Dell's Value Chain

Dell Computer, with close supplier relationships, encourages suppliers to focus on their individual technological capabilities to sustain leadership in their components. Research and development costs are too high and technological changes are too rapid for any one company to sustain leadership in every component. Suppliers are also pressed to drive down lead times, lot sizes, and inventories. Dell, in turn, keeps its research customer-focused and leverages that research to help itself and suppliers. Dell also constructs special Web pages for suppliers, allowing them to view orders for components they produce as well as current levels of inventory at Dell. This allows suppliers to plan based on actual end customer demand; as a result, it reduces the bullwhip effect. The intent is to work with suppliers to keep the supply chain moving rapidly, products current, and the customer order queue short. Then, with supplier collaboration, Dell can offer the latest options, can build-to-order, and can achieve rapid throughput. The payoff is a competitive advantage, growing market share, and low capital investment.

On the distribution side, Dell uses direct sales, primarily via the Internet, to increase revenues by offering a virtually unlimited variety of desktops, notebooks, and enterprise products. Options displayed over the Internet allow Dell to attract customers that value choice. Customers select recommended product configurations or customize them. Dell's customers place orders at any time of the day from anywhere in the world. And Dell's price is cheaper; retail stores have additional costs because of their brick-and-mortar model. Dell has also customized Web pages that enable large business customers to track past purchases and place orders consistent with their purchase history and current needs. Assembly begins immediately after receipt of a customer order. Competing firms have previously assembled products filling the distribution channels (including shelves at retailers) before a product reaches the customer. Dell, in contrast, introduces a new product to customers over the Internet as soon as the first of that model is ready. In an industry where products have life cycles measured in months, Dell enjoys a huge early-to-market advantage.

Dell's model also has cash flow advantages. Direct sales allow Dell to eliminate distributor and retailer margins and increase its own margin. Dell collects payment in a matter of days after products are sold. But Dell pays its suppliers according to the more traditional billing schedules. Given its low levels of inventory, Dell is able to operate its business with negative working capital because it manages to receive payment before it pays its suppliers for components. These more traditional supply chains often require 60 or more days for the cash to flow from customer to supplier—a huge demand on working capital.

Dell has designed its order processing, products, and assembly lines so that customized products can be assembled in a matter of hours. This allows Dell to postpone assembly until after a customer order has been placed. In addition, any inventory is often in the form of components that are common across a wide variety of finished products. Postponement, component modularity, and tight scheduling allow low inventory and support mass customization. Dell maximizes the benefit of postponement by focusing on new products for which demand is difficult to forecast. Manufacturers who sell via distributors and retailers find postponement virtually impossible. Therefore, traditional manufacturers are often stuck with product configurations that are not selling while simultaneously being out of the configurations that are selling. Dell is better able to match supply and demand.

One of the few negatives for Dell's model is that it results in higher outbound shipping costs than selling through distributors and retailers. Dell sends individual products directly to customers from its factories. But many of these shipments are small (often one or a few products), while manufacturers selling through distributors and retailers ship with some economy of scale, using large shipments via truck to warehouses and retailers, with the end user providing the final portion of delivery. As a result, Dell's outbound transportation costs are higher, but the relative cost is low (typically 2% to 3%), and thus the impact on the overall cost is low.

What Dell has done is build a collaborative supply chain and an innovative ordering and production system. The result is what Dell likes to refer to as its value chain—a chain that brings value from supplier to the customer and provides Dell with a competitive advantage.

Discussion Questions

1. How has Dell used its direct sales and build-to-order model to develop an exceptional supply chain?

2. How has Dell exploited the direct sales model to improve operations performance?

3. What are the main disadvantages of Dell's direct sales model?

4. How does Dell compete with a retailer who already has a stock?

5. How does Dell's supply chain deal with the bullwhip effect?

Amazon.com

Amazon.com

Amazon started as an e-commerce book site and has now added music, toys, electronics, software, and home improvement equipment to its list of product offerings. The Amazon supply chain is longer than that of a bookstore chain such as Borders or Barnes and Noble because of the presence of an additional intermediary—the distributor. The distributor margins in the Amazon supply chain can also be viewed as an increase in cost.

However, Amazon has exploited several opportunities on the Internet to attract customers and increase revenues. Amazon uses the Internet to attract customers by offering a huge resource of millions of books. A large physical bookstore, in contrast, carries fewer than 100,000 titles. Amazon also uses the Internet to customize service to the individual. Amazon's software allows it to develop and maintain customer relations by recommending books based on customer purchase history, sending reminders at holiday time, and permitting customers to review and comment on books. New titles are quickly introduced and made available online, whereas a brick-and-mortar bookstore chain must distribute and stock the titles prior to sale. Amazon takes advantage of other Internet attributes: online ordering and 24-hour-a-day, 7-day-a-week availability. To this Amazon adds delivery to the customer's door.

Amazon uses e-commerce to lower inventory and facility costs, but processing costs and transportation costs increase. Amazon is able to decrease inventories by consolidating them in a few locations. A bookstore chain, on the other hand, must carry the title at every store. Amazon carries high-volume titles in inventory, but purchases low-volume titles from distributors in response to a customer order. This also tends to lower costs because the distributor is aggregating (consolidating) orders across bookstores in addition to Amazon.

E-commerce allows Amazon to lower facility costs because it does not need the retail infrastructure that a bookstore chain must have. Initially, Amazon did not have a warehouse and purchased all books from distributors. When demand volumes were low, the distributor was a more economical source. However, as demand grew, Amazon opened its own warehouses for high-volume books. Thus, Amazon's facility costs are growing but still remain lower than for a bookstore chain. Amazon does, however, incur higher order-processing costs than a bookstore chain. At a bookstore, the customer selects the books, and only cashiers are needed to receive payment. At Amazon, no cashiers are needed, but every order is picked from the warehouse and packed for delivery. For books that are received from distributors, additional handling at Amazon adds to the cost of processing orders.

Amazon's distribution incurs higher transportation costs than a retail store. Local bookstores do not have the cost of shipments to customers, as most customers take the books with them at the time of the sale. Amazon, in contrast, incurs this cost—which represents a significant fraction of the cost of a book (as high as 100% on an inexpensive book). As demand has grown, Amazon has opened six warehouses, with more than 3 million square feet, in an effort to get close to the customer, decrease transportation costs, and improve response time (see the *Global Company Profile* in Chapter 12).

Discussion Questions

1. What are the advantages and disadvantages of selling books over the Internet?

2. If books can be downloaded online, how will Amazon's business change?

3. What other products could Amazon sell that are downloadable?

4. What do traditional bookstores have to gain from setting up an e-commerce side to complement their retail stores?

Sources: Adapted from S. Chopra and P. Meindl, *Supply Chain Management* (Upper Saddle River, NJ: Prentice-Hall, 2001): 403–406; *New York Times* (January 21, 2002): C-3; and *APICS—The Performance Advantage* (May 2001): 34–38.