CASE 7

Microsoft, 1995

It seemed like there was never a dull moment for Bill Gates and Microsoft. In early August 1995, the preparations for the launch of Windows 95 had reached a frenzied pitch as the industry geared up for what was described as one of the most important software launches in history. The last year had been extremely eventful. Along with record revenues and profits, Gates had signed a consent decree with the U.S. Department of Justice (DOJ). Though Microsoft's $1.5 billion acquisition of Intuit had been derailed by a subsequent DOJ investigation,[1] the disappointment over that deal had already been drowned out by the excitement over Windows 95.

In January 1995, *Fortune* ran a cover story on Gates, comparing him to Alfred Sloan, the man who built General Motors into a global leader. Describing Gates as "ultracompetitive [and] hyperfocused," *Fortune* said the operative question was not "What does Bill Gates want?", but "Is there anything Bill Gates doesn't want?" Gates partly answered this question to the casewriters in September 1994, when he said:

> We look for opportunities with network externalities—where there are advantages to the vast majority of consumers to share a common standard. We look for businesses where we can garner large market shares, not just 30%–35%. But at the same time, we are not a software conglomerate. There are many businesses where we have no interest; for instance, I don't see us going into services or low-volume product categories. The key to our business is building annuities, by tapping into the broad revenue streams that will rely on our

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Professors Tarun Khanna and David Yoffie prepared this case, with assistance from Research Associate Israel Ganot, as the basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation. Phyllis Dininio assisted with the revision of this case.

> software expertise. While there are lots of things that could slow us down, my view is that if you take a bunch of smart people in software, eventually they will get it right. . . . Our biggest wildcards are the Department of Justice, saturation in our core business, and the developing infrastructure for the information highway.

Gates was a man with a clear mission and vision. By mid-1995, he had built Microsoft into one of the most valuable firms in the computer industry (market value of $55 billion), making Gates, who owned more than 30% of the company, the richest person in the world. Yet as he tried to move Microsoft beyond the PC, senior management wondered how long it would last.

THE EARLY MICROSOFT

The history of Microsoft could be divided into three stages: the start-up, 1975–1980; the DOS (Disk Operating System) era, 1980–1990; and the Windows era, 1990–1994 (see Exhibit 7.1). Gates and his high-school companion, Paul Allen, founded Microsoft in Redmond, Washington, in 1975 "to make software that will permit there to be a computer on every desk and in every home." The company's first product was a condensed version of the programming language BASIC for the first PC, the MITS Altair. Over the next few years, Microsoft developed versions of other programming languages, making the company the leading distributor of software development tools. But Microsoft's big break came in 1980, when IBM approached Gates to design the operating system (OS) for its new PC. Rather than develop an OS from scratch, Gates purchased an existing operating system from a local programmer and tailored DOS to work exclusively with the Intel microprocessor, which became the mainstay of the IBM PC. By 1984, MS-DOS had achieved an 85% market share, catapulting Microsoft sales to over $100 million. On the strength of MS-DOS, Gates took the company public in 1986. The stock rose from $25.75 to $84.75 within a year, making Gates a billionnaire at the age of 31.

Throughout the 1980s, Microsoft tried to expand beyond DOS. It attempted to bring out a graphical user interface (GUI), called Windows, as early as 1984, and worked jointly with IBM to develop a totally new operating system called OS/2. In addition, Microsoft introduced networking products and a variety of applications for DOS. However, the vast majority of these early Microsoft efforts failed to generate profitable business. In networking, Novell won the early battle for the computer server market. And in the desktop market, thousands of independent software vendors (ISVs) emerged to sell applications. The first "killer apps" in the software industry—applications that everyone wanted—came from Lotus and WordPerfect. Microsoft developed a reputation as an imitator whose products were too complicated to learn and not quite up to speed, especially in its early releases. Industry pundits joked about never buying a Microsoft product if it was called "1.0."

EXHIBIT 7.1

Microsoft Corporation: Selected Information (*Sources:* Microsoft annual reports, various issues)

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Income Statement										
Net revenues	$198	$346	$591	$804	$1,183	$1,843	$2,759	$3,753	$4,649	$5,937
Cost of revenues	41	74	148	204	253	362	467	633	763	877
Research and development	21	38	70	110	181	235	352	470	610	860
Sales and marketing	58	85	162	219	318	534	854	1,205	1,384	1,895
General and administrative	18	22	24	28	39	62	90	119	166	267
Operating income	61	127	187	242	393	650	996	1,326	1,726	2,038
Net Income	$39	$72	$124	$171	$279	$463	$708	$953	$1,146	$1,453
Balance Sheet										
Cash and short-term investments	$103	$132	$183	$301	$449	$686	$1,345	$2,290	$3,614	$4,750
Current assets	148	213	345	469	720	1,029	1,770	2,850	4,312	5,620
Total assets	171	288	493	721	1,105	1,644	2,640	3,805	5,363	7,210
Current liabilities	30	47	118	159	187	293	447	563	913	1,347
Stockholders' equity	139	239	376	562	919	1,351	2,193	3,242	4,450	5,333
Headcount	1,153	1,816	2,793	4,037	5,635	8,226	11,542	14,430	15,017	17,801
Revenue by Product Group										
Systems/languages	53%	49%	47%	44%	39%	36%	49%	34%	33%	35%
Applications	37	38	40	42	48	51	49	58	63	61
Hardware, books, and other	10	13	13	14	13	13	11	8	4	4
Revenue by Channel and Region										
Domestic retail	32%	35%	32%	29%	39%	31%	34%	31%	34%	32%
International retail	19	28	34	37	42	49	47	47	41	41
Domestic OEM	25	21	17	14	13	NA	NA	NA	NA	NA
International OEM	21	14	14	18	13	NA	NA	NA	NA	NA
Worldwide OEM	46	35	31	32	26	18	17	19	25	28
Other	3	2	3	2	2	2	2	3	NA	NA
Stock price	1.71	5.67	7.44	5.89	16.89	22.71	35.00	44.00	51.63	90.38
S&P 500	205.84	304.00	273.50	317.98	358.02	371.16	408.14	450.53	444.27	544.75

Note: Financial information is in millions of dollars for fiscal year ended June 30. Stock price is closing price at fiscal year-end June 30. S&P 500 price is closing price on June 30.

Microsoft's greatest success outside of operating systems in the 1980s ironically came from products that did not utilize DOS. Recognizing the potential of the Macintosh, Gates made a strategic decision in 1984 to write applications for Apple. While WordPerfect, Lotus, and other major vendors largely eschewed the Mac in the early years, Microsoft became the dominant supplier of Macintosh word-processing and spreadsheet software. Microsoft's expertise in application development on the Macintosh became critical when Windows took the market by storm in 1990.

THE WINDOWS ERA: 1990–1994

Operating Systems Business

OSs remained the centerpiece of Microsoft's strategy in the 1990s, even though OS revenues declined as a percentage of sales. The core of Microsoft's OS strategy was Windows. After repeated failures in earlier generations, Windows 3.0 suddenly emerged as the preferred interface for IBM-compatible computers in June 1990. Windows 3.0, and its successor, 3.1, succeeded where previous generations had failed because the new interface allowed DOS users almost seamless backward-compatibility with their installed base of DOS programs. At the same time, Windows offered users much of the look and feel of an easy-to-use Macintosh. Since a computer still required DOS to run Windows, DOS and Windows were complementary products: Microsoft had effectively doubled its OS revenue per PC.

Windows was initially sold through retail as an upgrade product for DOS at a suggested price of approximately $100. As sales momentum picked up, computer original equipment manufacturers (OEMs) started bundling their machines with both DOS and Windows prior to shipment. The computer manufacturer would load the program on the computer's hard disk and reproduce the relevant documentation. Bundling the OS with the hardware offered much higher margins as it allowed Microsoft to piggyback on the OEM's sales and marketing infrastructure. Bundling also almost eliminated distribution and manufacturing costs since Microsoft had to ship only a single master copy of the software for the OEM to reproduce. With estimated costs of $8 on a royalty of $32, Microsoft's margin was therefore $24 per program per machine through the OEM distribution channel. By contrast, Microsoft had estimated costs of $20 on revenues of $28 in the retail channel, leaving a margin of just $8 per program. In addition, the OEM channel generated more stable sales compared to other channels.

Prior to a DOJ consent decree that laid out more restrictive guidelines for Microsoft's business, the company used a controversial formula for earning OS royalties. Ostensibly to ease accounting problems, Microsoft would give larger discounts to computer manufacturers if they paid a royalty for every PC that had an Intel architecture microprocessor, regardless of whether it contained Microsoft's software. It was easier for Microsoft and the PC vendor to track unit shipments than to track how many copies of DOS or DOS and Windows were

installed. By August 1995, analysts estimated that more than 90 million copies of Windows were installed around the world. The vast majority of new computers were being shipped with Windows, and Windows accounted for almost 50% of Microsoft's systems revenues.

Microsoft had three major competitors for desktop OSs in 1995: Apple, which had 8.5% of the market; IBM's OS/2, which had roughly a 5% share; and various versions of UNIX, which had 3%–5% of the workstation/PC market. Microsoft and IBM had originally co-developed OS/2, but after the introduction of Windows, the two companies decided to pursue independent strategies. An MS-DOS clone, owned by Novell and called DR-DOS, had roughly 10% of the DOS market prior to its discontinuation in 1994.

In the mid-1990s, Microsoft needed close to $500 million to develop a new OS. Development costs had risen sharply since OS vendors found it necessary to incorporate additional functionality to entice customers to switch from existing systems and try a new one. In addition, Microsoft spent more than $60 million per year and dedicated 500 engineers to support the 100,000 ISVs that wrote applications for its OSs. Such support was critical because every operating system contained a special piece of software code, which provided the specifications that applications had to meet to yield features like forward- and backward-compatibility. This also meant that OSs from different vendors were typically incompatible and could not run the same software. While some OS vendors tried to make their operating systems compatible with Microsoft, these programs remained unreliable and slow.[2] Only IBM's OS/2 was truly compatible with Windows, but IBM's license to Windows' code expired in 1994. Thus future versions of OS/2 would not necessarily be compatible with future versions of Windows software.

Relative to a new OS, the development costs associated with an OS upgrade were considerably smaller. Yet upgrades also experienced strong demand. Between 1989 and 1994, roughly 32% of Microsoft's customers opted to upgrade on interim releases (for example, from 2.0 to 2.1), while nearly 75% upgraded on major releases (for example, from 2.0 to 3.0).[3] Customers purchased an upgrade to use the most current versions of applications developed for the OS or to continue receiving customer service and support from the OS vendor.

Ironically, Microsoft's strong position in the OS business was achieved despite a technically inferior product.[4] Analysts generally agreed that Apple's System 7.5 and IBM's OS/2 were superior on several dimensions. Although System 7.5 and OS/2 lacked the same breadth and depth of applications available on Windows, they were considered more stable and offered more features. Recognizing the need to improve its OS offerings, Microsoft introduced new operating systems in the 1990s. The first such product was Windows NT. Introduced in May 1993, Windows NT was a high-end system targeted to compete with Novell for running computer networks.[5] NT was also "portable," which meant that it could be adapted to work on computers that used non-Intel microprocessors. Finally, NT could be installed on very powerful PCs with large amounts of memory and disk space. In theory, NT was backward-compatible with all existing Windows applications and would provide many new technical enhancements not offered by IBM,

Apple, and Novell. In practice, NT had gained slow acceptance. Like many new OSs, NT had bugs, lacked some of the promised features, and had some incompatibilities with programs written for DOS and Windows 3.1. However, Gates thought that "NT would get stronger every day."

Microsoft had announced two new OSs that would be critical for its ongoing success in the OS field in the second half of the 1990s. The first successor to NT would have enhanced network features. The next significant upgrade was "Cairo," a high-powered OS that would make it very easy for ISVs to write new programs. Cairo was expected to be released in late 1996 or 1997 and would compete head-to-head with a product expected from the joint venture between Apple and IBM.[6] Microsoft's most important new OS product was Windows 95. Unlike NT, which was designed initially for networks, Windows 95 would work only on Intel-based microprocessors and was designed as the replacement for DOS and Windows 3.1 for the desktop PC. Originally scheduled to be introduced in 1994, Microsoft promised to release Windows 95 on August 24, 1995 (discussed below).

Applications

Applications software had fundamentally different economics and dynamics from the OS business. OSs, for example, were sold almost exclusively through hardware OEMs, and applications were sold through a myriad of channels, including hardware OEMs, corporate site licenses, and various retail channels. In addition, the key for a successful OS vendor was building close working relationships with ISVs to produce as many applications as possible on their systems. Successful ISVs, by comparison, competed on features, service, price, and shelf space.

Until the emergence of Windows, application software was a highly profitable business, with major vendors earning as much as 15%–20% on sales. Once a customer chose a particular application, it tended to stick with that application for a long time. In the late 1980s, it would cost a corporation up to five times the cost of a program to retrain workers to switch to a new spreadsheet or word processor. But changing economics as well as the revolution caused by Windows fundamentally altered the market. First, the cost of producing a software program had grown from a few hundred thousand dollars to $10–$15 million. Second, Windows reduced the costs of switching by providing a standard user interface. The average cost of moving to a new application dropped to roughly twice the application costs. Third, while Microsoft retained a dominant position as the leading supplier of Macintosh applications through the 1990s, it had clearly lagged in the PC application market prior to introducing Windows. In the wake of Windows' success, it quickly emerged as the world's largest application vendor. Part of Microsoft's success was the result of competitor failures: many ISVs were initially reluctant to write for Windows; several preferred to reinvest in their DOS business, while others supported IBM's effort to promote OS/2. The only major vendor to offer applications that took full advantage of Windows in the early years was Microsoft. As users abandoned DOS, they also abandoned their favorite programs: by the mid-

1990s, Microsoft's Excel for Windows was outselling Lotus 1-2-3 by 2-to-1; in word processing, Word narrowed the gap with WordPerfect.[7] Microsoft's ascendancy caused everyone to play catch-up: by 1995, ISVs were dedicating at least 75% of their R&D expenditures to the Windows platform. Many leading-edge applications that were once available only on the Macintosh were now more widely available for Windows.

Part of Microsoft's success in Windows applications was based on its decision to expand beyond its original products in spreadsheets and word processing by acquiring and developing new applications. The company purchased PowerPoint, a graphics program made by a database company of the same name. It also introduced several new applications, such as Microsoft Mail. By 1995, Microsoft had the broadest product line in the industry. As the product line expanded, the company changed the rules of selling applications: to induce customers to switch from their favorite applications, Microsoft was the first to offer a bundle of applications, called a suite, at a discount price. By the mid-1990s, Microsoft was selling "Microsoft Office" as an integrated suite of applications that allowed users to share data across Microsoft programs. In addition, Microsoft began offering "competitive upgrades," a program whereby a Lotus 1-2-3 or WordPerfect customer could switch to Microsoft for a significantly discounted price.[8] The combination of a standard Windows interface, low differentiation in buyers' eyes, and steep discounting led average application prices to plummet in the 1990s.[9] Rival firms, such as Lotus and WordPerfect, had no choice but to broaden their own product lines through acquisitions and offer similar deals. As competition increased for shelf space in the 1990s, ISVs had to spend up to 20% of revenues on selling activities and another 20%–25% on marketing and service.

The combination of Microsoft's momentum and the pressure for suites and competitive upgrades led to consolidation among the major application vendors. At first, Novell, a firm that had pursued a strategy of focusing on the networking business through most of the 1980s, announced that it would merge with Lotus in early 1990. The merger collapsed when Lotus and Novell were unable to agree on the composition of the board. Following the failed Lotus merger, Novell went on an acquisition spree: it bought DR-DOS (which it subsequently closed), UNIX from AT&T, and, in 1994, acquired Borland's spreadsheet business and then WordPerfect.

Lotus, in the meantime, also developed or acquired programs in every applications category. While its share of overall PC applications revenue had fallen to 15% in 1990, it subsequently recovered to 25%. But price erosion and Lotus' eroding market share in suites led the company to focus most of its resources and attention on communications products in the 1990s. Its biggest bet was Notes, a product that Lotus billed as being equivalent to Windows for networks. With Notes, a group of users could create a discussion area within which they could work together on a set of documents and easily share and transfer information in a way that was unprecedented on PCs. ISVs were also starting to write applications that ran on top of Notes. By the end of 1994, more than 1 million copies of Notes were installed on PCs, with sales more than doubling annually. In July 1995, IBM

completed its purchase of Lotus for $3.5 billion, making it the largest-ever deal involving a software maker. IBM paid $64 per share for a firm whose stock price had been stuck in the low 30s about a month before the takeover.

Industry wisdom had it that 80% of users used no more than 20% of the functionality of a typical application, thus calling into question the viability of continued feature-enhancement of the core applications. Thus, applications with radically new functionality were all the more important. Microsoft acknowledged that its biggest weakness in 1995 was its lack of a product to compete with Lotus Notes. Microsoft planned to offer a program that would offer some of the features of Notes, but it was very late. As Bill Gates commented in the fall of 1994, "In general, our software position seems very strong. The one exception is Lotus Notes. Every day we delay our product in that category, our position weakens." This shortcoming was particularly striking given Gates' 1990 articulation of a vision for the industry, called "Information at Your Fingertips (IAYF)." While Gates had envisioned PC users communicating and accessing data from any location, Microsoft lagged in communications-related applications. Exhibits 7.2 through 7.4 provide information on some of Microsoft's major competitors, market share numbers, and a map of the industry.

MICROSOFT IN 1995

As Microsoft entered 1995, it had a unique business portfolio that included OSs, applications, consumer products, publishing, keyboards, and PC accessories, as well as a unique way of doing business. According to one analyst, "the company's power rests with the quality of its people and the style of management. . . . Conflict is at the heart of every significant Microsoft decision. . . . Dissent is designed and encouraged." [10] This approach started out at the top with Gates and his close friend and head of marketing and sales, Steve Ballmer, and reached deep into the organization. Gates, often referred to as "billg" (after his e-mail address), was held in awe by the entire organization. Particularly feared and respected was his ability to cut to the essence of the in-house reviews and presentations in which he frequently participated, and his ability to out-manuever the competition. Ballmer, a graduate of Harvard College, had a loud, booming voice and colorful personality, and exhibited a talent for motivating the sales-force and a penchant for engaging Gates in debate.

Symbolic of Gates' intense style and drive was his decision to ask Eckhardt Pfeiffer, the CEO of Compaq, to address senior management about the lessons Compaq had learned from its crisis of the early 1990s.[11] Following the Pfeiffer talk, Gates began to examine Microsoft's organization. Compaq had been on top of the world when its crisis emerged, and Gates did not want a similar crisis to hit Microsoft. He commented after the meeting:

> Every single symptom [Eckhardt] described at Compaq applies to Microsoft. An unrealistic view of future pricing, a total lack of thinking about what business advantages projects create, a lack of bottoms-up creativity, a lack of

EXHIBIT 7.2

Competitor Information (*Sources:* Corporate annual reports; 10Ks; casewriter's estimates)

	1988	1989	1990	1991	1992	1993	1994	1995
Lotus Development Corporation								
Net revenue	467	556	685	829	900	981	971	
Cost of revenues	91	105	142	174	200	202	173	
Research and development	84	94	157	117	118	127	159	
Sales and marketing	171	222	276	371	424	463	497	
General and administrative	54	61	62	70	69	70	69	
Operating income	69	74	49	74	12	102	6	
Net income	59	68	23	43	80	55	(21)	
Working capital	225	300	226	207	296	417	392	
Total assets	422	604	657	706	763	905	904	
Shareholders' equity	232	278	309	333	399	528	554	
Headcount	2,500	2,800	3,500	4,300	4,400	4,738	NA	
Novell, Inc.*								
Net revenue	347	422	498	640	933	1,123	1,988	2,041
Cost of revenues	152	152	132	123	184	225	467	489
Research and development	27	41	59	78	121	485†	347	368
Sales and marketing	93	132	143	178	219	259	562	579
General and administrative	21	25	29	35	52	80	162	153
Operating income	54	72	134	226	357	74	270	452
Net income	36	49	94	162	249	(35)	207	338
Working capital	184	216	308	435	717	1,113	990	1,464
Total assets	280	347	494	726	1,097	1,344	1,963	2,416
Shareholders' equity	175	236	398	599	938	996	1,487	1,938
Headcount	1,584	2,120	2,419	2,843	3,637	4,429	8,457	7,762
WordPerfect Corporation‡								
Net revenue		168	276	452	520	533	559	
Cost of revenues					94	99	109	
Research and development					104	107	112	
Sales and marketing					112	195	243	
General and administrative					31	37	39	
Operating income		32	160	140	179	96	56	
Net income		23	114	100	127	68	40	

Note: Figures are in millions of dollars, except for headcount.

*Novell's fiscal year ends on the last Friday in October; 1994 and 1995 figures reflect the merger with WordPerfect.

†Includes $165 million in product development and $320 million in nonrecurring charges associated with R&D of acquired companies.

‡WordPerfect uses cash accounting rather than accrual accounting; 1993 figures are estimates.

EXHIBIT 7.3

1993 Marketshare Scorecard—PC Company Rankings by Software Category (*Sources:* IDC, SPA, PainWebber estimates, "Lotus Development Corporation in 1994," HBS case No. 794-114)

Category	Microsoft	Lotus	Borland
System Software*			
Operating systems	86%		
Languages	30%		26%
Networking software	9%		
Groupware/e-mail	29%	56%	
Applications			
DOS Marketplace			
Word processors	27%		
Spreadsheets		66%	25%
Database	28%		61%
Presentation		37%	
Windows Marketplace			
Word processors	43%	10%	
Spreadsheets	65%	19%	14%
Database†	68%		28%
Presentation‡	63%	29%	
Suites	75%	22%	
MAC Marketplace			
Word processors	53%		
Spreadsheets	92%	3%	
Database	52%		
Presentation	91%		
Annual Market Share§	57%	37%	31%
1987 Market Share	28%	32%	13%
Gain (Loss) Since 1987**	29%	5%	18%

Note: Sales are measured at wholesale and include new units only. Figures include allocation of suite sales, as well as competitive but not regular upgrades. Microsoft spreadsheet figures do not include Multiplan.

*1992 numbers.

†Microsoft's Access had higher market share earlier in 1993, but Paradox surpassed it subsequently.

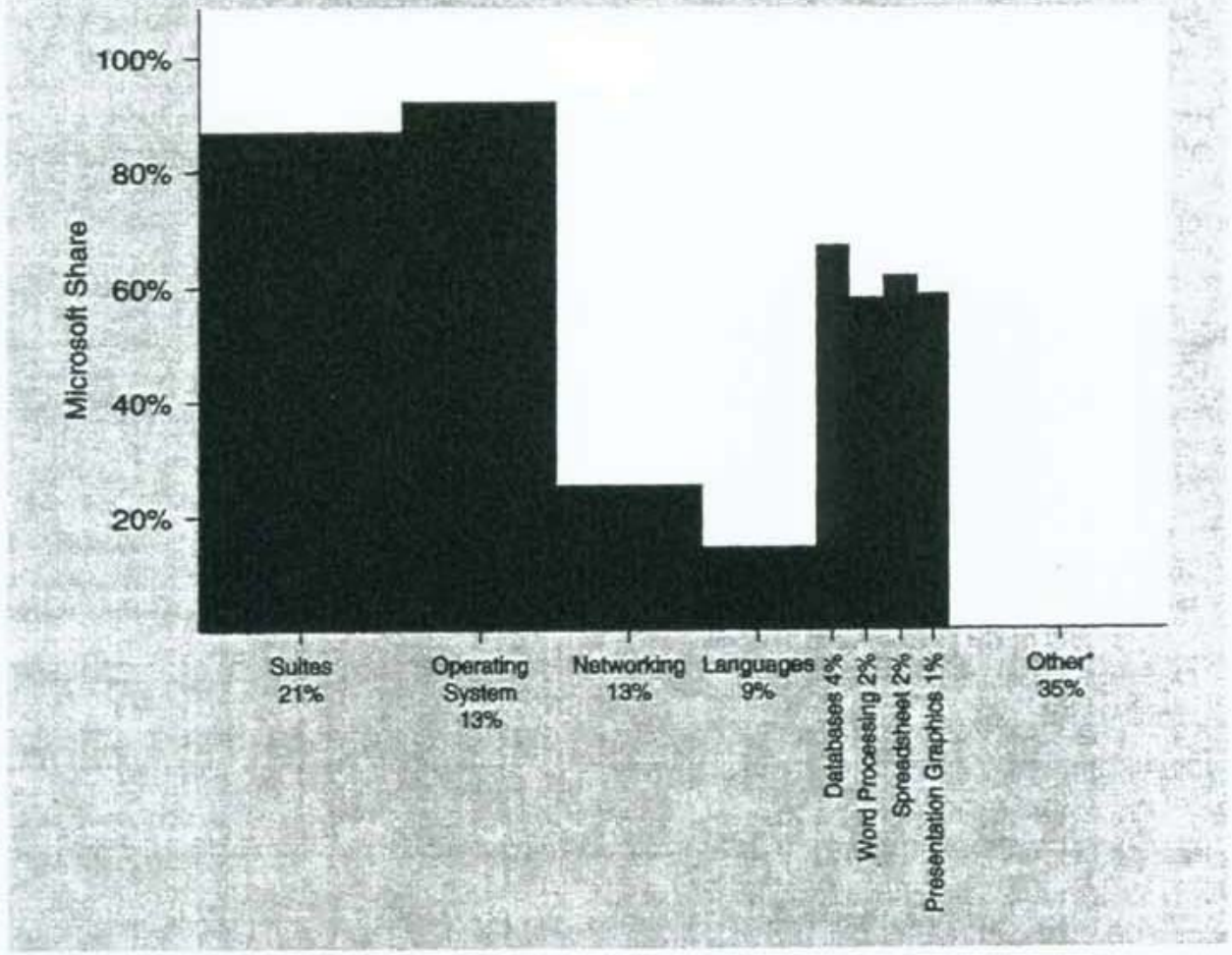
‡Harvard Graphics ranks first in stand-alone sales, but third when suites are included.

§Average calculation based upon market in which the respective company has a competitive product.

**Average gain (loss) for Microsoft is computed using application products only.

EXHIBIT 7.4

Worldwide PC Software Market (*Sources:* Microsoft Corporation; casewriter's estimates)



*Significant categories within this segment are CAD/CAE, utilities, education software, and graphics programs. The percentages on the horizontal axis are estimates of the share of the overall PC software market that the segment occupies.

competitive benchmarking, a desire to hire people and to make things complex . . . how can we create a sense of "crisis" that changes our current approach?

Gates contemplated a new organization that would seek greater innovation and not be afraid to take risks. He explained that, in the long run, "Microsoft's got to get most of its revenue from repeat customers rather than new ones. That's a fundamental shift in our business model. . . . I don't think the software industry as a whole has really perceived this yet." [12] This shift in business model was often spoken of as a move from being a "packaged goods" company to being a "utility" company that received a steady stream of revenue for its services. Exhibits 7.5 through 7.7 contain information on the PC hardware and software markets.

EXHIBIT 7.5

U.S. PC Market Saturation Indicators, 1994 (*Source:* Microsoft Corporation)

	1991	1992	1993	1994	1995*	1996*
Replacement shipments/total shipments†	44.5%	38.2%	43.1%	48.9%	54.8%	59.1%
Replacement shipments/installed base‡	8.3%	7.7%	9.8%	11.1%	12.3%	13.0%

Replacement Volume and Percent of Geographic Area's PC Shipments, 1994

	Replacement Shipment (million PCs)	Percentage of Total Shipments
United States/Canada	9.4	52%
Western Europe	5.4	46%
Japan	1.5	46%
Asia/Pacific	1.1	23%
Latin America	0.5	10%
Worldwide	17.9	43%

*Estimates.

†Replacement shipments/total shipments = number of replacement PCs purchased in a given year as a percentage of total number of PCs purchased in that year.

‡Replacement shipments/installed base = number of PCs purchased in a given year as a percentage of cumulative installed base.

EXHIBIT 7.6

Software Market Information (*Source:* Microsoft Corporation)

	1993	1994	1995*	1996*	1997*	1998*
Total Market/All Applications†						
Installed base (000 units)	115,994	133,774	151,640	169,173	186,472	203,097
New shipments:						
Total unit shipments	23,731	25,186	28,116	30,270	32,744	34,964
Legal unit purchases‡	14,284	15,186	16,304	17,463	18,800	20,031
Upgrades:						
Total unit shipments	7,871	10,379	13,312	16,748	20,699	25,244
Legal unit upgrades	4,729	6,239	7,966	9,961	12,243	14,854

*Estimates.

†Includes four product categories: word processors, spreadsheets, presentation managers, and database managers.

‡Legal purchases are those for which revenue is realized.

EXHIBIT 7.7

Shipments and Installed Base (million units) (*Sources:* Dataquest, Info Corporation, and casewriter's estimates)

	Total Shipments of Intel Technologies*						
	1990	1991	1992	1993	1994	1995†	1996†
Units shipped	18.3	20.2	30.6	41.4	47.8	60	70
Installed base	71.4	91.6	122.2	163.6	211.4	271.5‡	

	Total Shipments of Motorola and Power PC Technologies					
	1990	1991	1992	1993	1994	1995†
Units shipped	2.9	3.3	3.9	4.5	4.7	5.0
Installed base	9.3	12.6	16.5	21.0	25.9	30.9

*X86 (8086, 8088, 80286, 80386, 80486) and Pentium.

†Estimates.

‡Roughly 30% of the installed base of Intel-based machines and Macintoshes were older technologies (early X86 generation and early 68000 series) that were probably no longer in use.

An internal memo, sent by Gates after the Pfeiffer talk, stressed the new ways in which the sales organization would be structured, and specified ways in which technologies would be shared across the different product development units. Going forward, sales and marketing efforts would be associated with one of three customer units: end-user, organization, or OEM.[13] Each of seven product divisions was responsible for its own product and technology development. Aspects of product development, geared toward instituting a more repeatable process for the mass production of software, remained in place in all product divisions. The spiraling complexity of the programs made such a process necessary.[14] Steps were also taken to attack perceived waste in the lack of code-sharing across different programs, and to leverage key technologies across product divisions. While this process would involve rewriting pieces of code that currently ran well on a standalone basis, it was expected to lead to substantial savings in the long run.[15]

Microsoft had always succeeded in attracting top software talent, partly because it provided generous stock options (see Exhibit 7.8). Mike Murray, head of human resources, noted that a recent six-month lull in the rise of the stock price had resulted in some of the best candidates turning down jobs, and in disgruntlement on the Redmond campus.[16] One employee sent electronic mail accusing senior management of conspiring to keep down the stock price, in a manner that suggested that at least some employees had begun to think of their stock options as an entitlement.

EXHIBIT 7.8

Microsoft Compensation, 1992 (*Source:* Intel 1992 Compensation Survey Results)

	Average of 15 Companies	Microsoft
Annual base pay*	$56,586	$38,500
Annual total cash†	57,401	41,700
Annual total compensation‡	65,557	89,500

*Average pay of all exempt employees, excluding direct reports to the office of the president, and commissioned sales force.

†Annual base pay plus short-term cash incentives, and cash profit-sharing.

‡Annual total cash plus stock gain and company retirement contributions.

A related issue was that, as the firm had grown, so had spans of control. According to one employee, "Everyone knows that it's Bill, and to a lesser extent Ballmer, who are running the place, and communications is breaking down." [17] This situation created a need for junior hires, as well as for more experienced senior people, for whom competition was considerably tougher. Yet, the difficulty in hiring senior people increased Microsoft's already considerable dependence on Gates. As a senior manager commented, "Since we've largely hired very intelligent and independent folks who only take orders from Bill Gates, it's very hard to get them to trust each other and to not turn to Gates for problem resolution." Consistent with what had always been the culture at Microsoft, Murray continued to look for smart individuals whose key ambition was to "change the world." Nevertheless, specialized knowledge was also needed in a way that had not been true a few years ago. In 1994, Murray received requests from division heads to recruit in excess of 3,000 people. Murray felt that he would be able to fill about 70% of those requests. Additionally, in late 1994, more than 30% of the requisitions to hire had been open for over 90 days, a fraction much higher than a few years ago.

NEW GROWTH OPPORTUNITIES

Conventional wisdom was that PC growth was slowing.[18] Fear of saturation led Microsoft to seek growth on several fronts. Externally, Microsoft had been aggressively seeking and/or acquiring new software businesses, including SoftImage (a Quebec-based company that produced the software for animation in movies like Jurassic Park). Internally, Microsoft had at least four major initiatives to grow the company: Windows 95, new software in business computing, products from the Advanced Technology Group, and the Consumer Products Division's home computing efforts. As a senior executive commented, "Software is like a gas; it

expands to fill the container. As PCs increase in performance, there are new opportunities to sell enhanced applications."

Windows 95

Microsoft's future growth depended heavily on the success of Windows 95. Windows 95 expected to improve upon Windows' user interface, to allow for more programs to be run simultaneously, and to interface better with software written by other firms. It hoped to create a standard for "plug and play" on the PC, allowing diverse components to interact simultaneously without crashing. Microsoft also intended to bundle a variety of programs that had hitherto been kept separate (such as networking software and Microsoft Mail), as well as several new technologies (such as online services). As with past introductions of major new operating systems, Microsoft expected to generate a wave of new application sales. Microsoft had also mandated that, if ISVs writing applications for Windows 95 wanted to use the "Designed for Windows 95" logo, they would have to ensure that their programs also ran on Windows NT.

The effort that had gone into producing Windows 95 was tremendous. Four hundred thousand beta copies had been distributed to test the product and to gauge users' reactions; this volume was orders of magnitude higher than the usual number. Gates estimated that Microsoft spent $400 million on Windows 95. Analysts expected that first-year advertising and marketing alone accounted for $200 million. Additionally, Microsoft stood to benefit from exposure worth 10 times that amount, owing to free press coverage and to other firms' related advertising.[19]

To encourage OEMs to bundle Windows 95 when it was released, Microsoft announced sharp volume discounts on royalty payments. According to *PC Week*, OEMs paid about $35 per PC to license DOS and Windows 3.1, but royalties for Windows 95 would start at $55 with room for savings of as much as $30 if several conditions designed to encourage rapid adoption were met.[20] Some OEMs expressed concern regarding this announcement. The CEO of Germany's biggest PC manufacturer, Vobis, stated, "It's difficult for them to understand that this decade of monopolism has ended." [21] Microsoft suggested a minimum retail price of $89 for Windows 95 upgrades. Analysts estimated that Microsoft would get an average of $40 per copy of Windows 95.

Though 40% of the installed base of PCs in 1995 were thought to be powerful enough to run Windows 95, it was unclear how many would upgrade. Particularly in the business world, there was concern about the hidden costs of training employees to use Windows 95.[22] A growing number of companies proclaimed that they would skip Windows 95, and wait instead for a user-friendly version of Windows NT. Many corporate IT managers believed that Windows NT, despite its higher average selling prices (ASP), was a more stable product, and waiting for it would allow them to prevent upgrading twice.

Business Computing

There were several issues that Microsoft had to face in the world of business computing. First, the move away from mainframes toward PCs created a leadership vacuum.[23] The markets speculated whether Microsoft would step up to the plate. To do this, Microsoft would have to change the way it operated in this market. The selling process, for example, would have to be quite different. Microsoft generally sold shrink-wrapped applications to corporations and resellers, or licensed products to computer OEMs. By contrast, IBM historically held the hands of its corporate customers. According to a senior Microsoft executive, "Our shadow is much bigger than our bodies. We'd like to avoid service and support and hope that third-party system integrators can replace IBM." Thus far, however, Microsoft's overall efforts in this area had received mixed reviews, particularly among large corporate customers. Large corporate customers opined that Microsoft was either unwilling or unable to play IBM's leadership role in the networked PC era.

There were also opportunities for a host of new products. The PC industry had historically been great at automating the pen-and-paper process. One of the next big opportunities lay in automating business processes. However, Microsoft's early attempts to leverage its Windows software into devices commonly found in the office (copiers and telephones, for example), called Microsoft at Work, had been unsuccessful. In the meantime, Novell had recently announced ambitious plans to use its networking software to allow office, home, and factory equipment to communicate.

In 1993 Microsoft launched MS Select, an offering designed to make it easier for large customers to purchase, administer, and distribute Microsoft software. By mid-1995, Microsoft already had more than 2,000 customers purchasing software through MS Select. In addition to providing volume pricing and simplified software distribution, Select also introduced a concept called "maintenance," designed to simplify software upgrades for customers. Maintenance provided customers with the right to any upgrades that were launched during the term of the agreement (for products maintained) for an easily budgetable quarterly fee. With products enrolled in maintenance, customers avoided the budget spikes they normally saw as they upgraded to new software versions. It also reduced the need to track individual license versions, reducing administrative overhead.

Advanced Technology Group

Nathan Myhrvold, former research physicist and budding French chef, had a range of responsibilities. These duties included heading the 600-member team at Microsoft dedicated to looking for "wild ideas" that could be converted into products within a 10-year horizon. Myhrvold noted that Microsoft had metamorphosed successfully from being a company that provided programming tools, to one that was, in sequence, a specialized programs provider, an operating systems company, and, most recently, an applications software company. Each incarnation's revenues supported the move into future generations, while future genera-

tions had managed not to cannibalize past revenue streams. He believed that the fundamental task of his group was to improve the odds that Microsoft would be able to go through the next such transformation at the opportune time. Though the "Ad-Tech" group generated little by way of revenues, it had started the Windows NT and Microsoft at Work projects, and was responsible for long-term efforts like voice and handwriting recognition and interactive television applications. Because of the "Star-Trek" nature of its work, it attracted a lot of technical talent from within and outside Microsoft.

Myhrvold's group was particularly focused on projects related to the much-heralded "information superhighway." The project closest to fruition was the Microsoft Network (MSN) program that would be launched along with Windows 95. Users of Windows 95 would be able to click on an icon that gave them access to an array of online services, such as discussion groups, news and information services, reservation systems, games, software, and technical support, as well as access to the Internet. By making access to MSN so simple, Microsoft hoped to attract many nonsubscribers to online services and substantially increase the market of 7.8 million users.[24] Established online service providers complained that the likely wide distribution of Windows 95, compared to the existing number of users of online services, would mean that Microsoft would have an unfair advantage in accessing new customers. Pursuing the matter in court, the three biggest online service providers—America Online (AOL), Prodigy, and CompuServe—petitioned the Justice Department to block Microsoft's plan to give MSN an exclusive position on the Windows 95 screen.

Although the Justice Department finally decided not to intervene in early August, it was becoming increasingly apparent to Microsoft management that the emergence of the Internet was a far bigger issue than proprietary online services. The function of the Internet was to allow users to retrieve information as well as send files and messages. Started by the U.S. Defense Department in the late 1960s, the Internet had become a consumer and business phenomenon in mid-1995 that potentially could change the rules of the game for the computer industry. Unlike most proprietary networks, the Internet was a truly global system with open standards. Software on the Internet was also cross-platform: programs and files used on the Internet would work on any system—including Windows, UNIX, and Macintosh. By the time Windows 95 would be ready to launch, analysts believed that growth had already exploded, with as many as 20 to 30 million people having Internet access.

The most popular part of the Internet was the Worldwide Web (WWW), which provided a graphical interface, and the ability to go anywhere on the network by pointing and clicking a mouse. To navigate on the Internet, start-up companies, such as Netscape, began to offer "Web browsers." Netscape had taken a page from Microsoft's early history by giving its Web browser away for free to build market share. By August 1995, Netscape had more than 75% of the Web browser market. Finally, new programming languages, such as Sun Microsystem's Java, were also emerging that would allow ISVs to write their software for the Internet. Hypothetically, an ISV might write a software program to work only on the Internet or only with a particular Web browser, rather than to work with an OS like Windows.

EXHIBIT 7.9

The U.S. Home PC Market (*Sources:* LNK; Dataquest)

	1992	1993	1994*	1995*	1996*	1997*	1998*
Number of households (millions)	95.4	96.3	97.2	98.2	99.1	99.9	100.7
Hardware							
Total PCs shipped (000s)	4,875	5,850	6,552	7,011	7,326	7,556	7,934
PC penetration of U.S. households	29.6%	33.1%	36.4%	39.6%	42.8%	46.1%	49.6%
Multimedia Hardware							
% of new multimedia PC units	4.0%	15.0%	30.0%	50.0%	75.0%	90.0%	92.0%
Multimedia PCs as % of PC installed base	1.6%	5.4%	11.4%	19.3%	29.2%	39.3%	48.1%
Multimedia Software†							
PC-based multimedia unit shipments (000s)	18,999	36,552	49,784	70,060	106,512	144,051	NA
PC-based multimedia revenue ($ millions)	$2,580	$8,729	$11,578	$15,151	$19,594	$27,571	NA

NA = not available

*Estimates.

†Includes home and business software purchases.

Home Computing

The resources devoted to Advanced Technologies were small in comparison to those that were planned for the home computing division. Industry sales of PCs designed for home use were soaring (see Exhibit 7.9). Sales of PCs for home use grew considerably faster than those for business use in 1994 and 1995. Multimedia PCs accompanied with CD-ROMs[25] were becoming particularly popular. Between 1993 and 1994, industry shipments of CD-ROMs exploded, growing from 16 million to 54 million discs. Over 66% of these products were bundled with PCs or multimedia upgrade kits. Compaq's tremendously popular Presario line of computers, the first that the company directed explicitly to the home market, helped ensure that the company shipped more PCs than any other in 1994. To make products more appealing to the home user, some OEMs like Compaq had also begun to experiment with their own GUIs on top of Windows.

Gates insisted that the consumer had always been part of Microsoft's original vision. In fact, Microsoft's Flight Simulator program was one of the earliest successes in the home computing market. Signaling the increasing importance of the division, Gates brought in Patty Stonesifer to manage the operation in August 1993. Stonesifer had worked as editor-in-chief of Que, a computer book publisher, before she entered Microsoft as senior manager of Microsoft Press in 1988. At a management meeting in 1990, she impressed Gates with her crisp thinking and strong leadership, and he asked her to run Microsoft Canada. A year later, Gates

tapped her to fix the Product Support and Services Center, where customers were waiting on help lines for up to 20 minutes. By the time Gates asked her to run the Consumer Products Division, she had reduced the wait at the center to less than 60 seconds. As a further indication of the importance with which Microsoft viewed home computing, Microsoft had also named Robert Herbold chief operating officer. Herbold was a 26-year veteran of Procter and Gamble, a firm with much brand savvy and knowledge of meeting consumer needs.

By August 1995, the division had already developed 70-plus CD-ROM titles in information (such as an encyclopedia, a road atlas, and a cooking guide), home management (such as check writing, calendar, and address book features), personal finance, games, and kids products. The division also sold hardware, such as the ergonomically designed Natural Keyboard, and Works software, which assembled tools for everyday computing, including a word processor, a database manager, a spreadsheet, and drawing tools. Of its CD-ROM offerings, the best-known titles included the multimedia encyclopedia Encarta '95 and the Magic Schoolbus (the first in an educational series that featured kids wandering around the insides of the human body in a schoolbus). In fact, in the reference market, Microsoft was the clear leader.[26] A new multimedia offering was Complete Baseball, whose online features made it possible for baseball aficionados to call in and download (for a fee) daily statistics. These products collectively generated $400 million in revenue in 1994, placing the division third in the multimedia software industry. However, Microsoft did not have such a leadership position in some of the other subsegments, where the economics were quite different. In particular, consumer products had a much lower fixed cost than desktop operating systems and applications. The estimated cost of developing software for a CD-ROM was less than $1 million, and could be as low as $10,000.

Both as a result of the increasing demand for such products and the low costs of entry, competitors of all stripes had begun to make their presence felt. The division faced competition from large firms expanding into CD-ROM production as well as small firms focused on the consumer product market. In the large firm category, publishers like Random House and Addison-Wesley, movie houses, and media companies were developing software capabilities to add to their content. Disney, in fact, had been developing software capability in-house since 1988, and had recently renewed its commitment to its Disney Interactive unit. In the small-firm category, companies like Broderbund and Electronic Arts had begun to acquire a reputation for very creative and well-produced software. One Microsoft executive commented, "Broderbund is 'hip'; we're 'wholesome.' " The 15-year-old Broderbund had some of the best-selling consumer titles of all time to its credit, including the Print Shop family of products that allowed users to make personalized signs, stationery, and cards, the Carmen Sandiego family of games designed to stimulate interest in geography, history, and world cultures, and the more recent multimedia adventure game, Myst. Meanwhile, Intuit, with the best-selling Quicken program, which allowed users to automate personal finance transactions, dominated the personal finance category. Conceding that the smaller, focused firms generally were able to respond to individual retail opportunities faster than

Microsoft, Stonesifer said, "My fear is not a single large firm; it is from a lot of Intuits." The smaller firms were generally thought to be more profitable than Microsoft's operations (Exhibit 7.10).

Indeed, there was no dearth of challenges for Patty Stonesifer. In addition to the different competitive environment, marketing was very different from that needed for the core products, as was the process of developing content for CD-ROMs. Unlike operating systems and software, the focus in consumer products fell on the product, not the company. As Stonesifer noted, "We are accustomed to a business where you buy the publisher; here, in contrast, you buy the title." The focus on titles, in fact, had led Microsoft to market its products independently. However, this approach led to only a couple of its products crossing the 250,000-unit sales threshold. Below this benchmark, products rarely reached acceptable Microsoft profit margins. Stonesifer contemplated redirecting the division away from individual products and toward the development of products belonging to small branded series.[27] She envisioned branded series offered by each of the new product groups and marketed as such. In addition, the division would market all its products under the umbrella brand, Microsoft Home. Stonesifer commented that the brand would encourage "consumers to think of us every Christmas, every birthday." To build on this marketing effort, she also aimed to develop better distribution channels. In contrast to relatively focused competitors like Broderbund and Intuit, Stonesifer felt that Microsoft's multiple product groups often placed conflicting demands on its sales force.

Sourcing of the content for consumer CD-ROMs also represented a new activity for Microsoft. Whereas conventional software required programmers to perform 60% of the tasks needed to develop a product, CD-ROM software needed programmers for only 10%–20% of the tasks and relied, instead, on content providers. While the division developed some content, it contracted with independent content providers for about 80% of the creative content in its CD-ROM products.[28] Competition for the content was intense. After the division identified areas for which it wanted content, it sought suitable content providers, negotiated contracts with them, and, when the content was delivered, applied quality controls to the product. In so doing, the division dealt with hundreds of contract employees, including programmers, artists, and musicians. Contract employees received an advance on future royalties for out-of-pocket expenses spread over the time of development, so that the last installment coincided with product delivery. Microsoft paid no more than a royalty of 10% of sales for unbranded content, contending that its 10% was like 20% from other companies due to Microsoft's strong distribution capabilities. For a product like Cinemania, Microsoft negotiated 50 separate contracts; for a product like Dangerous Creatures, only 1 or 2 contracts were necessary.

There were, in fact, numerous other differences between the products. Some, like Encarta and Cinemania (a multimedia movie guide), were established products that already generated acceptable profitability levels. Others, like games, were businesses that required small investments, a lot of outsourcing of content, and had paybacks of one to two years, assuming that the product was a hit. Games typically had to be rewritten from scratch for every release; there was not much

EXHIBIT 7.10

Home Computer Software Competitor Information (*Sources:* Corporate annual reports, 10Ks)

Broderbund Software Inc.

	August 1991	August 1992	August 1993	August 1994
Net revenue	55.78	75.08	95.58	111.77
Cost of revenues	23.75	31.75	36.36	37.56
Research and development	7.06	10.90		16.02
Sales, general, and administrative	20.36	28.10	35.83	42.14
Operating income	11.06	14.15	20.63	29.05
Net income	7.06	9.66	13.63	11.06
Working capital	29.25	37.46	54.77	73.01
Total assets	42.75	56.23	77.23	97.65
Shareholders' equity	32.43	44.17	61.00	80.18
Headcount	271	338	402	438

Intuit

	Sept. 1992	Sept. 1993	July 1994	July 1995
Net revenue	83.79	121.37	194.13	395.73
Cost of revenues	27.63	36.01	65.15	104.51
Research and development	8.34	12.98		
Sales, general, and administrative	46.85	68.98	109.38	250.74
Operating income	7.85	13.23	−4.74	−12.16
Net income	5.28	8.41	−176.31	−45.36
Working capital	10.39	41.47	69.13	161.30
Total assets	29.63	73.79	244.58	384.20
Shareholders' equity	17.24	49.24	185.82	281.19
Headcount		597	1,228	2,732

Sierra On-Line

	March 1991	March 1992	March 1993	March 1994	March 1995
Net revenue	34.72	43.19	49.72	62.74	83.44
Cost of revenues	13.52	20.20	28.11	26.22	32.72
Research and development	3.30	7.78	19.26	21.44	26.54
Sales, general, and administrative	12.45	15.83	31.32	38.11	45.77
Operating income	7.64	5.02	−12.81	−5.29	1.82
Net income	5.39	3.69	−8.40	−8.68	11.94
Working capital	16.05	44.32	37.50	33.49	100.59
Total assets	32.43	67.30	61.65	63.89	137.53
Shareholders' equity	26.42	58.34	50.83	49.84	80.07
Headcount	412	527	549	540	629

(continued)

EXHIBIT 7.10 (Continued)

Soft Key International

	June 1991	June 1992	June 1993	Dec. 1994
Net revenue	35.61	41.82	29.97	121.29
Cost of revenues	8.99	13.36	14.78	33.87
Research and development	5.89	4.95	6.78	6.70
Sales, general, and administrative	30.27	30.43	27.69	56.41
Operating income	−4.84	−2.82	−13.18	25.79
Net income	−7.51	−4.91	−27.48	21.14
Working capital	10.36	7.47	0.79	15.52
Total assets	22.67	21.69	19.42	90.81
Shareholders' equity	15.74	12.18	0.05	37.48
Headcount	280	198	118	450

Note: Company fiscal year-ends vary. Information is always for 12 months ending in stated date. Figures are in millions of dollars, except for headcounts.

reusable software. A large number of products (such as the travel range of products) required sustained investments for a number of years and a substantial component of in-house content development, with success reliant on sustained consumer interest. Further, the product lines also attracted different personality types. As Patty explained, "My games group that blasts things is very different from my kids group that is trying to nurture things." On account of these differences, she ran these groups as separate entities. She commented, "I cannot be a Scott Cook running an Intuit. I own a conglomerate, and I need a series of Scott Cooks running each of the divisions that report to me." At the same time, Microsoft created a separate unit to work on the home finance program. After an antitrust inquiry led Microsoft to withdraw its offer to purchase Intuit, maker of the best-selling Quicken, a home finance program, the company placed a high priority on improving its own finance program, Microsoft Money.

Despite the reliance on contract employees, the Consumer Products division was the fastest growing at Microsoft, employing over 800 workers in 1995. Sixty percent of the workers came from outside the company and constituted most of the editorial and creative staff, while 40% of the workers were internal transfers and made up the division's programmers. Whereas content providers tended to come from an environment that did not lend itself easily to the software production mentality at Microsoft, internal transfers experienced a "loss of control" compared with those developing conventional applications where specifications were more tightly defined. Moreover, the personality types characterizing the two groups often clashed. In numerous cases, editors and designers left the firm because they did not want to deal with arrogant program managers. Stonesifer planned to shift even more to external hiring in 1995, but noted that internal transfers were helpful in facilitating the use of techniques developed elsewhere within Microsoft.[29]

As the division gained prominence within Microsoft, its business focus became a source of debate. Several within Microsoft questioned the wisdom of developing content in-house, arguing that Microsoft had no business going into areas where it historically had no expertise. Others retorted that content would be the only asset that would have value going forward because the Internet would provide a cheap, level playing field for direct distribution to the customer. Several in the company questioned the division's focus on CD-ROMs rather than online computing. Stonesifer, in defense, believed the challengers underestimated the time it would take for online computing to catch on. In the interim, she felt that Microsoft should leverage its channel advantage with CD-ROMs, but develop content with an eye to cross-platform utilization (that is, for both CD-ROMs and online computing). Moreover, Stonesifer pointed out, it was unclear the extent to which consumers liked owning something, in which case they would prefer a CD-ROM to online services. She observed, "Only a small fraction of folks buy books, but do they buy books!"

Meanwhile, America Online (AOL), a fast-growing online services provider, had begun to open up a substantial lead over others in several of its products and had developed an image as a dynamic, fast-growing firm. Its Digital City program, launched earlier in the year, provided easy access to content relevant to a particular city (such as entertainment schedules, local weather, and local politics) and appeared to be a major success. Catching up with such products could require investments over the next few years of several hundreds of millions of dollars, possibly as much as investing in a completely new operating system. Several in the company questioned whether such expenditures on content creation (for CD-ROMs and, ultimately, for online use) would yield commensurate returns.

However, Gates expressed full confidence in the consumer vision and, in particular, in his belief that developing content assets was the key to future success. Rapid sales growth in 1995 held out the promise of attaining volume sales. Revenues on consumer products were double those of the previous year and the division looked ready to surpass its rivals. The division continued to sponsor research in home usage patterns and home usage psychographics,[30] in addition to conducting novel "follow-you-home" research (where the objective was simply to observe and infer common patterns of daily life in average households). The objective was to better understand consumer demand patterns in a way that competitors found it hard to match.[31] To accommodate the surge in activity, the division moved to a new campus in Redmond, close to the older one, which increased its square footage by 30% and provided both studio and office space. Indeed, the division remained the most exciting place to work at Microsoft.

GATES ON THE FUTURE

Several Microsoft executives could construct plausible scenarios that could derail Microsoft's dominance. For example, free software might become available on the Internet, limiting Microsoft's ability to realize revenues on some of its major

money-spinners. Alternatively, the competition might figure out how to automate business processes and leverage that advantage in other markets. But a senior executive, unconvinced by these arguments, commented that the "challenge is to keep pushing technology so that . . . you cause the next change." [32] Gates had a similar view: "We've grown so fast in the last four years, it's going to be difficult to grow at similar rates in the future. In addition, we don't know what the business model looks like in the future—can content providers hold us up? With the information highway, maybe no one will make money because everything will become a commodity. I also worry that, as we branch out, we may be getting outside our circle of competence." Nonetheless, Gates remained confident that Microsoft could double its revenues within four years. He modestly noted, "We have real hubris."

NOTES

1. Appendix 7A contains a chronology of antitrust actions against Microsoft.
2. It was technically possible to emulate another OS's code and run its software. However, emulation tended to significantly slow down applications and emulation programs often suffered incompatibilities.
3. Thomas Kurian and Robert Burgelman, "Note on the Operating System Industry in 1994," Stanford University Graduate School of Business, S-BP-268, 1994, p. 6.
4. There were several weaknesses to DOS and Windows—the most important, DOS and Windows were 16-bit OSs that had limitations on memory utilization, multitasking (using several programs at once), and communications. OS/2 and System 7 were both 32-bit OSs that were technically superior on these features.
5. A network operating system performed for a network of PCs tasks similar to those that an operating system performed for an individual PC. However, while Windows NT was a "general-purpose OS that could also run general applications," Novell's product was optimized to facilitate storing of files and printing on a network.
6. Cairo and the IBM-Apple OS, called Taligent, were being designed as "object-oriented OSs." An object-oriented OS allowed for software code to be reused when new upgrades were developed. In theory, such an OS would greatly reduce the costs of developing customized applications and upgrades.
7. Since both WordPerfect and Lotus 1-2-3 had been very popular programs, they had the highest installed base of users in large corporations in 1994, with Microsoft's Word and Excel only in third and fourth places, respectively. *Computer Intelligence InfoCorp's Consumer Technology Index*, 1994.
8. On average, upgrade prices were about 40% of new-installation prices.
9. Microsoft had benefited from much higher average selling prices (ASP) for applications outside the United States. The premium varied from 25%–60% for non-English version of Microsoft programs. Some executives worried that overseas markets would soon face comparable pricing pressure to the United States. One senior manager noted, "Our successes can hide our excesses."
10. *Upside*, April 1995, p. 29.
11. Compaq, after being attacked by Dell Computer, found itself with a premium-priced product line and excess overhead at a time when customers demanded low-priced products. After firing its CEO, Compaq completely reengineered the company to become one of the industry's low-cost, and most profitable, producers.
12. *Fortune*, January 16, 1995.
13. The end-user customer unit focused on individuals, distributors, and resellers. The organization customer unit focused on large, medium, and small organizations and the support infrastructure needed to sell to them. The OEM customer unit targeted companies that included Microsoft's software as a part of their own machines. Of these, the OEM division was Microsoft's most profitable. This was true even though a software program that had a list price of $99 typically retailed for $75, wholesaled for $49, and was available to large OEMs like Compaq for $30.
14. Whereas applications like Word and Excel originally had a million lines of code each and were developed by teams of 35 to 50 developers, Win-

dows NT had 4 times as much code and 10 times as many developers.

15. Thus, Word and Excel, which currently shared about 15% of their code, were expected to share about 40% when code-sharing had been implemented.
16. Roughly 10,000 of Microsoft's employees were entitled to stock option benefits.
17. *Upside*, April 1995, p. 64.
18. Users were believed to replace their PCs once every four years on average.
19. Numerous other categories of firms stood to benefit from Windows 95. Retailers like CompUSA expected enormous surges in traffic, memory chip makers expected to profit from the increased PC sales as users upgraded to machines that could use Windows 95, and makers of software utilities, high-end modems, and communication products expected enhanced demand for their products.
20. These conditions included bundling Windows 95 with at least 50% of shipments within a month after Microsoft started shipping the product, adopting joint Windows 95 promotional campaigns with no compensation from Microsoft, and displaying the Windows 95 logo prominently. "Win 95 OEMs Grin and Bear It," *PC Week*, November 29, 1994.
21. *Wall Street Journal*, December 12, 1994.
22. Windows 95 was also criticized for being incompatible with some DOS/Windows 3.1 software, for requiring 8 to 16 megabytes of memory (instead of the 8 megabytes originally promised), and for imitating the Macintosh interface.
23. Absence of such leadership implied, for instance, that it was difficult to resolve problems in large companies that were being served by multiple vendors, as it was unclear whose software had caused a particular problem.
24. *Business Week*, October 16, 1995, p. 75.
25. Compact disc read-only memory.
26. Microsoft Encarta had a 54% share, followed by Compton Interactive Encyclopedia with a 17% share and Grolier's Encyclopedia with a 16% share.
27. This focus on brands was new for Microsoft, which did not even own its top brands, such as Magic Schoolbus and Flight Simulator (although Stonesifer was negotiating a purchase of Flight Simulator). The move into home markets also led Microsoft to throw certain conventional marketing methods to the winds. Microsoft had retained the same ad agency that orchestrated Nike's "Just Do It!" campaign, and planned to spend over $100 million in advertising in 1995 alone. Its internal "Attitude, Awareness, and Usage" studies showed that the primary trait that users cared about was that the products be bug-free from the start, and that they exhibit tremendous ease of use. Among the least-valued traits was that the product be technically superior, visionary, part of a wide range of software, or made by a leading software company.
28. The most dramatic example of this approach was a March 1995 joint venture between Microsoft and DreamWorks—the Spielberg, Katzenberg, and Geffen new movie studio. The two companies committed $30 million to produce interactive entertainment, largely on CD-ROMs, by Christmas 1996. Stonesifer assumed control of the enterprise.
29. Some groups that had experienced a net outflow of individuals rationalized the loss of their team members by saying that they might have lost the talent to the outside world anyway. In 1994, the bulk of the transfers to the Consumer Products Division had come from the desktop applications group.
30. Questions that this research attempted to answer included: what triggers software fears and desires, and what prompts the purchase of software and hardware?
31. This research had already led, in January 1995, to the announcement of "Bob," a suite of eight programs for automating household tasks that ran on top of Windows. While the attempt to create a fundamentally new interface between the computer and the home user had a disappointing launch, Stonesifer reminded everyone that several other blockbuster Microsoft products had also had slow starts.
32. *Upside*, April 1995, p. 87.

Appendix 7A

Chronology of Antitrust Actions Against Microsoft

8/20/93 The Justice Department says it will investigate possible anticompetitive business practices at Microsoft, in particular: (a) Was Microsoft using unfair tactics to win dominance in its PC operating systems business? and (b) Was this dominance being used unfairly in the PC application software market?

7/15/94 Microsoft makes small concessions regarding how it licenses software to PC manufacturers, settling Justice's antitrust investigation.

10/13/94 Microsoft announces a deal to buy Intuit, the biggest personal-finance software provider. The deal, subject to Justice approval, would be the largest software acquisition ever, valued at $1.5 billion.

1/20/95 Judge Stanley Sporkin, U.S. District Judge, unexpectedly refuses to approve the settlement between Microsoft and Justice, saying that "Microsoft may not have matured to the position where it understands how it should act with respect to the public interest and the ethics of the marketplace."

Judge Sporkin also takes the government lawyers to task for not pursuing adequately the abuse of "vaporware," a term used to refer to computer products that are announced before they are ready for market. [Note: This is a practice that Apple, IBM, and others in the industry routinely follow.]

2/13/95 Apple Corporation alleges in a letter to Judge Sporkin that Microsoft has attempted to (a) bully Apple into dropping its lawsuits against Microsoft by threatening to delay access to developmental versions of its new operating system, Windows 95; (b) pressure Apple into abandoning the development of a competing software development tool; and (c) threaten to stop writing application software for the Macintosh operating system.

2/14/95 Federal Judge Sporkin rejects the July settlement as not being in the public interest.

3/7/95 Jim Manzi, CEO of Lotus Corporation, in a *Wall Street Journal* editorial: "You may enjoy the seamlessness and the predictability that result, but ask not for diversity or innovation. For most of this century, the focus of antitrust enforcement has been on behavior like price fixing, tied contracts, and market division. For many industries this traditional focus seems almost quaint today."

4/24/95 Microsoft and Justice appeal the Sporkin ruling to federal appeals court.

4/27/95 The Justice Department sues to block Microsoft's purchase of Intuit, claiming that it would give Microsoft a dominant position in a highly concentrated market.

5/22/95 Microsoft unilaterally ends its plan to acquire Intuit for stock currently valued at $2.3 billion. Meanwhile there are reports that the Justice Department has always been sympathetic to criticisms of Microsoft Network but did not feel that it had the resources to pursue two cases against Microsoft.

6/19/95 The U.S. Court of Appeals in Washington reinstates the 1994 antitrust settlement between Microsoft and the Justice Department and grants Microsoft's request to remove Judge Sporkin from the case.

6/27/95 Microsoft is served with a broad subpoena regarding Microsoft Network. It claims that the subpoena is "the latest salvo in what increasingly appears to be a campaign of harassment directed against Microsoft" (*Wall Street Journal*). There are also reports that Microsoft is trying to figure out how to separate MSN code from Windows 95 code in an effort to avoid delaying launch of the latter.

7/95 The Justice Department decides not to intervene in the Windows 95 release.