Chapter XII

Organization, Strategy and Business Value of Electronic Commerce: The Importance of Complementarities

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ABSTRACT

Many corporations are reluctant to adopt electronic commerce due to uncertainty in its profitability and business value. This chapter introduces a business value complementarity model of electronic commerce. The model relates high level performance measures, such as business value, first to intermediate performance measures, such as value chain and company strategy, and then to the e-business performance drivers as business processes and complementary technologies. The model argues that complementarities among the different activities of the value chain, corresponding business processes and supporting technologies should be explored to reach a better fit among strategy, business model and technology investments when entering the electronic commerce field. The exploration of such complementarities should lead to investments in electronic commerce systems that best support the company strategy, thus minimizing failures. From a practical point of view, managers could use this framework as a methodology to increase the business value of electronic commerce to a corporation.

INTRODUCTION

The Internet economy is becoming an integral part of many countries' economies, creating new jobs, giving rise to new companies like the dot coms and transforming traditional jobs and traditional companies. The Internet economy is made up of a large collection of global- (IP) based networks, applications, electronic markets, producers, consumers and intermediaries (Barua et al., 1999a). A recent study conducted by the University of Texas' Center for Research in Electronic Commerce (Barua et al., 1999a) estimates the U.S. Internet economy to have exceeded $500 billion in revenue in 1999. In the first half of 2000, the U.S. Internet economy has supported approximately 3.7 million workers, of which 28% are in information technology, while 33% in sales and marketing, which is also the job function generating most Internet-related employment. The study finds that the Internet is increasingly becoming part of the basic business model for many companies, laying the groundwork for even more growth.

There are many definitions of electronic commerce (e.g., Wigand, 1997; Zwass, 1996). In this chapter, a definition by Kalakota and Whinston (1996) is adopted, where e-commerce is "the buying and selling of information, products and services via computer networks today and in the future via any one of the myriad of networks that make up the "Information Superhighway (I-way)" (p.1). In the analysis, I distinguish between physical and digital products. A digital product is defined as a product whose complete value chain can be implemented with the use of electronic networks, for example, it can be produced and distributed electronically, and be paid for over digital networks. Examples of digital products are software, news, journal articles, etc., and companies selling these products are usually Internet-based "digital dot coms" such as Yahoo and America Online. On the contrary, a physical product cannot be distributed over electronic networks (e.g., a book, CDs, toys, etc.). These products can be sold on the Internet by "physical dot coms," but they are shipped to the consumers. The corporations using electronic commerce are distinguished into "bricks and mortar" companies, hybrid "clicks and mortar" companies (such as Amazon.com) and pure dot coms. For further discussion of different types of dot coms, please refer to Barua and Mukhopadhyay (2000).

Electronic commerce can be used to reengineer a corporation's business processes for the electronic marketplace (Kalakota & Whinston, 1996). The broad goals of re-engineering and e-commerce are remarkably similar: reduced costs, lower product cycle times, faster customer response, and improved service quality. Reengineering for electronic commerce is defined here as the redesign (or design) of a corporation's business processes (or part of them) in order to take place on the Internet. We are witnessing the virtualization of value-chain segments as business processes can be moved into the virtual, informational value chains (Zwass, 1996; Rayport & Sviokla, 1995).

Many studies from the early days of deployment of information technology (IT) in organizations have struggled to measure the business value and profitability of

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