

## Chapter 7.3

# Delivering Superior Customer Perceived Value in the Context of Network Effects

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### ABSTRACT

Network effect refers to the phenomenon that the value of connecting to a network depends on the present number of customers connected to that network. The self-reinforcement characteristic of the network effect strengthens the strong firms and weakens the weak firms. In the extreme form, network effects may produce a winner-take-all market. Therefore, competitive strategies are critical for companies in markets characterized by network effects. To succeed in the market, a firm must be able to deliver superior value to customers compared to its competitors. This study proposes a conceptual model for describing the market situ-

ations characterized by network effects. Based on this model, this study clarifies how companies can deliver superior customer value in the context of network effects. This study proposes two major approaches: increasing total customer value and reducing total customer costs. Various practical methods are proposed for implementing these two approaches.

### INTRODUCTION

The rise of information technologies has dramatically changed the whole world. Businesses are not excluded from the trend. In information

economies, network effects play a crucial role in e-business competitions. The “larger gets larger” mechanism guarantees a theoretical natural “monopoly” (the sole market leader owning a nearly 100% share of a market) for the winner, urging e-businesses such as net-enabled organizations and value Webs to take advantage of network effects.

Network effects refer to the value of connecting to a network depending on the number of customers already connected to the network. Larger networks are more beneficial to users than smaller ones. New users thus tend to prefer larger networks to smaller ones, resulting in a phenomenon of larger networks growing continuously. Networks can be physical, such as telephone networks, or virtual, such as the networks of the members of a Web site. Industries in which network effects exist include information products, communication networks, durable goods, and services. Typical examples are telephone, image phone, e-mail, videotape, computer operating system, office software, TV game player, surgical operation, computer language, and computer keyboard.

Network effects pervade the network sector such as the telecommunication industry and the information (hardware and software) industry. With the popularization of electronic commerce, network effects also are critical in online auctions and information exchange businesses such as e-marketplaces or online employment Web sites.

It is well known that network effects can tilt the market toward the largest player and produce a natural monopoly (Chou & Shy, 1990; Farrell & Saloner, 1992; Katz & Shapiro, 1986). For example, “Microsoft’s dominance is simply a manifestation of the network externality (effects) which relentlessly drives computer software to standardization” (Choi, Stahl, & Whinston, 1997, p. 4). Therefore, competitive strategies in markets characterized by network effects are important for e-businesses to strive to be the largest. Chen, Chen, and Wu (2005) provided a Simonian perspective on e-business regularities that guide e-

businesses to gain lasting competitive advantage in the digital economy.

Previous research on this area has focused on inefficiencies in social welfare (the gap between the actual and the optimal social welfare) resulting from network effects (Farrell & Saloner, 1986). Although researchers have begun to shift their research focus to competitive strategies (Tseng, Teng, & Chiang, 2005), their assumptions remain too restrictive. This study presents a general model for exploring methods of delivering superior value to customers in markets characterized by network effects.

The remainder of this paper is organized as follows. Section 2 reviews the theoretical background. Section 3 then describes the customer perceived value model. Subsequently, Section 4 elaborates ways for delivering superior customer value. Finally, Section 5 draws conclusions.

## **THEORETICAL BACKGROUND**

The following first reviews the beginning and definitions on network effects. Then several variations of network effects are listed. Following the strategies applicable to markets with network effects, some counter-intuitive strategies are discussed. Then social welfare inefficiency from network effects and corresponding corrective activities are reviewed. The section then indicates the three papers that mostly relate to this study and discusses the differences between the current study and those papers.

### **Definitions and Related Terminologies**

Researches on network effects might start at Katz and Shapiro (1985). Katz et al. (1985) used the term *positive consumption externality* to describe network effects as “the utility a user derives from consumption increases with the number of other users consuming the good” (Katz et al.,

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