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Dell Computer Corporation

Michael Dell, founder, CEO, and chairman of Dell Computer, reflected with satisfaction on the company's first decade of achievement. By 1994, the company had topped $3.3 billion in sales and its desktop computers had a significant share of installations in large U.S. corporations. With nearly 30 percent of its sales in 1994 derived from overseas business, Dell had broadened its international reach. However, with a close call in calendar year 1993 when it had only $20 million in cash to support its operations, Michael Dell concluded: "The only constant thing about our business is that everything is changing. We have to take advantage of change and not let it take advantage of us. We have to be ahead of the game." Dell had recently added many luminaries to its board, the CEO of Westinghouse and CFO of AMR Corporation. Almost its entire top management team was new; and at the very top Michael Dell had hired, as vice chairman, Morton Topfer—the seasoned and experienced general manager of Motorola's Two-Way Radio sector and Paging Group.

Topfer was convinced that the computer industry had too many players with too little direction. "The question is not whether the industry will grow. It certainly will. But there will only be a handful of players with a coherent strategy and consistent bottom line, and we have to be one of them," added Topfer, whose systematic, by-the-numbers management style stood in stark contrast to the creative and restless approach taken by Michael Dell. The 30-year-old CEO of Dell knew that he would need all the experience of his gray-haired vice chairman to grow the company to $10 billion or more by the year 2000. Most important, the strategy had to be fundamentally sound and profitable.

THE EVOLUTION OF THE PERSONAL COMPUTER MARKET

Until 1976, the microcomputer industry was highly fragmented and characterized by low entry barriers and the absence of any industry leader or standards. Ironically, the early spark was provided by the rivalry between two electronics magazines. In July 1974, *Radio-Electronics* promoted the Mark 8 machine, which was a printed circuit board with a book of simulations at a price of about $1,000. Over one thousand units of Mark 8 were sold and this prompted *Popular Electronics* to promote the Altair computer. The MITS Altair, as it was called, was sold for $395 in kit form and $621 preassembled. All this changed in 1977 with rapid technological improvements in four areas.

First, Intel, Zilog, and Commodore launched 8-bit microprocessors that offered significant improvements over the previous generation of Intel 8080 microprocessors. Second, with the development of a standard operating system, CP/M-80, a wider variety of application software became usable on the microcomputer. Third, Shugart developed a $5^1/_4$" disk drive for data storage, enabling microcomputers to move away from cumbersome external cassette tape drives. Finally, with rapid improvements in the cost per bit of random access memory (RAM)[1] and read-only

[1] Memory for which the time of access is independent of the data item required. All primary storage such as core or semiconductor memory are random access so that memory can be read from, or written to, in a random fashion.

[2] A form of storage that can only be read from and not written to. Once information has been entered into this memory, it can be read as often as required, but cannot be changed. CD-ROMs are a currently available example.

Professors Das Narayandas and V. Kasturi Rangan prepared this case as the basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation. Reprinted by permission of the Harvard Business School. Harvard Business School Case 9-596-058, Rev. 9/25/96.

memory (ROM),[2] microcomputers could offer computing power at an affordable cost. This was critical for microcomputers to be able to run application software that was designed to support the needs of the business users. Bv late 1977, vendors were able to offer machines based on an 8-bit microprocessor with 16k RAM, an 80-character cathode ray terminal (CRT) with a keyboard, and BASIC software for $3000. The market had grown to nearly 100,000 units.

While mail-order had been the dominant mode of distribution in the early stages, the rapid changes in the market led to changes in distribution channels. By 1977, distribution was mainly through electronic stores such as Radio Shack, computer retail stores such as ComputerLand, and smaller independent specialty electronic stores. The smaller specialty retailers had average sales of $500,000 and gross margins of 30 percent and net margins of 10 percent before taxes. Users were mainly hobbyists and computer "hackers" who were willing to travel to out-of-the-way locations to buy from these specialty retailers. Electronic magazines were the primary vehicle for advertisements, while exhibitions, trade shows, and clubs served as forums for exchanging information on developments in the industry.

Apple: The Early Leader

Starting in 1977, there were several waves of entries by firms into the microcomputer market. The first wave was between 1977 and 1978, with the entry of Apple (a new venture), Tandy Radio Shack, and Commodore—all entrepreneurial firms. The second wave brought in giants like Texas Instruments and Zenith. By 1980, there was a significant growth in the business and professional segments of the microcomputer market. Of the early entrants, Apple was the clear technology leader. It offered a unique operating system with an intuitive and easy Graphical User Interface (GUI) that enabled applications to be driven by a simple point-and-click menu system rather than typing in commands. This ease of use attracted many first-time users in the consumer market and made Apple particularly strong in the educational and hobbyist market.

IBM Enters

While in the past, firms such as IBM, Hewlett-Packard, and DEC had viewed the microcomputer market as not being important to the business segment, the proliferation of software programs and the increasing capabilities of microcomputers made it a serious threat to these mainframe and minicomputer manufacturers. Even though the U.S. personal computer market was only about $1 billion at that time (compared to mainframes at $7.6 billion and minicomputers at $2 billion), it was growing rapidly at 30 percent annually compared to the 3 percent and 13 percent for mainframes and minicomputers, respectively.

IBM entered the market in 1981. At that time, it had revenues of $26 billion and an R&D budget of $1.5 billion. Other firms to enter around this time were Xerox, Hewlett-Packard, DEC, Wang, and European manufacturers such as ICL, Philips, and Olivetti, together with Japanese firms NEC, Toshiba, and Fujitsu. In most cases, the main focus was on the business segment of the market. All new entrants were attempting to protect their existing markets/installed base of computer users in the lower end of the business market segment.

In the first year of its launch, IBM PC had a 5 percent market share which increased to 22 percent in 1982 and 42 percent in 1983. IBM's strategy for the personal computer market was a complete departure from its traditional practice. It chose to outsource supply of hardware and software components. Further, by adopting an "open architecture,"[3] IBM encouraged third-party software houses to carry the costs of associated software development.

[3] Open architecture refers to a computer system in which all the system specifications are made public so that other companies can be encouraged to develop add-on products such as peripherals and other extensions for the system.

Also, by adopting a 16-bit architecture using the Intel 8086 chip, IBM offered software developers the opportunity for higher performance software to be developed. In addition, by collaborating with Microsoft, IBM introduced a new operating system standard, PC-DOS, that was available to all PC manufacturers. Apple, on the other hand, chose to keep its operating system proprietary and thus was born the world of two standards: IBM compatible and Apple. Apple, which dominated the industry in the late 1970s and early 1980s, found its market share steadily slipping to about 20 percent by 1983.

IBM sold to the large corporate customers and the small business users somewhat differently. For large corporations, the company made use of bulk discounting in an effort to switch the purchasing from individuals spread all over the organization to centralized purchasing by corporate buyers, i.e., the MIS managers. In doing so, IBM legitimized the personal computer in the minds of data processing managers in large corporations. For IBM, it made sense to emphasize this segment because it accounted for over 60 percent of the mainframe shipments in 1982. By networking these PCs and linking up to their mainframes, IBM could leverage its existing direct sales and service organization (of nearly 2,500 people) to sell and support these systems. Further, IBM was able to create a barrier to entry for competitors by creating a corporate customer mind-set that was wary of non-IBM equipment.

For the small to medium business segments, IBM was keen on maintaining its standards of service and support and hence the image of the firm. However, its direct salesforce was too expensive to serve this segment. IBM, therefore, recruited retail dealers to stock, sell, and service the product. It also launched a massive advertising program that involved expenditures that were greater than the promotion budgets of all other personal computer manufacturers put together. Product availability and variety brought new dealerships to the market. An average computer store cracked the $1 million mark in sales. Gross profits of about 25 percent and net profits before taxes of about 8 percent were quite common.

The Coming of the IBM Compatibles

IBM's concentrated efforts to make the PC a legitimate option in the minds of the corporate customers led to an explosion in the demand for IBM PCs which the company could not satisfy. This unmet demand led to the entry of new IBM PC compatibles (or IBM clone manufacturers). One such successful manufacturer was Compaq.

Compaq was founded in 1982. Unlike IBM, it had never been in the computer business and therefore had no salesforce of its own. To get to market, the company recruited retail dealers by promising them full rein of the market, including the large-volume corporate accounts.

For the next five years, Compaq witnessed substantial growth and profitability selling PCs through independent, full-service computer specialty dealers all over the world. By 1987, Compaq was recognized as an important player in the PC business and its first attempt to establish a leadership position came in the same year. IBM announced a new internal computer architecture (called MCA-Micro Channel Architecture) that changed the size and electrical configuration of the slots in a PC used for add-on boards. As a result, computers using MCA did not permit the use of third-party add-on boards such as modems or expanded memory. In response to IBM's move toward a proprietary hardware configuration, eight PC manufacturers, under the leadership of Compaq, announced the Extended Industry Standard Architecture (EISA) that was compatible with existing industry standards. This allowed Compaq and the other manufacturers to deliver systems that were fully compatible with the worldwide installed base of over 30 million PCs at that time.

On the software front, with the availability of a variety of PCs, mostly IBM compatibles, software writers found it even more lucrative to port their applications for MS-DOS, the operating system written by Microsoft Corporation for the IBM standard. This led to an explosion in application software available in the IBM-PC/MS-DOS

environment. This was also a period of strong growth for retail chains like BusinessLand and ComputerLand that topped over $100 million in revenues. Compared to the early 1980s, retail gross margins had dropped to around 20 percent, but better managed retailers still continued to return a net of 5 percent after taxes. There were close to 5000 computer stores at that time, with about half of them being significant players in their market area. IBM, Apple, and Compaq were the three most popular brands on their shelves.

While a variety of hardware and software became available, end-users started to focus on solutions for specific problems. Customers in vertical markets like banking, manufacturing, and retailing started to seek customized solutions which were beyond the scope of retail dealers. Value-added resellers (VARS) emerged to plug this gap. Some were independent software writers called ISVs; others actually integrated customized software with hardware platforms and provided training and support as well. Most of the larger VARs (less than 1000 in number) were on-going businesses that had traditionally provided support for minicomputer applications and had moved into the PC arena. At this stage, sensing the explosion in PCs, many others entered the business, resulting in nearly 4000 VARs of all sizes available for vertical market distribution.

The Market Comes of Age

In 1980, the majority of computers sold were mainframe computers (about 75 percent of industry volume), the rest were minicomputers. Within a decade this picture had changed. By 1990, the industry was dominated by personal computers, which accounted for about 40 percent of the volume.

Over the course of a decade, personal computers had zoomed from birth to a $40 billion industry in the United States. This growth was fueled by dramatic breakthroughs in processing and storage technologies. The cost of processing a million instructions per second (MIPS) fell from $75,000 in 1980 to $10,000 by 1985 and further down to $2,000 by 1991. Similarly, the costs of storing a megabyte of information slumped from about $250 in 1980 to $75 by 1991. With this breakneck growth came a tremendous churning of the personal computer industry. Literally, hundreds of manufacturers and distributors entered this industry with high hopes for success only to leave as paupers a couple of years later. Even those who successfully weathered the storm found their margins severely curtailed by 1991:

> Just four years ago, the industry's annual growth rate was tearing ahead at a 37% annual clip.... Now, worldwide sales will grow just 15% in 1991. In the U.S., growth will be more like 8%. Other analysts are predicting no growth at all.
>
> —*Business Week*, August 12, 1991

> Computers have become commodities.... Once an icon of technological wizardry, personal computers have become a commodity.... The price of a complete computer system is being dragged down to the sum of its parts.... And customers are less willing to pay for service and hand-holding.
>
> —*The Economist*, November 2, 1991

> Now that PCs are considered more a commodity than a novelty, consumers and corporations are shopping for them much the same way they shop for a TV or VCR.... Instead of seeking assistance and expert advice from a traditional computer dealer, home and business computer purchasers are looking for bargains from mass merchandisers and computer superstores: "People are buying computers the same way they buy blenders and toasters. One product has more or less essentially the same features as another. Price has become more important."
>
> —*Advertising Age*, November 11, 1991

New types of distributors and hardware vendors emerged in the new environment. All shared one feature in common—"cost efficiency."

Outbound marketers like NEECO and Compucom and superstores like MicroCenter and Soft Warehouse (which later became CompUSA)

emerged. These new generation dealers survived on 10 percent to 15 percent gross margins and 3 percent to 5 percent net margins after tax. Channels of distribution underwent a major shakeout, with traditional dealers like ComputerLand and BusinessLand being restructured and acquired. According to Seymour Merrin, a computer industry distribution expert, "The bankruptcy gap forced the stuck-in-the-middle out of business. A high-price/high-service value- added niche operation was just as viable as a low price/low service high volume channel, as long as each focused on its respective market. Everybody else was sucked up by the bankruptcy gap."

Meanwhile, Microsoft launched Windows in 1990. Through the 1980s, the operating system used by IBM-PC compatibles, MS-DOS, did not offer a friendly interface to the user and this restricted the use of PCs in the home and education markets where Apple reigned supreme. Windows had a much friendlier interface than MS-DOS and offered IBM-PC compatible users a Mac-like environment for the first time. This, along with performance jumps in microprocessor speed and peripherals such as hard disks, led to a spurt in application software available for IBM-PC compatibles. It also marked the beginning of a shift in market power from hardware vendors like IBM to software vendors like Microsoft. See **Exhibits 1, 2, 3**, and **4** for a historical overview of target market segments, market share, and channel share.

THE STORY OF DELL

In 1983, an 18-year-old freshman at the University of Texas at Austin, Michael Dell spent his evenings and weekends preformatting "hard disks" for upgrading the capabilities of IBM-compatible PCs. "That was quick and easy business, and decent pocket money for a college student," said Dell. However, what started out as a pastime could not be shut off as more and more businesses in the Austin area found Dell's upgrades to be of added value. "One day I realized that we could actually buy surplus PCs from retail at a discount, upgrade them, and sell them to businesses at a nice margin. Soon we started advertising in trade magazines and orders kept coming," added Dell.

In May of 1984, Michael Dell had dropped out of college to attend to business full time. The key transformation came quite suddenly according to Dell. "Within a very short period of time, we got calls from Exxon, Mobil, and some government agencies who all wanted our PCs, 50 to 100 systems at a time. They wanted to come see us. I was taken aback. Imagine, we had to clean up our workshop, buy some suits and ties, and get ready for meeting America's largest corporations face to face."

Dell was an ideal choice for these educated customers who wanted good performance machines at a reasonable price. Within the first couple of years, in response to its customers, Dell was able to

EXHIBIT 1
Breakdown of Unit Sales by Market Segment (%)

	1983	*1987*	*1990*	*1993*
Home/Hobby	17	7	8	22
Education	18	10	11	8
Small/Medium business	24	28	28	35
Large business/Corporation	29	48	45	26
Government	12	7	8	9
Total	100	100	100	100

Source: Computer Industry Forecasts

EXHIBIT 2
Market Share of Vendors—Personal Computer Market

	1980	*1982*	*1983*	*1985*	*1987*	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*
IBM	0.0	22.2	42.0	37.0	28.0	16.9	16.1	14.1	11.7	14.0	10.2
Compaq	—	—	—	4.0	7.5	4.4	4.5	4.1	5.7	9.6	12.8
Apple	29.3	28.4	20.0	18.0	14.0	10.7	10.9	13.8	13.2	13.9	12.2
Dell	—	—	—	—	—	0.9	1.0	1.6	3.7	5.4	4.2
ADT/Tandy[a]	37.6	10.1	5.0	3.0	2.0	1.7	1.8	2.7	2.7	3.6	4.0
Gateway	—	—	—	—	—	0.2	1.0	2.5	3.6	4.4	5.1
Packard Bell	—	—	—	—	—	3.3	3.9	4.7	5.3	6.7	10.8
HP	5.3	4.7	—	—	—	na	na	na	na	na	2.4
DEC	—	1.1	—	—	—	na	na	na	na	na	2.4
Others	27.8	35.5	33.0	35.0	40.0	61.9	60.6	56.5	54.1	42.4	35.9

[a]1980 to 1983 sales are Tandy sales. ADT acquired Tandy in 1992.

Source: Computer Industry Forecasts and *New Games: Strategic Competition in the PC Revolution* by John Steffens (New York, Pergamon Press, 1994).

provide support services such as a 24-hour hotline for complaints, 24- to 48-hour guaranteed shipment of replacement parts, and a supply of replacement systems in case the field service could not resolve problems. In addition, Dell was able to incorporate the latest improvements in microprocessor and peripheral technologies into their systems at a much lower cost than market leaders like IBM.

Dell grew from nothing to $6 million in 1985 by simply upgrading IBM compatibles. In 1985, Dell shifted to assembling and marketing its own brand of PCs and the business grew dramatically, ending 1985 at $70 million in sales. "We even won a couple of trade magazine performance shoot-outs in those early years," added Dell. Simultaneously, Dell also set up in-house teams for product marketing, advertising, market research, and sales support. By 1990, Dell had a broad product line of desktop and portable computers based on the most recent Intel microprocessors—386, 386SX, and 486—and had

EXHIBIT 3
Breakdown of Sales Volumes by Channel (% of units shipped)

	Direct Sales	*Direct Response*	*SI/VARs*	*Dealers*	*Computer Superstores*	*Mass Merchants*	*Consumer Electronics*
1984	15.0	10.0	10.0	60.0	0	2.0	3.0
1987	10.4	13.1	12.3	56.8	0	3.4	4.1
1988	9.5	14.2	13.4	55.1	0	3.6	4.1
1990	8.3	14.6	14.9	51.2	1.5	5.0	4.5
1992	5.1	16.1	15.5	44.7	4.9	8.6	5.1
1994	3.9	14.2	16.2	42.0	8.5	9.6	5.6

Note: Direct Response includes mail-order; System Integrators includes VARS; Mass Merchants includes other superstores such as Office Superstores.

Source: Computer Industry Forecasts and *New Games: Strategic Competition in the PC Revolution* by John Steffens (New York, Pergamon Press, 1994).

EXHIBIT 4
Buying Patterns

Channels for Purchasing by Fortune *1000 Firms*		*Percentage of* Fortune *1000 Companies Using Desktop Brands in 1994*		*Share Retail PCs in 1994*	
SI/VARs	30%	IBM	77%	Packard Bell	25%
Dealers and resellers	40	Compaq	71	Apple	25
Manufacturers	19	Dell	35	Compaq	19
Others	11	Apple	24	IBM	11
		AST	22	AST	9
		Gateway	21	Others	11
		H-P	13		

Source: Computer Industry Forecasts

earned a strong reputation for its products and services.

Nearly all of Dell's sales were to corporate accounts, split almost evenly between the large corporate accounts and medium and small businesses. A large portion of medium and small business sales were to individuals. Even though revenue from individual consumers was only a very small (less than 5 percent) proportion of its sales, Dell did not turn down individual orders. Dell's reputation was built on its unique and distinctive "Direct Model."

The Dell Direct Model

In the beginning, Dell's focus was on selling somewhat more customized products via mail order to business customers. The manufacturing cycle was "made-to-order" giving important economies. However, in the last five years, Dell had considerably embellished its Dell Direct Model—a high-velocity, low-cost distribution system characterized by direct customer relationships, build-to-order manufacturing, and products and services targeted at distinct customer segments. Dell segmented its customers into "Relationship" and "Transaction" customers. The demarcation was based on the volume potential of customers' PC purchases.

Dell's large Relationship customers were Fortune 2000 companies, government, and educational accounts that had multiple unit "repeat purchase" requirements and were usually serviced by a team of outside and inside sales reps. Dell's main competitors in the relationship segment were resellers of Compaq, IBM, HP, and other leading brands. Relationship customers evaluated vendors based on product reliability, compatibility with installed base, and stability in technology. In 1994, Dell had about 150 field-based sales reps and a similar number of inside telephone reps dedicated to Relationship accounts. The outside rep, known as a field Account Executive, was dedicated to the customers in a region and was responsible for understanding their information technology environment and service needs. He would then sell them customized product and service solutions. In some cases, where the customer insisted on being serviced through a value-added reseller, Dell would invariably honor the request and route products accordingly.

Inside sales reps were paired with field reps and dedicated to the same Relationship accounts. They were responsible for order processing and handling inbound sales calls. When a customer called in, the telephone sales rep was able to quickly call up their sales history on-line and guide the customer accordingly. For example, the

customer might have been eligible for a standard corporate discount. In other cases, the customer headquarters buying group may have required a certain product configuration for all its individual departments, of which the caller might not have been aware. The inside reps were also responsible for "upsell" at the time of purchase-selling the customer a higher-end system with a richer mix of software and peripherals.

Transaction customers comprised medium and small businesses, and home office customers. These customers were primarily interested in value-to-performance. Dell's main competitors in this segment were Gateway 2000, other mail-order firms, and the retail channel. Transaction customers called into a unique phone number (1-800-BUY-DELL), distinct from the number offered to Relationship customers, and were served by a team of several hundred inside sales reps. For medium and small businesses, Dell reps could call up historical sales records to assist customers in choosing a system that fit their prior purchase patterns.

Transaction customers were given the option of paying for their purchase using a credit card or being charged on delivery. In the case of Relationship buyers, payment was usually completed through corporate purchase orders or credit cards, resulting in a significantly longer payment cycle. Overall, the larger volume per account and greater value addition resulted in higher gross margins for Dell in the Relationship segment.

Once the order was received, the configuration details were sent to manufacturing. Dell offered customers a variety of options on peripherals. The customers could choose from a menu of disk drives, monitors, memory sizes, network cards, and other hardware options. These were configured to ensure they were compatible with the rest of the system. Only after extensive pre-testing were certain combinations of components allowed as options for the customer. Dell had established close relationships with component suppliers to ensure early access to new technology and to guarantee compatibility with other sub-systems and components of the PC.

Upon receiving an order, the information was passed on to the assembly line where the product was custom made. Dell had one factory in Austin, Texas, to serve its American customers. Its assembly line was similar to that of other mass-produced goods such as automobiles. At the beginning, a chassis would be put on the assembly line with a "spec" sheet that identified the configuration ordered. As the chassis went through the assembly line, the motherboard was installed in the system with the ordered microprocessor and required amount of RAM. As the chassis progressed through the assembly line, other sub-systems such as the hard disk, video card, and CD-ROM drive were installed and wired to the motherboard. Dell maintained around 30 days of component inventory, but its component suppliers usually carried sufficient buffer stock (45 to 60 days) to be able to quickly replenish Dell's requirements. At several points in the line, the sub-systems installed were, quality-checked to ensure that only defect-free systems were passed down the line. After all the hardware options had been installed as per the spec sheet, the system was sent to the software loading zone, where the software ordered, including operating systems software, application software, and diagnostic software[4] was loaded onto the hard disk of the system.

After all the software was loaded, the system was sent to a "burn-in" area where it was powered and tested for four to eight hours before being packed in a box and sent to the packing area. Here, the completed system was boxed with peripherals such as a keyboard, mouse, mouse pad, and the manuals and floppy disks for all the installed software. At this point, the system assembly line was synchronized with another assembly line for monitors so that the system box arrived at the shipping dock at the same time as the monitor; the two boxes were then tagged and transferred to the shipper's truck. Dell had contracts with multiple shippers to deliver the systems

[4] The diagnostic software is used to identify and localize problems that might come up in the field.

to customers anywhere in the United States. The time taken to ship the product after receiving the order was typically between three to five days. If the order size was for more than 100 computers at a time, there could be a delay of a week or so to accommodate factory scheduling.

The manufacturing process was particularly complicated in Den's European factory in Limerick, Ireland, where products for all European countries were assembled. In addition to building a product to a customer's specifications, Dell also had to comply with different regulatory requirements, different power conventions, and versions of software customized for different European languages.

After shipment, if a customer called in with a problem, the first level of support was provided over the phone. Dell had over 300 technical support representatives who could be accessed by phone at any time. Given the nature of the product, this was very effective in taking care of service problems that required hand-holding customers and walking them through standard trouble-shooting procedures. Using a very comprehensive electronic maintenance system, the service rep was able to diagnose the problem and lead the customer through its resolution, solving the problem in 91 percent of the cases.[5] If the problem was one of defective parts, Dell had third-party maintenance agreements with service companies (office automation vendors like Xerox) who sent technicians to solve the problem. Most problems were resolved in 24 to 48 hours. Michael Dell explained:

> We introduced the concept of build-to-order in the PC industry. We were also the first to introduce on-site service. We knew that our corporate customers and experienced individual customers had needs that weren't being filled by the traditional retail channel.

Morton Topfer added, "Consumers at retail don't know what they are looking for other than price. Every time they call with a problem, it is a $100 to $200 expense. We, on the other hand, like to sell to the educated consumer.'

Dell's Competition in the Early 1990s

By 1990, Dell's success spawned many imitators in the form of upstart, low-overhead mail-order vendors. Notable amongst these were CompuAdd with $516 million in revenues and Gateway 2000 with $275 million in revenues in 1990. In the words of a computer industry expert, "Everyone is piggybacking Michael Dell's distribution concept. He forged the trail and everyone is just following."[6] Michael Dell saw the entry of these smaller companies as a potential threat to the profitability of the firm in the short run, as they could undercut Dell's prices by 15 percent to 30 percent.

As Dell focused on the direct distribution business, Compaq responded to the growing needs of the corporate market by introducing, in 1990, desktops that were designed to work optimally in a networked environment. Compaq also signed strategic integration agreements with operating system software vendors to jointly develop and support the integration of systems into networks. A year later, Compaq reorganized itself into the Personal Computer Division and the Systems Division.[7] The PC division was structured to bring to market high performance desktops and laptops suited to the large corporate environment and to meet the needs of entry level products for the small business and home market that had started to grow very quickly. The Systems division was designed to offer advanced integrated solutions for a network that involved not only hardware, but also software, service, and support.

In 1992, Compaq expanded its commitment to serve the needs of the small business and individual buyer by announcing major price cuts that brought

[5] *Business Week*, July 1, 1991.

[6] *Financial World*, March 17, 1992.

[7] An interesting point to note is that, in 1991, Compaq sued Dell to stop it from running ads in trade magazines that compared Dell's product prices to those of Compaqs.

its price down by over 30 percent. In the words of one industry expert, "Compaq was out to out-Dell Dell." The umbrella of high prices charged by the major players that allowed upstart, low-overhead vendors to flourish vanished overnight.[8] Over a span of the next 18 months, Compaq announced relationships with computer superstores, consumer electronic outlets, and office product superstores and expanded its base of VARs by setting up two distributors in the United States that serviced these smaller VARS. Compaq also announced that, by mid-1993, it was going to enter the mail-order channel in response to growing needs of customers that wanted to purchase direct. Several other market leaders, including IBM, announced similar plans to enter the retail and direct mail business.

Dell's Growing Pains, 1991–1993

By late 1990, Michael Dell saw that the changes taking place in the PC industry could take their toll on the firm unless Dell was able to expand its horizons, "I didn't think for a second that our competitors (like Compaq and IBM) were going to sit around and keep doing what they were doing because it clearly was not working. I was actually surprised that it took them so long to react."[9] According to Dell, "The way to sustain growth and profitability was to have a broad range of business activities that were all performing well."

In 1991, in an effort to reach out to a growing segment of small business and individual customers that preferred to shop in a showroom setting with physical access to the products, Dell entered into distribution agreements with CompUSA, Staples, and Sam's Clubs in the United States; Price Club in the United States, Canada, and Mexico; Business Depot in Canada; and PC World in the United Kingdom. The agreements allowed retailers to sell the product, with Dell providing the post-sales service and support. To service the new segments, Dell launched two new brands; namely, the Dimension and Precision lines. Both lines were essentially similar, with Dimension marketed through CompUSA and Staples, and the Precision line sold through Price Club and Sam's Club. The systems sold through the indirect channels were a limited set of predetermined configurations, unlike the customization option available to customers that purchased directly from Dell.

These entries into new markets with new products led to a major spurt in sales for Dell and sales jumped from $890 million in 1991 to over $2 billion in 1992. (Refer to **Table A.**)

In 1993, in response to increasing sophistication of the large accounts, Dell introduced four new families of systems that included NetPlex for corporate networks, OptiPlex for advanced standalone applications, OmniPlex for mission critical business operations, and Dimension XPS for the technologically sophisticated individual user. All these moves led to another significant increase in sales in 1993. However, this rapid growth led to several problems.

The Laptop Setback

Portable computers (first assembled by Osborne in 1981) were around in the 1980s, but hardly successful. They weighed over 20 lbs. and were referred to jokingly as "luggables." In 1982, Grid announced one of the first successful 10 lb., battery-powered laptops. Hewlett-Packard, Zenith, IBM, Toshiba, Compaq, and Apple all followed suit. By the late 1980s, industry experts predicted that the laptop market would take off.

Several technological innovations made this possible. First, display technology was revolutionized by Japanese firms with flat screen LCD displays that took less space and lower power than the existing CRT (Cathode Ray Tube) technology. This reduced the size and weight of the system dramatically. Next, hard disk drives that were small and compact and consumed low levels of power were developed. Finally, there were breakthroughs in battery technology that allowed these systems to run for over an hour

[8] *Business Week*, July 6, 1992.
[9] *Business Week*, July 1, 1991.

TABLE A
Dell Sales 1991 to 1993

	1991	*1992*	*1993*
Net sales (SM)	$890M	$2,014M	$2,873M
Products	Desktops—90% Laptops—10%	Desktops—88% Laptops—12%	Desktops—94% Laptops—2% Servers—4%
Microprocessor	486—35% 386—65%	486—71% 386—29%	Pentium—<1% 486—94% 386—5%
Brands	Dell	Dimension Precision	Dimension Precision Netplex Optiplex Omniplex
Sales to market segments	Relationship—59% Transaction—41%	Relationship—61% Transaction—39%	Relationship—64% Transaction—36%
Channels	Direct Retail VARs	Direct Retail VARs	Direct Retail VARs
Markets	U.S.—72.8% Europe—27.2%	U.S.—72.5% Europe—27.5%	U.S.—70.9% Europe—27.2% Asia—1.9%

Note: Richly configured PCs sold as servers accounted for less than 1 percent of desktops in 1991, and around 12 percent in 1992 and 1993.

before they needed to be recharged. This rapid advance in technology, coupled with a pent-up demand for more features from buyers who were willing to pay for them, led to reduced price competition and higher margins in the portable market as compared to the desktop market.[10]

Thus, in the late 1980s, the portable market attracted desktop manufacturers who saw it as a logical extension of their desktop business. Dell, with several desktop manufacturers, jumped into the laptop market around this time. Many of them, including Dell, approached the product with a "shrunken desktop" mentality, leading to severe quality problems.

In 1993, there was a major recall of Dell's existing laptop product and the company ended up taking a large loss because of the resulting inventory write-off. At that time, Dell was selling about 30,000 laptop units a quarter. According to Dell, "When we pulled out in 1993, we were committed to reentering the laptop market only after we knew that we had a world-class product that matched or exceeded the level of quality offered in our desktop business."

[10] According to industry sources, laptops typically offered 20–30 percent lower performance in processor speed, disk capacity, memory and other peripherals when compared to similarly priced desktops. This trend was expected to continue over the next few years.

Dell Exits the Retail Channel

By early 1994, Michael Dell realized that the company's foray into retail channels was not successful. The operating model that was successful in the direct channel was not designed to profitably manage the retail channels. (Refer to **Table B**.) Further, the retail channel did not permit Dell to use one of its major attributes, mass-customization of its products.

Michael Dell summarized:

> We got tempted by the 20,000-odd retail storefronts that competitors like Compaq could access. But that would have meant at least 60 days of channel inventory and a similar amount of finished goods at our end to service the channels. That is completely contrary to our direct model. Dell turns inventory 12 times, while our competitors who sell through retail only turn their inventory 6 times. Even though customization increases our manufacturing cost by about 5 percent, we are able to get a 15 percent price premium because of the upgrades and added features. But for the standard configurations we offered through retail, we were not able to get any premium in the market. In fact Compaq, not us, got a 10 percent price advantage.

While Dell continued to grow rapidly, the costs of supporting the retail channel led to severe pressure on margins and Dell formally pulled out of this channel in mid-July 1994. In fact, Dell had begun to work with retailers to take back pipeline inventory and handle the transition informally even as early as late 1993. At the time of the withdrawal, Dell was selling at the rate of 25,000 units per quarter through the retail channel. According to a senior Dell executive, "Retailers were disappointed, but thought our attitude toward the channel was ambivalent to start with. They appreciated our honesty."

Even as Dell was attempting to cope with the new complexities of the market, Gateway 2000 (founded in 1985) grew from $275 million in sales in 1990 to $2.7 billion in 1994 by following Dell's direct distribution model. In the process, Gateway became the largest direct marketer of PCs in the United States. Gateway's strategy was to stay away from R&D and sub-system manufacturing and only assemble purchased components at its facilities in North Sioux City, South Dakota. Further, Gateway focused primarily on the U.S. desktop market, which accounted for over 94 percent of Gateway's total sales in 1993. Along with Dell, Gateway 2000 was one of the first PC vendors to introduce systems based on the Pentium microprocessors from Intel in 1993.

TABLE B
Margins in Direct versus Retail in 1994

	Dell Direct	*Dell Retail*
Price	100.0	88.0
Cost of sales	81.0	81.0
Gross margins	19.0	7.0
Operating expense	14.0	10.0
Operating income	5.0%	–3.0%

Dell Bites the Bullet

Undeterred by his company's recent setbacks, Michael Dell kept plugging ahead.

> I learned an important lesson. We were no longer the lonesome upstart carving out a niche in the market. We were an important player. We had arrived, but we didn't really grasp the fundamentals of managing a big business. In July 1994 with only $20 million to fund a $2.5 billion business, we were as close to the jaws of defeat as we have ever been. That's when we restructured the management team to reflect the experience we needed and position the company for the future.

Morton Topfer, vice chairman, concurred.

> We left an opening in the market for Gateway to take advantage of. We had a 15 percent to 20 percent premium and our prices were too high. We had lost focus. Consumers were willing to pay up to a 5 percent premium for Dell products, not more. We corrected all of that. We were the innovators in bringing Pentium [Intel's most recent and advanced microprocessor] computers to market. Our prices were once again competitive. Our humility was back and along

with that a spurt in sales. First-to-volume is the name of the game.

In 1994, sales of the firm rose to $ 3.5 billion. Sales to major accounts and VARs represented 67 percent of total sales; medium and small businesses and individuals accounted for the remaining 33 percent. Pentium-based systems represented 29 percent of total sales in 1994, while 486-based systems accounted for 71 percent. Overall, international sales accounted for 30 percent of Dell's sales in 1994. (See **Exhibits 5, 6,** and **7** for relative financial performance of Dell, Compaq, and Gateway.)

EXHIBIT 5
Financial Performance of Dell Computer Company ($ in millions)

Year	*1986*	*1987*	*1988*	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*
Net sales ($ in millions)	***69.5***	***159.0***	***257.8***	***388.6***	***546.2***	***889.9***	***2,013.9***	***2,873.2***	***3,475.3***
United States	69.5	153.1	218.2	300.3	358.9	648.1	1,459.6	2,037.2	2,400.0
Europe		6.0	39.6	88.3	187.4	241.9	553.0	781.9	952.9
Other International							1.3	54.0	122.4
Cost of Sales	53.6	109.3	177.3	279.0	364.2	607.8	1,564.5	2,440.4	2,737.3
Gross Profit	15.9	49.7	80.5	109.6	182.1	282.2	449.5	432.8	738.0
Operating Expenses:									
SGA	10.3	27.4	51.0	79.7	115.0	182.2	268.0	422.9	423.4
R&D	1.5	5.1	6.6	17.0	22.4	33.1	42.4	48.9	65.4
Total Operating Expenses	11.7	32.5	57.7	96.7	137.5	215.3	310.3	471.8	488.8
Operating Income	4.1	17.2	22.8	12.9	44.6	66.9	139.1	–39.0	249.3
Net Income	2.2	9.4	14.4	5.1	27.2	50.9	101.6	–35.8	149.2
% of Net Sales									
Net Sales	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***
United States	100.0	96.3	84.6	77.3	65.7	72.8	72.5	70.9	69.1
International—Europe	0.0	3.7	15.4	22.7	34.3	27.2	27.5	27.2	27.4
International—Others	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.9	3.5
Cost of Sales	76.9	68.5	68.5	71.8	66.7	68.3	77.7	84.9	78.8
Gross Profit	23.1	31.5	31.5	28.2	33.3	31.7	22.3	15.1	21.2
Operating Expenses:									
Marketing and Sales	14.8	17.2	19.8	20.5	20.9	20.5	13.3	14.7	12.2
R&D	2.3	3.5	2.8	4.4	4.1	3.7	2.1	1.7	1.9
Total Operating Expenses	17.1	20.7	22.6	24.9	20.5	24.2	15.4	16.4	14.1
Operating Income	6.0	10.8	8.9	3.3	8.3	7.5	6.9	–1.3	7.1
Net Income	3.1	5.9	5.6	1.3	5.0	5.7	5.0	–1.3	4.0

Source: Company annual reports.

EXHIBIT 6
Financial Performance of Compaq Computer Corporation

Year	*1987*	*1988*	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*
$ in millions								
Net Sales	1,224	2,066	2,876	3,599	3,271	4,100	7,191	10,866
Cost of Sales	717	1,233	1,715	2,058	2,053	2,905	5,493	8,139
Gross Profit	507	832	1,161	1,541	1,218	1,195	1,698	2,727
Operating Expenses:								
SGA	226	397	539	706	722	699	837	1,235
R&D	47	75	132	186	197	173	169	226
Other	6	–7	5	8	145	28	76	94
Total Operating Expenses	279	765	676	900	1,064	900	1,082	1,555
Operating Income	228	367	485	641	154	295	616	1,172
% of Net Sales								
Net Sales	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Cost of Sales	58.6	59.7	59.6	57.2	62.8	70.9	76.4	74.9
Gross Profit	41.4	40.3	40.4	42.8	37.2	29.1	23.6	25.1
Operating Expenses:								
SGA	18.5	19.2	18.8	19.6	22.1	17.0	11.6	11.4
R&D	3.8	3.6	4.6	5.2	6.0	4.2	2.3	2.1
Other	0.5	–0.3	0.2	0.2	4.4	0.7	1.1	0.8
Total Operating Expenses	22.8	22.5	23.6	25.0	32.5	21.9	15.0	14.3
Operating Income	18.6	17.8	16.8	17.8	4.7	7.2	8.6	10.8

Source: Company annual reports.

Strategic Decisions

Dell and Topfer had three strategic issues to resolve. First of all, they had to decide the balance of product emphasis between laptops, desktops, and servers. (See **Exhibit 8** for U.S. market growth projections per product class.)

The immediate concern was Dell's strategy for the laptop market. The first move was made in early 1993 with the hiring of John Medica, the lead developer of Apple Computer's much acclaimed and extremely successful Powerbook line, as the VP of portable products.

John Medica's team had gone back to the design board to develop a new line of portables that was expected to be available by the third quarter of 1994. In the interim, Dell re-entered the portable marketplace in early 1994 by selling a line of laptops that were sourced from Taiwan and developed in partnership with AST Research. In August of 1994, Dell launched its own line of notebook computers which were very well received by the market.

The laptop market was different from the desktop market in several ways. First, in 1994, laptop gross margins for the major players were typically three to five percentage points greater than desktops. Second, the manufacturing process for laptops was different from desktops. Typically, the chassis with the display and motherboard would

EXHIBIT 7
Financial Performance of Gateway 2000

Year	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*
$ in millions						
Net Sales	70.6	275.5	626.8	1,107.1	1,731.7	2,701.2
Cost of Sales	56.6	220.9	510.9	914.4	1,460.8	2,344.6
Gross Profit	14.0	54.6	115.9	192.7	270.8	356.6
Operating Expenses:						
SGA	7.6	29.4	56.6	89.4	121.7	216.1
R&D	0.0	0.0	0.0	0.0	0.0	0.0
Total Operating Expenses	7.6	29.4	56.6	89.4	121.7	216.1
Operating Income	6.4	25.2	59.3	103.2	149.1	140.5
% of Net Sales						
Net Sales	100.0	100.0	100.0	100.0	100.0	100.0
Cost of Sales	80.2	80.2	81.5	82.6	84.4	86.8
Gross Profit	19.8	19.8	18.5	17.4	15.6	13.2
Operating Expenses:						
SGA	10.7	10.7	9.0	8.1	7.0	8.0
R&D	0.0	0.0	0.0	0.0	0.0	0.0
Total Operating Expenses	10.7	10.7	9.0	8.1	7.0	8.0
Operating Income	9.1	9.1	9.5	9.3	8.6	5.2

Source: Company annual reports.

come prepackaged from an outside vendor. Only the processor, memory, and hard disk drive were added to the system in the assembly line, in addition to the software. This reduced the degree of customization possible in laptops as compared to desktops. Third, the sophistication of the design and the quality of workmanship required in assembling a laptop had to be significantly higher than in the case of desktops, given that laptops faced a harsher set of working conditions. Fourth, there was a lot more feature differentiation across brands in laptops than in desktops.

A significant portion of laptop sales to large corporate customers was for their sales and process automation projects that were usually managed by system integrators and VARS. There was also a fast-growing segment of small office and home (SOHO) buyers that were acquiring the latest laptops as a replacement for their existing desktops. This group preferred shopping through the retail channel because it gave them a chance to "touch and feel" multiple brands prior to purchase.

TABLE C
Market Shares and Market Penetration of Major Players in the Laptop Market in 1994

	U.S. Market Share %	*% of Fortune 1000 Firms Using Brand*
Toshiba	17.8	51
Compaq	14.7	64
IBM	11.3	50
Apple	9.3	13

EXHIBIT 8
Total Volume of U.S. Market Between 1982 and 1998 (in billion $ and units)

								Projected	
($ billion)	*1982*	*1984*	*1986*	*1988*	*1990*	*1992*	*1994*	*1996*	*1998*
Desktops	10.16	19.17	18.36	20.05	20.78	22.52	25.06	33.0	36.5
Portables	0.29	1.74	2.54	3.28	3.87	4.75	8.48	11.6	16.0
Servers	0.03	0.18	0.95	1.64	2.97	5.47	8.11	12.5	18.5
Total	10.48	21.09	21.85	24.97	27.62	32.74	41.65	51.7	71.0

								Projected	
(units shipped in '000s)	*1982*	*1984*	*1986*	*1988*	*1990*	*1992*	*1994*	*1996*	*1998*
Desktops	3,387	7,100	7,200	8,100	8,750	9,835	11,802	13,100	14,500
Portables	130	600	850	1,130	1,540	2,150	3,800	5,400	7,500
Servers	3	19	110	195	338	457	739	1,250	1,950
Total	3,520	7,719	8,130	9,425	10,628	12,442	16,341	19,750	23,950

Source: BIS Strategic Decisions, Inc.

Note: Typical configuration in late 1994.

Desktops: Pentium processor, 8 MB RAM, 700 MB hard disk, 15" color monitor, floppy disk drive.

Laptop: 486 processor, 4 MB RAM, 400 MB hard disk, dual scan color monitor, floppy disk drive.

Servers: Single/multi Pentium processor, 32 to 64 MB RAM, multiple disk drives with over 10 GB capacity, 15" color monitor, multiple floppy disk drives, back-up/storage tape drives, advanced bus architecture for high input/output operations.

Given the above differences and Dell's past experiences in laptops, three key strategic questions existed. Was it advisable for Dell to get into the laptop business again? Should the laptops be aimed at the corporate market using the direct channel? Was the retail market a better option for laptops given the higher margins available?

The second area of concern was Dell's strategy in the PC LAN server market. The PC LAN server market was emerging as one of the most dynamic, fast-growing, and fiercely competitive markets in the industry with players like Compaq and HP setting the stage for customer acquisition strategies. Fortunately, however, the competition was restricted to technology and service, not price. Most of Dell's large customers were moving away from computing environments based on mainframes and minicomputers to LAN-based client/server solutions.[11] **Exhibit 9** gives more details on the server market segments, and **Table D** gives a breakdown of sales by segment.

[11] In the old system of integrating computing requirements in a large corporation, mainframes served as the hub of all activity. All the application software and databases resided on the mainframe. The mainframe also directly controlled common resources such as printers. This was a centralized environment with the mainframe responsible for all functions and the individual units functioned like dumb terminals that allowed users to access the common pool of resources available on the mainframe. This scenario started to change rapidly in the early 1990s with the availability of powerful desktops and laptops. Large firms now had to think in terms of connecting the distributed computing power located on individuals' desks into networks to share common corporate databases and hardware resources, and to allow for internal communications such as fax, electronic mail, etc. Managing these networks was done by powerful microprocessor-based systems called LAN servers that were very similar to desktops and shared a lot of common technology and components with desktops.

TABLE D
Details of Server Market Segments

	Nondedicated PC Server and PC Desktop Server	*PC Server*	*Super Server*
1994:			
Share of total server market (%)	62	36	2
Average unit price (S)	6,000	18,000	30,000
1998 (projected):			
Share of total server market (%)	40	58	2
Average unit price (S)	4,000	14,000	28,000

Assembling servers was similar to desktops. The primary difference was that servers were significantly more complicated than desktops, and quality and reliability of the product were critically important to the customer. Therefore, servers were subjected to more intensive "burn-in" tests that increased the manufacturing cycle time by several days. However, when it came to marketing servers, there were some major issues.

Internally, the senior executives of Dell were split in their approach to this market. Some believed that server sales to the corporate market would dictate the choice of desktop vendors- vendors who supplied servers to manage LANs would win the desktops sales too. Losing server sales, in their opinion, would lock Dell out of its primary desktop market very quickly. These executives wanted Dell to pursue the server market on all fronts. On the other hand, there were others who believed that it was unlikely that large customers would take Dell seriously as a server vendor. They cited the recent success of HP and DEC in this segment as a clear indicator of customer preferences for a certain type of server vendor. In addition, they felt that Dell did not have the marketing, sales, and service expertise to support servers. They felt that Dell should continue to focus on its direct model and stay away from servers, or risk losing the next round to Gateway.

The final area of concern for top management at Dell was the rapid growth in international operations of the firm. In the span of five years between 1989 and 1994, international sales had gone from nothing to close to a billion dollars. (**Table E** gives a breakdown of the operating income for Dell by region.)

By 1994, Dell was present in all major international markets with a combination of subsidiaries and distribution agreements. (**Exhibit 10** gives a summary of Dell's international structure.) Dell's presence in each market had evolved differently. In some cases (for example, the United Kingdom) the business model was very similar to the direct model that had been successful in the United States. In other countries (Japan, for example) Dell had significant sales through the indirect channel. The notion

TABLE E
Dell's Operating Income (U.S. and International) in $ millions

	1992	*1993*	*1994*
United States	110.7	(35.5)	110.7
Europe	34.7	14.6	132.2
Others	(6.3)	(18.1)	6.3
Total	139.1	(39.0)	249.3

EXHIBIT 9
Description of the PC LAN Server Market Segments

The hardware platform of the server was usually used as the basis to segment the LAN server market.

The *non-dedicated PC server* and *PC desktop* server markets were the low-end of the server market and included servers implemented in small work groups of larger companies or within small businesses. Customers in these markets were very price sensitive but had relatively low performance requirements. The primary application was basic connectivity or file/print sharing with little or no sophisticated application requirements. Customers were also interested in the ease-of-use of the server given their low level of skills in supporting them. Compaq, IBM, AST, Gateway, and Apple were the main competitors in these markets. The typical gross margins in this server segment were below 30 percent. Most vendors currently offered richly configured desktops with some network management software as a solution to these segments. This segment represented the bulk of Dell server sales until 1994.

Products in the mid-range segment of the market were called, simply, *PC servers*. Customers in this segment required superior performance and reliability, and were willing to pay a premium for it. They looked for pre- and post- sales service, and expect a high level of technical sophistication on the part of the vendors. To serve this segment, vendors such as Compaq, HP, and AST had established relationships with VARs and other specialized (niche) service providers that offered single-source support for vertical markets while keeping a lid on costs. Typical gross margins for vendors in this segment were between 40 and 45 percent. In early 1994, Compaq announced an aggressive approach to protecting its number one position by improving its product performance and reliability, establishing strategic alliances with database vendors, and joint development partnerships with manufacturers of network communications products.

At the high end, the *super server* market supports high-end niche applications using multi- processor servers. This segment is relatively undeveloped due to the immaturity of multi-processing software and the increasing functionality of lower-end uni-processor systems. This segment had Compaq, ALR, Tricord, and Netframe as the established competitors. New entrants into this business included IBM, Zenith, AST, Digital, and AT&T GIS. Products in this segment typically had gross margins over 50 percent.

Source: Internal company records.

of buying direct from the manufacturer was a new concept in many markets so Dell had an uphill battle to fight in some countries. Given the lack of an infrastructure in markets outside the United States and some parts of Europe to support the direct model, a significant part of the growth in international sales had come through retailers and distributors.

Managing the international expansion was further complicated by the fact that Dell had supported this growth by forming international subsidiaries as stand-alone entities adapted to facilitate effective and rapid local market penetration. Morton Topfer wondered if Dell needed a global channel strategy. Should Dell convert all its international businesses to a replica of the direct model in the United States, and if so, how rapidly? Should Dell continue to expand into new markets or focus on growing share in the markets the company currently competes in?

In the tumultuous computer business, Dell had achieved compound annual sales growth of 59 percent per year since 1990 and had implemented a rapid turnaround after the company stumbled in 1993. Furthermore, $100 invested in Dell stock in January of 1990 would have been worth $1,090 by the end of 1994, a 61 percent annual return. Despite these achievements, Dell's management team continued to push the organization to new heights.

EXHIBIT 10
International Organization, 1994

Country	*Organization*	*Percentage of Total Sales~~1994~~*
Americas		69.1
1. United States	Regional HQ (Americas)	
2. Canada	Local office	
3. Mexico	Local office	
4. Other Latin Americas		
European Countries		27.4
1. United Kingdom/Ireland	Regional HQ (Europe)	
2. Germany	Local office	
3. Benelux	Local office	
4. France	Local office	
5. Sweden	Local office	
6. Spain	Local office	
7. Finland	Local office	
8. Denmark	Local office	
9. Czech Republic	Local office	
10. Poland	Local office	
11. The Netherlands	Local office	
12. Norway	Local office	
13. Switzerland	Local office	
14. Austria	Local office	
15. Other European countries		
16. Middle East and Africa (considered part of European region)		
Asia Pacific Countries		3.5
1. Japan	Regional HQ (Japan)	
2. Singapore	Local office	
3. Malaysia	Local office	
4. Thailand	Local office	
5. Hong Kong	Regional HQ (Asia Pacific)	
6. Australia	Local office	

Source: Internal company records.

"By the year 2000, we aspire to be one of the top five players worldwide. We need a global vision and strategy," said Topfer.

Michael Dell disagreed with a smile, "You mean top three!"