Strategic Use of Information Technology in International Business: A Framework for Information Technology Application

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Information Technology’s (IT) link to the strategy of the firm has been explored in Information System literature, but the application of IT to the strategy of the international firm has received limited attention. This paper addresses the topic by exploring the use of IT in conjunction with a popular framework, the Integration-Responsiveness (IR) framework, of international business strategy. The framework’s three subgroups; global integration, multifocal, and local responsiveness are discussed. Specific applications of IT are then examined with reference to the dimensions that have been used to operationalize the IR framework. They are complex innovation, marketing differentiation, breadth, and conservative cost control. The paper concludes with implications for practice and research.

During the 1980s, the volume of world trade increased over two hundred percent (200%). The International Monetary Fund (IMF) estimates the current volume of world trade exceeds 7 trillion dollars. Companies, such as McDonalds Corporation (McDonalds Annual Statement 1991), are finding that their most profitable operations are located in their “overseas” markets. This increasing world trade volume has encouraged businesses to become involved in the global trade arena, and has been accompanied by a corresponding increase in the competitiveness between firms. Many of these firms are using information technology (IT) to enhance their competitiveness in this environment. New frameworks are being developed to explain the factors that contribute to the success of these multinational firms. In the information systems literature, IT’s link with strategic objectives has been discussed (Ives and Learmonth 1984, Wisemann and MacMillan 1984, Rackoff et al. 1985, Johnson and Vitale 1988, Feeny and Ives 1990), as critical to competitive success, but the connection to the international arena has yet to be fully investigated.

This study investigates the link that IT plays in facilitating the strategic plan of the international organization. It is the coordination of the overall business strategy and the IT strategy and applications of that strategy that provide firms with competitive advantage. The goal of this paper is to demonstrate how the coordination of IT with the strategic processes can provide managers and their firms with a means to achieve competitive advantage. The paper is organized as follows. The strategic use of IT in an international context is discussed in the first section. This is followed by an examination of the IR framework. The next segment
reviews the dimensions used to operationalize the IR framework and examines the subgroups which compose the framework. Examples illustrate the applications of IT within the Integration-Responsiveness framework of global industries. The final section comprises implications for managers and poses questions for future research.

**Strategic Use of Information Technology (IT) in a Global Environment**

As the business environment becomes more complex and uncertain, organizations seek more information to reinforce their decision-making activities (Galbraith 1977). Galbraith contends that one of the most advantageous methods to support this additional information requirement is for the organization to increase the functionality of its IT system: storage, processing, and communication. Subsequently firms are turning to strategic uses of IT as a means of responding to competitive pressures in their industry and uncertainty in their environment. Sources of this competitive pressure include deregulation, increased foreign competition, entry of competitors from other industries, changes in technology or industry structure, and successful implementation of IT initiatives of competitors (Johnson and Carrico 1988).

The international business environment is characterized by the conditions envisioned above. While becoming diversified and multinational, a company clearly needs to find a way to manage across functions, business units, products, markets, and geographical regions (Sullivan 1985). Companies operating in this international environment seek to utilize their IT assets to cope with the increased levels of complexity and uncertainty.

Literature suggests that there are many options available to the multinational firm to enhance competitive advantage through the application of IT in its overall strategy (Bartlett and Ghoshal 1989, Galbraith 1977, Johnson and Vitale 1988, Farrell and Song 1988, Ives and Learmonth 1984, Neo 1991). The use of IT as a mechanism to coordinate the firm’s value chain activities is suggested by Porter and Millar (1985). International firms will utilize their IT network to disperse activities throughout their global market, seeking comparative advantage. Interorganizational systems (IOS) are becoming widely used by domestic and international firms to lock-in their suppliers and buyers (Johnson and Vitale 1988). This mechanism creates entry barriers and thus establishes competitive advantage.

Avnet has used the concepts outlined by Johnson and Vitale to provide competitive advantage over their competition in the distribution area. Their electronic marketing group employs technology through the use of electronic data interchange (EDI), on-line direct order entry, and state of the art bar coding and laser scanning. These technologies have allowed them to heighten internal efficiencies and provide their customers with improved service. The company has just expanded the system into the United Kingdom and is positioned to move into the European Economic Community (Avnet Annual Statement 1991).

IT is related to a company’s strategic thinking because it helps to define the range of its possibilities. Wisemann and MacMillan (1984) developed the concept of creating a strategic information system (SIS) that is used to support the firm’s competitive strategy. There is evidence to suggest that most successful SISs are not created, but are extended from existing successful corporate systems (Runge and Earl 1988). While most organizations are already successful at performing their business functions; an SIS planning process provides the opportunity for the firm to examine its organizational goals and generate options so that IT can be enabled to enhance competitive advantage.

**The Integration-Responsiveness (IR) Framework**

In the international arena, there is no single strategy that applies to firms nor are there universal conditions of operations. The competitive position of today’s multinational firm is a function of its organization, environment, varied market conditions, and to a large degree the actions of other entities. Management is responsible for the assessment of these environmental and organizational conditions and the creation of strategies that will facilitate their operating position (Hamel and Prahalad 1985, Porter 1985).

The integration-responsiveness (IR) framework, developed by Prahalad and Doz (1987), is operationalized to examine and classify firms operating in the international arena. It has been suggested as a “way of capturing the pressures on a given business” and establishes a parsimonious foundation that can be applied to firms across industry lines. The framework was developed through extensive field research and its basic components have received wide support in the literature (Doz 1985, Porter 1980, Bartlett and Ghoshal 1989).
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