



Dell Online

"It was Michael's idea. He's a visionary in our industry," stated Morton Topfer, Vice Chairman of Dell Computer Corporation, gesturing toward Michael Dell's office across the hallway. "There's no doubt that Dell Online is a huge innovation, just as Dell Direct was a decade ago. But times have changed. We are now a big company, with 1997 revenues of nearly \$12 billion and a growth rate of 50% over the last three years. We have to be nimble but methodical in how we absorb and build on this new approach of going to market," added Topfer.

In July 1996, Dell Computer had launched its online website, www.dell.com. The online store mirrored the experience customers had when they called Dell's toll-free 800 number to place a direct order. Site visitors could customize a computer's configuration to suit their needs, noting how those changes improved performance and affected pricing. Additionally, customers could check on the status of their order at their convenience and even receive technical support *online*. The store was open 24 hours a day. The response to the retail store was overwhelming, with hundreds of thousands of people visiting the website each week and generating millions of dollars of revenue for Dell.

In addition to its online store, Dell also developed Premier Pages, online interfaces with its key corporate accounts. Customers viewed the Premier Pages to get technical help, to access their Dell account executive, or in some cases, to place orders using the customer's preferred pricing and standard configurations. Scott Eckert, the 30 year old director of Dell Online, remarked,

Dell's foray into Internet-based sales, marketing and support has been a big win. We're getting a lot of publicity about selling \$3 million a day on the Internet—and our goal is to execute half of Dell's sales volume over the Internet within three years. It's also clear that major competitors such as Compaq are attempting to break with tradition and imitate Dell, not only by going direct to the consumer, but also by letting the customer configure his/her product. We need to leverage our initial success into a sustainable competitive advantage.

The Story of Dell¹

In 1983, Michael Dell, an 18 year old freshman at the University of Texas at Austin, spent his evenings and weekends pre-formatting hard disks for IBM-compatible PC upgrades. A year later, he

¹ Some parts of this section have been drawn and adapted from HBS case No. 596-058, "Dell Computer Corporation."

Professor V. Kasturi Rangan and Research Associate Marie Bell prepared this case as the basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation. Certain facts and data in the case have been disguised.

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dropped out of college to attend to his burgeoning business, which had grown from nothing to \$6 million in 1985 by simply upgrading IBM compatibles for local area businesses. In 1985, Dell shifted his company's focus to assembling its own brand of PCs and the business grew dramatically, with \$70 million in sales at the end of 1985. By 1990, sales had grown even further to over \$500 million and with it Dell's capabilities as a national supplier to Fortune 500 companies. The company now had a broad product line of desktop and portable computers based on the most recent Intel processors and had earned a strong reputation for its products and services.

Dell's success continued through 1992, until in 1993 it faced an operating loss for the first time in its history, despite a 40% increase in sales. (See **Exhibit 1** for Dell's financial performance.) The problems, Dell quickly discovered, stemmed in part from its attempts to sell its products through retail channels, such as CompUSA, Staples, and Sam's Clubs in the U.S. Moreover, quality problems with its laptops had exacerbated Dell's financial woes. While some pundits were questioning Dell's future, the company acted decisively, exiting the retail channel and resolving to re-enter the laptop market only when that product's quality matched or exceeded the quality of the Dell desktop. By 1997, the Latitude, Dell's laptop, had won *PC Computing* magazine's Torture Test twice in three years in addition to winning *Business Week's* Industrial Design Excellence Award.

Dell's product line evolved with the PC market. In 1997, Dell manufactured two types of desktop systems: the Dimension line that offered high-end technology at value prices, and the OptiPlex line featuring highly-reliable network ready systems designed for corporate and institutional customers. Similarly with notebooks (laptops), the Inspiron line offered state of the art technology at aggressive prices, while the Latitude line offered reliable notebooks designed for the office network, equipped with dependable network connectivity. In addition to its desktop and laptop products, Dell introduced its PC/LAN (server) product the PowerEdge in 1996 and workstations in 1997.

By 1996, Dell sales reached \$7.8 billion with an operating income of more than \$710 million. Dell continued offering its customers high quality products, value added services, and reduced costs of ownership. Value added services included: DellPlus that enabled Dell to install commercial and proprietary software and peripherals to customer's specifications; DellWare, a one stop shopping service of thousands of hardware and software products (Dell maintained no inventory; orders were placed electronically for immediate shipment to affiliated warehouses); and Dell Asset Management where Dell helped customers with leasing packages. To lower the costs of ownership, Dell also worked with its customers on proper software management practices, offered volume license programs, and efficient installation services.

Throughout its remarkable history, nearly all of Dell's sales were to large corporate accounts, medium and small businesses, federal and state governments, and educational institutions. "Home" consumers were only a small proportion of its sales. Almost universally, customers and analysts alike attributed Dell's reputation and success to its unique and distinctive "Dell Direct Model."

The Dell Direct Model

The Dell Direct Model was a very efficient "made-to-order" high velocity, low cost distribution system characterized by direct customer relationships, build-to-order manufacturing, and products and services targeted at specific market segments. By and large using print media, Dell's marketing communication (\$150 million budget in 1997) attracted the attention of its customers to its Direct model and its inherent advantages. Over time, Dell was able to accurately forecast demand based on marketing communication efforts. For example, Dell's consumer group was able to predict response rates from newspaper ads, catalogue offers, etc. Based on its model forecasts, Dell was then able to accurately adjust sales staffing and production levels to meet demand.

Dell serviced the North American market from its two plants in Austin, Texas. A new state of the art plant that opened in 1997 manufactured Dell's OptiPlex systems, while Dell's original plant, fondly referred to as Braker 12, continued to manufacture Dell's Dimension systems that were targeted at the individual user, Dell Latitude notebooks, and Dell's PowerEdge network servers. The new facility operated with just-in-time materials, a continuous manufacturing flow, and direct shipment capability that increased productivity and ensured consistent, timely order delivery and high product reliability. With the transfer of the OptiPlex capacity, the old plant, which had grown in a haphazard fashion to accommodate ever increasing capacity needs, was being redesigned along many of the same principles.

Once Dell received an order at its factory, the configuration details were sent to manufacturing, where the order was electronically broken down into a list of parts required to build the computer. When the specification sheet was generated, an electronic bar code linked the system back to its original order number. If the customer called to check on the delivery status, using the order number Dell could tell the customer exactly where the PC was in the assembly process and when the system would be shipped. If the customer had a service issue after receipt of the system, they could refer to the number on the bar code and the service technician could look up the exact configuration of the system.

After the parts spec sheet was generated the assembly of the computer began. First the motherboard was configured with the ordered micro-processor and the required amount of RAM. Then the other optional parts (disk drives, CD ROMs, etc.) were assembled into a bin, with workers pulling the needed parts from stock. The bin was forwarded with the motherboard to a five-person cell for the installation of these other parts, wiring to the motherboard, case assembly, and quality testing. The production cells were equipped with computers that provided instant, detailed access to information regarding part configurations and setup. Dell found that the high-volume cell production lines improved the plant's capacity and also more easily integrated DellPlus program components allowing for even greater customization for customers. The cell-based production in the new plant was significantly more efficient than the old plant which had operated as a traditional assembly line. For example, there was a reduced need for quality checking at several points in the line as the members of a cell worked as a team to configure the system and test it before it left the assembly area.

After all the options had been installed in the manufacturing cell per the spec sheet, the system was sent to the software loading zone, where the appropriate software, including operating system software, application software, and diagnostic software, were loaded into 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 into a box and sent to the packaging area. There, the completed system was boxed along with peripherals such as a keyboard, mouse, mouse pad, and the manuals and floppy disks for all the installed software.

Despite earning some of the industry's highest quality awards in the PC industry, Dell was constantly striving to improve its products. For example, recently "Michael Dell became obsessed with finding a way to reduce his machines' failure rate."² He believed the key was to reduce the number of times there was human interaction with the hard drive during assembly and insisted that the number of "touches" be significantly reduced from the existing levels of 30 per drive. When the production lines were re-configured, the number of touches fell to less than 15 and soon after the rate of rejected hard drives fell 40%, and the overall failure rate for Dell PCs dropped 20%.

The Dell process became a model of efficiency for the industry. The entire process from order receipt to product shipping required only about 36 hours. Incoming parts were pulled through the

² "Dell Turns the PC World Inside Out," *Fortune*, September 8, 1997.

system and ordered on a just-in-time basis, with Dell's direct model operating on 13 days of inventory, versus the 75 to 100 days in the typical indirect model. This was an improvement over Dell's prior standard of 30 days of component inventory, with suppliers carrying a buffer stock of 45 to 60 days. Indeed, when the plant was designed, an extensive area had been allocated for parts storage, but six months after the plant opened, Dell planned to convert much of the area to production space, adding an additional line to the four already in operation. Dell's ability to operate on a just-in-time basis was facilitated by its suppliers, who warehoused the bulk of their components within 15 minutes from the Dell factory. Dell had been able to reach these agreements by reducing the number of suppliers, buying from just 47 companies rather than the 204 it had purchased from in 1992. An industry observer commented on the advantages of Dell's pull system,

While machines from Compaq or IBM can languish on dealer shelves for two months, Dell doesn't start ordering components and assembling computers until an order is booked. That may sound like no biggie, but the price of PC parts can fall rapidly in just a few months. By ordering right before assembly, Dell figures his parts on average are 60 days newer than those in an IBM or Compaq machines sold at the same time. That can translate into a 6% profit advantage in components alone.³

Shipping was contracted out, with multiple shippers delivering the systems anywhere in North or South America. In 1997, in another process innovation, Dell stopped accepting delivery of monitors for its PC orders. Instead, when a system was ready for shipping, Dell sent an e-mail message to a shipper. The shipper pulled the appropriate monitor from supplier stocks and scheduled the monitor's arrival to the customer for the same date as the PC. The result was about \$30 savings in freight costs per display.

Post shipment, if a customer called in with a problem, the first level of support was provided over the telephone. Dell employed nearly 1,300 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, and indeed solved the problem in nine out of ten cases. If the problem was one of defective parts, Dell had third party maintenance agreements with service companies (office automation vendors such as Xerox) who sent technicians to solve the problem, with most problems being resolved within 24 to 48 hours. Michael Dell explained,

We first 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.

The Dell Customer

Dell broadly segmented its customers as either "transactional" or "relationship," with about 40% being relationship, 30% being transactional and the rest being a blend of both. Table A below shows Dell's major customer segments. Transactional customers were individuals or businesses who, even if purchasing a large volume of computers, thought of each purchase individually. For the transactional customer the economics of the purchase was the key variable. The transactional customer usually bought from a variety of vendors over time, always looking for the best PC for a particular application focusing on specific factors such as performance, specifications, features, bundles, reviews, and awards. The transactional customer consulted information sources such as reviews, editorials, advertising, as well as word of mouth in the buying process, relying on previous

³ "Whirlwind on the Web," *Business Week*, April 7, 1997.

brand experience only as an indicator. Dell's business systems division (BSD) that served small businesses, catalogue sales (DCS) that served consumers, portions of higher education and the federal government were examples of transactional segments. Dell's main competitors in this segment were companies such as Gateway 2000, and Micron Electronics, and the retail channel. One Dell executive summarized, "On the transactional side of the business, you need to 'acquire' the customer every time they buy a system; the only difference is that they're much more educated the second time than the first."

Table A Dell's Market Segmentation*

Market Segment	Buying Process	Ratio of Outside Reps to Inside Sales Reps
Enterprise (>18,000 employees)	Relationship	1:1
Large corporate accounts (2,000-18,000 employees)	Relationship	1.3:1
Preferred accounts (400-2,000 employees)	Relationship	1:3
Business systems div. (2-400 employees)	Transactional	all inside
Dell catalogue sales	Transactional	all inside
Federal government	Mixed	1:1.5
Education	Mixed	1:2
State & local government	Mixed	1:1

*The data in this table has been disguised

Traditionally, Dell had steered clear of the neophyte transactional customer, especially the individual consumer who tended to pay lower prices and, lacking a technical user-support group found in the larger business setting, tended to have more intensive service requirements. Morton Topfer added, "Consumers at retail don't know what they are looking for, other than price. We, on the other hand, like to sell to the educated consumer." As a result, Dell tended to market toward the higher end of the segment that attracted a more computer-sophisticated customer.

"Relationship" customers thought of computer purchasing as a multi-dimensional process, regardless of whether they were purchasing 5 or 500 computers. Unlike the transactional customer, the relationship customer was less price sensitive (although the customer may buy at low price points) and tended to focus on factors such as reliability, vendor strength, and standardization of products. Relationship customers got their information from sales people, industry analysts, conferences, and trials and testing. Relationship accounts included the Enterprise, Preferred Accounts, and federal government contracts segments. Dell's major competitors in the Relationship segment were Compaq, IBM, HP, and other leading brands that sold to the customers through VARs (value added resellers) and national resellers. For example, Vanstar, a major reseller of Compaq's product, would offer its customers a complete computing solution, including Compaq computer hardware, peripherals, installation of standard and proprietary software, and on-site service.

Relationship customers were a key component in Dell's success story. While few large customer signed exclusive purchase agreements with a single vendor, Dell had achieved remarkable penetration of the relationship customer base, with a 25% penetration of the Fortune 500 companies, 10% penetration of the next largest 5,000 companies, and an 8% share of the 15,000 companies with 200-2,000 employees. In the medium and small business segment with nearly a 5% penetration of the 7 million accounts, Dell had made impressive gains in the last few years. As a hardware manufacturer, Dell was at a competitive disadvantage against VARs and national resellers that offered a full range of hardware (both PCs and peripherals) and software (off-the-shelf and customized), Dell had overcome these shortcomings in two ways. First, it recognized that it needed

to be more than a "pure" hardware vendor and developed its own range of value-added services such as DellPlus that installed commercial and proprietary software and Dellware, a one-stop shopping service of a full range of hardware and software products. Moreover, Dell had contracted out, but maintained accountability for, its service for large accounts to third party service providers such as Digital Equipment Corporation that had nearly 20,000 field service people. Second, Dell focused on the economics of the overall account, judiciously applying the 10 to 15% price advantage earned by its direct model to both win new accounts and deepen penetration of existing accounts.

Transactional customers were given the option of paying for their purchase using a credit card or being charged in full on delivery. In the case of Relationship buyers, payment was usually effected through corporate purchase orders, credit cards, or lease agreements, resulting in a significantly longer payment cycle. Overall, the larger the volume per account, the higher the gross margins for Dell in the Relationship segment. The ability to generate cash from its orders was another example of Dell's process velocity. Especially on the transaction side, Dell converted the average sale to cash in less than 24 hours by tapping credit cards and electronic payment. By comparison, Compaq, which sold primarily through dealers, took 35 days and Gateway, 16.4 days.

Dell Salesforce

Dell organized its business into four regions, the Americas, Europe, Japan, and Asia, with a president within each region responsible for all operations. Each of the four regions, in addition to a worldwide business development group and other specialized functions such as legal and engineering, reported directly to the Office of the Chairman. As seen in the organization chart (Exhibit 2), reporting into the regions were senior vice presidents responsible for manufacturing, individual business units, and other functions such as public relations and finance. Within the Americas, (which represented 65% of Dell worldwide sales), each of the nine business segments were grouped into broader departments that reported to the group vice president. Each business segment retained its own sales, marketing, operations (information systems, sales order entry, collections, etc.), human resources, and legal departments.

Outside of the Americas, the organizational structure differed slightly. For example, Asia and Europe had a traditional country management structure, with the country vice presidents reporting into the president for the region. Within the respective countries, Dell typically had a functionally based organization, although it was increasingly moving toward the business unit approach used in the Americas. For example, in France, rather than having nine business unit organizations, there was a transactional segment and a relationship segment.

In the Americas, Dell sold its products using a sales organization that resided within the business units. Relationship segments employed teams of outside and inside sales reps, with the exception being the consumer and small business development segments which used exclusively inside sales reps. In 1994, Dell had about 300 field-based sales reps and a similar number of inside telephone reps. By 1997, that figure had grown to over 2,000 reps, with about 40% of sales reps assigned to the relationship segments, 25% to the transactional segments, and 35% assigned to those segments that were a blend of both relationship and transactional customers. The outside rep, known as a field Account Executive, was dedicated to customers in a region and was responsible for understanding the customers' information technology environments and service needs and selling them customized product and service solutions. Additionally, the 1,300-person technical support group was divided into three groups (consumer/small business, public sector, and enterprise/large/preferred) and reported directly to the group vice president.

The inside sales reps were paired with field reps and dedicated to common Relationship accounts, while inside reps in the Transactions segment acted independently. 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 online and guide the customer accordingly,

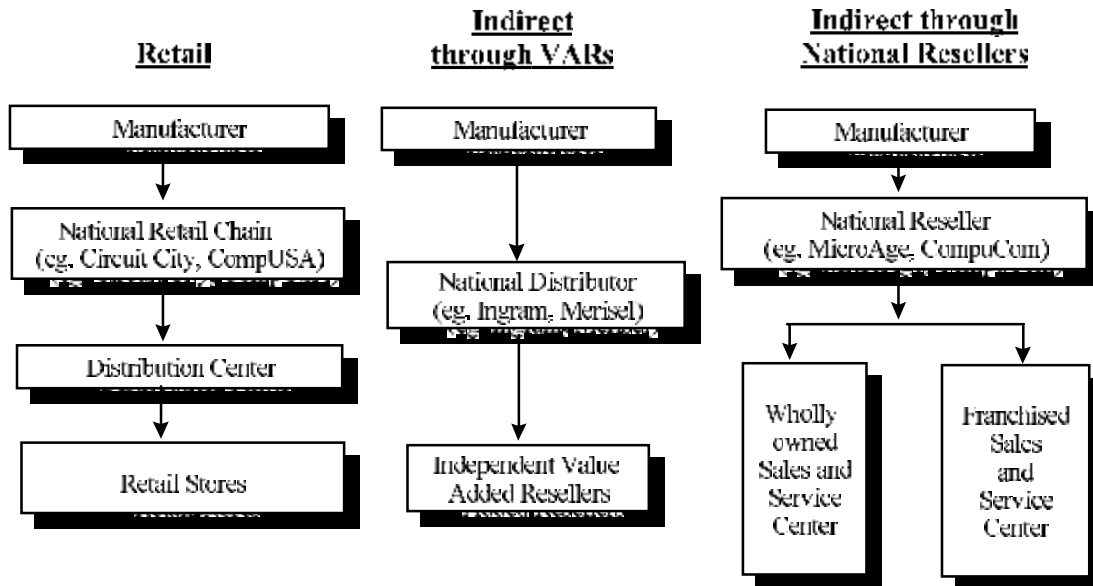
accessing eligibility for discounts or corporate-mandated product configurations that the callers might not have been aware of. The inside reps were also responsible for the "up-sell" at the time of purchase—selling the customer a higher-end system with a richer mix of software and peripherals. Inside sales reps received variable compensation based on the gross margin of the goods they sold, with typical quotas averaging \$4-6 million in revenue in the transaction segments.

The role of the sales rep changed significantly depending on the type of customer being served. An inside sales rep, in either the small business or consumer segment, was an active selling agent significantly influencing the buying decision as the customer often looked to the sales rep for technical advice. For example, a sales rep's recommendation for a faster CD ROM or the inclusion of a zip drive was often accepted by the customer, increasing Dell's margin on the system. By contrast, in the case of an enterprise customer, the purchasing company's information services personnel had pre-determined the specifications of the systems their employees were permitted to order. Moreover, attempting to achieve homogeneity in their installations, these customers actively discouraged any deviations from the prescribed standards. As a result, the inside sales rep's function was more focused on correct order entry and understanding the customer's requirement on product and delivery.

Similarly there was a difference in the roles and responsibilities of the outside sales reps depending on the size of the relationship customer they served. For the Enterprise and large accounts, the outside sales rep was the single point of contact for the customer. The sales rep was responsible for acquiring the account and actively maintaining it—developing specifications, following up on problems, etc. By comparison, the outside sales rep in the preferred account segment who handled as many as 10-15 accounts, was responsible for acquiring the account and then monitoring its satisfaction and growth at regular intervals, leaving the primary contact with the customer to the inside sales rep. One Dell executive described the role as "setting up the account and then getting out of the way."

PC Distribution Channels

In the late 1990s, PC distribution channels remained fragmented, with major manufacturers using a variety of channels to bring their products to market. Despite the proliferation of channels, by the mid 1990s, four fundamental means of distribution had evolved for the distribution of PCs: direct, consumer retail, indirect business sales through VARs, and indirect business through national resellers. (Table B provides an overview of the three indirect channels). Dell was the only major manufacturer to focus solely on the direct channel. Almost all other manufacturers used one or more of the three other channels to distribute their products, ignoring the direct channel. For example, in 1996, Compaq sold almost exclusively through indirect distribution channels which included top-tier or master distributors, regional distributors, resellers, and retailers. In addition to these four major distribution methods, there were variations including Gateway's recent attempt to develop direct retail outlets in high volume locations such as shopping malls. The three non-direct channels are described below.

Table B Major PC Distribution Channels (Excluding Direct Channels)

Retail The retail market was dominated by national chains such as Circuit City, Best Buy, and CompUSA. Product flowed directly from the manufacturer to the chain retailer for sales to consumers and small businesses. This channel usually sold standard product offerings primarily to individual consumers and small businesses. About 30% of the U.S. market was sold through the retail channel.

Indirect through VARs In this channel, product flowed from the manufacturer to master distributors to independent value-added resellers (VARs). In 1996, there were three master distributors in the U.S.—Ingram Micro (sales of \$12.0 billion), Tech Data (sales of \$4.6 billion), and Merisel (sales of \$5.5 billion), carrying approximately 100,000 items and directly or indirectly supplying the full range of all hardware, software, and peripherals for the PC industry. The master distributor emphasized product distribution, leaving system integration or value-added systems to the VARs. For its part, the VARs had direct relationships with mostly business customers, providing system integration, service, specialized software, etc. Approximately 15% of the U.S. market was distributed in this manner.

Indirect through national resellers The other significant distribution flow for business PCs was through national resellers such as Entex Information Systems, Vanstar (sales of \$2.2 billion), CompuCom Systems (sales of \$2.0 billion), and MicroAge (sales of \$3.5 billion), who purchased PCs from the manufacturer and distributed them through their own wholly owned network of retail store fronts and sales & service organizations. Similar to the VAR, the national reseller's strength was its ability to customize systems to meet individual customer needs. For example, a national reseller receiving an order for a 100 systems with sound cards and 56.6 modems, ordered the systems from the OEM, installed the necessary upgrades, reassembled the system, tested it, and sent it to the end user. This channel accounted for approximately 33% of the U.S. market.

Competition in the PC industry was intense. With increased market maturation, vendor margins had fallen from 35-40% in the early 1990s to close to 20% in 1996, and were forecast at 15% for the future. In 1992, the top ten vendors accounted for approximately half of the PC market. By 1994, consolidation from increased price competition left the top ten with a 65% share. In the \$85 billion U.S. market in 1997, Compaq was the leader with about 18% share, Dell was second with

about 10%, followed by Packard Bell-NEC and IBM tied at 8-9%. Hewlett-Packard and Gateway each had about 6% share. Vendors faced "feast or famine" demand cycles that were increasingly difficult to predict. Given the cyclical nature of the industry, inaccurate projections led to either product gluts and obsolete inventory in distribution channels or product shortages. This was exceptionally risky in an industry where manufacturers traditionally guaranteed their dealer networks against price changes. For example, if the cost of chips or components fell, a manufacturer reimbursed its dealers for the price reductions on systems already in the channel and bought back any unsold inventory.

With the success of its Dell direct model and its recent Internet application, and declining industry margins, many vendors were moving toward a build to order model. (See Exhibit 3 for a brief description of other industry trends.) One industry observer commented,

The runaway success of Dell Computer's direct sales model and the trend toward Internet ordering are forcing many of the world's major PC companies to rethink how they do business. . . The distribution and manufacturing models that most have favored since the industry's inception in the early 1980s—a combination of internally built products and outside distributors, dealers, resellers, and retailers—is being unpicked. In its place—a fluid model under which manufacturing is spread across outside contractors, distributors/dealers, and the company itself, with more emphasis placed on selling directly to the customer.⁴

In July of 1997, after failing in two attempts to purchase Gateway (one of Dell's strongest direct competitors), Compaq announced its new build-to-order manufacturing process, and established direct sales teams and telephone centers that would ship Compaq computers direct to the customer. However, by early September, Compaq's system was already showing strain. One observer noted,

The era of mass customization is fast arriving in the PC industry. Everyone in the supply chain from manufacturer to distributor is redefining their respective roles, and the final assembly of systems is one role clearly gravitating towards the channel.⁵

For its part, other industry leaders such as IBM and HP were transferring a large proportion of their PC assembly to a select group of distributors and dealers. In its Authorized Assembly Program (AAP), IBM began shipping "bare bones" systems into the channel for configuration to order assembly, hoping to become more responsive to demand, to better manage inventory, to lower the risk of product obsolescence, and to reduce the manufacturing costs of its products. To be part of the AAP, IBM required that the distributors and dealers be certified, use IBM assembly and testing procedures, and use only IBM original parts. Early results suggested that the AAP program resulted in higher product quality—the system was assembled all at once, rather than being "touched" by VARs adding components as needed. Similar to the Dell experience, IBM found that the fewer times the box was opened the less likely the defects would creep in.

Many vendors recognized the risks inherent in going direct to the customer, especially as many believed that the direct model could only reach 30% of PC customers.⁶ Bill Ramsey, VP of manufacturing strategy and technology for Compaq, remarked,

By no means is Compaq abandoning the channel, but if it is to fight back against Dell and other direct PC vendors it must have the same advantages and

⁴ "Direct Action," *Computer Business Review*, June 1, 1997.

⁵ "Debating the Meaning of Assembly - When Terms Break Down," *Computer Reseller*, August 25, 1996, p. B15.

⁶ "Direct Action," *Computer Business Review*, June 1, 1997.

mirror their business practices. It is a calculated risk because we must do so without upsetting the channel, because the Dell model for all its efficiencies can only cover so much of the market. You need the channel if you want to get to them all.⁷

Dell Goes Online

The mid 1990s saw a dramatic leap forward in the use and functionality of the Internet. Once the domain of academic researchers characterized by cumbersome code, the "Net" became mainstream when user-friendly browsers made it possible to search the Internet for information and send and receive mail electronically. The pioneering work by Netscape Communications in the early 1990s had devotees "surfing the Net in increasing numbers and attracting the attention of both the PC industry and the business community overall." In May 1995, Bill Gates, CEO of Microsoft Corporation, penned a memo, "The Internet Tidal Wave," in which he stated that the Net was the most important single development since the PC.⁸ With that he announced a major drive to bring Microsoft into the realm of the Web.

Similarly, Michael Dell had become drawn to the "buzz" about the Internet, envisioning it as the ultimate extension of the Dell direct model. Indeed, by the early 1990s Dell had begun experimenting with the Internet in response to customer demand, delivering online technical support and order status information. As his vision for the Internet grew, Michael Dell established a small team of about nine people to explore using the Internet as a means of communicating with customers, delivering information, and selling its products. This team was led by Scott Eckert, a Harvard MBA, who at that time was Executive Assistant to the Chairman, working on special projects reporting directly to Michael Dell.

As the team investigated the Internet they became increasingly convinced that it was a viable channel for Dell's products. In 1996, there were 20 million users worldwide, with the number of users expected to double every year. Moreover, Dell's key customers, business users, were major drivers of the Internet, with 82% of *Fortune* 500 companies providing their employees with Internet access, and 64% of Fortune 500 companies having developed Intranets (internal communications networks). The U.S. market was an early adopter of Internet capabilities, with 65% of U.S. businesses with 50 or more employees either planning to use the Internet or already online, compared to 45% of German companies and 28% of French companies. Almost universally, industry observers predicted a surge in electronic commerce driven by the Internet. By the year 2000, one industry observer forecasted \$67 billion per year in business-to-business Internet commerce.⁹ Another prediction was that 46 million Americans would be purchasing goods and services electronically by the year 2000.¹⁰

Many at Dell were excited by the online prospects, believing that the Net was a natural extension of Dell's direct business model—"the ultimate direct medium for the next generation of the direct model that Dell had pioneered." Moreover, industry analysts suggested that few PC vendors were as well positioned as Dell to take advantage of the Internet opportunity unencumbered by an existing distribution channel, Dell could go direct to the customer as usual, but others had to use a different medium to go direct. One analyst remarked, "Dell has been positioned for something like

⁷ Ibid.

⁸ *Business Week*, July 15, 1995.

⁹ "Suited, Surfing and Shopping," *The Economist*, January 25, 1997, p. 59.

¹⁰ "In Search of the Perfect Market," *The Economist*, Survey of Electronic Commerce, May 10, 1997.

this since its beginning. They can migrate what they do in the real world to the Web easily without upsetting any of these existing sales channels.”¹¹

In late 1995, the team began designing an online retail store and technical support vehicle for Dell's products. After interviewing potential vendors to build an online ordering system, Dell found that there were few players out there with the technology and turned to in-house programmers to build a program, ultimately called the configurator, to support the design and ordering of a Dell system online. By the end of the first quarter of 1996, the online system began to take shape.

Transactional Business Online

In late July 1996, Dell began conducting business through its Internet site. Almost immediately Dell began selling \$1 million per week through the Web. Once customers logged onto the site and configured the system that best suited their needs, they had the option of purchasing the system using a credit card. After ordering the system, the customer could use 'dell.com' to track the order's status from the time it was entered in the system, through to the manufacturing process, and then to shipping. Once shipped, dell.com was linked to shipping partners who assigned the system an air bill number that tracked delivery of the system. In addition to the purchase functionality, the site contained complete service and support data, with 35,000 pages of troubleshooting information—the same information used by Dell's technical representatives to solve hardware and software problems over the phone. (Exhibit 4 provides highlights of the Dell site.) Dell served its online customers with 12 sales reps and two order processors dedicated to processing Internet orders.

Once the customer sent the order to Dell over the Internet, it was received by an order processor who classified the order into a market segment and routed it to that segment's e-mail (electronic mail) box. There, a member of the order processing and sales rep team qualified the e-mail order. If the order was complete it was keyed into the sales order system and routed to the factory for system assembly in exactly the same process as any other order coming into the Dell system. If the order was incomplete, the sales rep called the customer for the missing information and once the order was complete, entered it. Approximately 20% of the orders that Dell received from its online retail store were complete. About one-third of incomplete orders were attributable to customer concerns over security and were, therefore, lacking credit card information.

Additionally, if customers had a technical support question they could reference Dell's technical support manual, the same one used by Dell's telephone-based service reps. Further, customers could download upgraded information, such as new printer drivers, through the website.

Six Months—\$1 Million/Day in Revenues

By December 1996, more than 150,000 customers were visiting the website each week, generating sales of approximately \$1 million per day. According to Scott Eckert, "I think everyone sensed that the Internet could be a big win for us, but I don't think anyone really envisioned that it would be this big this soon."

By mid-December, the online team was anxious to know more about these customers, so Dell commissioned a market research study to understand customers' perceptions and purchase and usage behaviors in order to develop a profile of its Internet customers. In December 1996, Dell conducted 104 telephone interviews among customers from the Business Selling Division (small

¹¹ "Dell Tailors Web for Business," *Inter@ctive Week*, June 9, 1997, p. 19.

business) and the Dell Catalogue Sales (individual consumer) division who had purchased a Dell computer and used the Dell website to obtain product and pricing information. In the survey, about half the participants were business users and the other half residence users. Nearly 44% of customers purchased directly through the website, 37% started with the Web but ended up calling a sales rep to purchase the computer, and the remaining 19% used the website directly to purchase but had also contacted a sales representative for supporting information.

Business customers were more familiar with Dell, with 45% of business customers having purchased from Dell before, while only 19% of residential customers had previously purchased from Dell. Mirroring Dell's product mix, both business and residential customers were more likely to purchase a desktop PC, with portable PCs being most popular among business customers.

Although residential customers were more likely first-time Dell customers, only 12% were actual first-time buyers, with 32% purchasing their new PC as an additional PC and 56% purchasing it as a replacement PC. Most residential customers indicated that the primary intended purpose of the PC was for personal use (34%), business use at home (34%), entertainment use (26%), or educational use (22%). Residential users were frequent Internet users, with 63% indicating that they spent one hour per week or more on the Web for professional/business purposes and 60% indicating that they spent in excess of five hours per week on the Internet for personal use.

Dell found very high levels of satisfaction among its customers with almost all customers stating that they were satisfied or very satisfied with their purchase. As seen in Table C below, while levels of customer satisfaction were high, most customers indicated that they would have purchased a Dell computer even without having access to a website. But the same consumers also indicated that they intended to use a website for their next purchase occasion.

Table C Customer reaction to Dell.com

	Business n=51	Residential n=53	Directly through Web n=46	Called Rep to Purchase n=38	Both—Web Purchase and Calls n=20
Likelihood of purchase without website	67%	74%	74%	63%	75%
Intent to use website for next purchase (Somewhat/Very Likely)	78%	66%	80%	76%	45%

When customers purchased through a sales rep after initially having accessed the website, most were able to finalize their purchase with fewer telephone calls than a typical customer that had not used the website. More detailed findings from the study are outlined in Exhibit 5.

By the spring, Dell Online was convinced that the Internet was a big win. However, to fully capitalize on its efforts, the Online Group believed that it needed to generate some excitement in the market to legitimize the Internet channel for the industry, and more importantly to drive incremental volume for Dell. To capture the media's focus, the Online Group began developing an aggressive PR plan. The team then spent the next 60 days trying to get corporate approval for the plan. Scott Eckert recalled,

We were convinced that Dell Online represented the ultimate extension of the Dell Direct model. To get the momentum in the market, we needed to make a statement. One million dollars a day in revenue was that statement. Internally, however, there was some resistance. Dell was always conservative and had never released individual segment sales information. Moreover, some counseled that it

would be better to build a solid lead in the fledgling Internet channel before making a splash in the market. But we were convinced that we already had a solid lead and that making a splash would benefit the Dell Online effort in many ways. For example, we were convinced that the press coverage would help educate the market and move it in Dell's direction. Further, the excitement created by the press would help drive Dell Online internally. It was not until Michael Dell supported our plan that the wind shifted in our direction.

Three More Months—\$2 Million/Day Revenue

In May 1997, Dell conducted a follow-up customer research study (Wave II) to the research conducted in December 1996. To qualify for the study, participants were required to have used Dell's website to obtain product and pricing information prior to purchasing, and had to have purchased a Dell personal computer within the last 90 days. The study comprised 150 individual customers (DCS—Dell Catalog Sales) and 150 business customers (BSD—Business Systems Division). (Detailed findings from the customer research study are outlined in **Exhibit 6**.)

Many of the research results were consistent with the earlier findings. Most respondents were experienced computer users, with only 8% of DCS customers indicating that this was their first PC purchase. Customers reported high levels of satisfaction with the website, with close to 90% of all customers indicating that they were satisfied or very satisfied with the process.

Additional information gleaned from the second study concerned the way customers found the website. Approximately half of the customers indicated that they had not seen any information directing them to the website, with about 24% citing ads in computer publications and an additional 8% indicating that ads in general business publications had directed them to the Dell website. On the service side, those that used Dell's technical support (approximately 100 of the 300 surveyed) did so to resolve problems, (25 - DCS, 18 - BSD customers), fix hardware (10 - DCS, 22 - BSD), and download current drivers (4 - DCS, 18 - BSD).

By June 1997, sales at the retail site had risen to \$2 million per day with over 250,000 site visitors per week. The majority of orders generated were from the consumer and small business segments. Logging onto the site, customers were able to place orders electronically with the full range of services that were available over the telephone, including product information, order status, and product support. Within the Dell site, customers evaluated multiple product configurations and obtained instant price quotes, enabling the customer to configure the best possible system given their budget and performance requirements. Dell updated its pricing on the website daily to ensure that its prices reflected the realities of an ever-changing PC market.

Dell Online with its millions of dollars in revenue quickly became the talk of the electronic commerce world. Internally, however, there was little knowledge of it beyond the Online Group and senior levels of management. To communicate this information to the company, the Online Group conducted a campaign of "internal evangelism." Bill Morris, Senior Online Marketing Manager, remarked,

When Dell issued its press release announcing \$1 million in revenue per day over the Internet, few people inside the company knew about commerce on the Net. Sales and service departments didn't understand its implications and there was some fear about the Net automating their jobs away. As a result we conducted a substantial internal education campaign. We would go into the cubes and high traffic choke points and plaster them with posters and information about Dell Online.

Six More Months \$3 Million/Day Revenue. What Next?

By the fall of 1997, sales had grown to \$3 million in revenue per day. In typical Dell fashion, the Online group had already modified the site to make it more functional for Dell and its customers. For example, when logging into the site, customers now self-selected themselves into a customer segment (e.g., home/home office, small business, government, education, etc.). The site then guided customers to those products that would be the most appropriate for their particular use. The customer, however, retained the ability to configure, price, and purchase any of Dell's systems. The customer self-segmentation was also beneficial to Dell's purchasing system as the customer order was now directly routed to the business unit's e-mail box, eliminating the need to centrally sort the orders into business segments.

The online approach had been readily accepted by the DCS and BSD divisions. By year-end 1997, a large proportion of DCS revenues were attributable to the online channel. After some initial concerns, sales reps quickly came to view Dell Online as a big boost to their productivity. David Hood, vice president of the DCS group, remarked,

At first the reps were worried, but they saw that the site was a source of highly qualified leads. They could close sales with fewer calls. With our growth rates there was enough business for everybody. We still have a few challenges. The back end of the business is still antiquated, with completed orders going from e-mail to reps and then to order entry. We're working on creating an automatic link from the e-mail to order entry. Additionally, we haven't been able to develop the metrics to forecast demand from online marketing activities. Unlike conventional marketing communication where we could accurately predict our lift from promotions, people find the Web in so many different ways.

Similarly BSD was enthusiastic about the benefits of Dell Online. "We are currently selling a significant portion of our business through the online store," remarked Philip vanHoutte, "and our sales people are excited to work on the online telephone queue. We had initially used our less experienced reps on the online queue, but have found that our experienced reps are able to better up-sell online customers."

The success of Dell Online also brought organizational changes. Scott Eckert, the Director of the Online group, saw the need to have online resources resident in each of the business units. As a result, the Dell Online group focused on delivering the tools and technology for the Internet site, with each business segment having its own resources devoted to delivering the online content for their segment. Scott Eckert's core group of about 35 people did most of the application programming, coordinated with outside design agencies, and maintained the server farms, the backbone of Dell's online operations. Eckert reflected,

Once Dell Online was up and running, it was a natural progression to move online resources into the business segments. They know their customers and how to communicate with them; we didn't want to become a bottleneck. However, with Michael Dell's ambitious goal of having 50% of revenues online, some functions need to stay centralized. The central online group creates Dell's overall Internet strategy, coordinates our world wide Internet team, builds the applications and ensures that the technology is state-of-the-art and robust. Additionally, we set the standards for the dell.com site to ensure a standard look and feel for every customer. But if we were to attempt to do everything here, my budget would have to grow exponentially. That would not be an efficient nor effective way to scale the business.

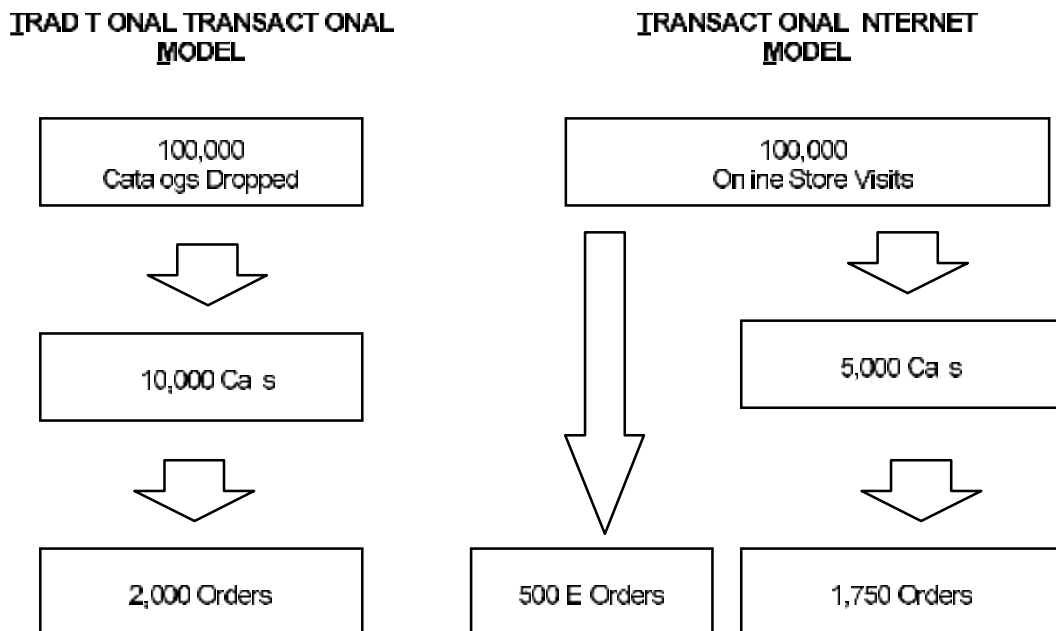
Cost Savings: Transaction Business Online¹²

Beyond sales generation, one of the most anticipated elements of Dell's Internet commerce was the savings that it could generate over the sales and service cycle. Firms such as Cisco Systems, a \$7 billion hardware provider and systems integrator for computer and communication networks, had created a splash in the market with reported savings of over \$500 million, representing 8.3% of revenues. Many at Dell were eagerly anticipating similar savings levels.

Using data from early 1997, the Dell Online group had identified two potential areas of cost savings: salesforce efficiency and service efficiency.

Salesforce efficiency As seen in Table D below, the Internet model resulted in fewer number of calls to sales reps with an overall higher close rate.

Table D Economics: Direct v. Online



In addition to the call efficiencies, the sales reps associated with the Internet model were also able to achieve higher cost savings resulting from higher sales quotas. For example, a sales rep assigned to close sales (on the phone) which originated from a website visit was able to carry 1.5 times the monthly quota as a traditional sales rep. Also, the order processor who handled electronic orders coming in over the Internet was more efficient. The current Internet sales rate of \$3 million per day was a considerable proportion of Dell's sales in its DCS and BSC divisions. Thus the saving in the salesforce could be potentially enormous.

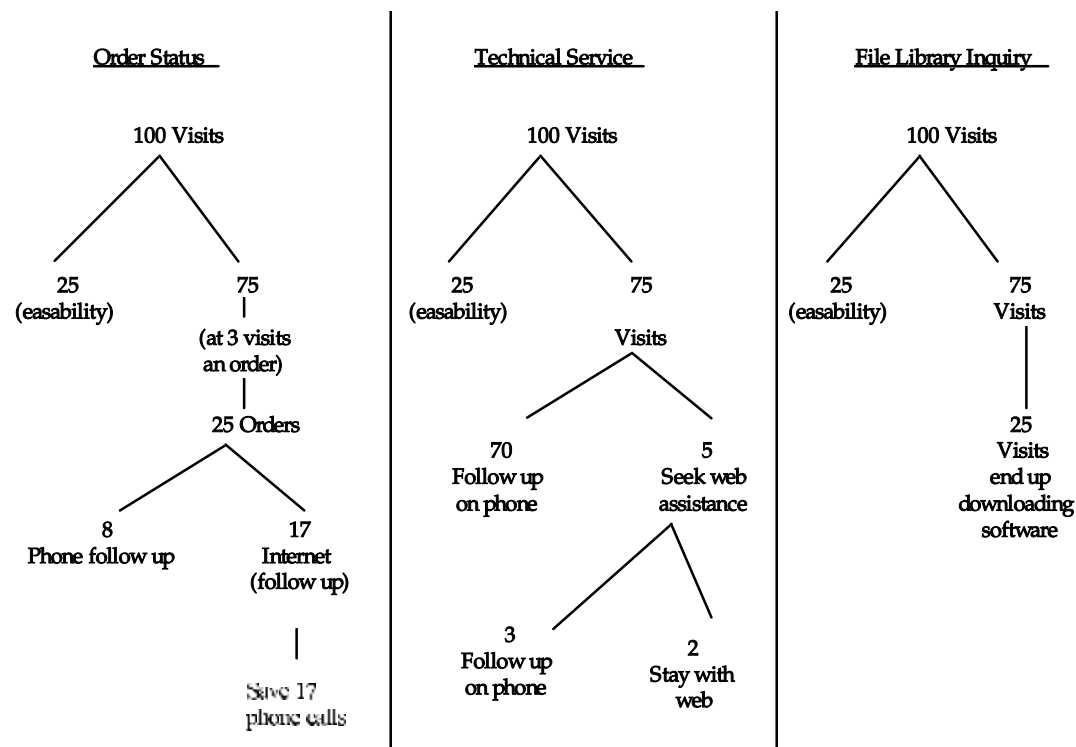
Service efficiency Service efficiencies inherent in the Internet model represented additional potential savings for Dell. Each quarter, Dell received approximately 200,000 visits to its website to

¹² While the data presented in this section of the case are broadly representative, all of the details have been disguised.

check order status. Likewise, Dell logged 500,000 technical service visits a quarter and 400,000 file library downloads. Each of these transactions would have cost \$5 to \$15 on the telephone, thus representing significant savings.

A different approach to calculating service efficiency suggested that the savings may have to be adjusted for an "easability" factor. The logic of this argument was that not all visits to the website could be assumed to be in lieu of a telephone call. A study revealed that some web visits were the result of ease of access and use. Absent the Web, the customers would not have placed a phone call to clarify or seek the service (be it order status, technical service, or download request); especially for lower level inquiries. Some internal estimates, therefore, suggested that service efficiency may be somewhat smaller for each of the three components. Table E below shows potential savings for every 100 customer visits.

Table E Internet Service Efficiencies



In addition to the above, Dell Online had also identified other savings opportunities. For example, replacement of hard copy manuals with electronic downloads represented a potential savings of millions of dollars per year. On the technical support side, there were opportunities to reduce talk time by electronically uploading system information to Dell's technical support team before the start of the service call. A Dell Online executive explained, "An average technical support call lasts about 10-15 minutes, with the first minute spent on diagnostics. If we could have the customer submit the diagnostics over the Internet to the technician, we could save over 10% of the talk time associated with the call."

Dan Murray, the finance manager for Dell Online, remarked,

While there are differing views about how we should measure the savings from our online efforts, it's important that we establish a measurement system. For example, to make measurement easier, we assigned separate telephone numbers for calls originating from Internet site visits so we can differentiate and analyze those calls from the traditional calls that come through the system. Unless we have a measurement system, we'll not understand the use of the online system as a planning tool and we'll never understand the cost savings. At this time, we understand the salesforce efficiencies but need to further exploit the potential in the service delivery side.

Relationship Business Online

In addition to its retail store, Dell had also developed and launched over 200 customer-specific web pages for its large customers, allowing them Internet access to password-protected, customer-specific information about Dell's products and services. The customized pages, called "Dell Premier PagesSM," allowed customers to configure, price, and buy systems at approved, discounted prices, track orders and inventory through detailed account purchasing reports, and access contact information for Dell account and service and support team members, including telephone numbers, e-mail addresses, and pager numbers. Initially, Dell focused on its largest platinum accounts (with Dell sales greater than \$10 million) and then its gold accounts (sales \$5-10 million). Given recent advances in Internet technologies, Dell anticipated expanding its Premier Pages, offering at a minimum a simplified site for every customer who had an agreement with Dell.

In developing its Premier Pages, Dell took a ground-up development approach analyzing the customer's interaction with Dell before, during, and after the sale; during the product evaluation, negotiation, and specification phases. As part of that process, Dell discovered that the majority of its customers wanted two tiers of access for its users. The first tier of access was general access for the customer's employees who wanted to obtain general information about company-approved offerings, product configurations, order status, and pricing. The second level of information was more specific and included account sales data, detailed service information for internal "help desk" personnel, and Dell team account telephone and pager numbers. One Dell manager remarked on the development of the Premier Pages,

From the very beginning we knew that the Internet was an opportunity. We're a direct company and the Internet is just like the phone or the fax. In doing our research, customers told us that they wanted Dell to be just like a bank. For the vitally important transactions, customers want to talk directly to someone; otherwise they prefer to use an ATM.

Dell's first level of development was, "Just the basics, capturing who to call for what, and e-mail and pager numbers. Although rudimentary, the development proved key in demonstrating a commitment to the delivery of cutting edge technology to customers. Although customers didn't quite know what to do with the Premier Pages at first, they did believe that it demonstrated our willingness to invest in them," remarked an Online team member. The process for a Premier Page customer to order a PC from Dell varied according to the customer. Some corporate customers had a "blanket" purchase order number so that orders went directly to Dell, while other customers routed purchasing to an internal purchasing department who created a purchase order and then sent the order to Dell.

Increasingly, Dell's customers saw the Premier Pages as a management control tool. Purchasing offices, attempting to control PC purchases, viewed the web pages as a means of enforcing product standards in increasingly decentralized business environments. Additionally,

Dell's customers saw the site as a means of reducing work loads, answering routine queries regarding order status, product configurations, and basic user help functions. Dell found, however, that actual usage of the Pages in the site companies was mixed. "It's not a case of build it and they will come," remarked Tom Martin, Dell's director of Global Business Development, "Customers need to promote the site internally, before they become aware of it and actually start using it."

But some customers had already begun to perceive its benefits. For example, Detroit Edison, a long time Dell customer, found that its Premier Pages were an opportunity to move quickly to electronic purchasing. They used Dell's website, dell.com, to get required information on Dell's products and services and to configure systems. According to a Detroit Edison representative:

We have cut a week of processing time, improved the delivery sequence, and made ordering easier...We can monitor orders online, plan installations, and we're never stuck with unexpected inventory. And Dell maintains an exact history of what we have purchased in a database accessible throughout our site.¹³

While many viewed Dell's Online capability as a means of reducing the cost of ownership to customers as opposed to direct savings for Dell, a key benefit of the Premier Pages was the administrative operational support it gave to the sales rep team. With the amount of data available online, reps could allocate more of their time to selling systems rather than dealing with operational issues such as order status, pricing configurations, etc. According to Tom Martin, "A sales rep's active selling time could increase two or three-fold with the online model. In the traditional direct model, a sales rep spent 45% of his/her time on operational matters, 15% of his/her time on active selling and the rest on travel. In the online environment the time spent on administrative details could fall to 15% with 45% of time focused on selling activities." Surprisingly, the online model had proved difficult to "sell" internally, especially in the Enterprise market segment. Tom Martin added,

We needed to convince the sales execs that the online model was a sales facilitator for the account team—that we weren't trying to take sales away from them. Many of them saw a loss of account control with the online system. Before, everything about the account was under their control. We have tried to focus the sales reps on the need to focus themselves on high value-added activities that really generate sales and leave the less value-added activities like the spec sheet and order status issues to the Internet.

Just as the Online store evolved so too did Dell's Premier Pages. In the fall of 1997, Dell began development of revised Premier Pages that could scale to thousands of pages using Active Server Pages (ASP) technology. Dell developed Dell-specific software tools that allowed sales team to create dynamic Premier Pages tailored to individual account needs. (Exhibit 7 shows the new Premier Page) Rather than creating a static site, in less than 24 hours, using ASP a sales team could create a new Premier Page site and update it on demand. Michael Swart, Senior Online Manager responsible for Premier Pages remarked,

The development of the new tools is a real breakthrough, creating a scaleable product for Premier Pages. We've already begun working with 500 customers who immediately saw the value of the Premier Pages. Over the first quarter of 1998 we are conducting training and awareness sessions for all account sales reps to bring them up to speed regarding how Premier Pages can be developed and how the sales teams can use them to extend relationships with existing customers and create a differentiating factor with potential new customers.

¹³ Excerpt from Dell public relations document

Strategic Decisions

Michael Dell himself had thrown the gauntlet to his management team. "There is no reason why we cannot do at least 50% of our business over the Web the next few years," he had said. "That would obviously mean that we have to creatively extend and build on our direct business model."

But such a thrust also raised related strategic questions. Many senior managers had begun to see the value of the Net in the consumer and small business segments, remarking, "With dell.com we're in the consumer market now. We finally have a channel that is consistent with our Dell Direct model and the market is huge. What's more, we can accelerate our global expansion without the need for capital investment in a sales organization. Indeed, as a reflection of the changes in Dell's consumer business, the Dell Catalogue Sales (DCS) division had been renamed Dell Home Sales (DHS).

Some managers, however, were still reserving judgment until they saw the promised windfall cost savings offered by the Internet, while others were wary that a jump into the consumer market would lead to the maelstrom of the sub-\$1000 PC that would ultimately erode Dell's profitability in both the consumer and ultimately the business markets. Additionally, some other managers were also less certain that the same market opportunities existed with larger customers in the Enterprise and Preferred Accounts markets, still struggling to understand how the Online Model delivered incremental value to both Dell and these customers.

While some saw the Internet as a huge opportunity, others in the industry saw it as a doorway for competitors to finally attack the Dell Direct model.

Dell faces greater challenges than ever. Its price edge is gradually eroding. It has yet to prove that users in many countries are willing to buy direct. And its competitors fully understand the trick that's driven Dell's success.¹⁴

In contrast, senior management at Dell was enthusiastic in emphasizing the importance of the online effort. Morton Topfer concluded,

We have continually demonstrated our commitment to adding value for our customers and stockholders. In the space of three short years our stock has climbed 2,000% and our ROIC¹⁵ is 186%. We see the online initiative along with our initiatives in servers and workstations as critical in our drive towards continued growth and profitability for Dell.

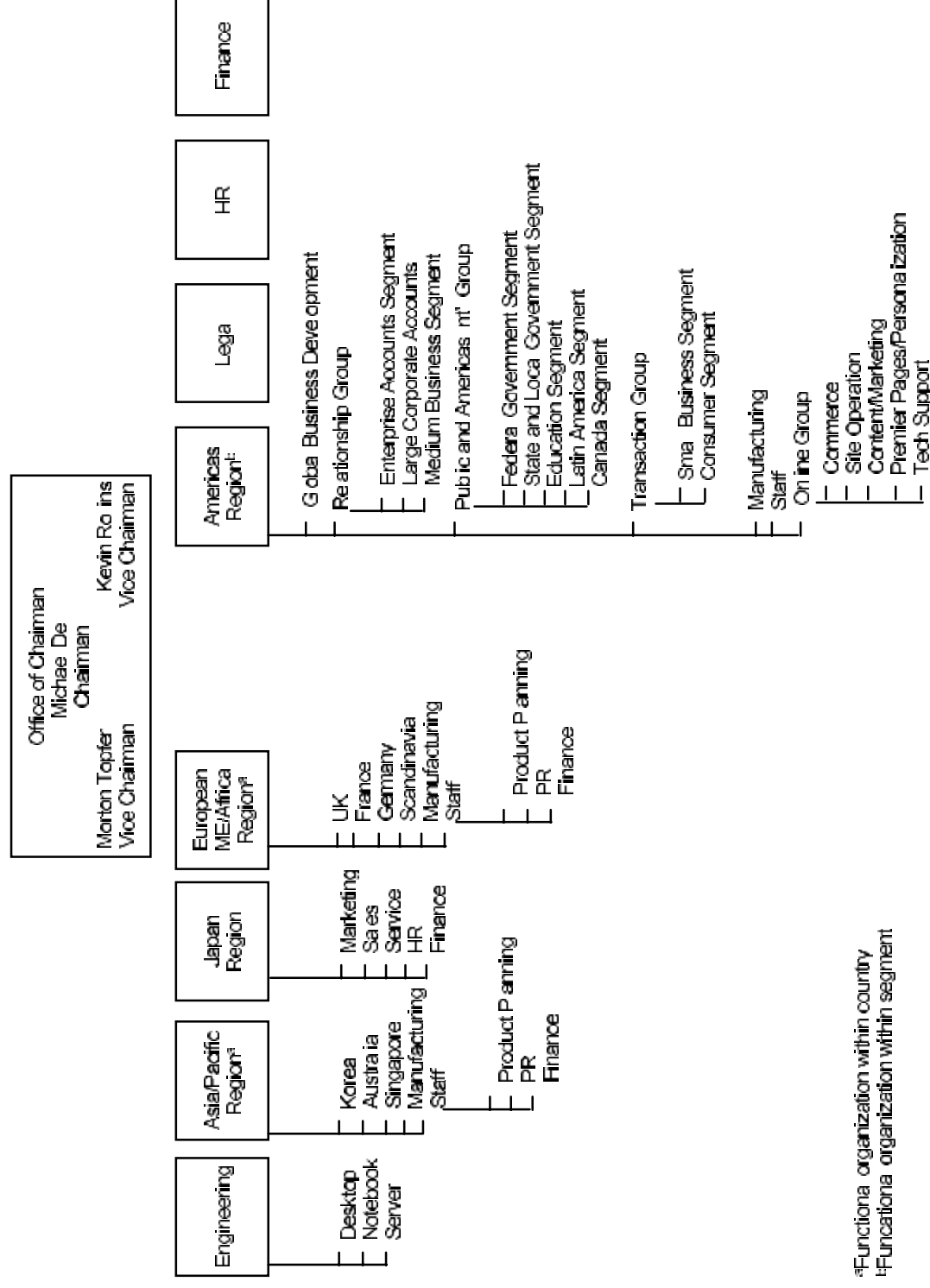
¹⁴ "Now Everyone in PCs wants to be like Mike," *Fortune*, September 8, 1997.

¹⁵ Return on Invested Capital

Exhibit 1 Financial Performance of Dell Computer Corporation (\$ in millions)

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
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	5,296	7,759
United States	65.5	153.1	318.2	300.3	358.9	648.1	1,459.6	2,037.2	2,400.0	3,474	5,279
Europe		6.0	39.6	88.3	187.4	241.9	553.0	781.9	952.9	1,478	2,004
Other international							1.3	54.0	122.4	344	476
Cost of sales	53.6	109.3	177.3	279.0	364.2	607.8	1,564.5	2,440.4	2,737.3	4,229	6,093
Gross profit	15.9	49.7	80.5	109.6	182.1	282.2	449.5	432.8	738.0	1,067	1,666
Operating expenses:											
SGA	10.3	27.4	51.0	79.7	115.0	182.2	268.0	422.9	423.4	595	826
R&D	1.5	5.1	6.6	17.0	22.4	33.1	42.4	48.9	65.4	95	126
Total operating expenses	11.7	32.5	57.7	96.7	137.5	215.3	310.3	471.8	488.8	690	952
Operating income	4.1	17.2	22.8	12.9	44.6	66.9	139.1	-39.0	249.3	377	714
Net income	2.2	9.4	14.4	5.1	27.2	50.9	101.6	-35.8	149.2	272	531
% of Net sales											
Net sales	100.0	100.0	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	66.0	68.0
International—Europe	0.0	3.7	15.4	22.7	24.3	27.2	27.5	27.2	27.4	28.0	26.0
International—others	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.9	3.5	6.0	6.0
Cost of sales	76.9	68.5	68.5	71.8	66.7	68.3	77.7	84.9	78.8	79.9	78.5
Gross profit	23.1	31.5	31.5	28.2	33.3	31.7	22.3	15.1	21.2	21.1	21.5
Operating Expenses											
Marketing and sales	14.8	17.2	19.8	20.5	20.9	20.5	13.3	14.7	12.2	11.3	10.7
R&D	2.3	3.5	2.8	4.4	4.1	3.7	2.1	1.7	1.9	1.8	1.6
Total operating expenses	17.1	20.7	22.6	24.9	25.0	24.2	15.4	16.4	14.1	13.1	12.3
Operating income	6.0	10.8	8.9	3.3	8.3	7.5	6.9	-1.3	7.1	7.2	9.2
Net income	3.1	5.9	5.6	1.3	5.0	5.7	5.0	-1.3	4.0	5.1	6.8

Exhibit 2 Dell Computer Corporation Organization



†Functional organization within country

‡Functional organization within segment

Exhibit 3 Industry Trends

The PC market was divided into three main product segments: desktops, notebooks, and network servers. The PC server market was the fastest growing segment of the PC market, with a 32% increase in shipments from 1995-1996. This high margin segment (with margins 30-50% higher than PCs) had traditionally been dominated by Compaq, Hewlett-Packard, and IBM, with a combined 54% share. However, volume growth and margin strength had attracted new competitors such as Dell, Gateway, and Digital Equipment. With improved features such as larger screens, faster speeds, and lower prices, laptops were becoming more popular, with a 23% annual growth rate forecasted through the year 2001. Further, laptops were increasingly viewed as replacements for desktop PCs. (In 1994, approximately 20% of U.S. portables were used to replace desktops; by 1997, it was forecasted to reach 30%.) The desktop market was forecasted to grow at 14.5% and was characterized by fierce price competition as the PC had been transformed into a commodity-like product characterized by Intel processors (used in 85% of PCs worldwide) and Microsoft Windows (used in 83% of PCs worldwide) operating systems. See Table 3A below for recent industry sales by product and by leading manufacturer.

Table 3A Computer Industry Sales by product and leading manufacturer (in thousands of units)

	U.S. 1995	U.S. 1996	Worldwide 1995	Worldwide 1996
Desktop PCs	18,269	20,222	49,611	57,893
Portable PCs/Tablets	3,583	4,777	8,483	10,908
Servers	343	457	1,032	1,437
Total	22,195	25,456	59,126	70,238

	U.S. 1995	U.S. 1996	Worldwide 1995	Worldwide 1996
Compaq Computer Corp.	2,790	3,449	6,079	7,214
Dell Computer Corp.	1,034	1,775	1,824	2,838
Gateway 2000	1,155	1,608	1,337	1,990
Hewlett Packard	870	1,365	2,092	2,954
IBM	1,858	2,235	4,803	6,140
Total	7,707	10,432	16,135	21,136

Source: Dataquest

In 1997, many analysts characterized the PC industry as increasingly mature in both the home and business PC segments. Supporting this assertion was the stalled penetration of home PCs, with 38-40% of U.S. households owning a PC. Further, with over 50% of households with incomes over \$50,000 owning a PC, replacements and upgrades rather than new systems were becoming important. Research in early 1997 indicated that 32% of consumers who bought a home PC were first-time buyers compared to 49% for the same period a year earlier.

With increasing saturation of the home PC market, several manufacturers had developed an entry level PC with a sub-\$1,000 price point. Featuring an older Intel processor and slower peripheral speeds (in items such as modems and CD ROMs), the product was targeted at the less affluent household. Leading the way were AST's \$997 product that was shipped to Walmart in 1996 and Compaq's Presario 2120 at \$999 which was introduced in 1997. By the end of 1997, the PC market was bipolar, with recent estimates suggesting that approximately 33% of the market was sales of these sub-\$1,000 "bare-bones" systems and 66% were sales of fully-loaded, state-of-the art PCs selling between \$2,000-\$2,500.¹⁶ For many, the introduction of the low-end products were a double-edged sword. On the one hand, estimates suggested that PC penetration rates could reach 53% by the year 2001 driven by low-end sales. On the other, many also attributed the low-end PCs to

¹⁶"New Cheap PCs are shaking up the industry," *The Wall Street Journal*, September 10, 1997, p. B1

increasing price declines (in the first nine months of 1997, the average retail selling price of a PC fell from \$2,400 to \$1,500) and margin erosion (margin on low-end machines were 10% rather than 20%). Further, some analysts were also concerned that these systems could cannibalize the corporate market, where corporations were demanding cheaper and simpler machines for their networks.

On the corporate side, penetration was also high with an average of 1.1 PCs per deskworker (including mobile salesforces) in North America and .8 PCs per deskworker in western Europe and Asia Pacific. Rather than installing new PCs, mid to large size businesses were upgrading their installed base to new systems featuring either Pentium or Pentium Pro processors. In December 1996, however, 75-80% of corporate systems still used processors slower than Pentium processors.¹⁷ Large corporations were becoming slower to adopt new technologies. Buying decisions were shifting from departmental levels to senior levels in the organization, and with the size of investments they were increasingly incorporated into budget cycles. Additionally, increased consideration was being given to the time necessary to make changes, in evaluating new systems, and training. As one industry observer noted, "The old success model, in wide-open, green-field markets, in which suppliers could "ship and run," dumping PCs at the corporate customer's or reseller's loading dock and quickly moving to the next stop is obsolete. The corporate PC business is becoming a replacement business."¹⁸

¹⁷ "Microcomputer Industry Outlook, Paine Webber, January 13, 1997.

¹⁸ IDC Executive Insights, June 1997.

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For comments and suggestions

Exhibit 5 Online Research—First Wave, December 1996

	Business n=51 %	Residence n=53 %
<i>Q. Did you make the actual purchase using the website directly, or did you obtain information from the website and then contact a sales rep to make the purchase?</i>		
Web directly	47%	42%
Called sales rep	33	39
Purchased on Web but also called	20	19
Total	100%	100%
<i>Q. How did you learn about being able to purchase through the Dell website? (note multiple responses permitted)</i>		
Visited site	61%	40%
Friends or colleagues	10	21
Saw advertisement	24	26
Other	4	13
<i>Q. What other brands did you consider, but not purchase?</i>		
Compaq	20%	13%
Digital	2	2
Gateway	20	32
Hewlett Packard	7	4
IBM	2	2
Micron	12	24
Midwest Micro	2	2
NEC	—	2
Packard Bell	4	4
Toshiba	2	4
Other	10	2
None	33	48
<i>Q. Which of the following best describes your usage of Dell's online order status capability?</i>		
Have used in the past	72%	80%
Plan to use	12	8
Have no plans to	16	6
Don't know	—	6
<i>Q. Which of the following best describes your usage of Dell's online technical support capability?</i>		
Have used in the past	38%	20%
Plan to use	31	40
Have no plans to	31	38
Don't know	—	2

Data disguised

Exhibit 6 Dell Online Customer Research Study—Wave II, May 1997

	BSD(150)	DCS (150)
<i>Other brands considered: (multiple responses)</i>		
Gateway	33%	59%
Micron	27	29
Compaq	21	15
HP	7	13
None	33	19
<i>Use of online order status capability</i>		
Have used in the past	54%	56%
Plan to use	23	22
Have no plans to	20	19
Don't know	3	3
<i>Use of online technical support</i>		
Have used in the past	37%	34%
Plan to use	50	54
Have no plans to	12	9
Don't know	1	3

	BSD (150)	DCS (150)	Website (82)	Sales Rep (218)
<i>Product purchased (multiple responses)</i>				
Desktop	82%	93%	88%	88%
Portable	18	7	11	13
Servers	13	0	9	6
<i>Likelihood of purchase without website</i>				
Yes	66%	62%	58%	67%
No	25	22	29	21
Don't know	9	16	13	12
<i>Likelihood of purchase next PC using a manufacturer's website?</i>				
Very/Somewhat Likely	65%	67%	87%	58%
Neither Likely nor Unlikely	17	16	11	19
Somewhat/Very Unlikely	17	14	2	20

Data disguised

Valued Dell Customer
@dell.com

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<p>AREAS OF INTEREST</p> <ul style="list-style-type: none"> ▶ Business Case Studies & Testimonials ▶ Latest Product Awards & Press ▶ Dell Company & Product News/Subscriptions ▶ Year 2000 Certification ▶ Reducing Total Cost of Ownership ▶ Technical Papers from our R&D Labs ▶ What is Direct? 	<p>ONLINE PURCHASING TOOLS</p> <ul style="list-style-type: none"> ▶ Your Dell Discount Configurator ▶ Buy a Dell for Home ▶ Order Status ▶ Your Purchasing History Reports ▶ Why Buy Online from Dell? 	<p>CUSTOMIZED SERVICES & LINKS</p> <ul style="list-style-type: none"> ▶ Link to Customer's IntraNet ▶ Troubleshooting Tools ▶ Software Download Library ▶ Vendor Support Links ▶ Frequently Asked Questions ▶ New Custom Link
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