Business Model Innovation in the Digital Economy

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INTRODUCTION

Most Internet ventures failed because they did not have viable business models and sustainable long-term strategies. Their business models failed to satisfy the two fundamental questions associated with the characteristics of the Digital Economy (Lee & Vonortas, 2004):

- Does your organization's business model follow the fundamental economic principles of the Digital Economy? That is, what is the underlying economic logic that explains how your organization can deliver value to customers at an appropriate cost?
- Does your organization's business model capitalize on the "disruptive attributes" of the Digital Economy? That is, how can you organization capture the full benefits of the Internet innovation?

These two fundamental questions lead business executives to consider several strategic questions regarding the implementation of an innovative business model in the Digital Economy.

- What are the functions and components of a viable business model in the Digital Economy?
- What are the disruptive attributes of the Internet innovation and how does an organization capitalize on them for competitive advantage and profits?
- What are the differences between the traditional organizational transformation process and the value creation process in the Digital Economy?
- How do transaction costs and network effects in the Internet economy change a company's competitive position?
- How do the cost and revenue structures in the Digital Economy differ from in the traditional industrial economy?

BACKGROUND

A business model is the method of doing business by which a company can generate revenue to sustain itself (Rappa, 2003; Turban, King, Lee & Viehland, 2004). It describes the basic framework of a business. It also tells what market segment is being served (who), the service that is being provided (what), the means by which the service is produced (how) (Chaudhury & Kuilboer, 2002), and how it plans to make money long term using the Internet (Afuah & Tucci, 2003, p. 51).

A firm's business model should also spell out how the company is positioned in the value chain or within the business ecosystem. Weill and Vitale (2001) define an e-business model as a description of the roles and relationships among a firm's consumers, customers, allies, and suppliers that identifies the major flows of product, information, and money, and the major benefits to participants. Timmers (1998) defines business model as an architecture for the product, service, and information flows, including: a description of the various business actors and their roles, a description of the potential benefits for the various business actors, and a description of the sources of revenues.

A business model consists of multiple components and performs different functions. A "new economy" business model requires four choices on the part of senior management, argued by Rayport and Jaworski (2001). These include the specification of a value proposition or a value cluster for targeted customers; a scope of marketspace offering, which could be a product, service, information, or all three; a unique, defendable resource system, that is, the associated resource system to deliver the benefits; and a financial model, which includes a firm's revenue models, shareholder value models, and future growth models. In a similar effort, Chesbrough and Rosenbloom (2002) identify the functions of a business model as: 1) to articulate the value proposition; 2) to identify a market segment; 3) to define the structure of the firm's value chain; 4) to specify the revenue generation mechanisms(s) for the firm; 5) to describe the position of the firm within the value network; and 6) to formulate the competitive strategy to gain advantage over rivals. Other efforts to bring together the various lines of thought and to establish a common denominator for the business model discussion include Alt and Zimmermann (2001) and Dubosson-Torbay, Osterwalder, and Pigneur (2002).

Rappa (2003) identifies nine basic Internet business models: brokerage, advertising, infomediary (e.g., recommender system, registration model), merchant, manu-

facturer (direct marketing), affiliate (provide commission for online referrals), community (voluntary contributor model or knowledge networks), subscription, and utility (e.g., pay by the byte). In addition, Turban et al. (2004) also identify several types of Internet business models, including name your price, find the best price, dynamic brokering, affiliate marketing, group purchasing, electronic tendering systems, online auctions, customization and personalization, electronic marketplaces and exchanges, supply chain improvers, and collaborative commerce.

In order to sustain a successful business venture, a viable business model should address a number of issues and the dynamics of the respective elements which include: what value to offer customers (strategic goals and value proposition); which customers to provide the value to (scope of offerings); how to price the value (pricing); how much and who to charge for it (revenue models); quantity of resources required and the associated costs to provide the value; what strategies, structures, and processes need implementing to offer value; and the legal issues that may influence the general vision of the business model (Alt & Zimmermann, 2001). In addition, in order to prosper in e-commerce, a firm's Internet business model must capitalize on the "disruptive" attributes and characteristics of the Internet or Digital Economy to enable it to offer innovative solutions and value to customers.

BUSINESS MODEL INNOVATION

Although the changes made possible by the Internet are strategic and fundamental (Ghosh, 1998), the underlying technologies are not radically different from the existing technologies that support business operations. Computing and communication technologies, which are the technological foundations for the Internet, have both been improved incrementally over the past few decades. Bower and Christensen (1995) argue that the technological changes that damage established companies are usually not radically new or difficult from a technological point of view. However, the Internet is considered a disruptive innovation to many businesses. It is disruptive to the traditional way of doing business in that it is transforming the rules of competition and inventing new value propositions and business models. The successful implementation of a viable business model in the Digital Economy requires a paradigm shift. In moving toward e-commerce as an enabler, a business executive must be able to identify the disruptive nature of the innovation and then capture the benefits. Table 1 lists several disruptive attributes of the Internet and e-commerce identified by Lee (2001). Organizations in the Digital Economy must understand and capitalize on the disruptive attributes of the Internet and e-commerce to transform their business models for success.

Business model innovation in the Digital Economy is the use of new knowledge (both technological and market) that capitalizes on the disruptive attributes of the Internet to design and implement an innovative way of offering products or services that customers want. Examples of successful business model innovations that were able to capitalize on some of the disruptive attributes of the Internet include channel innovation (e.g., Dell's build-to-order virtual integration model), process innovation (e.g., Boeing virtual design and e-procurement PART page), customer experience innovation (e.g., Schwab), auction and reverse auction model (e.g., eBay and Priceline), online virtual community (e.g., iVillage), customer-relationship (e.g., Yahoo!), and affiliate network (e.g., Amazon).

VALUE CREATION IN THE DIGITAL ECONOMY

In a competitive market environment, businesses exist to create value for their customers. To understand how a business creates value, a simple "input-transformation-output" model can be utilized to describe the process of value creation. In the Industrial Economy, inputs to a value creation process are raw materials or all of the necessary physical inputs that are required to produce the finished products or services. Outputs are finished products or intermediate goods used as inputs to another transformation or value creation process. Information, such as design and engineering know-how as well as production methods and procedures, is applied to facilitate the "physical" transformation process, which involves one or more of the four value-adding activities: alter, transport, inspect, and store (Meredith & Schaffer, 1999). Management's focus is to make the transformation process more efficient by implementing techniques such as lean manufacturing, total quality management, and business process re-engineering. In contrast, input to the value creation process in the Digital Economy is information (e.g., customer profiles and preferences, i.e., the digital assets, as well as production and distribution status) that firms gather, organize, select, synthesize, and distribute (Rayport & Sviokla, 1995) in the transformation process to provide individual customers a bundle of customized solutions. In the Digital Economy, information is a source of value, and every business is an information business (Earl, 1999). Since physical and digital economies co-exist within a firm or supply chain, management should go beyond concentrating on improving the