporate strategy and Information Systems (IS) effort has been an on-going concern in the IS literature. Mahmood and Mann (1993) found that while past researchers had not always found strong links between IT efforts and success, their research showed that IT investment was related to the attainment of economic goals such as return on investment and market to book value.

IS efforts should be linked to the attainment of strategic goals as well as financial goals. In their study of EDI, Teo, Tan, and Wei (1997) found that firms must change their organizational structure along with IS spending to achieve superior financial performance. Successful EDI efforts require an understanding of financial goals, strategic goals, organizational structure, and technological change (Clemons and Weber, 1988).

Other research into the strategic importance of EDI has explored EDI and the adoption process (Iacovou, Bebbasat and Dexter, 1995), conflict reduction in interorganizational systems (IOS) (Kummar and van Dissel, 1996) and the benefit of IOS or EDI (Riggins and Mukhopadhyay, 1994; Mukhopadhyay, Kekre, and Kalathur, 1995).

The Relationship Between Core Strategy and EDI Applications

Porter (1985) describes two major strategic alternatives available to firms: cost and differentiation. A firm following a cost strategy attempts to be an industry cost leader through shared procurement (usually from multiple competing suppliers), economy of scale in production, low cost of overhead, and other methods of minimizing costs. The firm following a differentiation strategy emphasizes procurement of high quality components (usually from a single supplier), high quality production emphasizing value-added products, and heavy expenditures on marketing and sales in order to communicate the differences between the firm's products and its competitors' products.

EDI provides an opportunity for the IS area to directly affect business strategy. Because the linkages emphasized above vary by the strategy a firm selects, we would expect that the areas of EDI efforts would vary systematically between cost-oriented firms and differentiation-oriented firms. For example, an firm with a differentiation strategy should be expected to develop EDI systems that link its marketing and sales force to the distribution channel to a greater extent than a cost-oriented firm. We state this relationship between EDI effort and business strategy as a research proposition:

P1: Efforts on various forms and applications of EDI will vary systematically between firms according to the firms' business strategies.

Premkumar (1994) identifies 12 application areas of EDI: purchase orders, production planning, incoming inventory control, accounts payable, incoming delivery tracking, supplier payment, sales invoicing, outgoing shipping/distribution, accounts receivable, outgoing delivery tracking, customer payment, and finished goods inventory. Of these twelve areas, the majority represent automation of existing processes and therefore offer only limited opportunity for a firm to differentiate itself. But three of the above processes represent new services that were difficult to perfect before the development of automation: incoming delivery tracking, outgoing shipping/distribution, and outgoing delivery tracking. These three areas offer clear opportunities for the firm to differentiate itself. We state these propositions in hypothesis form:

H1: The EDI application areas of purchase orders, production planning, accounts payable, supplier payment, sales invoicing, outgoing shipping/distribution, accounts receivable, customer payment, and finished goods inventory are associated with cost-oriented strategic goals.

H2: The EDI application areas of incoming inventory control, incoming delivery tracking, and outgoing delivery tracking are associated with differentiation-oriented strategic goals.

We test these hypotheses by examining twenty case studies of EDI applications. Using content analysis, we examine the strategic thrust of each firm implementing EDI applications. We compare application areas with the strategic thrust of each firm.

References

Clemons, E. K. and Weber, W. B. London's big bang: a case study in technology, competitive impact, and organizational change. *Journal of Management Information Systems* 6,4, 1990, pp. 41-60.

Iacovou, C.L., Bebbasat, I. and Dexter, A.S. Electronic data interchange and small organizations: adoption and impact of technology. *MIS Quarterly*, December 1995, pp. 465-485

Kummar, K. and van Dissel, H.G. Sustainable collaboration: managing conflict and cooperation in interorganizational systems. *MIS Quarterly*, Sept. 1996, pp. 279-299.

Mahmood, M.A., and Mann, M.J. Measuring the impact of information technology investment: an exploratory study. *Journal of Management Information Systems*, 10,1, 1993, pp.97-122.

Mukhopadhyay, T., Kekre, S., and Kalathur, S. Business value of information technology: a study of electronic data interchange. *MIS Quarterly*, June 1995, pp. 137-156.

Porter, M. *Competitive advantage*. New York: Free Press, 1985.

Premkumar, G. and K. Ramamurthy, and S. Nilakanta, "Implementation of Electronic Data Interchange: An Innovation Diffusion Perspective," *Journal of Management Information Systems* , 11(2), 1994, 157-186.

Riggins,F. J. and Mukhopadhyay, T. Interdependent benefits from interorganizational systems. *Journal of Management Information Systems* 11,2, 1994, pp.37-57.

Teo, H., Tan, B.C.Y. and Wei, K. Organizational transformation using electronic data interchange: the case of TradeNet in Singapore. *Journal of Management Information Systems*, 13,4,1997, pp. 139-165.