

Case 20

Apple Inc., 1976–2013

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INTRODUCTION

Back in 1997 Apple Computer was in deep trouble. The company that had pioneered the personal computer market with its easy to use Apple II in 1978, and had introduced the first graphical user interface with the Macintosh in 1984, was bleeding red ink. Apple's worldwide market share, which had been fluctuating between 7 and 9% since 1984, had sunk to 4%. Sales were declining. Apple was on track to lose \$378 million on revenues of \$7 billion, and that on top of a \$740 million loss in 1996. In July 1997, the cofounder of the company, Steve Jobs, who had left Apple back in 1985 after being stripped of any operating responsibility, returned as CEO. At an investor conference, Michael Dell, CEO of Dell Inc., then the world's largest and most successful PC manufacturer, was asked what Jobs should do as head of Apple. Dell quipped "I'd shut it down and give the money back to shareholders."¹

By early 2013 the situation could not look more different. Apple was the world's most valuable company with a market capitalization of over \$450 billion. The stock price, which had traded as low as \$6 a share in 2003, had run as high as \$705 a share in 2012. Revenues in the financial year ending September 2012 were \$157 billion and net income was \$41.7 billion. The company had generated \$41.5 billion of free cash flow in 2012, and was sitting on over \$120 billion in cash on its balance sheet. Meanwhile Dell Inc., with a market capitalization roughly 5% of Apple's, was struggling to remain relevant in the rapidly changing computer industry.

Driving the transformation had been a string of game changing innovations that included the introduction of Apple's iPod music player in 2001, music downloads from the iTunes store in 2003, the iPhone in 2007, and

the iPad in 2010. Throughout this period, Apple had continued improve and refine its line of desktop and lap top computers, producing stylish models that set the standard for the industry in design elegance and ease of use. The MacBook Air, an ultra lightweight notebook computer introduced in 2008, had become a benchmark against which all other notebooks were compared. Apple had also vertically integrated forward in to the retail business, opening its first Apple store in 2001. By late 2012 the company had 390 Apple stores worldwide. The stores were themselves a phenomenon. In the U.S., the average store generated sales per square foot of \$6,050 in 2012, a retail industry record and twice that of second place Tiffany and Co, which had sales per square foot of \$3,017.² To emphasize the broadening product portfolio of the company, Apple had dropped "computer" from its name.

Once considered a perennial also ran, Apple was now on top of the world. It's successful iPhone and iPad lines had made the company a driving force behind an industry wide shift towards mobile computing and cloud services. It's iCloud cloud storage and synchronization service, introduced in October 2011, already had more than 250 million users by January 2013.³

However, the future was less clear. In 2011 the driving force of the company's transformation, founder and CEO Steve Jobs, died of cancer. Observers wondered if the company could maintain its innovative momentum without the creative genius of Jobs at the helm. Competitors were also snapping at Apple's heels. Smart phones using Google's Android operating system were outselling Apple's iPhone by 4 to 1 world wide in 2012 (although Apple was reportedly captured 72% of all

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profits from smart phone sales in 2012). In the tablet market, while the iPad captured 53.8% of the global market in 2013, devices running the Android operating system had 42.7%.⁴ In April 2012, Google offered its own cloud storage and synchronization service, Google Drive, in an attempt to create an ecosystem that rivaled Apple's. There were also signs that Microsoft was starting to wake up from a decade of slumber and missed opportunities to compete head to head with Apple. In late 2012 Microsoft introduced its Windows 8 operating system. Windows 8, which has touch screen capabilities, can be configured to run on any computing device, from desktop and laptop to tablet and smart phone. Microsoft also offers a cloud storage and synchronization service, SkyDrive, raising the possibility that the company can become a third player in the emerging mobile computing/cloud services format war.

APPLE 1976–1997

The Early Years

Apple's genesis is the stuff of computer industry legend.⁵ On April Fools Day, 1976, two young electronics enthusiasts, Steve Jobs and Steve Wozniak, started a company to sell a primitive personal computer that Wozniak's had designed. Steve Jobs was just twenty, Wozniak, or Woz as he was commonly called, was 5 years older. They had known each other for several years, having been introduced by a mutual friend who realized that they shared an interest in consumer electronics. Woz had designed the computer just for the fun of it. That's what people did in 1976. The idea that somebody would actually want to purchase his machine had not occurred to Woz, but it did to Jobs. Jobs persuaded a reluctant Woz to form a company and sell the machine. The location of the company was Steve Jobs's garage. Jobs suggested they call the company Apple and their first machine the Apple I. They sold around 200 of them at \$666 each. The price point was picked as something of a prank.

The Apple I had several limitations—no case, keyboard, or power supply being obvious ones. It also required several hours of laborious assembly by hand. By the late 1976 Woz was working on a replacement to the Apple I, the Apple II.⁶ In October 1976, with the Apple II under development, Jobs and Woz were introduced to Mike Markkula. Only 34, Markkula was already a retired millionaire having made a small fortune at Fairchild and Intel. Markkula had no plans to get back

into business anytime soon, but a visit to Jobs's changed all that. He committed to investing \$92,000, one-third of the company, and promised that his own investment would be \$250,000. Stunned, Jobs and Woz agreed to let him join as a partner. It was a fateful decision. The combination of Woz's technical skills, Jobs's entrepreneurial zeal and vision, and Markkula's business acumen and connections, was a powerful one. Markkula told Jobs and Woz that neither of them had the experience to run a company, and persuaded them to hire a president, Mike Scott, who had worked for Markkula at Fairchild.

The Apple II was introduced in 1977 at a price of \$1,200. The first version was an integrated computer with a Motorola microprocessor and included a keyboard, power supply, monitor, and the BASIC programming software. It was Steve Jobs who pushed Woz to design an integrated machine—he wanted something that was easy to use and not just a toy for geeks. Jobs also insisted that the Apple II looked good. It had an attractive case with no visible screws or bolts. This differentiated it from other personal computers at the time, which looked as if they had been assembled by hobbyists at home (as many were).

In 1978, Apple started to sell a version of the Apple II that incorporated something new—a disk drive. The disk drive enabled third party developers to write software programs for the Apple II that could be loaded on floppy disks. Soon programs started to appear, and among them EasyWriter, a basic word processing program, and VisiCalc, a spreadsheet. VisiCalc was an instant hit. It was pulled in a new customer set, business types who could use VisiCalc for financial planning and accounting. Since VisiCalc was only available for the Apple II, it helped drive demand for the machine.

By the end of 1980, Apple had sold over 100,000 Apple II's, making the company the leader in the embryonic personal computer industry. The company had successfully executed an IPO, was generating over \$200 million in annual sales, and was profitable. With the Apple II series selling well, particularly in the education market, Apple introduced its next product, the Apple III, in the fall of 1980. It was a failure. The computer was filled with bugs and crash constantly. The Apple III had been rushed to market. Apple reintroduced a redesigned Apple III in 1981, but it continued to be outperformed by Apple II. Indeed, successive versions of the Apple II family, each an improvement on the preceding version, continued to be produced by the company until 1993. In total, over 2 million Apple II computers were sold. The series became a standard in American classrooms where it was valued for its intuitive ease of use. Moreov

the Apple II was the mainstay of the company until the late 1980s, when an improved version of the Macintosh started to garner significant sales.

The IBM PC and its Aftermath

Apple's success galvanized the world's largest computer company, IBM, to speed up development of its entry into the personal computer market. IBM had a huge and very profitable mainframe computer business, but it had failed to develop a personal computer, despite two attempts. To get to market quickly with its third PC project, IBM broke with its established practice of using its own proprietary technology to build the PC. Instead, IBM adopted an "open architecture," purchasing the components required to make the IBM PC from other manufacturers. These components included a 16 bit microprocessor from Intel, and an operating system, MS-DOS, which was licensed from a small Washington State company, Microsoft.

Microsoft had been in the industry from its inception, writing a version of the BASIC software programming language for the MITS Atari in 1977, the first PC ever produced. IBM's desire to license BASIC brought them to Redmond to talk with the company's CEO, Bill Gates. Gates, still in his early 20s, persuaded IBM to adopt a 16-bit processor (originally IBM had been considering a less powerful 8 bit processor). He was also instrumental in pushing IBM to adopt an open architecture, arguing that IBM would benefit from the software and peripherals that other companies could then make.

Initially IBM was intent on licensing the CP/M operating system, produced by Digital Research, for the IBM PC. However, the current version of CP/M was designed to work on an 8 bit processor, and Gates had persuaded IBM that it needed a 16 bit processor. In a series of quick moves, Gates purchased a 16 bit operating system from a local company, Seattle Computer, for \$50,000. Gates then hired the designer of the operating system, Tim Paterson, renamed the system MS-DOS, and offered to license it to IBM. In what turned out to be a masterstroke, Gates persuaded IBM to accept a nonexclusive license for MS-DOS (which IBM called PC-DOS).

To stoke sales, IBM offered a number of applications for the IBM PC that were sold separately, including a version of VisiCalc, a word processor called EasyWriter, and well-known series of business programs from Peachtree Software.

Introduced in 1981, the IBM PC was an instant success. Over the next 2 years, IBM would sell more than

500,000 PCs, seizing market leadership from Apple. IBM had what Apple lacked, an ability to sell into corporate America. As sales of the IBM PC mounted, two things happened. First, independent software developers started to write program to run on the IBM PC. These included two applications that drove adoptions of the IBM PC; word processing programs (Word Perfect) and a spread sheet (Lotus 1-2-3). Second, the success of IBM gave birth to clone manufacturers who made "IBM compatible" PCs that also utilized an Intel microprocessor and Microsoft's MS-DOS operating system. The clone makers included Compaq, Tandy, Zenith, Leading Edge, and Dell.

The Birth of the Macintosh

By 1980 two other important projects were underway at Apple: Lisa and the Macintosh. Lisa was originally conceived as a high-end business machine, and the Macintosh as a low-end portable machine.

The development of both the Lisa, and ultimately the Macintosh, were influenced by two visits Steve Jobs paid to Xerox's fabled Palo Alto Research Center (PARC) in November and December 1979. Funded out of Xerox's successful copier business, PARC had been set up to do advanced research on office technology. Engineers at PARC had developed a number of technologies that were later to become central to personal computers, including a graphical user interface (GUI), software programs that were made tangible through on screen icons, a computer mouse that let a user click on and drag on screen objects, and a laser printer. Jobs was astounded by what he saw at PARC, and decided on the spot that these innovations had to be incorporated into Apple's machines.

Jobs initially pushed the Lisa team to implement PARC's innovations, but he was reportedly driving people on the project nuts with his demands, so President Mike Scott pulled him of the project. Jobs reacted by essentially hijacking the Macintosh project, and transforming it into a skunk works that would put his vision into effect. By one account:

He hounded the people on the Macintosh project to do their best work. He sang their praises, bullied them unmercifully, and told them they weren't making a computer; they were making history. He promoted the Mac passionately, making people believe that he was talking about much more than a piece of office equipment.⁷

It was during this period that Bud Tribble, a software engineer on the Mac project, quipped that Steve Jobs

could create a "reality distortion field." Jobs insisted that the Mac would ship by early 1982. Tribble knew that the schedule was unattainable, and when asked why he didn't point this out to Jobs, he replied: "Steve insists that we're shipping in early 1982, and won't accept answers to the contrary. The best way to describe the situation is a term from Star Trek. Steve has a reality distortion field. . . . In his presence, reality is malleable. He can convince anyone of practically anything. It wears off when he's not around, but it makes it hard to have realistic schedules."⁸

Andy Hertzfeld, another engineer on the Macintosh project, thought Tribble was exaggerating. . . . "until I observed Steve in action over the next few weeks. The reality distortion field was a confounding mélange of a charismatic rhetorical style, an indomitable will, and an eagerness to bend any fact to fit the purpose at hand. If one line of argument failed to persuade, he would deftly switch to another. Sometimes, he would throw you off balance by suddenly adopting your position as his own, without acknowledging that he ever thought differently."⁹

Back at Apple things were changing too. Mike Scott had left the company after clashes with other executives, including Markkula, who had become chairman. Steve Jobs persuaded John Sculley to join Apple as CEO. Sculley was the former executive vice president of marketing at Pepsi, where he had become famous for launching the Pepsi Challenge. Jobs had reportedly asked Sculley *Do you want to sell sugar water for the rest of your life, or do you want to change the world?* Sculley opted for changing the world. A Wharton MBA, Sculley had been hired for his marketing savvy, not his technical skills.

While the Lisa project suffered several delays, Jobs pushed the Macintosh team to finish the project and beat the Lisa team to market with a better product. Introduced in 1984, the Macintosh captured attention for its stylish design, and utilization of a GUI, icons, and a mouse, all of which made the machine easy to use and were not found on any other personal computer at the time. Jobs, ever the perfectionist, again insisted that not a single screw should be visible on the case. He reportedly fired a designer who presented a mockup that had a screw that could be seen by lifting a handle.

Early sales were strong; then they faltered. For all its appeal, the Macintosh lacked some important features—it had no hard disk drive, only one floppy drive, and insufficient computer memory. Moreover, there were few applications available to run on the machine, and the Mac proved to be a more difficult machine to develop applications for than the IBM PC and its clones. Jobs, however, seemed oblivious to the problems, and continued to talk

about outsized sales projections, even when it was obvious to all around him that they were unattainable.

In early 1985, Apple posted its first loss. Aware that drastic action was necessary, but could not be taken while Jobs was running the Macintosh division, Sculley got backing from the board of directors to strip Jobs of his management role and oversight of the Macintosh division. In late 1985 an embittered Jobs resigned from Apple, sold all of his stock, and left to start another computer company, aptly named NeXT.

Sculley's Apple

With Jobs gone, Sculley shut down the Lisa line, which had done poorly in the market due to a very high price point of \$10,000, and pushed developers to fix the problems with the Macintosh. In January 1986 a new version of the Macintosh, the Mac Plus, was introduced. This machine fixed the shortcomings of the original Mac, and sales started to grow again.

What helped was Apple's domination of the desktop publishing market. Several events came together to make this happen. Researchers from Xerox PARC formed a company, Adobe, to develop and commercialize the PostScript page description language. Postscript enabled the visual display and printing of high quality page layouts loaded with graphics (e.g. colored charts, line drawings and photos). Apple licensed PostScript and used it as the output for its Apple LaserWriter printer, which was introduced in 1985. Shortly afterwards, a Seattle company, Aldus, introduced a program called Page Maker for the Mac. Page Maker used Adobe's Post Script page description language for output. Although Aldus introduced a version of Page Maker for MS-DOS in 1986, Apple already had a lead, and with the Macs GUI interface appealing to graphic artists, Apple's position in desk top publishing was further strengthened by the release of Adobe Illustrator in 1987 (a freehand drawing program), and Adobe Photoshop in 1990.

The period between 1986 and 1991 were in many ways the golden years for Apple. Since it made both hardware and software, Apple was able to control all aspects of its computers, offering a complete desktop solution that allowed customers to "plug and play." With the Apple II series still selling well in the education market and the Mac dominating desktop publishing, Apple was able to charge a premium price for its products. Gross margins on the Mac line got as high as 55%. In 1990 Apple sales reached \$5.6 billion. Its global market share

which had fallen rapidly as the IBM compatible PC market had grown, stabilized at 8%, the company had a strong balance sheet and was the most profitable personal computer manufacturer in the world.

During this period executives at Apple actively debated the merits of licensing the Mac operating system to other computer manufacturers, allowing them to make Mac clones. Sculley was in favor of this move. So was Microsoft's Bill Gates, who wrote two memos to Sculley laying out the argument for licensing the Mac OS. Gates argued that the closed architecture of the Macintosh prevented independent investment in the standard by third parties, and put Apple at a disadvantage versus the IBM PC standard. However, some senior executives at Apple were against the licensing strategy, arguing that once Apple licensed its intellectual property, it would be difficult to protect it. In one version of events, senior executives debated the decision at a meeting, and took a vote on whether to license. Given the controversial nature of the decision, it was decided that the vote in favor had to be unanimous. It wasn't—a single executive voted against the licensing decision, and it was never pursued.¹⁰ In another version of events, Jean-Louis Gasse, head of R&D at Apple, vigorously opposed Sculley's plans to clone, and Sculley backed down.¹¹ Gasse was deeply distrustful of Microsoft, and Bill Gates, and believed that Gates's probably had an ulterior motive given how the company benefited from the IBM standard.

Ironically, in 1985 Apple had licensed its "visual displays" to Microsoft. Reportedly Gates had strong-armed Sculley, threatening that Microsoft would stop developing crucial applications for the Mac unless Apple granted Microsoft the license. At the time, Microsoft had launched development of its own GUI. Called Windows, it mimicked the look and feel of the Mac operating system, and Microsoft didn't want to be stopped by a lawsuit from Apple. Several years later, when Apple did file a lawsuit against Microsoft, arguing that Windows 3.1 imitated the "look and feel" of the Mac, Microsoft was able to point to the 1985 license agreement to defend its right to develop Windows—a position which the judge in the case agreed with.

Apple in Decline: 1990–1997

By the early 1990s, the prices of IBM compatible PCs were declining rapidly. So long as Apple was the only company to sell machines that utilized a GUI, its differential appeal gave it an advantage over MS-DOS

based PCs with their clunky text based interfaces, and the premium price could be justified. However, in 1990 Microsoft introduced Windows 3.1, its own GUI that sat on top of MS-DOS, and Apple's differential appeal began to erode. Moreover, the dramatic growth of the PC market had turned Apple into a niche player. Faced with the choice of writing software to work with an MS-DOS/Windows operating system and an Intel microprocessor, now the dominant standard found on 90% of all personal computers, or the Mac OS and a Motorola processor, developers logically opted for the dominant standard (desktop publishing remained an exception to this rule). Reflecting on this logic, Dan Eilers, then vice president of strategic planning at Apple, reportedly stated "The company was on a glide path to history"¹².

Sculley too, thought that the company was in trouble. Apple seemed boxed into its niche. Apple had a high cost structure. It spent significantly more on R&D as a percentage of sales than its rivals (in 1990 Apple spent 8% of sales on R&D, Compaq around 4%). Its microprocessor supplier, Motorola, lacked the scale of Intel, which translated into higher costs for Apple. Moreover, Apple's small market share made it difficult to recoup the spiraling cost of developing a new operating system, which by 1990 amounted to at least \$500 million.

Sculley's game plan to deal with these problems involved a number of steps.¹³ First, he appointed himself chief technology officer in addition to CEO—a move that raised some eyebrows given Sculley's marketing background. Second, he committed the company to bring out a low cost version of the Macintosh to compete with IBM clones. The result was the Mac Classic, introduced in October 1990 and priced at \$999. He also cut prices for the Mac's and Apple II's by 30%. The reward was a 60% increase in sales volume, but lower gross margins. So third, he cut costs. The workforce at Apple was reduced by 10%, the salaries of top managers (including Sculley's) were cut by as much as 15%, and Apple shifted much of its manufacturing to subcontractors (for example, the PowerBook was built in Japan—a first for Apple). Fourth, he called for the company to maintain its technological lead by bringing out hit products every 6 to 12 months. The results include the first Apple portable, the PowerBook notebook, which was shipped in late 1991 and garnered very favorable reviews, and the Apple Newton hand held computer, which bombed. Fifth, Apple entered into an alliance with IBM, which realized that it had lost its hold on the PC market to companies like Intel, Microsoft, and Dell.

The IBM alliance had several elements. One was the decision to adopt IBM's Power PC microprocessor architecture, which IBM would also use in its own offerings. A second was the establishment of two joint ventures—Taligent, which had the goal of creating a new operating system, and Kaleida to develop multimedia applications. A third was a project to help IBM and Apple machines work better together.

While Sculley's game plan helped to boost the top line, the bottom line shrunk in 1993 due to a combination of low gross margins and continuing high costs. In 1994 Sculley left Apple. Michael Spindler, a German engineer who had gained prominence as head of Apple Europe, replaced him.

Spindler finally took the step that had been long debated in the company—he decided to license the Mac OS to a handful of companies, allowing them to make Mac clones. The Mac OS would be licensed for \$40 a copy. It was too little too late—the industry was now waiting for the introduction of Microsoft's Windows 95. When it came, it was clear that Apple was in serious trouble. Windows 95 was a big improvement over Windows 3.1, and it closed the gap between Windows and the Mac. While many commentators criticized Apple for not licensing the Mac OS in the 1980s, when it still had a big lead over Microsoft, ironically Bill Gates disagreed. In a 1996 interview with *Fortune*, Gates noted that:

As Apple has declined, the basic criticism seems to be that Apple's strategy of doing a unique hardware/software combination was doomed to fail. I disagree. Like all strategies, this one fails if you execute poorly. But the strategy can work, if Apple picks its markets and renews the innovation in the Macintosh.¹⁴

Spindler responded to Windows 95 by committing Apple to develop a next generation operating system for the Macintosh—something that raised questions about the Taligent alliance with IBM. At the end of 1995, IBM and Apple parted ways, ending Taligent, which after \$500 million in investments had produced little.

By then, Spindler had other issues on his mind. The latter half of 1995 proved to be a disaster for Apple. The company seemed unable to predict demand for its products. It overestimated demand for its low-end Macintosh Performa computers, and was left with excess inventory, while underestimating demand for its high-end machines. To compound matters, its new PowerBooks had to be recalled after batteries started

to catch fire, and a price war in Japan cut margins in one of its best markets. As a consequence, gross margins slumped and Apple lost \$68 million in 1995. Spindler responded by announcing 1,300 layoffs. He suggested that up to 4,000 might ultimately go—some 23% of the workforce.¹⁵ That was his last significant act. Gilbert Amelio replaced him in February.

Amelio, joined Apple from National Semiconductor where he had gained a reputation for his turnaround skills. He lasted just seventeen months. He followed through on Spindler's plans to cut headcount and stated that Apple would return to its differentiation strategy. His hope was that the new Mac operating system would help, but work on that was in total disarray. He took the decision to scrap the project after an investment of over \$500 million. Instead, Apple purchased NeXT, the computer company founded by none other than Steve Jobs after he left Apple, for \$425 million. The NeXT machines had received strong reviews, but had gained no market traction due to a lack of supporting applications. Amelio felt that the NeXT OS, a UNIX based operating system, could be adapted to run on the Mac. He also hired Steve Jobs as a consultant, but Jobs was rarely seen at Apple—he was too busy running Pixar, his computer animation company that was riding a wave of success after a huge hit with the animated movie, *Toy Story*.¹⁶

Amelio's moves did nothing to stop the slide in Apple's fortunes. By mid 1997, market share had slumped to 3%, from 9% when Amelio took the helm. The company booked a loss of \$742 million in 1996 and was on track to lose another \$400 million in 1997. It was too much for the board. In July 1997 he was fired. With market share falling, third party developers and distributors were rethinking their commitments to Apple. Without them, the company would be dead.

THE SECOND COMING OF STEVE JOBS

Following Amelio's departure, Steve Jobs was appointed interim CEO. In April 1998, he took the position on a permanent basis, while staying on at Pixar as CEO. Jobs moved quickly to fix the bleeding. His first act was to visit Bill Gates and strike a deal with Microsoft. Microsoft agreed to invest \$150 million in Apple and to continue producing Office for the Mac through until at least 2002. Then he ended the licensing deals with the clone

makers, spending over \$100 million to acquire the assets of the leading Mac clone maker, Power Computing, including its license. Jobs killed slow selling products, most notably the Apple Newton handheld computer, and reduced the number of product lines from 60 to just 4. He also pushed the company into online distribution, imitating Dell Computer's direct selling model. While these fixes brought the company time, and a favorable reaction from the stock market, they were not enough to generate growth.

New Computer Offerings

Almost immediately Jobs started to think about a new product that would embody the spirit of Apple. What emerged in May 1998 was the iMac. The differentiator for the iMac was not its software, or its power, or its monitor—it was the design of the machine itself. A self contained unit that combined the monitor and central processing unit in translucent teal and with curved lines, the iMac was a bold departure in a world dominated by putty colored PC boxes (see Exhibit 1).

To develop the iMac, Jobs elevated a team of designers headed by Jonathan Ive, giving them an unprecedented say in the development project. Ive's team worked closely with engineers, manufacturers, and marketers, and most importantly, with Jobs himself. To understand how to make a plastic shell look exciting rather than cheap, the designers visited a candy factory to study the finer points of making jellybeans. They spent months working with Asian partners designing sophisticated process capable of producing millions of iMacs a year. The designers also

pushed for the internal electronics to be redesigned, to make sure that they looked good through the thick shell. Apple may have spent as much as \$65 a machine on the casing, compared with perhaps \$20 for the average PC.¹⁷

Priced at \$1,299, iMac sales were strong with orders placed for 100,000 units even before the machine was available. Moreover, one-third of iMac purchases were by were first time buyers according to Apple's own research.¹⁸ The iMac line was continually updated, with faster processors, more memory, and bigger hard drives being added. The product was also soon available in many different colors. In 1999, Apple followed up the iMac with introduction of the iBook portable. Aimed at consumers and students, the iBook had the same design theme as the iMac and was priced aggressively at \$1,599.

Sales of the iMac and iBook helped push Apple back into profitability. In 1999, the company earned \$420 million on sales of \$6.1 billion. In 2000, it made \$611 million on sales of almost \$8 billion.

To keep sales growing, Apple continued to invest in development of a new operating system, based on the technology acquired from NeXT. After 3 years work by nearly 1,000 software engineers, and a cost of around \$1 billion, the first version of Apple's new operating systems was introduced in 2001. Known as OS X, it garnered rave reviews from analysts who saw the UNIX based program as offering superior stability and faster speed than the old Mac OS. OS X also had an enhanced ability to run multiple programs at once, to support multiple users, connected easily to other devices such as digital camcorders, and was easier for developers to write applications for. In typical Apple fashion, OS X

The iMac and iBook



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it also sported a well-designed and intuitively appealing interface. Since 2001, new versions of OS X have been introduced every 12 to 18 months. The most recent version, OS X Mountain Lion, was introduced in 2012 and sold for \$19.99.

To get the installed base of Mac users to upgrade to OS X, who at the time numbered 25 million, Apple had to offer applications. The deal with Microsoft ensured that its popular Office program would be available for the OS X. Steve Jobs had assumed that the vote of confidence by Microsoft would encourage other third part developers to write programs for OS X, but it didn't always happen. Most significantly, in 1998 Adobe refused to develop a Mac version of their consumer video-editing program, which was already available for Windows PCs.

Shocked, Jobs directed Apple to start working on its own applications. The first fruits of this effort were two video-editing programs, Final Cut Pro for professionals, and iMovie for consumers. Next was iLife, a bundle of multimedia programs now preinstalled on every Mac, which includes iMovie, iPhoto, Garage Band, and the

iTunes digital jukebox. Apple also developed its own web browser, Safari.

Meanwhile, Apple continued to update its computer lines with eye-catching offerings. In 2001 Apple introduced its Titanium PowerBook G4 notebooks. Cased in Titanium, these ultra-light and fast notebooks featured a clean postindustrial look that marked a distinct shift from the whimsical look of the iMac and iBook. As with the iMac, Jonathan Ive's design team took the lead in the products development. A core team of designers set up a design studio in a San Francisco warehouse far away from Apple's main campus. They worked for 6 weeks on the basic design then headed to Asia to negotiate for widescreen flat panel displays and to work with toolmakers.¹⁹

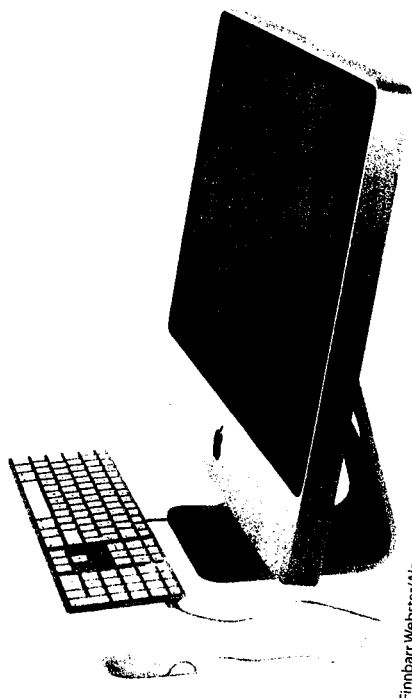
The Titanium notebooks were followed by a redesigned desktop line that appealed to the company's graphic design customers, including the offering of elegantly designed very wide screen cinema displays. In 2004, Ive's design team came out with yet another elegant offering, the iMac G5 computer which *PC Magazine* described as a "simple stunning all in one design (see Exhibit 2)."²⁰ This was followed in 2006 with the release of yet another strong design, the ultra-thin MacBook Air that weighed just 3 pounds and was only 0.76 of an inch thick at its widest point.

For all of Apple's undisputed design excellence, and the loyalty of its core user base, during the early 2000s Apple's global market share remained anemic, trailing far behind industry leaders Dell, Hewlett Packard, and IBM/Lenovo. Weak demand, combined with its low market share, translated into another loss for Apple in 2001, leading some to question the permanence of Steve Jobs' turnaround. However, while Apple's share in its core U.S. market fell to under 3% in 2004, it started to pick up again in 2005, rising to 8.5% by 2008. Driving growth during 2005–2008 was the surging popularity of Apple's iPod music player and in 2007, iPhone. These two products had raised Apple's profile among younger consumers and were having a spill over effect on Mac sales.²¹

Intel Inside, Windows on the Desktop

Since the company's inception, Apple had had not used Intel microprocessors, which had become the industry standard for microprocessors following the introduction of the IBM PC in 1981. In June 2005, Apple announced that it would start to do so. Driving the transition

iMac G5 Introduced in 2004



Finnbar Webster/Alamy

was growing frustration with the performance of the PowerPC chip line made by IBM that Apple had been using for over a decade. The PowerPC had failed to keep up with the Intel chips, which were both faster and had lower power consumption—something that was very important in the portable computer market, where Apple had a respectable market share.

The transition to an Intel architecture created significant risks for Apple. Old applications and OS X had to be rewritten to run on Intel processors. By the spring of 2006 Apple had produced Intel compatible versions of OS X and its own applications, but many other applications had not been rewritten for Intel chips. To make transition easier, Apple provided a free software program, known as Rosetta, which enabled users to run older applications on Intel based Macs. Moreover, Apple went a step further by issuing a utility program, known as Boot Camp, which enabled Mac owners to run Windows XP on their machines.

Reviews of Apple's Intel based machines were favorable, with many reviewers noting the speed improvement over the older PowerPC Macs.²² In late 2006 Apple reported that its transition to Intel based architecture was complete, some 6 months ahead of schedule. The move may have helped Apple to close the price differential that had long existed between Windows based PCs and Apple's offerings. According to one analysis, by September 2006 Apple's products were selling at a *discount* to comparable product offerings from Dell and Hewlett Packard.²³

Moving into Retail

In 2001 Apple made another important strategic shift—the company opened its first retail store. In an industry that had long relied upon third party retailers, or direct sales as in the case of Dell, this shift seemed risky. One concern was that Apple might encounter a backlash from Apple's long-standing retail partners. Another was that Apple would never be able to generate the sales volume required to justify expensive retail space; the product line seemed too thin. However, Apple clearly felt that it was hurt by a lack of retail presence. Many computer retailers didn't carry Apple machines, and some of those that did often buried Mac displays deep in the store.

From the start, Apple's stores exhibited the same stylish design that characterized its products with clean lines, attractive displays, and a postindustrial feel. Steve Jobs himself was intimately involved in the design

process. Indeed, he is one of the named inventors on a patent Apple secured for the design of the signature glass staircase found in many stores, and he was apparently personally involved in the design of a glass cube atop a store on New York's 5th Avenue that opened in 2006. In an interview, Jobs noted that "we spent a lot of time designing the store, and it deserves to be built perfectly."²⁴

Customers and analysts were immediately impressed by the product fluency that the employees in Apple stores exhibited. One hallmark of Apple stores seems to be the personal attention paid to customer by smiling sales staff, an approach that is remonstrant of upscale retailers like Nordstrom. They also liked the highlight of many stores, a "genius bar" where technical experts helped customers fix problems with their Apple products. The wide-open interior space, however, did nothing to allay the fears of critics that Apple's product portfolio was just too narrow to generate the traffic required to support premium space.

The critics couldn't have been more wrong. Spurred on by booming sales of the iPod, and then the iPhone and iPad Apple's stores have done exceptionally well. By late 2012 Apple had some 390 stores in upscale locations. Sales per square foot are extraordinary, averaging \$6,050 per U.S. store in 2012, making Apple the envy of other retailers.²⁵

iPod and iTunes

In the late 1990s and early 2000s the music industry was grappling with the implications of two new technologies. The first was the development of inexpensive portable MP3 players that could store and play digital music files such as Diamond Media's Rio, which was introduced in 1997 and could hold 2 hours of music. The second was the rise of peer-to-peer computer networks such as Napster, Kazaa, Grokster and Morpheus that enabled individuals to efficiently swap digital files over the Internet. By the early 2000s, millions of individuals were downloading music files over the Internet without the permission of the copyright holders, the music publishing companies. For the music industry, this development was devastating. After years of steady growth, global sales of music peaked in 1999 at \$38.5 billion, falling to \$32 billion in 2003. Despite the fall in sales, the International Federation of the Phonographic Industry (IFPI) claimed that demand for music was higher than ever, but that the decline in sales reflected the fact that "the commercial value of music is being widely devalued by mass copying and piracy."²⁶

The music industry had tried to counter piracy over the Internet by taking legal action to shut down the peer-to-peer networks, such as Napster, and filing law suits against individuals who made large numbers of music files available over the Internet. Its success had been limited, in part because peer-to-peer networks offered tremendous utility to consumers. They were fast, immediate, and enabled consumers to unbundled albums, downloading just the tracks they wanted while ignoring junk filler tracks. And of course, they were free. The music industry was desperate for a legal alternative to illegal downloading.

Then along came the iPod and iTunes. These products were born out of an oversight—in the late 1990s when consumers were staring to burn their favorite CDs, Macs did not have a CD burner, or software to manage their digital music collections. Realizing the mistake, CEO Steven Jobs ordered Apple's software developers to create the iTunes program to help Mac users manage their growing digital music collections. The first iTunes program led to the concept of the iPod. If people were going to maintain the bulk of their music collection on a computer, they needed a portable MP3 player to take music with them. While there were such devices on the market already, they could only hold a few dozen songs each.

To run the iPod Apple licensed software from PortalPlayer. Apple also learnt that Toshiba was building a tiny 1.8 inch hard drive that could hold over 1,000 songs. Apple quickly cut a deal with Toshiba, giving it exclusive rights to the drive for 18 months. Meanwhile, Apple's focused on designing the user interface, the exterior styling, and the synchronization software to make it work with the Mac. As with so many product offerings unveiled since Jobs returned to the helm, the design team led by Jonathan Ive played a pivotal role in giving birth to the iPod. Ive's team worked in secrecy in San Francisco. The members, all paid extremely well by industry standards, worked together in a large open studio with little personal space. The team was able to figure out how to put a layer of clear plastic over the white and black core of an iPod, giving it tremendous depth of texture. The finish was superior to other MP3 players, with no visible screws or obvious joins between parts. The serial number of the iPod was not on a sticker, as with most products, it was elegantly etched onto the back of the device. This attention to detail and design elegance, although not with cost implications, was to turn the iPod into a fashion accessory.²⁷

The iPod was unveiled in October 2001 to mixed reviews. The price of \$399 was significantly above that

of competing devices, and since the iPod only worked with Apple computers it seemed destined to be a niche product. However, initial sales were strong. It turned out that consumers were willing to pay a premium price for the iPod's huge storage capacity. Moreover, Jobs made the call to develop a version of the iPod that would be compatible with Windows. After it was introduced in mid 2002, sales took off.

By this time Jobs was dealing with a bigger strategic issue—how to persuade the music companies to make their music available for legal downloads. Jobs met with executives from the major labels. He persuaded them that it was in their best interest to support a legal music download business as an alternative to wide spread illegal downloading. People would pay to download music over the Internet, he argued. Although all of the labels were setting up their own online businesses, Jobs felt that since they were limited to selling music owned by the parent companies, demand would be limited too. What was needed was a reputable independent online music retailer, and Apple fit the bill. If it was going to work, however, all of the labels needed to get on board. Under Jobs scheme, iTunes files would be downloaded for \$0.99 each. The only portable digital player that the files could only be stored and played on was an iPod. Jobs's argument was that this closed world made it easier to protect copyrighted material from unauthorized distribution.

Jobs also met with 20 of the world's top recording artists, including U2's Bono, Sheryl Crow, and Mick Jagger. His pitch to them—digital distribution is going to happen, and the best way to protect your interests is to support a legal online music distribution business. Wooed by Jobs, these powerful stakeholders encouraged the music recording companies to take Apple's proposal seriously.²⁸

By early 2003 Jobs had all of the major labels on board. Apple launched the online iTunes store in April 2003. Within days it was clear that Apple had a major hit on its hands. A million songs were sold in the first week. By the end of 2004 customers were downloading over 4 million songs per week, which represented a run rate of more than 200 million a year. The reach of iTunes had expanded enormously since then. By the end of 2012 the iTunes store had a song catalog of 20 million, and Apple was seeing 15,000 downloads a minute. In February 2013 Apple announced that 25 billion songs had been downloaded from iTunes.²⁹ Early on Steve Jobs stated that Apple was not making much money from iTunes downloads, probably only \$0.10 a song, but it was making

good margins of sales of the iPod—and sales of the iPod ballooned after the launch of the iTunes online store.

Success such as this attracts competitors. RealNetworks, Wal*Mart, Yahoo, Napster, Microsoft, Google and Amazon all set up legal downloading services to compete with iTunes. However, iTunes has continued to outsell its rivals by a wide margin. In mid 2012, downloads from iTunes accounted for 64% of the entire U.S. digital music market and 29% of all music sold in the U.S. (including both digital and physical formats).³⁰ Coming in a distant second was Amazon MP3, which had a 16% share of the digital market. Microsoft's Zune Music Pass and Google's Google Play each had less than a 5% share of the market. Helping Apple to maintain share is the fact that iTunes comes preinstalled on all Apple devices, and through iCloud, a subscriber's iTunes music library is synchronized across all devices that run iTunes, including Windows devices.

The iPhone and App Store

In June 2007 Apple introduced the iPhone. The iPhone was a smart phone that was also able to browse the web, take pictures and function as an iPod digital music player. Designed by the team led by Jonny Ive, the iPhone was differentiated from established smart phone offerings by revolutionary touch screen that replaced the traditional mechanical keypad and allowed users to quickly and easily switch between functions. As was typical for Apple products, it was elegantly designed and made extensive use of expensive materials including a body of brushed aluminum and a screen made of tough "gorilla glass" from Corning. Up to this point, most phones had used plastic bodies and all had plastic screens. Steve Jobs reportedly hated the ascetic of plastic, and complained that plastic screens were too easily scratched. He insisted on a glass screen, which had previously been rejected because it broke or cracked too easily. Designers at Apple had heard about a very strong form of glass Corning had developed, but which was not in manufacture. Jobs reportedly flew out to Corning, visited with the CEO, and personally persuaded him to put the material into mass production.³¹

The iPhone used a version of Apple's OS X operating system and the company's Safari web browser. Apple struck a deal with AT&T, under which it was to be the exclusive provider of wireless service for the iPhone. Under the deal, AT&T would share a percentage of its service fees from iPhone users with Apple (the percentage was rumored to be 30%, but neither company would confirm this).

Priced between \$599 and \$499 depending on the model, the iPhone was positioned at the high end of the smart phone market. Some were skeptical that the device would be able to gain share from established smart phones such as Research in Motion with its BlackBerry, and offerings from Palm, Motorola and Nokia, all of which had gained a following among business users.

Steve Jobs announced that the goal was to try and grab 1% of the total global market for wireless phones in the first full year that the iPhone was on the market. With a total market in excess of 1 billion units, most of which were not smart phones, this suggested a goal of selling 10 million iPhones in fiscal 2008 (which ended September 2008).

There was some disappointment that the iPhone would use AT&T's slower data network, rather than the faster 3G network that was more suited to web browsing. There was also disappointment that the iPhone did not contain a GPS location finding function.

Despite the high price and perceived limitations, early demand for the iPhone was strong with long lines forming outside Apple stores on the day the device was released. Although some consumers experienced activation problems, most were happy with their purchase. The device got rave reviews for its design elegance, ease of use, and compelling touch screen interface. Apple sold over 250,000 iPhones in the first 2 days the device was on the market and it soon became clear that the company had another hit on its hands.

In June 2008, Apple introduced a second version of its iPhone, the iPhone 3G. Designed to run on a faster 3G networks, the new phone also incorporated GPS functionality. AT&T was again the exclusive service provider in the United States. However, Apple shifted the business model. Instead of giving a share of service fees to Apple, AT&T agreed to pay a subsidy to Apple for each iPhone sold. The subsidy allowed Apple to drop the price for the iPhone to as low as \$199 for an entry level model. Yet again long lines formed outside Apple stores and in the first 3 days the iPhone 3G was on the market over 1 million units were sold. By the end of fiscal 2008, Apple had sold 11.63 million iPhones (see Exhibit 3).

One feature of the iPhone 3G that started to garner a lot of attention was the rapid growth in third party applications. In July 2008 Apple opened an online store for applications that were written to run on the iPhone. Known as the App Store, consumers could download applications through their iTunes account. Some of these apps are free, while others are sold, typically for a few dollars. In the first month the phone was on the market, more than 60 million applications were downloaded.

Apple keeps 30% of the proceeds from application sales, letting program creators retain the other 70%. Among the top sellers were game applications.³²

By the end of 2012, Apple had over 700,00 applications available for download on the App Store. Apple generated \$4.9 billion in revenue from App Store downloads in 2012 and in total some 40 billion applications had been downloaded by early 2013. According to Apple, this has resulted in net payments of around \$7 billion to third party developers since the App Store went live in 2008. Of the ten top paid apps of all time, eight were games. The top ten free apps include Facebook, Pandora Radio, Skype, and Google Search.³³

The iPhone 3G was followed by the iPhone 4 and iPhone 5, each of which included more powerful features and functionality. In 2011 Apple ended its exclusive relationship with AT&T when Verizon, the largest U.S. wireless service provider, started to offer the iPhone.

Expanded service coverage in the United States, plus surging overseas sales, helped propel sales of the iPhone, which reached 125.04 million units in 2012. Apple made \$80.5 billion in revenues from iPhone sales in 2012, making it by far the biggest revenue generator in Apple's portfolio of products. By comparison, the venerable line of Mac computers generated revenues of \$23.2 billion in 2012.

Competition in the Smart Phone Market

When the iPhone was introduced in 2007, it redefined what a smart phone had to look like and do. Before

the iPhone, smart phones had physical keyboards and relatively small screens. Moreover, the dominant smart phones players, such as Blackberry, sold their phones to business users. From the outset, Apple focused on the consumer and gave them a device that was a phone, computing tool, and fashion accessory rolled into one.

In 2007, 122 million smartphones were sold worldwide. The largest vendor at the time was Nokia with 63.5% of the market. The Nokia phones used the Symbian operating system. While Symbian had many of the features also found on the iPhone, including web browsing, a music player, and a camera, it lacked the design elegance of the iPhone, the connection with iTunes, and a rapidly expanding network of 3rd party application developers. The other major players in 2007 were Blackberry (with 9.6% of the market), and Microsoft Windows Mobile (which was used on phones from various manufactures, and had 12% of the market).

By late 2008 phones powered by Google's Android operating systems started to reach the market. Like Apple's iOS smart phone operating system, Android was designed for touchscreen mobile devices. However, whereas Apple designed and sold a physical phone that ran on iOS, Google adopted a very different approach—it licensed Android for free to smart phone manufacturers. Android is an *open source* operating system, which allows the code to be freely modified and distributed by device manufacturers and wireless carriers. This led to rapid adoption of Android by handset manufacturers who were caught flat-footed by the sudden success of the iPhone and needed a competitive offering of their own.

Exhibit 3

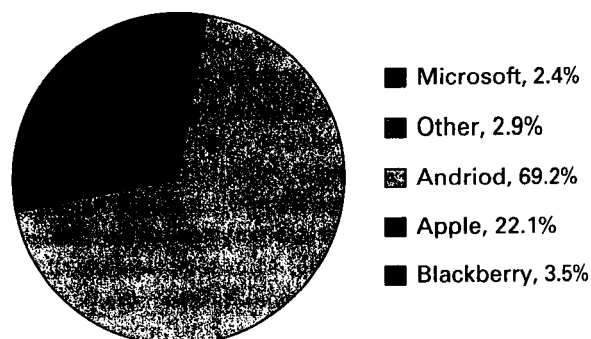
World Wide iPhone Unit Sales

Year	World Wide iPhone Unit Sales (millions)
2007	1.46
2008	11.63
2009	20.73
2010	39.93
2011	72.3
2012	125.04

Source: Apple annual 10K Reports

Exhibit 4

Global Smart Phone Market Share (%), Q4 2012



Source: Canalysis.com

To further drive adoption of Android, Google established its own applications store in 2008. Known as Google Play, by late 2012 the store had some 700,000 apps available for download to Android devices, about the same number as at the Apple app store. However, reports suggest that Google earned only about one-quarter of Apple's revenues from app downloads in 2012, or some \$1.25 billion. This suggests that Apple's customers are more valuable to third party application developers.

The Android operating system started to diffuse very rapidly. By 2010 Android overtook Apple iOS to become the most widely used smartphone platform in the world. In the fourth quarter of 2012, 69.2% of the 216 million smart phones sold worldwide ran on Android. Apple had a 22.1% share, followed by Blackberry with 3.5% and Microsoft with 2.4% (see Exhibit 4). However, Apple continued to capture the bulk of the profits in the industry. In the last quarter of 2012 Apple earned 72% of all profits from smart phone sales worldwide. Samsung, which used Android on its phones, picked up the rest of the profits. No other device manufacturer made money on handset sales.³⁴

Driven by the widespread appeal of Android and the iPhone, smartphone sales grew rapidly from 122 million in 2007 to 712 million in 2012. In total, 1.7 billion mobile phones were sold worldwide in 2012, with smart phone sales account for around 42% of the global total.³⁵ Smart phone sales are forecasted to continue expanding, and are expected to hit 1 billion in 2013 out of total mobile phone sales of 1.9 billion according to estimates from Gartner.³⁶

Faced with devastating market share losses, in 2011 Nokia decided to drop the Symbian operating system in favor of a new smart phone operating system from Microsoft. For its part, Microsoft redesigned its smart phone operating system from the ground up. In 2012 it introduced its Windows 8 operating system. Sporting a radically designed interface based on "tiles," Windows 8 utilizes a touchscreen capability and can be used on any digital device from smart phone to tablet and personal computer. Microsoft has also established an App Store. By late 2012, Microsoft had 125,000 apps available at its store, less than 20% of those available from Apple and Google's app stores.

Microsoft Windows 8 phones began appearing at the end of 2012. So far market share gains have been slow, despite positive reviews. Some research analysts, however, expect Microsoft to gain traction. They point out that over 90% of the world's PCs still use Windows, and that having the same operating system on your phone and your computer is a major advantage. Microsoft can

also leverage a wide array of other assets to gain share, including its SkyDrive cloud computing service, Xbox live, and well-known applications such as Office. As a result, the research group Gartner estimates that Microsoft's OS will be found on around one-quarter of all smart phones shipped in 2016.³⁷ Gartner sees Android losing share, while Apple holds onto its share.

The iPad

In 2010 Apple introduced its iPad, a revolutionary tablet computer with a touch screen keyboard, and WiFi and 3G wireless service support. Named after a device used in the Star Trek TV series, the iPad was powered by the same iOS operating system found on the iPhone, had similar functionality, and could run the same applications. The iPad had the design elegance that was now the hallmark of all Apple's products and utilized the same expensive materials as the iPhone, including an aluminum case and Gorilla glass. The iPad was powerful enough to download and watch full-length movies on at high resolution, and light enough to slip into a bag.

In many ways, the iPad finally fulfilled Steve Jobs's vision for what a computer should be. According to a speech given by Apple cofounder Steve Wozniak in 2011, the iPad was in Jobs's mind from the beginning. Back in 1983, Jobs's had stated that. . . .

*What we want to do is have an incredibly great computer in a book that you can carry around with you and learn how to use in 20 minutes. . . . we really want to do it with a radio link in it so you don't have to hook up to anything and you're in communication with all of these larger databases and other computers.*³⁸

In 1983, this was not technically possible, but by the 2000s technology had advanced to the point where it was feasible. Some early table computers, including an offering from Microsoft in 2002, used a stylus as an input device. But Jobs's dismissed any tablet that used a stylus as "a failure." From the start, he wanted a tablet to be created from scratch using a glass touch screen. Work on that idea reportedly happened before the idea of an Apple smartphone. In his words:

I had this idea about having a glass display, a multitouch display you could type on with your fingers. I asked our people about it. And six months later, they came back with this amazing display. And I gave it to one of our really brilliant UI guys. He got scrolling working and

some other things, and I thought, 'my God, we can build a phone with this!' So we put the tablet aside, and we went to work on the iPhone.³⁹

Introduced in April 2010, the iPad was an immediate success. 300,000 iPads were sold on the first day of availability. Sales passed a million units in less than a month. Between April 2010 and December 2012 Apple sold a total of 98 million iPads. By early 2013, Apple was selling a 4th generation iPad that included a high-resolution retina display.

As with the iPhone, Apple's success led to rapid imitation. Most rivals introduced tablets using Google's Android operating system. The most successful of these was the Galaxy tablet introduced by Samsung 5 months after the launch of the iPad. In the fourth quarter of 2012, Samsung captured 15% of the global market, while Apple's share dropped to 44%, down from 52% a year earlier. Other notable competitors included Amazon.com, which captured 12% of shipments with its Kindle Fire tablet. Microsoft too, entered the fray in late 2012 with its Surface tablet that utilized the Windows 8 operating system. The Surface represented a distinct break for Microsoft, since it manufactured the product itself. While early sales of the Surface were disappointing, a more powerful version introduced in February 2013 was starting to garner considerable interest.⁴⁰

iCloud

In October 2011 Apple launched its iCloud cloud storage, computing, and synchronization service. The service allows customers to store data such as music, movies, books, documents and applications on remote servers. iCloud automatically synchronizes such data across all of a subscriber's Apple devices. While iCloud is not a totally new offering (Apple has had some form of cloud based service since 2000) it is the most comprehensive offering yet. iCloud had more than 20 million users within one week of launch. By the end of 2012, there were 250 million subscribers on the service. Although basic iCloud services are free, Apple is charging a small annual subscription for music storage and synchronization services.

STRATEGIC ISSUES

In early 2013 Apple found itself in an interesting position. In many ways the company was at the top of its game (see Exhibit 5). For over a decade it had set the agenda in the computer industry with a stream of market changing innovations including the iPod, iPhone, and iPad. It had established a thriving ecosystem that encapsulated all of its devices, cloud services, iTunes, and the growing number of applications available through the App Store. After a decade of spectacular revenue and earnings growth, Apple was the most valuable company in the world measured by market capitalization.

On the other hand, the company had lost its visionary, its driving force, and one of the world's great entrepreneurial geniuses. Dead at 56, Steve Jobs had left a creative vacuum that would be hard to fill. Could the company continue to innovate in the post Jobs world? The new CEO, Tim Cook, had been COO under Jobs and was widely admired as a brilliant operations manager, but could he keep Apple's creative juices flowing? Johnny Ive still ran Apple's design operation, and his group still took the lead on product development efforts, but without Job to inspire and push them, and to give them a vision, could Ive's team continue to maintain their high standards?

Moreover, rivals were not sitting back. Google had established an ecosystem similar to Apple's. Its Android operating system was found on many of the world's most successful smart phones and tablets. Its Google Drive cloud service did all that iCloud did, and arguably more. Google's own app store offered just as many applications as Apple's. And with the advent of the Chrome book in 2012, a cheap laptop running on Google's Chrome operating system, Google was pushing into the desktop and laptop business as well.

Microsoft too, was finally putting together a coherent strategy after disappointing for years. The combination of Windows 8 on phones, tablets, lap tops, and the desktop, together with its SkyDrive cloud service and Windows app store, held out the promise of a third ecosystem to rival those of Apple and Google. Microsoft's presence in the smart phone and tablet space was still tiny, but with Windows sitting on 90% of the world's

1.5 billion PCs, it would be foolish to write the company off.

For his part, Tim Cook had to figure out how to keep these rivals at bay? Moreover, he had to match investors'

expectations for continued growth at Apple—not an easy thing when you are already the world's largest computer company.

EXHIBIT

Net Sales by Operating Segment and Net Sales and Unit Sales by Product, 2012 (Dollars in Millions and Units in Thousands).

	2012	Change over 2011
Net Sales by Operating Segment:		
Americas net sales	\$57,512	50%
Europe net sales	\$36,323	31%
Japan net sales	\$10,571	94%
Asia-Pacific net sales	\$33,274	47%
Retail net sales	\$18,828	33%
Total net sales	\$156,508	45%
Net Sales by Product:		
Desktops	\$6,040	–6%
Portables	\$17,181	12%
Total Mac net sales	\$23,221	7%
ipod	\$5,615	–25%
Other music related products and services	\$8,534	35%
iPhone and related products and services	\$80,477	71%
iPad and related products and services	\$32,424	59%
Peripherals and other hardware	\$2,778	19%
Software, service and other sales (h)	\$3,459	17%
Total net sales	\$156,508	45%
Unit Sales by Product:		
Desktops (a)	4,656	0%
Portables (b)	13,502	12%
Total Mac unit sales	18,158	9%
iPod unit sales	35,165	–17%
iPhone units sold	125,046	73%
iPad units sold	58,310	80%

Source: Apple 2012 10K Form

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