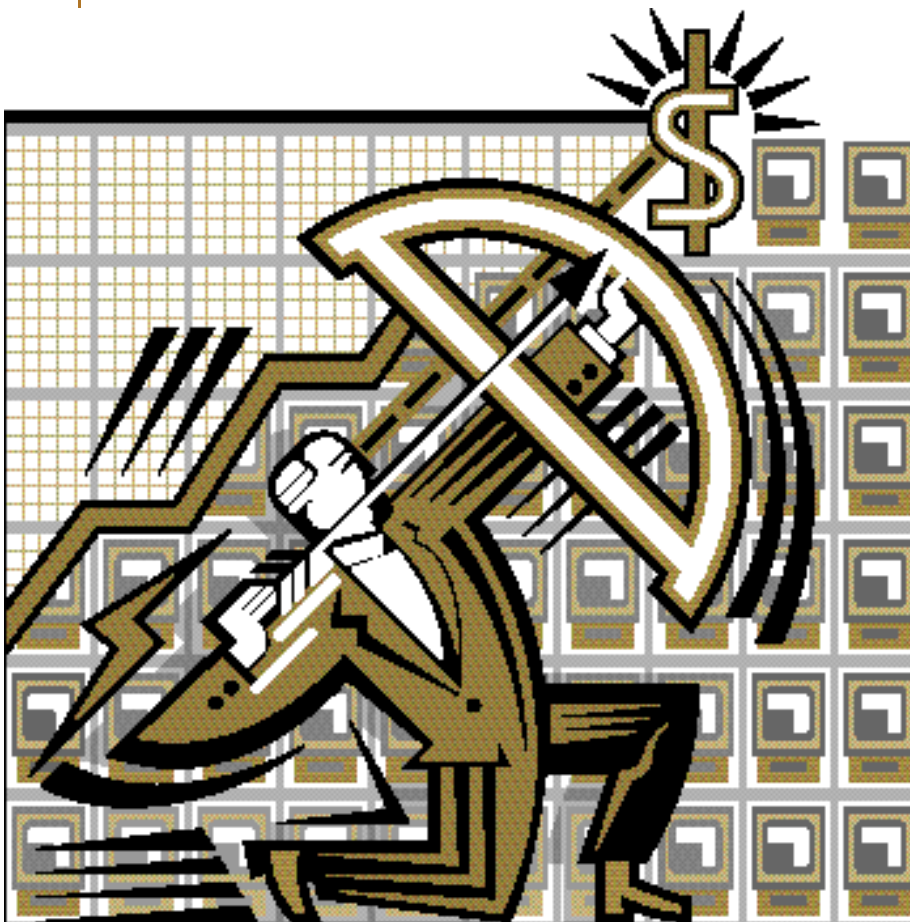




INSIDE DELL COMPUTER CORPORATION: Managing Working Capital

By Lawrence M. Fisher



The secret to excellence lies in doing many things well. It also requires staying focused on the goal even when tempted to do otherwise.

OF ALL THE creators of shareholder value in the 1990's, the most dramatic have been strategic innovations, those bold new business models that forever changed the rules of the industries in which they were applied. But in today's competitive world, a brilliant business model alone does not create a sustainable advantage, unless it is supplemented by operational excellence, the continuous identification and adoption of best practices.

By any measure, the Dell Computer Corporation's direct sales model is one of the most successful strategic innovations of the past 15 years. With the deceptively simple concept

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of bypassing the retail channel to sell directly to consumers, Dell created a model that undercuts its competitors on price, forges closer links with customers and provides shareholders a return several times that of market averages. But Dell stumbled badly four years ago and might have failed, were it not for the timely addition of seasoned management and with it the adoption of a new structure, new processes and new metrics.

Dell is not the largest personal computer company, but it is the fastest growing. Dell's year-over-year unit sales rose 67 percent in the second quarter of 1997, while the No. 1 PC company, the Compaq Computer Corporation, rose 25 percent, according to Dataquest, a market research firm based in San Jose, Calif. And Dell's return on invested capital reached 167 percent in the second quarter, nearly 10 times the industry average. At about \$100 a share at the end of September, Dell's stock price quadrupled since the beginning of the year, after adjusting for splits.

While almost all of its competitors still build standard machines based on often faulty market forecasts, and stuff the channel with inventory, Dell makes each machine to order, and maintains only 12 days of inventory. Its major customers include Ford, Boeing and Texaco, as well as Federal, state and local governments. At Dell's new factory in Round Rock, Tex., near Austin, a personal computer can be assembled, tested and packed, complete with installed software, in just eight hours from the time an order is received.

To understand how boldly Dell's model flew in the face of conventional wisdom, one must look back to 1981, when the International Business Machines Corporation sanctified the personal computer industry with the introduction of the original I.B.M. PC. While industry pioneers like Apple Computer Inc. had used distributors and dealers because they needed the leverage to gain nationwide sales, I.B.M., with the most sophisticated field sales organization in the world, chose to sell the PC through the channel because that was the way things were done. Compaq's early success was often attributed to its superior treatment of the channel. And the PC industry's largest trade show is still Comdex, which originally stood for Computer Dealers Exposition.

But in May 1984, when a 19-year-old Michael S. Dell started a company then called PC's Limited in his dorm room at the University of Texas at Austin, he knew he had no access to the channel. So he invested \$1,000 of his personal savings in advertisements in PC publications and began selling computer components through the mail. Eliminating the channel's 10 to 15 percent markup allowed him to sell at a lower price, and savvy buyers were happy to pocket the savings. Soon he expanded beyond the dorm room and began offering complete PC's, competing head on with I.B.M., Compaq and other industry giants.

As Mr. Dell tells the story today, there was no moment of blinding insight, but instead a gradual evolution as the model changed to suit his growing company.

"There was no point when light bulbs started going off," he said in a recent interview. "The basic idea was to eliminate the middleman. While that was a great way to start the business, it turned out there was a lot more we could do with it, in terms of building relationships with suppliers, reducing inventories and receiving direct input from customers."

Like any start-up, Dell initially focused on growth. Mr. Dell recalled a key meeting in 1986, when the company had \$60 million in sales, where he identified three key strategies for growth. One, Dell would focus on the largest corporate customers, ignoring time-consuming first-time buyers; two, to win corporate customers, the company would offer a level of service unprecedented in the PC industry; and three, Dell would take its direct model global. The company's goal was to hit \$1 billion in sales by 1992; it actually hit \$2 billion, placing the company fourth in the PC industry, behind only I.B.M., Apple and Compaq. With annual sales now approaching \$12 billion, Dell is still fourth, worldwide, behind Hewlett-Packard, I.B.M. and Compaq.

But Dell would soon discover the limitations of a strategy based exclusively on growth, and of its own management and structure. In 1993, Dell expanded its product line to include notebook computers, but had to abruptly withdraw the ill-conceived and unreliable new machines from the market. And, succumbing to the conventional wisdom that direct sales would never be more than a niche market, Dell moved partly into

the retail channel, offering its products through PC superstores, like CompUSA, and power retailers, including Wal-Mart, Best Buy and Staples. The company grew, with sales reaching \$2.8 billion in the fiscal year ended Jan. 31, 1994, but at a net loss of \$36 million.

"Any one strength used to excess becomes a weakness," said Thomas J. Meredith, Dell's chief financial officer, who joined the company from Sun Microsystems Inc. in 1993. "When we stumbled, it was because we were singularly focused on growth to the detriment of profitability and liquidity. I think Michael hired me because he realized that while growth is an extremely important driver of shareholder value, there are other pieces to the puzzle."

So Mr. Dell refocused the company on what he calls the cash conversion cycle, which consists of inventory, payables, receivables and cash flow from operations. The compensation packages of the company's top 500 managers were adjusted to reflect return on invested capital as well as growth. To spread the message throughout the company, training videos for entry-level employees, as well as internal newsletters, all stress the importance of these metrics.

"We had to get people in our company, from the lowest level to the highest, to understand the cash conversion cycle, and how they affect it," Mr. Meredith said.

In many ways, Dell's direct mod-

el was singularly well suited to maximizing the cash conversion cycle. Because Dell sold direct to customers, it carried little or no finished-goods inventory; because it bought components on a just-in-time basis, there was very little parts inventory; and because customers often paid Dell more quickly than it paid suppliers, cash flow was positive. With little inventory, reductions in component costs could be passed on rapidly to customers, improving Dell's competitive position. The problems lay in the part of Dell's sales that went through the channel.

"Every time we wanted to change prices, which was often, we had to go into the channel and price-protect it," said Mr. Meredith, referring to the practice, common in the PC industry, of compensating dealers for reductions

MR. DELL REFOCUSED THE COMPANY ON WHAT HE CALLS THE CASH CONVERSION CYCLE, WHICH CONSISTS OF INVENTORY, PAYABLES, RECEIVABLES AND CASH FLOW FROM OPERATIONS.

in suggested selling price. "So it froze our ability to change, bloated our inventory and exposed us to the first-time buyer. We slowed down — we became a mediocre company."

In fact, competitors and industry pundits alike said at the time that Dell, and by inference the direct model as well, had hit some kind of natural ceiling and would remain forever a small niche of the market.

But Dell had some unusual re-

sources for a young company, notably a particularly senior board, with such heavyweights as Michael H. Jordan, chairman and chief executive of the Westinghouse Electric Corporation, and Michael A. Miles, the former chairman and chief executive of the Philip Morris Companies. With guidance from the board, and the help of the executive search firm of Heidrick & Struggles, Mr. Dell was able to recruit Morton L. Topfer, a 23-year veteran of Motorola Inc., as vice chairman.

With the support of Mr. Dell and the board, Mr. Topfer withdrew the company from the retail channel in 1994. This step freed management to focus on improving the company's capabilities in field sales to large organizations and telephone sales to small businesses and consumers.

"The real benefit in exiting retail was not just the profit and loss, but the internal clarification," Mr. Dell said. "Everybody began to understand the strategy of Dell."

Exiting retail was an easy call, Mr. Topfer said, but he soon realized Dell had other problems. He began by cleaning out the executive suite.

"They really didn't have the kind of experienced management they needed," he said. "There were a lot of brilliant people, but they had grown from within, and didn't have the experience running a big organization." With the exception of Mr. Meredith and, of course, Mr. Dell, who remains chairman and chief executive, Mr. Topfer replaced every senior manag-

er. Then he turned to the company's organization.

At the time, Dell was organized by functions, with divisions for worldwide marketing, worldwide sales and so on. "That didn't work at the size Dell had grown to," Mr. Topfer said. "The only general manager, by default, was Michael. Nobody really owned a piece of the company."

So Dell moved to a regional structure, keeping only product development central. "We moved everything else into the regions and empowered the regional guys to run their units as stand-alone companies," Mr. Topfer continued. "We restructure every year; we continue to look at ways to segment the company into meaningful stand-alone units so we can empower the people."

Although Dell initially segmented along geographic boundaries, as each area grows, it is itself segmented by customer set. Dell Americas, for example, now has 10 segments: consumer, small business, medium business, large corporate accounts, enterprise accounts, Federal Government, state and local government, education, Canada and, finally, Mexico and Latin America. All run independently, do their own forecasting, create their own marketing plans and choose their own product mix.

Any growing business unit is a candidate for further segmentation. "Each time we've done that, we've seen our growth accelerate, because the segment gets more focus," Mr. Topfer said. "We start it in the United States, but then we roll it out around



the world as it makes sense. It allows you to develop people who are very attuned to their market segment. It's one way to handle growth: Don't make the job so large that mere mortals can't handle it."

But management by segmentation presents a cultural challenge to some executives, Mr. Topfer said. "Some people still measure themselves by how many people work for them or how many dollars they generate," he noted. "At Dell, success means growing so fast that we take half your business away. It's a different mind-set."

Because it segments by customer set, Dell can optimize its products to meet customer desires. And because of the direct model, and Dell's deployment of state-of-the-art information systems, the company is awash in customer input. Every customer contact with Dell's toll-free number, every mouse-click on Dell's Web site (see

sidebar, page 72), every service call and its resolution — all are recorded. When a customer calls for sales or service, the Dell representative can see at a glance the exact configuration of the caller's machines, and their complete purchase history. If customers are regularly asking for extra memory, or a Zip drive, Dell can make those configurations standard, and measure response to the change immediately.

With so much information at its fingertips, Dell does not rely on the third-party data used by indirect vendors to forecast trends. Nor does it perform any elaborate data mining of its own records.

"We don't have a sophisticated reporting program, but we know what is coming in," said Kevin Rollins, senior vice president and general manager of Dell Americas. "It comes in such volumes that you can trust it. We do spot analysis. We can find out what

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Dell on the Internet

Senior executives of the Dell Computer Corporation often talk about taking their direct sales model to the next level. By this, they usually mean making inventories even smaller, cycle times shorter and relationships with key customers and suppliers still tighter. But one vision of the next level is already available to anyone with an Internet connection: Dell's on-line sales link on the World Wide Web.

Dell began offering its products over the Web in July 1996, at a time when most companies were still commissioning feasibility studies of on-line commerce. Sales reached \$1 million a day in January 1997 and passed \$3 million a day by year's end. And Dell's Web site is global, with dedicated pages for countries throughout Europe, Asia, Africa and Latin America.

For Michael S. Dell, the company's founder, chairman and chief executive, the decision to sell on the Web was an easy one. He recognized that Dell's target customers — second- and third-time buyers who know what they want — were already there.

"If we're right about knowledgeable buyers going to the Internet, it will be a fast-forward replay of the whole direct-sales model," he said. "It's the purest form of direct."

As of late fall, Dell's indirect competitors — Compaq, I.B.M. and

Hewlett-Packard — still had no Web sales capability, nor did Gateway 2000, the second-largest direct vendor. Only Micron Technology and Power Computing, which are far smaller direct players, had joined Dell in actually selling on the Web.

"Already, we are driving the indirect guys crazy," Mr. Dell said. "Try buying a Compaq on the Web; all you can get is an '800' number to call for a list of dealers."

For anyone who aims a browser at www.dell.com, the message is clear. "Build Your Own Computer Online," announces a banner headline. "Click here to buy a Dell right now."

Clicking on these links takes the user to pages of product offerings, segmented, as in Dell's off-line business, by customer set: business, home, home office, Federal, state and local governments, education and so on. From there, customers can link to on-line "configurators," which allow them to custom configure and price a machine to their own needs. Another click lands the user on a secure page for on-line credit card transactions. Five to 10 days later, Federal Express delivers the computer.

"Our basic idea was to use the Internet to make it easier for customers to do business with Dell," said Scott Eckert, director of Dell Online. Key objectives were to reduce costs, for customers and for

Dell, and to improve customer relationships.

"We said, let's take the direct model and extend these parts to the Web," Mr. Eckert recalled.

Configurators bring build-to-order right to the user's desktop. Service and support on the Web site give users direct access to the same diagnostic tools used by Dell technicians. Dell's information systems record each user's particular configuration.

Although the Web site was initially aimed at small business and home customers, 90 percent of Dell's business is with corporate customers. So now Dell builds custom mini-sites accessible only by key customers, like Boeing or MCI, with their basic configurations already specified, and their volume discounts applied. The site gives access to sales representatives and field support personnel assigned to that account, and offers status reports on all open orders with Dell.

"The objective is to allow all of our customers to purchase at their price point through the Web site and receive a customized experience with us," Mr. Eckert said. "If we can make it easier to do business with us, we should increase our penetration in those accounts. We should add incremental revenue over time."


Whether Dell's Web sales are adding revenue at this time is

open to debate. Seymour Merrin, a computer industry consultant specializing in channel strategies, said he thinks Mr. Dell exaggerates the impact of the Web.

"The fact is his Web site is great, but telephone sales are down," he said. "He's not getting new customers — he's just moving where they do business."

Dell has various tools for measuring Web activity, from monitoring mouse clicks to reading voluntary electronic mail from satisfied customers, but Mr. Eckert conceded that the company is still lacking hard numbers when it comes to incremental sales gains.

Third-party surveys of Web customers have shown that as many as 70 percent were new to Dell, and that 30 percent said they would have bought from someone else if they could not have ordered from Dell over the Web. Dell's costs are lower over the Web than by telephone, but that is not a major driver, Mr. Eckert said.

"What we're discovering is it's becoming a major part of the way customers interact with Dell, no matter how they would have gotten to us in the past," he added. "It's one more point of presence of Dell in our customers' daily lives and that in itself is important." 

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people want fairly quickly by talking to a customer set, and then test it on the Web site."

Although the segments operate autonomously, they depend on common resources — procurement, manufacturing, service and support — and are expected to share learning and capabilities.

"We get each of them perfectly aligned and then look for key points across the segments to stay linked," Mr. Rollins said. "It is communications-based, not process-based. Our processes are by definition dynamic, and what we insist upon is massive communication." That includes countless E-mail messages, but Dell also relies on more established techniques, including lots of meetings.

Indeed, managers who go off and execute on their own plans are not well regarded at Dell, even if they meet their functional goals.

"You have to talk, you have to listen, and all of a sudden you'll realize you're in the loop," Mr. Rollins said. "I tell recruits when they come in, 'You've never seen an organization like this before — the pace, the information flow, the urgency all the time.' What is in short supply is time. We are pushing the envelope in cramming data into people's heads and asking them to assimilate it. That's where the stress comes from at Dell."

One way Dell mitigates stress is by picking new growth areas carefully and entering them cautiously. "We have looked long and hard at other opportunities outside the core of our business," Mr. Dell said, "but one, it would be hard to find other business-

es that deliver the same return, and two, any effort that takes away management time and energy from the core would destroy value for our shareholders."

With its core business growing at an annual rate of more than 50 percent, Dell can afford to be choosy, and after the debacle with notebook computers, the company's executives know the costs of rushing into a new market. After a 15-month hiatus, Dell reentered the business with a solid product line and is now the No. 7 notebook vendor worldwide.

But that experience tempered Dell's entries into servers and workstations. Dell trailed I.B.M., Compaq and Hewlett-Packard into the market for servers, larger PC-based machines meant to serve multiple users across a network, but it is now tied with Hewlett-Packard for the No. 2 position behind Compaq. Similarly, it entered the market for workstations — powerful desktop machines typically used to run technical applications — only last summer, nearly a year after Compaq. But Dell executives say they expect to gain market share rapidly in these higher-margin products.

"We're attacking the profit havens of our competitors," Mr. Dell said. "Compaq has been earning 60 percent of their profits on 20 percent of their sales; I'd be an idiot to let them continue to do that. As we get a more complete product line, and Dell becomes more of a default choice, we're counting on share gains."

But Dell is only interested in products with proven markets, and so has steered clear of handheld com-

puting devices, or personal digital assistants, sub-notebooks, television set-top devices and Web-based information appliances, although it would consider any of these if a volume market developed.

"Our focus is on being first to volume, not first to market," Mr. Topfer said. "Determining what you're not going to do can be as important as what you will do."

Dell is similarly cautious with its other main growth vehicle, geographic expansion. When it entered the Asia/Pacific market, it chose to duplicate its entire United States direct sales model, from technical support to manufacturing, rather than leverage existing capabilities in the region.

"It takes much longer, but it works as a barrier to entry for others," Mr. Topfer said. Asia/Pacific and Japan now account for about 6 percent of Dell's revenues, behind Europe at 26 percent and the Americas at 68 percent.

Dell has been slow to enter South America, despite the booming economies of some countries there, and has almost no presence on the continent. Compaq is No. 1 in the region, with I.B.M. and Acer, a major Taiwanese manufacturer, tied for No. 2. Mr. Topfer said Dell had been focusing on getting Asia/Pacific up to speed, and is in the process of opening an operation in Chile.

One way Dell chooses not to expand is by acquisition. Mr. Dell scoffs at Compaq's acquisitions of the Tandem Computer Corporation and a host

of networking companies. "Name an acquisition in the PC industry that has worked," he said. "I think like a shareholder. When you use shares to buy a company, that's dilution. We're acquiring employees; we're acquiring our own stock. We basically don't have any better use for the cash, so we're giving it back to our shareholders."

Although Mr. Dell said he is too busy managing the company to think about applying its model to other industries, he notes that major customers are studying Dell, looking for ways to adopt some of its processes.

"Ford Motor has spent a fair amount of time looking around Dell, trying to understand build-to-order," he said. "Anywhere you have a rapidly changing product that devalues quickly, or you have high markups in

other 40 in the channel. "That's a difference of 58 days," Mr. Dell said. "In 58 days, the cost of materials will decline about 6 percent."

And while Dell is known for undercutting competitors' prices on comparable machines, its average selling price is actually higher because it is typically selling a newer configuration. Dell executives say their A.S.P. is about \$2,600, or \$1,000 higher than that of Compaq. Analysts say the numbers are skewed by the fact that Compaq sells many sub-\$1,000 machines to first-time buyers, a market Dell avoids, but that even so, Dell's A.S.P. is higher than those of competitors by several hundred dollars.

"It's because they are selling fresher fish," said Rick Schutte, a computer industry analyst with Goldman Sachs. "The PC market isn't that price elastic; it's performance elastic. Dell is providing more performance and the customers are paying for it."

Customers also like dealing directly with a manufacturer. "You're talking

to a salesperson at Dell who's very interested in talking to you," said Joel Taylor, an information technology manager for the Trammell Crow Company, a leading realtor, in Orlando, Fla. "I can call up my Dell rep, Christa, and say, 'I'm not getting what I want,' and I'll get what I want. I can get a service technician on the phone in five minutes."

To be sure, competitors have taken notice of Dell's success and are looking for ways to emulate portions of its model. Compaq, after first ex-

AFTER A 15-MONTH HIATUS, DELL REENTERED THE NOTEBOOK BUSINESS WITH A SOLID PRODUCT LINE AND IS NOW THE NO. 7 NOTEBOOK VENDOR WORLDWIDE.

the channel, the direct model is going to be a good thing."

One of the less visible benefits of the direct model is the elimination of inventory depreciation. This is particularly important in the PC industry, where component prices are always falling as suppliers introduce faster chips, more capacious disk drives and higher-bandwidth communications devices. While Dell has 12 days of inventory, a typical competitor that does not sell directly has 30, with an-

ploring the acquisition of Gateway 2000 or the personal computer subsidiary of Micron Technology Inc., two direct sellers, announced last July that it would begin building PC's to order, and would let its channel partners configure machines to customers' specifications. I.B.M. and Hewlett-Packard are taking similar steps, and some analysts believe these companies will narrow the gap with Dell.

"The reality is Compaq has figured out how to adopt a build-to-order model for the indirect channel," said Charles R. Wolf, a PC industry analyst with First Boston. "So they'll be reaping a lot of the advantages Dell now has even though they don't ship direct to users. Dell's growth rate will slow and their margins will come under pressure."

Another challenge to Dell is persuading suppliers to alter their way of doing business to suit the Dell model. Despite the rapid growth of Dell and the other direct sellers, they remain a minority in the PC industry, and most suppliers' models are based on customers buying substantial inventories, not relying on just-in-time shipments.

"The challenge that we face is making sure we educate the supply base so that they understand the difference in dealing with a direct company," said Keith Maxwell, Dell's vice president for corporate procurement. "We've got to sit down with these C.E.O.'s and say, 'How about letting your factory run at 75 percent capacity, but reduce your finished-goods pile? You gain the velocity to make up for shifts in demand.'" But he conceded it is not an easy sell. "Everybody

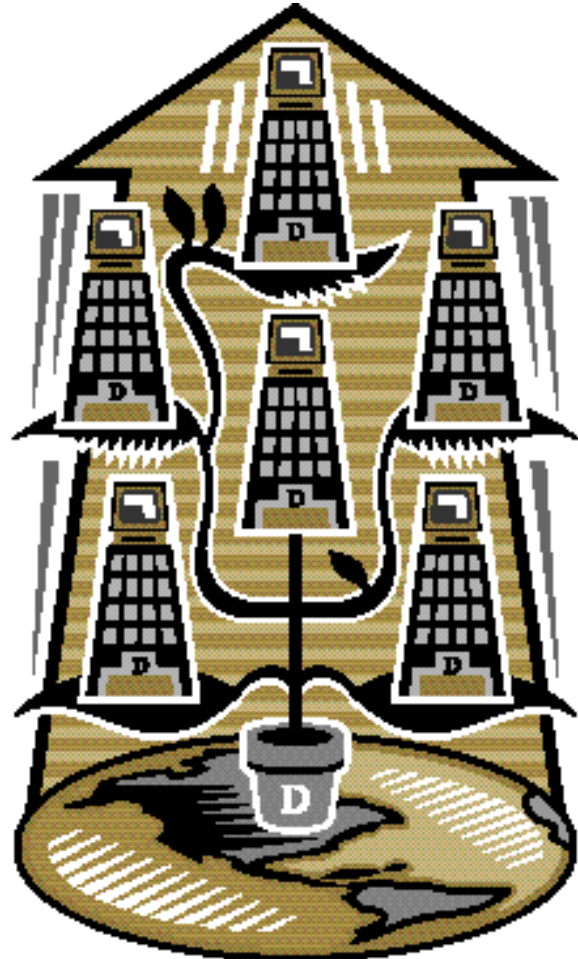
we're dealing with is top-tier, but they've all grown up in an industry with these piles of inefficiency," he said.

Indeed, even Dell's preferred suppliers say adopting build-to-order at Dell's level would be a strain. "We use just-in-time processes," said Doug Spreng, executive vice president for interface products at the 3Com Corporation, the exclusive supplier of network adapters to Dell. "Where we depart from their model is we have finished-goods inventory, because we're building to forecast, not to order. We're responsible for it; if we miss forecast, we have to eat it, not them."


The network cards Dell buys from 3Com are custom configured, as are the motherboards it buys from S.C.I. But most of the parts in a Dell computer are off-the-shelf commodities, and Dell executives say any sense of a proprietary advantage in the PC industry is an illusion.

"Companies need things to commoditize because it eliminates risk," said Mr. Meredith, the chief financial officer. "The fungibility of parts across product platforms is critical because it reduces risk and increases cash flow."

And reducing risk and increasing



cash flow is ultimately what the Dell model is all about.

"Look at Dell's balance sheet," Mr. Dell said. "In an average quarter, we generate more cash than our entire fixed-asset base. Inventory and accounts receivable are risks; if you don't have any, you don't have any risk. If you can accelerate the time between your suppliers and your customers, you've just improved your return on capital and tremendously improved your competitive position." 

Reprint No. 98107