Chapter 1

The Power of Value Nets

A new business model is emerging. If you've ordered a computer over the Internet, you've probably come into contact with this model without quite realizing what it was. As a businessperson, you may be bumping against it in the course of day-to-day competition. This model links increasingly stringent customer requirements to flexible and cost-effective manufacturing. It uses digital information to move products rapidly, bypassing costly distribution layers. It connects providers who work in concert to deliver tailored solutions. It elevates operational design to the strategic level. It adapts to constant change. We call this new model a *value net.*

Firms like Cisco Systems, Gateway, furniture-maker Miller SQA, home delivery innovator Streamline.com, and others are in the vanguard of creating value nets. These companies allow customers to configure their own orders, then build and deliver them to the customers' doorsteps in a matter of days. No hassles. No mistakes. No excuses. And they are beating competitors who cannot do the same.

Value nets are a quiet revolution—but savvy executives are starting to pay attention. The Internet and e-commerce

provide a special impetus to value net business designs. As customers gain experience with this type of commerce, they begin to ask other, more traditional companies questions like these:

"Why can't I buy an automobile the way I buy a Gateway computer?"
"Why does it take two months or more to design and deliver furniture for our new office?"
"Why can't my supplier tell me when the material will arrive at our receiving dock?"
"Why do I have to deal with four suppliers to solve a single business problem?"

Few traditional manufacturers or service providers can answer these questions or provide better solutions. Even creative new dot-com companies that have developed slick front ends often lack back ends capable of consistently delivering high-level service. Can you meet tomorrow's customer needs? If not, the door of opportunity is open to others.

■ VALUE NET DEFINED

A *value net* is a business design that uses digital supply chain concepts to achieve both superior customer satisfaction and company profitability. It is a fast, flexible system that is aligned with and driven by new customer choice mechanisms.

A value net is not what the term *supply chain* conjures up. It is no longer just about supply—it's about creating *value* for customers, the company, and its suppliers. Nor is it a sequential, rigid chain. Instead, it is a dynamic, high-performance network of customer/supplier partnerships and information flows. The traditional supply chain manufactures products and pushes them through distribution

channels in the hope that someone will buy them.[1] In contrast, a value net begins with customers, allows them to self-design products, and builds to satisfy actual demand. Although the idea of demand-pull systems is scarcely recent, the disappointing reality is that most companies still maintain heavily push-driven and sequential supply chains.

The old supply chain is tactical, and its primary mission is cost efficiency with "acceptable" service. It works hard to optimize this goal within a variety of constraints. It is built on conventional (and often antagonistic) supplier–purchasing agent relationships. Most senior executives rightly view it as a back-office activity, the concern of specialized managers. A value net, on the other hand, is strategic. It seeks solutions beyond the old constraints. It is a new form of business design that leverages operations and customer choice to drive strategic advantage. It merits a place in the boardroom.

A traditional supply chain is designed to meet customer demand with a fixed product line, relatively undifferentiated, one-size-fits-all output, and average service for average customers. A value net views every customer as unique. It allows customers to choose the product/service attributes they value most. Manufacturing, delivery, and associated services are differentiated to meet the needs of each customer segment—and to do so profitably.

In a traditional business design, materials flow slowly and sequentially down the supply chain (Figure 1.1). Information moves, often erratically, back up the chain. Time delays and multiple handoffs are endemic. As a result, supply and demand rarely match. Inventories pile up all along the chain as buffers against supply failures and

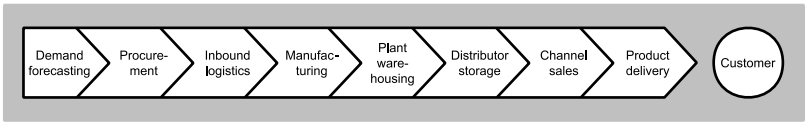

Figure 1.1 Traditional supply chain.

demand forecasts that are rarely accurate. Working capital burdens the balance sheet, and inventory carrying costs eat into profits. Salespeople are forever apologizing for how long it takes to fill an order.

In contrast, a value net forms itself around its *customers,* who are at the center (Figure 1.2). It captures their real choices in real time and transmits them digitally to other net participants. Pathways for information and material flows are aligned with the service needs and priorities of distinct customer segments. The customer-provider relationship is symbiotic, interactive, and value enhancing.

The *company* (or business unit) creating the value net is the inner concentric circle surrounding the customer. It controls the customer touch points by accessing customer information, nurturing the relationship, and managing satisfaction through digitally integrated service and support. At the same time, it manages its network of providers to ensure rapid and cost-efficient fulfillment.

The outer circle of the value net in Figure 1.2 represents the constellation of *providers* that perform some or all of the

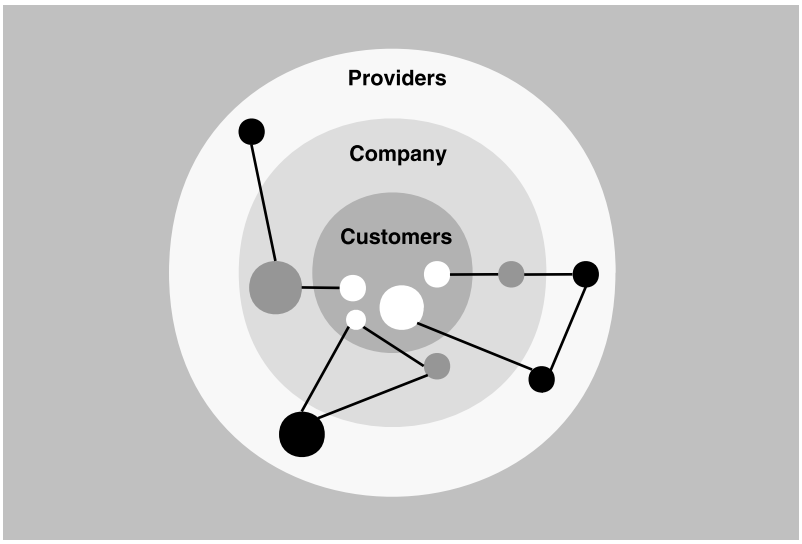

Figure 1.2 Value net.

sourcing, assembly, and delivery activities. They may be connected directly to customer order information, and they may furnish products and services directly to customers, thus bypassing traditional layers in the value chain.

Two very different games, croquet and soccer, can be used as metaphors for the differences between traditional supply chain operations and value nets. In the game of croquet, each player acts alone, planning his or her moves and focusing on accurate execution. Rapid movements are few. Players take turns. The ball progresses sequentially from hoop to hoop. In soccer (football), on the other hand, team play is foremost. Each team moves forward in concert, passing the ball quickly from player to player. Motion is rapid and continuous. Signals fly between teammates. The ball is kicked from the left wing to the striker, who shoots and scores.

The differences in the two games are very apparent. Soccer is based on collaboration and speed. It has individual heroes, but the real value is bound up in the team.

■ FIVE CHARACTERISTICS OF A VALUE NET

The following five characteristics distinguish a value net business and give it the edge over a traditional business design relying on supply chain thinking (Figure 1.3):

- *Customer-aligned.* Customer choices trigger sourcing, building, and delivery activities in the net. Distinct customer segments receive customized solutions with customized service "wraps." The customer commands the value net; he or she is not a passive recipient of supply chain output.
- *Collaborative and systemic.* Companies engage suppliers, customers, and even competitors in a unique network of value-creating relationships. Each activity is assigned to the partner best able to perform it.

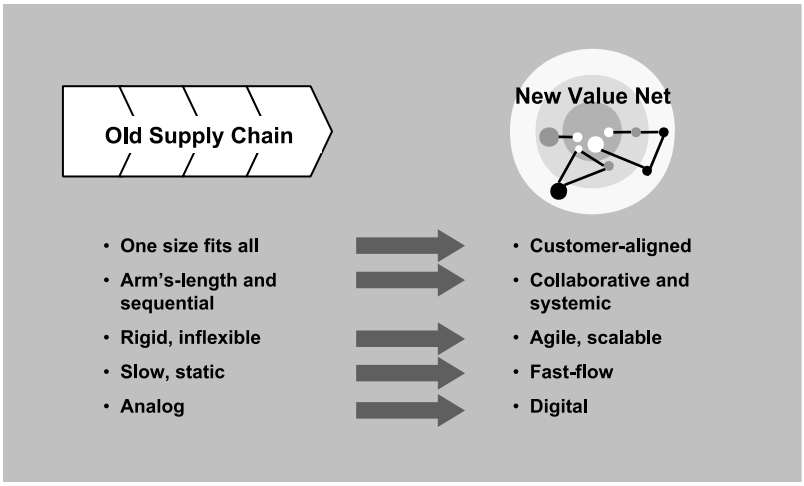

Figure 1.3 Key business design differences.

Significant portions of operational activities are delegated to specialist providers, and the entire network delivers flawless results thanks to collaborative, systemwide communication and information management.

- *Agile and scalable.* Responsiveness to changes in demand, new product launches, rapid growth, or redesign of the supplier network are all assured through flexible production, distribution, and information flow design. Constraints imposed by bricks and mortar are reduced or eliminated. Working capital shrinks. Process time and steps are collapsed, sometimes eliminating entire echelons of the traditional supply chain. Everything in the value net, physical or virtual, is scalable.
- *Fast flow.* Order-to-delivery cycles are fast and compressed. Rapid delivery goes hand in hand with reliable and convenient delivery. That means on-time, complete orders delivered to the customer's plant, office, or home. Time is measured in hours or days, not weeks or months. At the same time,

it means drastically lower inventories for the company.

- *Digital.* E-commerce is a key enabler. But beyond the Internet, it is the information flow design and its intelligent use that lie at the heart of the value net. New digital information pathways link and coordinate the activities of the company, its customers, and its providers. Rule-based, event-driven tools take over many operational decisions. Distilled real-time analysis enables rapid executive decision making.

Together, these five characteristics constitute a competitively differentiated business design. Add a healthy dose of vision and leadership, a high-velocity organization, and zealous attention to flawless execution, and you have a powerful engine for generating shareholder value.

To be sure, building a value net is not a simple matter. For both established businesses and young dot-coms, success requires real commitment and involves substantial cost and effort. For Internet start-ups, the challenge lies in integrating effective and differentiated fulfillment capabilities with a powerful customer interface. Established companies need to learn new ways of relating to customers and suppliers, to redesign internal processes, and to digitize them as well. The work of some functions may have to be eliminated or outsourced. Changes like these are difficult in large, mature organizations.

■ MILLER SQA AS VALUE NET

Aware of these challenges, office-furniture-maker Herman Miller created a new unit, Miller SQA, that provides an excellent example of value net design. Like its parent, Miller SQA makes office furniture, but with a twist. Its product and the entire furniture-buying experience are designed to be "simple, quick, and affordable" (hence SQA).

- SQA's entire manufacturing and delivery system is *customer-aligned* with the demands of specific purchasers: small businesses and others who value speed and simplicity more than unlimited choice. SQA also customizes the product for each buyer through a configure-to-order digital interface.
- *Collaborative* arrangements with suppliers allow Miller SQA to hold minimal inventory (one to two days' worth in mid-1999), and supplier hubs located near SQA's manufacturing facility deliver components on a just-in-time basis. Activities occur in parallel rather than in sequence. As orders arrive, relevant information is transmitted to suppliers four times a day so that parts replenishment, order assembly, and logistics arrangements can begin almost simultaneously.
- Supply and manufacturing processes are geared to minimize handling and to maximize *speed*. Order-to-delivery time can take as little as two days, compared with the industry norm of two months.
- *Digital* information flows—between customers, SQA, and suppliers—orchestrate seamless production and allow the company to make firm delivery commitments at the time of order.
- SQA has kept its product line simple, ensuring that it is *agile* in matching customer demand.

The clarity of Miller SQA's vision, the value net design just described, and its exemplary execution have been hugely successful. Orders are being shipped 99.6 percent on time and complete. Profitability is excellent, and sales are growing at 25 percent a year.

SQA is not alone. Our interviews with more than 30 companies confirm that the value net concept is spreading. Some of the best examples we see are new, often Internet-based, companies that enjoy the luxury of creating their business designs on a clean slate. Others, like

SQA, introduce the new concepts through a single division of a large corporation. But even entire enterprises with established supply chains can adopt a value net design to good effect. Consider the case of Apple Computer.

■ APPLE COMPUTER GETS IT RIGHT

During the mid-1990s, Apple was selling lots of products but losing money hand over fist—nearly $1.9 billion in the period from 1996 to 1997. Its share price had dropped into the cellar, and some industry analysts were already writing its obituary as a player in the personal computing industry.

A look behind the gloom and doom reveals a key cause of the computer company's woes. Despite its state-of-the-art products and legions of die-hard followers, Apple's operations were in shambles. It had finished 1996 with close to $700 million in inventory, and technological obsolescence was making the value of that inventory melt like ice cream on a hot day! Inventory was turning over at an anemic 13 times per year. By comparison, Dell's inventory was turning over at a rate of 41 times a year.

"Apple's problem," observed one analyst, "was a supply chain management problem."[2] And one source of that problem was consistently poor demand forecasting. The company was, in fact, notorious for being out of stock on hot new products and overloaded with everything else. Being out of stock on hot items, particularly during key selling seasons, frustrated Apple's distributors and drove potential customers into the arms of its competitors, who had plenty of new machines at lower prices.

Being overloaded with inventory wreaked havoc on Apple's bottom line as obsolete components and finished goods were dumped at big discounts. "Huge Mac Blowout!" was a recurring theme with Apple's direct mail distributors. As new, faster Macintoshes were introduced, prices

on mountains of older finished goods inventory had to be slashed to the bone, producing profitless sales.

Apple's fortunes began to brighten in 1997 when Steve Jobs returned to lead the company he had co-founded decades earlier. They brightened again when the company launched its highly successful iMac family in the rapidly growing low end of the market. By 1999, Apple had pulled itself out of its death spiral, and the business press was busy writing about the company's sudden new vitality.

Jobs and iMac did wonders for Apple, but a supply chain makeover deserves much of the credit for its new lease on life. One of Jobs's key moves was to lure Tim Cook away from Compaq and assemble a team of executives to grapple with Apple's supply chain problems. "We set out to beat Dell," recalls Cook. "We didn't want to deliver products like theirs—we have our own unique design, look, and feel—but we did want to emulate them in operations."[3]

Jobs, Cook, and the rest of the team rolled up their sleeves and reinvented Apple's supply chain. Tim Cook recalls those exciting times: "There was no one thing. It was a series of things." Cook stresses the following elements:

- Jobs streamlined the product plan from more than 15 models to four basic products. "This greatly reduced the number of parts. We were able to focus more on customizing a few products rather than carry lots of inventory for lots of products. This was the umbrella move that set the stage."
- Many warehouses and all country distribution centers of the company were closed. "Warehouses tend to collect product. . . . We started to deliver directly from manufacturing to the customer, be it the channel or the end user."
- An enterprise resource planning tool (from SAP) was installed.

- Apple launched an Internet strategy to let customers configure to order. "We began to take orders directly from educational institutions and consumers over the Internet, via the Apple Store (www.apple.com), and configured products directly for them."
- The number of suppliers was reduced dramatically to a small core set.
- Apple and its suppliers began to work together in very different ways. "We began to pass very frequent forecasts to them. And we asked them to supply us from a nearby hub, forming a very focused supplier network."
- The company began to outsource manufacturing. "We were still building motherboards in 1998. We looked around and saw that many suppliers were building good motherboards. So we sold off the business."
- The existing global supply chain was reexamined. "Our laptops were built in Cork, Ireland. Components manufactured in Asia were being shipped to Ireland for assembly, and then a significant portion of finished product was shipped back to Asia. So we began to assemble PowerBooks in Asia."

These reforms were far-reaching, and their effects were quickly felt. By September 1998, within a year after Cook's hiring, inventory had been reduced 82 percent from its previous high. Inventory collapsed from 27 days in 1996 to just 6 days—lower than Dell's by a day at the time! By September 1999, inventory held by Apple had shrunk to less than two days, including raw materials, work in progress, and finished goods. "I consider any internal inventory to be a defect," Cook told a reporter.[4] When we spoke with Cook in September 1999, he was able to claim, "No one else is flipping inventory like we are. . . . Our supply chain is now fundamentally different. It's responsive, and it has a lot less cost in it."

Apple's aim had been to please customers and reduce costs by making the company operationally faster and more responsive to the rapid technical and market changes that roiled the personal computer industry. And it succeeded. By September 1999, Apple was able to report an eighth consecutive profitable quarter, breaking its previous two-year string of losses (Figure 1.4). The hemorrhaging had been stanched. And its stock price had rocketed to over $100 (end of December 1999) from $13 just two years earlier.

In effect, Apple had built a value net. Following a radical course of reform, Apple strategically reconfigured its entire supply chain—reducing the number of suppliers and distributors, better integrating their activities, and developing rapid linkages between them, Apple, and its customers. These feats were painfully won—the company spent over $500 million in restructuring costs, and many long-term employees had to be furloughed. And it wasn't a one-shot deal. "It is a journey," says Cook. "It wasn't done overnight. And it isn't finished." But the company has been brought back from the brink.

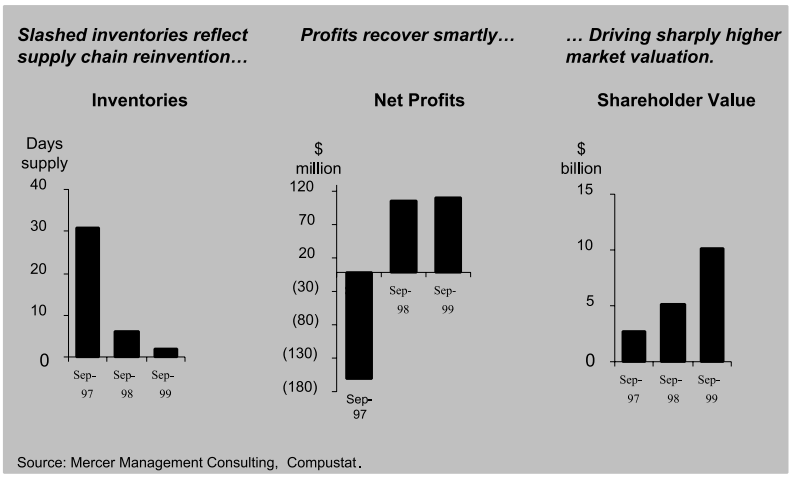

Figure 1.4 Apple's reinvention as a value net.