HARVARD | BUSINESS | SCHOOL

9-715-456
REV: OCTOBER 28, 2015

DAVID B. YOFFIE
ERIC BALDWIN

Apple Inc. in 2015

On March 9, 2015, Apple's CEO, Tim Cook, announced the Apple Watch, his first major strategic initiative following the tragic death of Steve Jobs, his mentor and predecessor. Jobs, of course was a legend: he had changed Apple from a company on the verge of bankruptcy to one of the largest and most profitable companies in the world. Four years later, Cook was trying to demonstrate that he could not only sustain Apple's achievements in computers, MP3 players, phones, and tablets, but he could also take Apple to the next level.

By almost any measure, Apple's performance in the prior decade had been stellar. As 2015 opened, Cook had reason to celebrate his own accomplishments. In the final quarter of 2014, Apple posted record profits of $18 billion, the largest quarterly profits in corporate history (see **Exhibit 1**). Spurred by the release of the iPhone 6, the iPhone shattered sales records, selling 74.5 million units in the 2014 holiday quarter. Sales were particularly robust in China, the world's largest smartphone market.

The company's momentum and stock performance was undeniable (see **Exhibit 2**). But there were also challenges in 2015. Smartphone competition was intense, especially in China, where new low-cost competitors such as Xiaomi were taking the market by storm. iPod sales had been falling for seven straight years. Even though Macintosh sales had grown faster than the industry in recent years, Apple's share of worldwide PCs remained in single digits. Worse, the iPad had suffered a significant decline in sales, down 22% from Q4 in 2013. With sales of the iPod and iPad slipping, and those of the Mac remaining relatively small, Apple was increasingly dependent on the iPhone, which accounted for 69% of its revenue.[1]

The announcement of the Apple Watch led many to ponder whether Cook would successfully transition Apple to "his" company, or whether Apple would still live off of Steve Jobs's legacy? Would the Apple Watch be another home run, similar to the iPhone, or would it become another niche product, like Apple TV? Cook had big shoes to fill, and he had to wonder: Had he made the right strategic moves to deliver on Apple's daunting ambitions?

Professor David B. Yoffie and Research Associate Eric Baldwin prepared this case. This case derives from earlier cases, including: "Apple Inc., 2008," HBS No. 708-480, by Professor David B. Yoffie and Research Associate Michael Slind, "Apple Computer, 2006," HBS No. 706-496 by Professor David B. Yoffie and Research Associate Michael Slind, "Apple Inc. in 2010," HBS No. 710-467 by Professor David B. Yoffie and Research Associate Renee Kim, and "Apple Inc. in 2012," HBS No. 712-490, by Professor David B. Yoffie and Research Associate Penelope Rossano. This case was developed from published sources. Funding for the development of this case was provided by Harvard Business School and not by the company. Professor Yoffie serves as a director of HTC and Intel. HBS cases are developed solely as the basis for class discussion. Cases are not intended to serve as endorsements, sources of primary data, or illustrations of effective or ineffective management.

Apple's History

Steve Jobs and Steve Wozniak, a pair of 20-something college dropouts, founded Apple Computer on April Fool's Day, 1976.[2] Working out of the Jobs family garage in Los Altos, California, they built a computer circuit board that they named the Apple I. Within several months, they had made 200 units and had taken on a new partner—A.C. "Mike" Markkula Jr., who was instrumental in attracting venture capital as the experienced businessman on the team. Jobs's mission was to bring an easy-to-use computer to market, which led to the release of the Apple II in April 1978. It sparked a computing revolution that drove the PC industry to $1 billion in annual sales in less than three years.[3] Apple quickly became the industry leader, selling more than 100,000 Apple IIs by the end of 1980. In December 1980, Apple launched a successful IPO.

Apple's competitive position changed fundamentally in 1981 when IBM entered the PC market. The IBM PC, which used Microsoft's DOS operating system (OS) and a microprocessor (also called a CPU) from Intel, was a relatively "open" system that other producers could clone. Apple, on the other hand, practiced horizontal and vertical integration. It relied on its own proprietary designs and refused to license its software to third parties. IBM PCs not only gained more market share, but also emerged as the new standard for the industry. Apple responded by introducing the Macintosh in 1984. The Mac marked a breakthrough in ease of use, industrial design, and technical elegance. However, the Mac's slow processor speed and lack of compatible software limited sales. Apple's net income fell 62% between 1981 and 1984, sending the company into a crisis. Jobs, who was often referred to as the "soul" of the company, was forced out in 1985.[4] The boardroom coup left John Sculley, the executive whom Jobs had recruited from Pepsi-Cola, alone at the helm.

The Sculley Years, 1985–1993

Sculley pushed the Mac into new markets, most notably in desktop publishing and education. Apple's desktop market was driven by its superior software, such as Aldus (later Adobe) PageMaker, and peripherals, such as laser printers. In education, Apple grabbed more than half the market. Apple's worldwide market share recovered and stabilized at around 8% (see **Exhibit 3**). By 1990, Apple had $1 billion in cash and was the most profitable PC company in the world.

Apple offered its customers a complete desktop solution, including hardware, software, and peripherals that allowed them to simply "plug-and-play." Apple also stood out for typically designing its products from scratch, using unique chips, disk drives, and monitors. IBM compatibles narrowed the gap in ease of use in 1990 when Microsoft released Windows 3.0. Still, as one analyst noted, "[T]he majority of IBM and compatible users 'put up' with their machines, but Apple's customers 'love' their Macs."[5]

Macintosh's loyal customers allowed Apple to sell its products at a premium price. Top-of-the-line Macs went for as much as $10,000, and gross profit hovered around an enviable 50%. However, as IBM-compatible prices dropped, Macs appeared overpriced by comparison. As the volume leader, IBM compatibles were also attracting the vast majority of new applications. Moreover, Apple's cost structure was high: Apple devoted 9% of sales to research and development (R&D), compared with 5% at Compaq, and only 1% at many other IBM-clone manufacturers. After taking on the chief technology officer title in 1990, Sculley tried to move Apple into the mainstream by becoming a low-cost producer of computers with mass-market appeal. For instance, the Mac Classic, a $999 computer, was designed to compete head-to-head with low-priced IBM clones.

Sculley also chose to forge an alliance with Apple's foremost rival, IBM. They worked on two joint ventures, one to create a new PC OS and one aimed at multimedia applications. Apple undertook

another cooperative project involving Novell and Intel to rework the Mac OS to run on Intel chips that boasted faster processing speed. These projects, coupled with an ambition to bring out new "hit" products every 6 to 12 months, led to a full-scale assault on the PC industry. Yet Apple's gross margin dropped to 34%, 14 points below the company's 10-year average. In June 1993, Sculley was replaced by Michael Spindler, the company's president.

The Spindler and Amelio Years, 1993–1997

Spindler killed the plan to put the Mac OS on Intel chips and announced that Apple would license a handful of companies to make Mac clones. He tried to slash costs, which included cutting 16% of Apple's workforce, and pushed for international growth. Despite these efforts, Apple lost momentum: a 1995 *Computerworld* survey found that none of the Windows users would consider buying a Mac, while more than half the Apple users expected to buy an Intel-based PC[6] (see **Exhibit 4** for shipments of PC microprocessors). Spindler, like his predecessor, had high hopes for a revolutionary OS that would turn around the company's fate. But at the end of 1995, Apple and IBM parted ways on their joint ventures. After spending more than $500 million, neither side wanted to switch to a new technology.[7] Following a $69 million loss in Apple's first fiscal quarter of 1996, the company appointed another new CEO, Gilbert Amelio, an Apple board member.[8] Amelio proclaimed that Apple would return to its premium-price differentiation strategy, but Macintosh sales continued to fall. In December 1996, Amelio announced the acquisition of NeXT Software (founded by Jobs after he left Apple) and plans to develop a new OS based on NeXT. Jobs also returned to Apple as a part-time adviser. Despite more restructuring efforts, Apple lost $1.6 billion under Amelio (see **Exhibit 3**). At one point, insiders believed that Apple was within 90 days of bankruptcy. To save the company, Jobs became the company's interim CEO in September 1997.

Steve Jobs and the Apple Turnaround

Jobs moved quickly to reshape Apple. In August 1997, Apple announced that Microsoft would invest $150 million in Apple and make a five-year commitment to develop core products, such as Microsoft Office, for the Mac. Jobs abruptly halted the Macintosh licensing program. Almost 99% of customers who had bought clones were existing Mac users, cannibalizing Apple's profits.[9] Apple's 15 product lines were slashed to just four categories—desktop and portable Macintoshes, for consumers and professionals. Tim Cook, hired by Jobs in 1998 after a career in operations at Compaq and IBM, was credited with streamlining Apple's supply chain. In addition, Apple launched a website to set up direct sales for the first time. Internally, Jobs focused on reinvigorating innovation. Apple pared down its inventory significantly and increased its spending on R&D (see **Exhibit 5** for PC manufacturers' key operating measures).

Jobs sought to bring a new culture to Apple. While previous CEOs sought to broaden Apple's products, Jobs believed deeply in focus. Apple had one of the narrowest product lines of any company of comparable size. Jobs also believed in extreme practices of secrecy, including a "closed door policy" in which key cards accessed only certain areas, and dummy positions for new hires until they could be trusted. Everyone knew that violation of Apple's culture of confidentiality was grounds for termination.[10] Employees reported that working with Jobs was rewarding, but often difficult. Jobs noted that "I don't think I run roughshod over people, but if something sucks, I tell people to their face."[11] Jobs was especially fanatic about industrial design, simplicity, and product elegance.

This approach led to Jobs's first real coup—the iMac—introduced in August 1998. The $1,299 all-in-one computer featured colorful translucent cases with a distinctive eggshell design. The iMac also supported "plug-and-play" peripherals, such as printers, that were designed for Windows-based

machines for the first time. Thanks to the iMac, Apple's sales outpaced the industry's average for the first time in years. Following Jobs's return, Apple posted a $309 million profit in its 1998 fiscal year, reversing the previous year's $1 billion loss.

Another priority for Jobs was to break away from Apple's tired, tarnished image. Jobs wanted Apple to be a cultural force. Not coincidentally, perhaps, Jobs retained his position as CEO of Pixar, an animation studio that he had bought in 1986. (Jobs sold Pixar to Walt Disney for $7.4 billion in 2006.) Through multimillion-dollar marketing campaigns such as the successful "Think Different" ads and catchy slogans ("The ultimate all-in-one design," "It just works"), Apple promoted itself as a hip alternative to other computer brands. Later on, Apple highlighted its computers as the world's "greenest lineup of notebooks" that were energy efficient and used recyclable materials.[12] The goal was to differentiate the Macintosh amid intense competition in the PC industry.

The Personal Computer Industry

While Apple pioneered the first usable "personal" computing devices, it was IBM that brought PCs into the mainstream in the 1980s. But by the early 1990s, a new standard known as "Wintel" (the Windows OS combined with an Intel processor) dominated the industry. Thousands of manufacturers—ranging from Dell Computer to no-name clone makers—built PCs around standard building blocks from Microsoft and Intel. Growth was driven by lower prices and expanding capabilities. The overall industry continued to boom through the early 2000s, propelled by Internet demand and emerging markets such as China. By 2013, emerging markets accounted for nearly 58% of PC shipments.[13] Growth in PC shipments started to slow after 2005 and tipped over into a 4% decline in 2012, followed by a drop of 10% in 2013, and 2.1% in 2014. Total PC shipments slipped to 308.7 million in 2014.[14]

Slowing revenue growth followed the slowdown in volume. Despite PCs that were faster, with more memory and storage, average selling prices (ASPs) declined by a compound annual rate of 8%–10% per year from the early 1990s through 2005.[15] The rate of decline in ASPs lessened between 2006 and 2014 to a compound annual rate of 2%.[16] By 2014, the average profit margin for the major PC manufacturers was under 3%.[17] The standardization of components led PC makers to cut spending on R&D to between 1% and 3% of revenue (see **Exhibit 5**).[18] As contract manufacturing in Taiwan and China became popular, Asian firms took over responsibility for more innovations, such as industrial designs. The largest segment of the PC industry was laptop computers, which represented 56% of shipments in 2014.[19] The growth in demand for laptops was linked to lower prices: the ASP for a portable PC had fallen to roughly $700.[20]

Buyers and Distribution

PC buyers fell into five categories: home, small and medium-sized business (SMB), corporate, education, and government. Home consumers represented the biggest segment, accounting for nearly half of worldwide PC shipments.[21] While all buyers cared deeply about price, home consumers also valued design, mobility, and wireless connectivity; business consumers balanced price with service and support; and education buyers depended on software availability. In distribution, a significant shift occurred in the early 1990s when more knowledgeable PC customers moved away from full-service dealers that primarily sold established brands to business managers. Instead, larger enterprises bought directly from the manufacturer, while home and SMB customers started to buy PCs through superstores (Walmart, Costco), electronics retailers (Best Buy), and web-based retailers. At the same time, the so-called "white-box" channel—which featured generic machines assembled by local

entrepreneurs—represented a large channel for PC sales, especially in emerging markets. White-box PCs reportedly represented about 30% of the overall market in 2009, and by 2012, white-box PCs accounted for half of all desktop PCs sold in China.[22]

PC Manufacturers

The three top PC vendors—Lenovo, Hewlett-Packard, and Dell, accounted for 51.1% of worldwide shipments in 2014 (see **Exhibit 3** for PC manufacturers' market shares). Industry leadership had shifted numerous times in the prior three decades, with Lenovo supplanting Hewlett-Packard (HP) as the market leader in early 2014. China-based Lenovo vaulted into the front ranks of PC vendors in 2005 when it acquired IBM's money-losing PC business for $1.75 billion. The upward trend continued through 2014 when Lenovo's worldwide share grew to 19.2%.[23] Lenovo's greatest strength was its dominant position in China, the fastest-growing PC market in the world, where it commanded a 35% share.[24] Following a rough period after the acquisition of Compaq Computer in 2002, HP outsourced most of its production to Asia and dramatically lowered its costs. But HP's attempt to maintain PC leadership came at a high price: after 2005, HP market share eroded, margins declined, and the board fired three CEOs.[25] HP proposed spinning off PCs in 2011, recanted, then decided again to break up the company. HP held the number-two position in worldwide shipment market share at 17.1%.[26]

Dell held the third-largest market share, with 13.5% of worldwide PC shipments for 2014.[27] Its distinct combination of direct sales and build-to-order manufacturing was popular in the corporate market for a decade. Yet when a boom in retail consumer PCs outpaced corporate sales, Dell was late to catch on. Founder Michael Dell returned as CEO in January 2007 and emphasized consumer-friendly products, reentered retail distribution, and pushed for international expansion. Still, Dell struggled with cost controls and poor margins. Faced with a declining share price and investor discontent, Michael Dell took the company private in a $25 billion deal completed in late 2013.[28]

Suppliers, Complements, and Substitutes

Suppliers to the PC industry fell into two categories: those that made products (such as memory chips, disk drives, and keyboards) with many sources; and those that made products—notably microprocessors and operating systems—that had just a few sources. Products in the first category were widely available at highly competitive prices. Products in the second category were supplied chiefly by two firms: Intel and Microsoft (see **Exhibit 6** for selected financial information).

Microprocessors Microprocessors, or CPUs, were the hardware "brains" of a PC. Intel had held the majority of the PC CPU market since the 1980s. Despite competition from companies like Advanced Micro Devices (11.5% market share in Q4 2014), Intel remained the market leader with leading-edge technology, manufacturing scale, and a powerful brand, commanding over 88% of the market at the end of 2014.[29] Performance of CPUs continued to double roughly every 18 to 24 months, but prices had dropped (adjusted for changes in computing power) by an average of 30% per year between 1970 and 2007. However, CPU prices had stabilized in recent years.[30] In 2015, a few manufacturers were shipping PCs with ARM, a low-power, lower-performance, and lower-priced CPU that was used in smartphones and tablets, but ARM's market share in PCs remained tiny.

Operating system An OS was *the* software that managed a PC's resources and supported its applications. Microsoft had dominated this market since the IBM PC in the 1980s. Nearly 90% of all PCs in the world ran on some version of Microsoft's Windows operating system at the end of 2014.[31] Microsoft's big hit in the new millennium was Windows XP. Introduced in October 2001, 17 million copies of XP were sold in its first eight weeks of sales. Developed at a cost of $1 billion, XP initially

garnered for Microsoft between $45 and $60 in revenue per copy.[32] However, the next three generations, Vista (2007), Windows 7 (2009), and Windows 8 (2012), met with mixed reviews, and each new generation of OS faced higher development, marketing, and support costs. In mid-2015, Microsoft planned to ship its latest update, Windows 10.

Application software, content, and complementary products The value of a computer corresponded directly to the complementary software, content, and hardware that were available on that platform. Key application software included word processing, presentation graphics, desktop publishing, and Internet browsing. After the early 1990s, the number of applications available on PCs exploded, while ASPs for PC software collapsed. Microsoft was the largest vendor of software for Wintel PCs and, aside from Apple itself, for Macs as well.[33] Firms such as Google even offered productivity software (Google Apps) for free. PCs also benefited from a wide selection of content and a vast array of complementary hardware, ranging from printers to multimedia devices. The number of new, exciting PC applications had slowed considerably in recent years, as software developers increasingly focused on new devices, such as phones and tablets.

Alternative technologies Since the early 2000s, consumer electronics (CE) products, ranging from cell phones to TV set-top boxes to game consoles, started to encroach on functionality that was once the sole purview of the PC. For example, advanced game devices like Sony PlayStation 3 allowed consumers to watch DVDs, surf the web, and play games directly online, in addition to playing traditional video games. Another alternative to Windows and Mac PCs emerged with the introduction of Chromebooks by Google in 2011. Chromebooks were ultraportable laptops designed for web-browsing, e-mail, and other online or cloud-based activities. In essence, a Chromebook was a low-cost laptop with limited internal storage and a stripped-down operating system from Google, called ChromeOS. All applications ran inside the Chrome web browser. Over the next few years, Samsung, Dell, HP, Lenovo, and Acer introduced Chromebooks, which retailed for $199 to $349. Some analysts predicted Chromebook sales would surpass 9 million units in 2015.[34]

Of course, the most widely used alternatives were smartphones and tablets. With 1.3 billion smartphones and 230 million tablets sold in 2014, PC sales were suffering. While several industry insiders worried about the impact of digital devices on the PC industry, Jobs viewed all of these devices as part of an integrated strategy to deliver breakthrough user experiences.

The Macintosh and Apple's "Digital Hub" Strategy

In 2001, marking Apple's 25th anniversary, Jobs presented his vision for the Macintosh in what he called the "digital hub." He believed that the Macintosh had a real advantage for consumers who were becoming entrenched in a digital lifestyle, using digital cameras, portable music players, and digital camcorders, not to mention mobile phones. The Mac could be the preferred "hub" to control, integrate, and add value to these devices. Jobs viewed Apple's control of both hardware and software, one of the few remaining in the PC industry, as a unique strength.

Apple subsequently revamped its product line to offer machines that could deliver a cutting-edge, tightly integrated user experience. Thanks to creative marketing and several innovative computer products, such as the ultra-thin Mac Air, Apple became the third-largest PC vendor in the U.S., with a 13% unit share in Q4 2014.[35] The company's greatest strength lay in the premium-priced PC category; 91% of PCs priced above $1,000 in the U.S. market were sold by Apple.[36] Globally, Apple's market share had risen steadily since 2004, reaching 6.4% at the end of 2014, placing it fifth among global PC manufacturers.[37]

Changing the Macintosh To accomplish his vision, Jobs made four important changes in the Macintosh. First, and perhaps most important, Apple introduced a new OS in 2001, the first fully overhauled platform released since 1984. The Mac OS X was based on UNIX, an industrial-strength OS favored by computer professionals. Analysts estimated that OS X cost Apple roughly $1 billion to develop. Second, since the early 1990s, Apple had built Macs with an IBM CPU, called PowerPC. In 2006, Jobs made a large investment to shift Apple to Intel chips. By the next year, the entire Macintosh line ran on Intel. With "Intel Inside," Apple could produce thinner, lighter laptops as well as more powerful computers. The Mac could also natively run Microsoft Windows along with Windows applications. This capability potentially offset a long-standing disadvantage of choosing a Mac—the relative lack of Macintosh software.

The third element of the new Mac strategy was developing a proprietary set of applications, even though building programs such as the iLife suite required Apple to assume significant development costs.[38] The final piece of Jobs's puzzle was a new distribution strategy. The first Apple retail store opened in McLean, Virginia, in 2001. Apple not only wanted consumers to look at the eye-catching Macintosh designs, but also wanted people to directly use and experience Apple's software. In 2014, the retail division—with nearly 450 stores in 14 countries—accounted for 12% of Apple's total revenue.[39] Observers viewed Apple's retail strategy as a huge success: one analyst said that the company had become "the Nordstrom of technology."[40] Most analysts believed that the popularity of media products, such as the iPod, iPhone, and iPad, were critical to bringing consumers into the stores and exposing them to the Mac.

Moving Beyond the Macintosh

Apple's shift toward a digital hub strategy was initiated by the debut of the iPod in 2001, followed by the iPhone in 2007, then the iPad in 2010. While the prospects for the Macintosh business had improved, it was the iPod that set Apple on its explosive growth path. Jobs's focus for the iPod was simplicity: he said that "to make the iPod really easy to use—and this took a lot of arguing on my part—we needed to limit what the device itself would do. Instead we put functionality in iTunes on the computer. . . . So by owning the iTunes software and the iPod device, that allowed us to make the computer and the device work together, and it allowed us to put the complexity in the right place."[41]

The historical economics of the iPod were stellar by CE industry standards. The iPod Nano, for example, had gross margins of around 40% in 2007.[42] The biggest cost component for the Nano was flash memory, which could account for more than half of the bill of materials. Recognizing the importance of flash memory, Apple invested in several memory producers in order to secure output at the best prices, which made Apple was one of the largest purchasers of flash memory in the world.

Apple's approach to developing and marketing the iPod became, over the initial and strenuous opposition of Jobs, more open than its strategy for the Macintosh. The iPod could initially sync only with a Mac, and Jobs wanted to keep it that way, reportedly declaring at one point that Windows users would get iPods "over my dead body."[43] The rest of Apple's executive team pushed Jobs to change his mind, and he ultimately relented. Opening the iPod provided access to the vast market of Windows users, and sales only really took off after Apple developed a version of the iPod and the iTunes software that worked on Windows PCs in 2003.

iTunes Two features that differentiated Apple's iPods were its iTunes desktop software and its iTunes Music Store, which opened in April 2003. The two, in combination, completed Apple's vision of an entertainment hub.[44] The iTunes store was the first legal site that allowed music downloads on a pay-per-song basis. Visitors could pay $0.99 per song for a title offered by all five major record labels

and by thousands of independent music labels. The downloaded songs could be played on the user's computer, burned onto a CD, or transferred to an iPod. Within three days of launching the service, PC owners had downloaded 1 million copies of free iTunes software and had paid for 1 million songs.[45] Customers loved the vast music selections and ease of use, transforming the iTunes store into the number-one music store in the world.[46]

The launch of the iTunes store had a galvanic impact on iPod sales. In the quarter before the release of iTunes store, Apple sold only 78,000 iPods. After the iTunes store launch, iPod sales shot up to 304,000 units in one quarter and exploded thereafter.[47] The direct impact of iTunes on Apple's profitability was far less impressive. On average, roughly 70% of the money Apple collected per download went to the music label that owned it, and about 20% went toward the cost of credit card processing. That left Apple with only about 10% of revenue per download, from which Apple had to pay for its website, along with other direct and indirect costs.[48] In essence, Jobs had created a razor-and-blade business, only in reverse: the variable element (songs) served as a loss leader for a profit-driving durable good.[49]

Competition Online music stores such as Amazon.com, Napster, and Walmart.com offered individual song downloads at competitive or discounted prices to iTunes. Most competitors offered songs to play on various devices, including the iPod. As time went on, the iPod and iTunes faced challenges from a variety of online music streaming services, such as Pandora, Spotify, Rdio, and Rhapsody. Some, such as Pandora, operated by creating personalized radio stations, choosing songs based on listener preferences. Others, like Spotify, gave users unlimited access to their online catalog, allowing users to create their own playlists, share them, and stream music like a virtual MP3 player. In some markets, music labels made more money from Spotify than iTunes.[50]

Under fierce competition from streaming services, digital music downloads began to decline in 2013, both in the U.S. and globally, for the first time since the iTunes store launched in 2003. The iTunes store experienced a decline of as much as 13% in the first half of 2014.[51] In response, Apple launched iTunes Radio, an ad-supported streaming service, in September 2013. In May 2014, Apple acquired Beats Electronics in a $3 billion acquisition that was the largest in the company's history. Beats, founded in 2008 by record-industry executive Jimmy Iovine and hip-hop artist Dr. Dre, generated most of its revenue—$1.1 billion in 2013—from a line of wireless speakers and high-end headphones. Beats had also launched a streaming music service in January 2014, which by the middle of the year had acquired 250,000 subscribers.

After peaking in 2008, iPod sales started to decline; iPod net revenues for 2014 were less than a quarter what they had been in 2008. The disruption of the digital music by the rise of streaming services had hastened its decline, but even more important had been the integration of digital music players into cell phones. Jobs had anticipated that the cell phone had the potential to topple the iPod as early as 2005, and ensured that Apple would lead the way with the iPhone, introduced in June 2007. Jobs later noted, "If you don't cannibalize yourself, someone else will."

The iPhone

At the January 2007 Macworld, Jobs introduced the iPhone, saying, "Every once in a while a revolutionary product comes along that changes everything. Today, we're introducing three revolutionary products of this class. The first one is a widescreen iPod with touch controls. The second is a revolutionary mobile phone. And the third is a breakthrough Internet communications device. . . . These are not three separate devices, this is one device, and we are calling it iPhone."[52] Hailed as *Time* magazine's "Invention of the Year," the iPhone represented Apple's bid to "reinvent

the phone."[53] Two and a half years of development efforts had been devoted to the phone, guarded under intense secrecy, even among the company's own employees. The estimated development cost was around $150 million.

Entry into mobile phones might have been a risky move for Apple. At the time, the industry was dominated by Nokia, Motorola, and Samsung, with roughly 60% market share. In addition, products were characterized by short product life cycles (averaging six to nine months) and sophisticated technology, including radio technology, where Apple had little experience. Smartphones, which brought multiple functions together in the palm of one's hand, were just coming into prominence. In distribution, Apple faced powerful cellular carriers such as T-Mobile and Vodafone, which controlled the networks and often the phones used on those networks. In the U.S., the top two carriers—Verizon Wireless and AT&T—collectively controlled more than 60% of the market, and their networks were "locked": an AT&T phone would only work on AT&T's network.

The iPhone, however, changed the rules in the industry. A revolutionary 3.5-inch touch-screen interface placed commands at the touch of users' fingertips without a physical keyboard. The iPhone's entire system ran on a specially adapted version of Apple's OS X platform called iOS. Above all, users found it intuitive to use. Apple initially gave the iPhone to only one network operator in most markets. AT&T, the exclusive U.S. operator for the iPhone when it launched, did not provide a subsidy, contrary to the usual practice in the industry. Instead, AT&T agreed to an unprecedented revenue-sharing agreement with Apple, which gave Apple control over distribution and pricing.

The first-generation iPhone sold about 6 million units over five quarters. Over the next six years, Apple released new phones that were thinner, faster, more intelligent, and offered new form factors. The second iPhone, for example, was released in 2008 and ran on a faster 3G network. More importantly, Apple revamped its pricing model. Carriers provided a subsidy on the phone in exchange for dropping the revenue-sharing agreement, and some subsidies were $400 per phone or higher. Over the next few years, Apple released an upgraded iPhone every 12 to 15 months and greatly expanded distribution. With the release of the 4s in October 2011, Apple introduced Siri, a voice-activated technology that Apple bought in 2010. With Siri, the user could dictate texts, schedule appointments, ask questions, and send e-mails using voice commands.[54] The iPhone 5, announced in September 2012, offered a larger screen size for the first time; and a year later, the company launched the iPhone 5c, Apple's first attempt to move down-market. The most successful iPhones in history were the 6 and 6 plus, released in September 2014. These models had a 4.7-inch and a 5.5-inch screen, respectively, matching the best-selling Android phones.

Apple's relationship with carriers changed, too. In most markets in the world, Apple moved from a single carrier to multiple carriers selling iPhones. When Apple added new carriers, it had a reputation as a very tough negotiator: Sprint, for example, signed a four-year, $15 billion deal with Apple that committed the carrier to sell at least 24 million iPhones.[55] Apple also began to sell "unlocked" versions of the phone; users paid full price and could bring them to any carrier. With each new generation of product, Apple also dropped the price of prior generations. The combination of big subsidies, low prices on older models, and expanded distribution caused revenues and unit volumes to explode (see **Exhibit 1**). Analysts also projected that Apple generated more than 60% of the cell-phone industry's total profits in 2013, with only 8.3% unit market share. In the fourth quarter of 2014, Apple took a staggering 93% of the handset industry's profits.[56]

Analysts estimated that Apple realized an ASP of $687 from its iPhones in the last quarter of 2014, while overall average selling prices for smartphones was around $300.[57] Falling component costs and design improvements helped to reduce the iPhone's cost structure. One study showed that the bill of

materials for the 16GB iPhone 6, which retailed for $649, was about $200.[58] The first iPhone with half the storage capacity cost around $220 to build.[59] Apple's drive to keep its costs down was often controversial. Apple had become one of the largest customers of Foxconn in China. After several suicides of Foxconn workers, Apple commissioned a study by the Fair Labor Association,[60] which discovered "serious and pressing" violations of the FLA's code of conduct. Cook promised quick action to bring subcontractors into compliance.

App Store One key driver behind the iPhone sensation was the launch of the Apple App Store, which Jobs only reluctantly supported. Jobs initially wanted Apple to develop all the apps for the phone, a stance consistent with his preference for closed platforms and total control. Other Apple executives pushed Jobs to open up the platform, and developers soon began to "jailbreak" the iPhone platform so it could to run additional apps anyway. Jobs eventually relented, and the App Store launched in July 2008. Software applications for PDAs and smartphones had been around for years. But Apple's App Store was the first outlet that made it easy to distribute, access, and download applications directly onto the mobile phone. Many apps were free; even paid apps usually started at $0.99. The App Store was introduced as part of iTunes, which already had a huge following. Software developers also welcomed the App Store because Apple made it easier to reach consumers. Apple reserved the right to approve all applications and kept a 30% cut of the developer's app sales.

The popularity of the App Store was stunning. In the first 18 months, 4 billion applications had been downloaded worldwide; by mid-2014, the number of downloads had risen to 75 billion.[61] By the end of 2014, over 1.4 million applications were available in categories ranging from games to business productivity programs (see **Exhibit 7** for an overview of smartphone operating systems and app stores).[62] Walt Mossberg of the *Wall Street Journal* claimed that "the App Store is what makes your device worth the price."[63] Mobile apps had turned into a nice side business for Apple as well. In FY 2014, Apple generated $10.2 billion in revenues from the sale of music, books, videos, and applications.[64] Over time, Apple also paid out more than $25 billion to developers for the 75 billion apps downloaded to iPhones, iPods, and iPads.[65]

Competitors Competition was fierce in the smartphone industry, where worldwide shipments surpassed 1.3 billion in 2014.[66] The iPhone's greatest competition came from Android, an open and free platform developed by Google. As more manufacturers entered the market, innovation on the Android platform exploded. Not surprisingly, developers saw a potentially large market that might rival Apple. More variety, lower prices, and a comparable set of applications powered Android-based phones to become the most popular smartphones in 2014, with about 81% market share compared to about 15% for Apple. In 2014, more than 1 billion Android phones shipped worldwide (see **Exhibit** 7 for smartphone sales).[67] The share for Apple's iOS fell gradually with the growth of Android, from its peak of nearly 19% in 2011. However, the biggest losers from Android's growth were Nokia's Symbian and RIM's BlackBerry. Symbian had the largest share as late as 2010, but Nokia abandoned the platform in 2012 in favor of Microsoft Windows. By 2014, BlackBerry's share, which was once as high as 20%, had fallen to under 1%.

Among handset manufacturers, Samsung was Apple's most direct competitor. Samsung was a huge company that made chips, PCs, TVs, and appliances as well as phones (see **Exhibit 6** for financials of Apple competitors). Samsung was a relatively late entrant into the smartphone segment, but it became the volume leader in 2011 with the introduction of its Android-based Galaxy handset. Although Samsung remained the market leader in 2014 with 24.5% share,[68] its profits were being squeezed by Apple at the high end of the market, and aggressive Chinese manufacturers at the low end. In Q4 2014, Apple and Samsung were practically tied for leadership, with each firm selling about 75 million units.

Lenovo had emerged as the third-largest player in the smartphone industry, bolstered by its $2.9 billion acquisition of Motorola in 2014: the combined company held 7.4% of the handset market globally. Similar to the PC market, Lenovo had a particularly strong position in its home market, surpassing Samsung in 2014 as the top smartphone seller in China.[69] Perhaps the most feared competitor in the market was a new player from China called Xiaomi, which brought its first smartphone to market in 2011. With a business model built on selling inexpensive phones with high-end specifications, Xiaomi's sales doubled in 2013 and tripled in 2014, to 61.1 million units. Entering 2015, it had cracked the top-five in smartphone sales worldwide with 4.4% of the market, and had announced ambitious plans to expand beyond China.[70]

Microsoft struggled in smartphones. In what some analysts called a desperate move to imitate Apple, Microsoft bought Nokia's devices business for $7.2 billion in early 2014. Microsoft began selling Nokia's Lumia line of smartphones, running its Windows Phone operating system, under its own brand later that year. Although it continued to license its software to other vendors, such as Samsung and HTC, Microsoft's share of the global smartphone market slipped under 3% for 2014.

Google's competitor to Apple's App Store, called Play Store, launched in late 2008 and trailed the App Store for the next several years. In 2014, the number of Android apps surpassed the number available from Apple for the first time, and downloads from the Play Store were 60% higher than from the App Store. Despite fewer downloads, though, Apple's App Store generated significantly more revenue, indicating its strength in the premium market (see **Exhibit 7**).[71] While Google had fewer restrictions than Apple,[72] developers found it more challenging to write applications for Android. Most Android phones varied slightly, which required software developers to write numerous versions of their applications.

Suppliers The supplier base was structurally different in smartphones compared to PCs. The supplier that captured most of the value in smartphones was Qualcomm, which largely controlled CDMA (3G) and LTE (4G)—the two most important protocols for wireless service. Except in China, Qualcomm earned between 3.5% and 5% royalties on almost every CDMA and LTE phone sold in the world. The CPU business was also structurally different: the vast majority of CPUs in smartphones were based on a design by ARM Holding, a U.K. company. ARM licensed its core design for about 1% on each CPU, which sold for roughly $15–$20. Google also developed its application store to enable applications to run on different versions of ARM as well as Intel's x86 CPUs, so there was no architectural lock as there was on Windows PCs. Three companies dominated the ARM CPU business in smartphones in 2014: Qualcomm had about 54%, Apple had roughly 15%, and MediaTek from Taiwan had just under 14%.[73] Dating back to the early days of Apple, Jobs always preferred to control the critical technologies that would drive Apple's differentiation. To grab greater control of mobile devices, Jobs bought two ARM microprocessor design companies for about $400 million between 2008 and 2010.[74] Apple's CPUs were manufactured by Samsung and optimized to deliver Apple's demanding specifications on battery life and performance.

The patent wars Intense competition in the smartphone industries led to numerous lawsuits on design and intellectual property.[75] Jobs was the most aggressive CEO in pursuing legal redress. "From the earliest days at Apple, I realized that we thrived when we created intellectual property. . . . If protection of intellectual property begins to disappear, creative companies will disappear or never get started. But there's a simpler reason: It's wrong to steal. It hurts other people. And it hurts your own character."[76] In 2010, Apple initiated litigations against several Android manufacturers. Jobs explained, "I will spend every penny of Apple's $40 billion in the bank, to right this wrong. I'm going to destroy Android, because it's a stolen product. I'm willing to go to thermonuclear war on this. They are scared to death, because they know they are guilty."[77] By 2014, Apple had won two large judgments against

Samsung in U.S. courts. In early 2015, Swedish telecom pioneer Ericsson filed several lawsuits in the U.S., asking the courts to block sales of iPhones and iPads. The suits came after the two companies failed to come to terms on the renewal of Apple's licensing agreement for several of Ericsson's patents related to essential technology for connecting to high-speed wireless communications networks.[78]

Moving Beyond the iPhone: The iPad

The iPhone's spectacular success may have satisfied many CEOs, but not Steve Jobs. In 2010, he saw another opportunity to make a bold move to redefine computing with the launch of the iPad. "Some people say, 'Give the customers what they want,'" said Jobs, "but that's not my approach. Our job is to figure out what they're going to want before they do."[79] That was what he did with the iPad. Apple's release of the iPad on March 2, 2010, defined a new device category that Jobs described as "even more intuitive and easier to use than a PC, and where the software and the hardware and the applications need to be intertwined in an even more seamless way than they are on a PC."[80] Prior to the iPad, tablet sales accounted for a trivial share of the PC market. When the iPad launched, market demand was uncertain, at best. But doubters were quickly silenced, as sales of the new device took off. More than 450,000 iPads were sold during its first week on the market. Jobs commented, "It feels great to have the iPad launched into the world—it's going to be a game changer."[81] By the end of 2014, Apple had built another $30 billion business, cumulatively selling nearly 240 million iPads.[82]

The iPad was originally priced from $499 to $829 and was sold in the U.S. by Apple retail stores, wireless carriers, and other retail stores. Operators did not subsidize iPads, as they did smartphones. Consumers could choose to connect to the Internet by paying for access to a carrier's data network or relying exclusively on Wi-Fi networks. Most tablet owners opted for a Wi-Fi–only connection.[83]

Perhaps the biggest debate about the iPad was its usage model. Market research indicated that tablet owners viewed it primarily as a device to consume content rather than produce it.[84] The most popular activities included checking e-mail, playing games, watching full-length videos, and shopping online. The iPad could run, with some limitations, almost all iPhone apps. To offset those limitations, software developers released over 675,000 native iPad apps by late 2014.[85] Over time, iPad consumers became more creative in finding uses for the iPad for everything from writing music to restaurant menus, sales tools, and even car-owner manuals. In late 2012, Apple released the iPad Mini, a less expensive version with a 7.9-inch screen. Although Jobs had previously dismissed such tablets as "tweeners," the iPad Mini quickly became Apple's best-selling tablet.

An early controversy over the iPad erupted when Apple sought to offer its own bookstore. Historically, Jobs had insisted on low prices for content on the iPod and iPhone ($0.99 for songs, and free or low-priced apps). But in trying to woo book and magazine publishers to the iPad, Jobs faced Amazon, which distributed 90% of the digital books on the market through its Kindle e-reader. To stimulate demand, Amazon priced many of its books at $9.99, often below Amazon's costs. Publishers were unhappy with the pricing: they feared low prices would devalue the content as well as cause rapid cannibalization of physical books. Apple made an offer to publishers that they set their own prices, usually ranging from $12 to $15 for an e-book. Apple then took a 30% commission. After initially resisting, Amazon was forced by publishers to follow suit. By April 2012, Amazon's market share in e-books had fallen to 60%.[86] The Department of Justice, however, investigated Apple's strategy in early 2012, accusing the company and five publishers of price fixing. The court ruled that Apple had in fact colluded with publishers to raise prices, and in late 2014, Apple agreed to pay $400 million in damages to consumers who had paid artificially high prices for e-books (as well as $50 million to lawyers).[87]

Since the settlement gave digital retailers flexibility again in setting prices, Amazon almost immediately lowered prices back to $9.99 on some books.

Apple's business model for the iPad was also slightly different from earlier products. Apple earned an estimated 25% gross margin on its entry-model iPad by using its own CPU, giving the channel a lower margin and leveraging its scale in purchasing. Apple had lower costs than most competitors, which could only make 15% gross margin at the same retail price.[88] Yet despite Apple's formidable lead, at least 20 major manufacturers launched tablets over the next few years, driving down Apple's once-commanding market share (see **Exhibit 8** for worldwide tablet shipments).

Competition Apple had at least three potential serious competitors for tablets: (1) manufacturers using Google's version of Android; (2) Amazon, which used a modified version of Android; and (3) Microsoft Windows–based tablets. Android-based tablets were rushed to the market in late 2010, and by the end of 2014, Android had captured 70% share.[89] Samsung was the leader in this camp, with 17.5% of the worldwide tablet market.[90] Similar to smartphones, Android's app store was gradually catching up to Apple in the availability of tablet apps.

Amazon, by contrast, had a different model: it developed a distinctive user interface and sold its seven-inch tablet, the Kindle Fire, for $199. Amazon's product costs were estimated to be slightly more than $200.[91] While Apple sought to make money on hardware, Amazon hoped to make money on software, applications, and content. Despite an impressive start, Amazon struggled to sell large volumes: in 2014, Amazon sold only 3.3 million tablets, for a market share of just 1.4%.[92]

Microsoft brought its tablet—the Surface—to market in October 2012, powered by Windows 8, Microsoft's newest OS. More like a PC than an iPad, Microsoft captured only 2.1% unit share of the tablet market in 2013, and the company was forced to take a $900 million write-off in the second quarter of 2013.[93] Microsoft refocused its efforts on the enterprise market in 2014, which improved sales and margins. But Surface's market share remained under 5%.

Saturation? After tremendous growth in its first three years, tablet sales began to lose momentum in 2014. The fourth quarter of 2014 saw a worldwide year-over-year decline in tablet shipments of 3.2%. This was the first quarterly decline since the iPad launched. Apple was hit particularly hard: for FY 2014, unit sales declined by 5% and net revenues were down 4%.[94] By the end of 2014, the iPad had seen four consecutive quarters of sales declines.[95] In this slowing market, Apple remained the market leader, with 27.6% share, followed by Samsung, ASUS, Lenovo, and Amazon.[96]

Partly to spur sales of the iPad, in July 2014, Cook announced a partnership with IBM to develop enterprise apps designed for the iPad and iPhone and to enlist IBM's sales force and business connections to sell Apple mobile devices to enterprise customers. As Cook pointed out, iPhones and iPads were present in 90% of the Fortune 500, but the rate of penetration was low, providing Apple with what he described as a huge opportunity to advance mobility in the enterprise.

iCloud One of Jobs's last acts as CEO was to prepare Apple for the launch of iCloud in October 2011. Jobs's vision was that Apple was "the first to have the insight about your computer becoming a digital hub . . . [which] worked brilliantly. But over the next few years, the hub is going to move from your computer into the cloud. So it's the same digital hub strategy, but the hub's in a different place."[97] iCloud allowed users to synchronize seamlessly across multiple Apple devices by storing data, pictures, music, and so on, in one location on the Internet. Five GB of cloud storage on iCloud was free for Mac, iPhone, iPad, and iPod Touch users. Consumers could also pay for additional storage.[98] To support iCloud, Apple invested in a huge data center in North Carolina at an estimated cost of $500 million.[99] Notably, iCloud worked only with Apple products. Following Apple's lead, OS competitors

such as Google and Microsoft offered their own cloud storage services, while product competitors such as Samsung struck deals with Dropbox, a cross-platform cloud storage solution first launched in 2008.

Moving Beyond the iPhone and iPad: Apple Watch and Apple Pay

During the three years after Steve Jobs's death, Apple witnessed spectacular revenue growth, driven by booming iPhone and iPad sales. After Jobs had revolutionized music, phones, and computing between 2001 and 2011, Apple fans were waiting for (and expecting) the next revolution under Cook. Hoping to meet those expectations, Cook announced his first new major product initiative in September 2014: the Apple Watch, Apple's entry into wearable technology. Although the product would not ship until late April 2015, Apple showed off many of its features in March 2015. The Apple Watch would function, of course, as a timepiece, but also incorporate fitness-tracking features. When connected to a user's iPhone, it would bring smartphone applications to the user's wrist: users could receive notifications about upcoming calendar events, e-mail, and text messages without looking at their phones, and could, for example, access maps and directions or control the iPhone's music player without needing to pick up their phones.

Apple was not the first in the category, but it was expected to become the largest. The question was, how large? The Apple Watch had to be charged every day, it only worked with new iPhones, and it was expensive: prices started at $349 for the basic model and ranged as high as $17,000 for an 18-karat gold model. Moreover, there was already significant competition. The pioneer in the category was a start-up called Pebble, which shipped the first real smartwatches in 2012 for both iOS and Android. Pebbles sold for as little as $150. The largest player entering 2015 was Samsung, which like Apple, offered watches that only worked with its own phones. Overall unit sales for the industry had been disappointing (see **Exhibit 9**). After Google announced "AndroidWear" in March 2014, extending the Android platform to watches, LG, Motorola, and Samsung subsequently introduced watches based on the platform. The field was expected to be very crowded. Even fancy Swiss watch companies, such as Tag Heuer, announced that they would join the fray.

The same day Cook announced the Apple Watch, he also introduced Apple Pay, Apple's new mobile payment system. When it was announced, most of the nation's largest banks and credit card companies had signed on to support it. By early 2015, dozens of retailers, including Walgreens, McDonald's, Macy's, and Whole Foods, had pledged to accept Apple Pay in their stores. To set it up, users added a credit or debit card to Apple Pay on their iPhone. Once a card had been added, Apple Pay allowed users to pay simply by holding their iPhone or Apple Watch near a wireless payment terminal while keeping their finger on the home button. Payment information was transmitted from the device to the payment terminal using near field communication technology. To enable secure transactions, the system used TouchID, the iPhone's fingerprint recognition technology, to ensure that the phone's owner was the one making the purchase. In addition, credit card information was not transferred to the retailer during the transaction; rather, a device account number unique to the phone was transmitted along with a dynamic security code unique to each transaction. Apple hoped that the combination of security and convenience would encourage rapid uptake of the technology. Cook claimed in December that Apple Pay accounted for two-thirds of mobile payments at participating retailers. By early 2015, nearly 2 million customers at two of the nation's largest banks—Bank of America and Chase—had added credit or debit cards to their Apple Pay account.[100]

The Occasional Disappointments

While almost everything that Apple had touched in the first decade of the 21st century turned to gold, the record was not unblemished. Apple had two notable products that failed to live up to expectations. One was the Mac Mini. As Apple's entry-level desktop, the $599 price tag did not come with a keyboard or a mouse. Consumers could buy a Windows desktop with more functions and faster performance at a lower price. The other disappointment was Apple TV. Introduced in 2007, the set-top box was Apple's attempt to bring digital video content directly into consumers' living rooms. Users could stream movies and TV shows over the Internet to a TV set and/or connect other Apple devices to the TV over a Wi-Fi connection. However, Apple TV sales were paltry compared to Apple's other products. Before he died, Jobs claimed to have cracked the code for a next-generation television, which Apple watchers were still waiting to see in early 2015.

Apple Inc. in the Next Decade?

Inevitably, many had wondered about what would happen to Apple with Jobs gone, but Apple had performed above everyone's expectations in Cook's first three years as CEO. The stock price nearly doubled between the end of FY2011 and FY2014, while revenues were up nearly 70% over the same period. In early 2015, Apple's market capitalization surpassed $700 billion, making it the most valuable company in the history of the world. Despite this success, some observers worried that Apple had become overly dependent on the iPhone and pondered how long Apple could sustain its growth without the introduction of truly innovative new products. Cook claimed that the Apple Watch, Apple Pay, Apple TV, and corporate customers were big growth areas for the company; he confidently exclaimed that Apple's product "pipeline" was the strongest he had ever seen. There were even rumors in the press that Apple would start to develop cars to compete with Tesla, and Apple would soon offer TV services over the Internet to compete with cable operators.

While Cook appeared supremely confident at the Apple Watch event, he had to be thinking: Could Apple Watch and Apple Pay really be the next iPhone and iTunes? And what steps did he need to take to drive that success?

Exhibit 1a Apple Inc., Selected Financial Information, FY 1991–2014 (in millions of dollars, except for number of employees and stock-related data)

	1991	1996	1998	2000	2002	2004	2006	2008	2010	2012	2014
Net sales	6,309	9,833	5,941	7,983	5,742	8,279	19,315	37,491	65,225	156,508	182,795
Cost of sales	3,314	8,865	4,462	5,817	4,139	6,022	13,717	24,292	39,541	87,846	112,258
Research and development	583	604	303	380	446	491	712	1,109	1,782	3,381	6,041
Selling, general, and administrative	1,740	1,568	908	1,256	1,109	1,430	2,433	3,761	7,299	10,040	11,993
Operating income (loss)	671	-1,204	268	530	48	336	2,453	8,327	18,385	55,241	52,503
Net income (loss)	310	-816	309	786	65	266	1,989	6,119	14,013	41,733	39,510
Total cash, cash equivalents, and marketable securities	893	1,745	2,300	4,813	4,376	5,464	10,110	24,490	51,011	121,251	155,239
Accounts receivable, net	907	1,496	955	953	707	1,050	2,845	4,704	9,924	18,692	27,219
Inventories	672	662	78	33	45	101	270	509	1,051	791	2,111
Net property, plant, and equipment	448	598	348	419	621	707	1,281	2,455	4,768	15,452	20,624
Total assets	3,494	5,364	4,289	6,803	6,298	8,050	17,205	36,171	75,183	176,064	231,839
Total liabilities	1,727	3,306	2,647	2,696	2,203	2,974	7,221	13,874	27,392	57,854	120,292
Total shareholders' equity	1,767	2,058	1,642	4,107	4,095	5,076	9,984	22,297	47,791	118,210	111,547
Cash dividends paid	57	14	--	--	--	--	--	--	--	2,488	11,126
Number of employees	14,432	10,896	9,663	8,568	10,211	11,695	17,787	32,000	46,600	72,800	92,600
International sales/sales	45%	52%	45%	46%	43%	41%	41%	44%	56%	61%	62%
Gross margin	47%	10%	25%	27%	28%	27%	29%	35%	39%	44%	39%
R&D/sales	9%	6%	5%	5%	8%	6%	4%	3%	3%	2%	3%
SG&A/sales	28%	16%	15%	16%	19%	17%	13%	10%	9%	6%	7%
Return on sales	5%	NA	5%	10%	1%	3%	10%	16%	22%	27%	22%
Return on assets	9%	NA	7%	12%	1%	3%	12%	17%	19%	24%	17%
Return on equity	19%	NA	22%	22%	2%	6%	23%	33%	35%	43%	34%
Stock price low [a]	$1.44	$0.57	$0.48	$0.97	$0.95	$1.51	$7.17	$11.31	$27.18	$58.43	$70.51
Stock price high	$2.62	$1.27	$1.56	$5.37	$1.87	$4.97	$13.31	$28.61	$46.67	$100.72	$119.75
P/E ratio at period-end	21.9	NA	19.5	6.8	78.2	58.5.	25.6	8.2	14.7	15.1	15.6
Market value at period-end	6,649.9	2,598.5	5,539.7	4,996.2	5,146.4	25,892.5	72,900.8	75,870.6	295,455.3	499,821.0	647,506.9

Source: Compiled from Capital IQ data and ThomsonOne, as well as company documents.

[a] Share price data reflect calendar-year results and also reflect retroactive application of 7:1 stock split that took effect in June 2014.

Exhibit 1b Apple's Net Sales by Product Category, 2002–2012 (in millions of dollars)

	2002	2004	2006	2008	2010	2012	2013	2014
Macintosh	4,534	4,923	7,375	14,354	17,479	23,221	21,483	24,079
iPad	NA	NA	NA	NA	4,958	30,945	31,980	30,283
iPod	143	1,306	7,676	9,153	8,274	5,615	4,411	2,286
Other music products[a]	4	278	1,885	3,340	4,948	8,534	NA	NA
iPhone, related products and services[b]	NA	NA	NA	6,742	25,179	78,692	91,279	101,991
Peripherals and other hardware[c]	527	951	1,100	1,694	1,814	2,778	NA	NA
Accessories[e]	NA	NA	NA	NA	NA	NA	5,706	6,093
Software	307	502	NA	NA	NA	NA	NA	NA
Service and other net sales	227	319	NA	NA	NA	NA	NA	NA
Software, service, and other sales[d]	NA	NA	1,279	2,208	2,573	3,459	NA	NA
iTunes, software, and services[f]	NA	NA	NA	NA	NA	NA	16,051	18,063
Total net sales	**5,742**	**8,279**	**19,315**	**37,491**	**65,225**	**156,508**	**170,910**	**182,795**

Source: Compiled from Apple's financial statements and casewriter calculations.

Note: NA = Not Available or Not Applicable.

[a] Represents iTunes Store sales, iPod services, and Apple-branded and third-party iPod accessories.

[b] Represents handset sales, carrier agreements, and Apple-branded and third-party iPhone accessories.

[c] Includes sales of displays, wireless connectivity and networking solutions, and other hardware accessories.

[d] Includes sales of Apple-branded operating system, application software, third-party software, AppleCare services, and Internet services.

[e] Includes sales of Apple-branded and third-party accessories for iPhone, iPad, Mac, and iPod.

[f] Includes revenue from the iTunes Store, the App Store, the Mac App Store, the iBooks Store, AppleCare, licensing, and other services.

Exhibit 1c Apple's Unit Sales by Product Category, 2004–2012 (in thousands of units)

	2004	2006	2008	2009	2010	2012	2013	2014
Desktops[a]	1,625	2,434	3,712	3,182	4,627	4,656	NA	NA
Portables[b]	1,665	2,869	6,003	7,214	9,035	13,502	NA	NA
Total Macintosh unit sales	**3,290**	**5,303**	**9,715**	**10,396**	**13,662**	**18,158**	**16,341**	**18,906**
Net sales per unit sold	*$1,496*	*$1,391*	*$1,478*	*$1,333*	*$1,279*	*$1,279*	*$1,315*	*$1,274*
iPads	NA	NA	NA	NA	7,458	58,310	71,033	67,977
Net sales per unit sold	NA	NA	NA	NA	*$665*	*$531*	*$450*	*$445*
iPods	4,416	39,409	54,828	54,132	50,312	35,165	26,379	14,377
Net sales per unit sold	*$296*	*$195*	*$167*	*$149*	*$164*	*$160*	*$167*	*$159*
iPhone units sold	NA	NA	11,627	20,731	39,989	125,046	150,257	169,219
Net sales per unit sold[c]	NA	NA	*$580*	*$629*	*$630*	*$629*	*$607*	*$603*

Source: Compiled from Apple's financial statements and casewriter calculations.

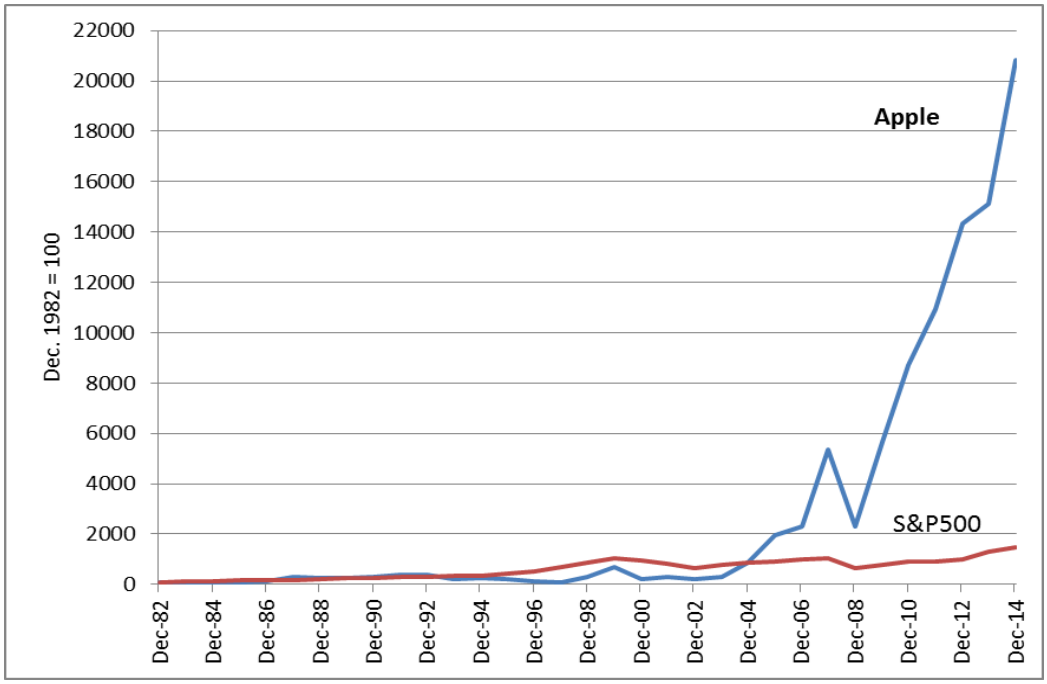
Note: Data for 2004–2011 based on fiscal-year results ending September. Data for 2012 reflect the latest 12 months ending March 31, 2012.

[a] Includes iMac, Mac Mini, Mac Pro, and Xserve product lines.

[b] Includes MacBook, MacBook Air, and MacBook Pro product lines.

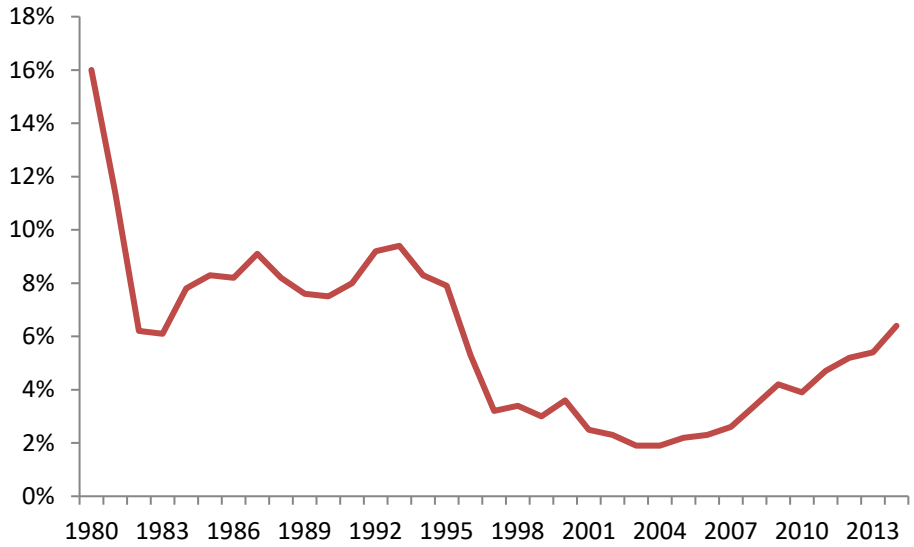
[c] Sales/unit includes accessories and related service revenue.

Exhibit 2 Apple's Share Price vs. S&P 500 Index (December 31, 1982 = 100)



Source: Created by casewriter using data from ThomsonOne, accessed March 2015.

Exhibit 3a Apple's Worldwide PC Market Share, 1980–2014



Source: Adapted from InfoCorp., International Data Corp., Gartner Dataquest, and Merrill Lynch data.

Exhibit 3b PC Manufacturers: Worldwide Market Shares, 2002–2011

	2002	2004	2006	2008	2010	2011	2012	2013	2014
Hewlett-Packard[a]	16.0%	15.8%	16.5%	18.9%	18.5%	17.1%	16.6%	16.6%	18.4%
Dell	15.1%	17.9%	16.6%	14.7%	12.5%	12.2%	11.1%	12.0%	13.5%
Lenovo[b]	--	2.3%	7.1%	7.6%	9.8%	12.1%	15.0%	17.1%	19.2%
Acer	--	3.6%	5.8%	10.9%	12.4%	10.2%	9.6%	7.8%	7.8%
Toshiba	3.2%	3.6%	3.9%	4.8%	--	--	--	--	--
Fujitsu Siemens	4.2%	4.0%	--	--	--	--	--	--	--
IBM[b]	5.9%	5.9%	--	--	--	--	--	--	--
Packard Bell NEC	3.3%	--	--	--	--	--	--	--	--
Apple	2.3%	1.9%	2.3%	3.4%	3.9%	4.7%	5.0%	5.4%	6.4%
Total shipments (in millions)	**136.9**	**177.5**	**235.4**	**287.6**	**346.8**	**363.9**	**352.4**	**315.1**	**308.6**

Source: "PC Market Stumbles on HDD Shortage While U.S. Market Sees Worst Annual Growth Since 2001, According to IDC," IDC press release, January 11, 2012; "PC Market Records Modest Gains During Fourth Quarter of 2010, According to IDC," IDC press release, January 12, 2011; "PC Market Stumbles on HDD Shortage While U.S. Market Sees Worst Annual Growth Since 2001, According to IDC," IDC press release, January 11, 2012; "PC Leaders Continue Growth And Share Gains as Market Remains Slow," IDC press release, January 12, 2015; Apple Inc. annual financial reports; and casewriter estimates.

Note: Market share data for Apple are derived from Macintosh unit sales, as reported in the company's annual reports. The sampling of market shares for other companies comes mainly from annual listings of the top-five PC makers, as measured by IDC. Absence of a figure indicates that a company placed below the top five in a given year.

[a] HP acquired Compaq in mid-2002. The 2002 market share figure for HP includes Compaq sales for the first part of that year.

[b] Lenovo acquired IBM's PC business in mid-2005. The 2005 market share figure for Lenovo incorporates IBM sales for the early part of the year.

Exhibit 4 Shipments and Installed Base of PC Microprocessor (in millions of units)

Total Shipments	1994	1996	1998	2000	2002	2004	2006	2008	2010	2012	2014
Intel Technologies											
PC units shipped	47.8	76	105	156	126	170	230	287	329	344	322
PC installed base	211.4	347.5	542.5	839	1,111	1,433	1,863	2,411	3,034	3,695	4,237
Mac units shipped	NA	NA	NA	NA	NA	NA	5.7	9.9	14.4	17.1	19.6
Intel-Mac installed base	NA	NA	NA	NA	NA	NA	5.7	23.3	48.9	83.8	120.5
Motorola (680X0)											
Units shipped	3.9	0.8	0.2	NA	NA	NA	NA	NA	NA	NA	NA
Installed base	24.9	26.8	27.5	NA	NA	NA	NA	NA	NA	NA	NA
PowerPC											
Units shipped	0.8	4	3.5	4.7	3.1	3.5	NA	NA	NA	NA	NA
Installed base	0.8	7.8	14.1	22.2	29.4	36.2	NA	NA	NA	NA	NA

Source: Adapted from Gartner Dataquest, InfoCorp., IDC, Merrill Lynch, Credit Suisse data, and company data.

Notes: Between 5% and 10% of total microprocessor shipments went into non-PC end products. In any given year, as much as 60% of microprocessors in the total installed base involved older technologies that were probably no longer in use. The figures for PowerPC shipments included microprocessors destined for Sony PlayStation and Xbox 360 machines. Figures for "Mac units shipped" over Macintosh calendar-year sales.

NA = Not Available or Not Applicable.

Exhibit 5 PC Manufacturers' Key Operating Measures, 1997–2014

	1997	2000	2003	2006	2008	2010	2012	2014
Gross margins (%)								
Apple	21%	27%	29%	29%	35%	39%	44%	39%
Dell	23%	21%	19%	17%	18%	19%	21%	--
Hewlett-Packard	38%	31%	29%	24%	24%	22%	22%	23%
Lenovo	--	13%	15%	14%	15%	11%	11%	13%
R&D/Sales (%)								
Apple	12%	5%	8%	4%	3%	3%	2%	3%
Dell	1%	2%	1%	1%	1%	1%	2%	--
Hewlett-Packard	7%	5%	5%	4%	3%	2%	3%	3%

Source: Compiled from Capital IQ and ThomsonOne, accessed April 2012, March 2015.

Note: All information is on a fiscal-year basis. Apple's fiscal year ends in September, HP's in October, Dell's in January, and Lenovo's in March.

Exhibit 6 Apple's Competitors: Selected Financial Information, 2004–2014 (in millions of dollars)

	2004	2006	2008	2010	2012	2013	2014
Microsoft							
Total revenues	36,835	44,282	60,420	62,484	73,723	77,849	86,833
Cost of sales	6,596	7,650	11,598	12,395	17,530	20,249	26,934
R&D	7,735	6,584	8,164	8,714	9,811	10,411	11,381
SG&A	10,640	12,276	16,687	16,685	18,426	20,425	20,632
Net income	8,168	12,599	17,681	18,760	16,978	21,863	22,074
Total assets	94,368	69,597	72,793	86,113	121,271	142,431	172,384
Total liabilities	19,543	29,493	36,507	39,938	54,908	63,487	82,600
Total shareholders' equity	74,825	40,104	36,286	46,175	66,363	78,944	89,784
Gross margin	82.1%	82.7%	80.8%	80.2%	76.2%	74.0%	69.0%
R&D/sales	21.0%	14.9%	13.5%	13.9%	13.3%	13.4%	13.1%
SG&A/sales	28.9%	27.7%	27.6%	26.7%	25.0%	26.2%	23.8%
Return on sales	22.2%	28.5%	29.3%	30.0%	23.0%	28.1%	25.4%
Market capitalization[a]	313,046	233,097	256,302	223,608	256,375	287,691	343,566
Intel							
Total revenues	34,209	35,382	37,586	43,623	53,341	52,708	55,870
Cost of sales	14,301	17,164	16,742	15,132	20,190	21,187	20,261
R&D	4,778	5,873	5,722	6,576	10,148	10,611	11,537
SG&A	4,659	6,138	5,452	6,309	8,057	8,088	8,136
Net income	7,516	5,044	5,292	11,464	11,005	9,620	11,704
Total assets	48,143	48,368	50,472	63,186	84,351	91,924	91,956
Total liabilities	9,564	11,616	10,926	13,756	33,148	33,668	35,469
Total shareholders' equity	38,579	36,752	39,546	49,430	51,203	58,256	55,865
Gross margin	58.2%	51.5%	55.5%	65.3%	62.1%	59.8%	63.7%
R&D/sales	14.0%	16.6%	15.2%	15.1%	19.0%	20.1%	20.6%
SG&A/sales	13.6%	17.3%	14.5%	14.5%	15.1%	15.3%	14.6%
Return on sales	22.0%	14.3%	14.1%	26.3%	20.6%	18.3%	20.9%
Market capitalization	142,520	128,582	73,919	118,756	101,945	128,919	172,305
Hewlett-Packard							
Total revenues	79,905	91,658	118,364	126,033	120,357	112,298	111,454
Cost of sales	60,621	69,178	89,370	95,654	89,074	83,180	81,505
R&D	3,563	3,591	3,543	2,959	3,399	3,135	3,447
SG&A	10,496	11,266	13,326	12,718	13,500	13,267	13,353
Net income	3,497	6,198	8,332	8,761	(12,650)	5,113	5,013
Total assets	76,138	81,981	113,331	124,503	108,768	105,676	103,206
Total liabilities	38,574	43,837	74,389	83,722	83.053	76,674	75,339
Total shareholders' equity	37,564	38,144	38,942	40,781	22,436	27,269	26,731
Gross margin	23.9%	24.3%	24.2%	22.3%	21.8%	21.9%	23.0%
R&D/sales	4.5%	3.9%	3.0%	2.4%	2.8%	2.8%	3.1%
SG&A/sales	13.1%	12.3%	11.3%	10.1%	11.2%	11.8%	12.0%
Return on sales	4.4%	6.8%	7.0%	7.0%	--%	4.6%	4.5%
Market capitalization	60,011	109,914	87,433	98,080	27,970	53,386	73,799

[a] Market capitalization figures for each company are based on the date the earnings were filed with the SEC.

Exhibit 6 (continued)

	2004	2006	2008	2010	2012	2013	2014
Dell[b]							
Total revenues	49,121	57,420	61,101	61,494	56,940	--	--
Cost of sales	40,103	47,904	49,998	50,041	44,754	--	--
R&D	460	498	665	661	1,072	--	--
SG&A	4,352	5,948	6,966	7,302	8,102	--	--
Net income	3,018	2,583	2,478	2,635	2,372	--	--
Total assets	23,215	25,635	26,500	38,599	47,540	--	--
Total liabilities	16,717	21,307	22,229	30,833	36,839	--	--
Total shareholders' equity	6,498	4,328	4,271	7,766	10,701	--	--
Gross margin	18.4%	16.6%	18.2%	18.5%	21.4%	--	--
R&D/sales	0.9%	0.9%	1.1%	1.1%	1.9%	--	--
SG&A/sales	8.9%	10.4%	11.4%	11.9%	14.2%	--	--
Return on sales	6.1%	4.5%	4.1%	4.3%	4.2%	--	--
Market capitalization	103,272	52,270	15,964	26,850	22,280	--	--
Lenovo							
Total revenues	2,972	13,343	16,351	16,605	29,574	33,873	38,707
Cost of sales	--	--	13,902	14,815	26,128	29,800	33,643
R&D	--	--	230	214	450	624	732
SG&A	--	--	1700	1,406	2,342	2,735	3,303
Net income	135	22	484	129	473	635	817
Total assets	--	--	7200	8,956	15,861	16,882	18,357
Total liabilities	--	--	5587	7,350	13,413	14,202	15,332
Total shareholders' equity	--	--	--	1,701	2,361	2,667	3,010
Gross margin	13.6%	4.7%	15.0%	10.8%	11.4%	12.0%	13.1%
R&D/sales	--	--	--	1.3%	1.5%	1.8%	1.9%
SG&A/sales	--	--	--	8.5%	7.9%	8.1%	8.5%
Return on sales	4.5%	0.2%	3.0%	0.8%	1.6%	1.9%	2.1%
Market capitalization	2,708	3,380	5,943	6,766	9,172	10,378	11,497
Samsung							
Total revenues	69,496	72,778	102,844	131,109	190,565	216,709	195,883
Cost of sales	44,898	50,921	76,109	87,050	120,015	130,803	121,857
R&D	--	--	--	7,715	10,757	13,640	13,665
SG&A	14,626	14,117	21,621	22,251	--	--	--
Net income	9,148	6,720	4,685	13,396	19,075	24,537	19,042
Total assets	58,508	68,990	89,283	113,862	169,199	198,477	214,588
Total liabilities	27,645	28,342	35,931	38,104	54,084	56,322	54,914
Total shareholders' equity	30,863	40,648	53,353	75,758	109,213	137,591	154,063
Gross margin	35.4%	30.0%	26.0%	33.6%	36.6%	39.4%	37.3%
R&D/sales	--	--	--	5.9%	5.7%	6.3%	7.0%
SG&A/sales	21.0%	19.4%	21.0%	17.0%	--	--	--
Return on sales	13.6%	8.1%	4.4%	10.6%	10.0%	11.3%	9.7%
Market capitalization	54,468	61,792	49,763	101,065	185,747	171,095	158,373

Source: Created by casewriter using data from Capital IQ, ThomsonOne, and company documents.

Note: All information is on a fiscal-year basis, unless noted otherwise. HP's fiscal year ends in October, Dell's in January, Lenovo's in March, Intel's and Samsung's in December, and Microsoft's in June.

[b] Dell was taken private in 2013.

Exhibit 7a Worldwide Smartphone Market Shares by Vendor, 2009–2014

	2009	2010	2011	2012	2013	2014
Samsung	3.2%	7.5%	19.0%	39.6%	31.0%	24.5%
Apple	14.5%	15.6%	18.8%	25.1%	15.1%	14.8%
Lenovo	--	--	--	3.3%	4.5%	7.4%*
Huawei	--	--	--	4.0%	4.8%	5.7%
LG	--	--	--	3.6%	4.7%	4.6%
Nokia	39.0%	32.9%	15.6%	6.4%	--	--
HTC	4.7%	7.1%	8.8%	6.0%	2.0%	1.8%
RIM	19.9%	16.0%	10.3%	6.0%	1.9%	0.4%
Total shipments (millions)	**173.5**	**304.7**	**491.1**	**725.3**	**1,019.4**	**1,301.1**

Source: Created by casewriter using data from "In a Near Tie Apple Closes the Gap on Samsung in the Fourth Quarter as Worldwide Smartphone Shipments Top 1.3 Billion for 2014," IDC press release, January 29, 2015; "Worldwide Smartphone Shipments Top One Billion Units for the First Time," IDC press release, January 27, 2014; "Apple's iPhone grew to 25.1% global market share in 2012," *Apple Insider*, January 25, 2013, http://appleinsider.com/articles/13/01/25/apples-iphone-grew-to-251-global-market-share-in-2012, accessed March 24, 2015; Nathan Olivarez-Giles, "Smartphone Shipments Rose 61% Worldwide in 2011," *Los Angeles Times*, February 6, 2012; and Lance Whitney, "Apple, Android Surge in 2010; Nokia, RIM Slip," CNET, February 7, 2011, http://www.cnet.com/news/apple-android-surge-in-2010-nokia-rim-slip/.

Note: The sampling of market shares comes mainly from annual listings of the top-five smartphone makers, as measured by IDC. Absence of a figure indicates that a company placed below the top five in a given year.

Exhibit 7b Overview of Smartphone Operating Systems and App Stores (as of late 2014)

Operating System	Owner	Major Handset Vendors	Licensing Fee	Approximate Number of Available Apps
iOS	Apple	Apple	Proprietary	1.2 million
Windows Mobile	Microsoft	Microsoft	No	300,000
Android	Google	Samsung, Lenovo, Huawei, LG	No	1.4 million

Sources: Created by casewriter based on company websites and sources, including Dave Smith, "Google Play has more apps than Apple now, but it's still behind in one key area," *BusinessInsider*, February 2, 2015, http://www.businessinsider.com/google-play-vs-apple-app-store-2015-2; and Lance Whitney, "Windows Phone Store hits more than 300,000 apps," CNet, August 8, 2014, http://www.cnet.com/news/windows-phone-store-hits-more-than-300000-apps/, accessed March 18, 2015.

Exhibit 7c Worldwide Smartphone Sales to End User by Operating System, 2006–2014
(% of total market share)

	2006	2007	2008	2009	2010	2011	2012	2013	2014
Symbian	62.4%	63.5%	52.4%	46.9%	37.6%	18.7%	3.0%	NA[c]	NA
RIM	6.9%	9.6%	16.6%	19.9%	16.0%	10.9%	5.0%	1.9%	0.4%
Microsoft	9.8%	12.0%	11.8%	8.7%	4.2%	2.1%	2.5%	3.3%	2.7%
iOS	NA	2.7%	8.2%	14.4%	15.7%	18.9%	19.1%	15.1%	14.8%
Linux	17.6%	9.6%	7.6%	4.7%	NA	NA	NA	NA	NA
Android[a]	NA	NA	0.5%	3.9%	22.7%	46.4%	66.4%	78.7%	81.5%
Others[b]	**3.3%**	**2.6%**	**2.9%**	**1.5%**	**3.8%**	**3.0%**	**5.0%**	**0.2%**	**0.6%**

Source: Adapted from Gartner Smartphone Sales quarterly press releases between 2007 and 2014; "Gartner Says Smartphone Sales Surpassed One Billion Units in 2014," Gartner press release (Egham, UK, March 3, 2015); "Gartner Says Annual Smartphone Sales Surpassed Sales of Feature Phones for the First Time in 2013," Gartner press release (Egham, UK, February 13, 2014); "Gartner Says Worldwide Mobile Phone Sales Soared in Fourth Quarter of 2011 with 47 Percent Growth," Gartner press release (Egham, UK, February 15, 2012); "Says Sales of Mobile Devices Grew 5.6 Percent in Third Quarter of 2011; Smartphone Sales Increased 42 Percent," Gartner press release (Egham, UK, November 15, 2011); "Gartner Says Sales of Mobile Devices in Second Quarter of 2011 Grew 16.5 Percent Year-on-Year; Smartphone Sales Grew 74 Percent" (Egham, UK, August 11, 2011); "Gartner Says 428 Million Mobile Communication Devices Sold Worldwide in First Quarter 2011, a 19 Percent Increase Year-on-Year" (Egham, UK, May 19, 2011); and "Gartner Says Worldwide Mobile Device Sales to End Users Reached 1.6 Billion Units in 2010; Smartphone Sales Grew 72 Percent in 2010" (Egham, UK, February 9, 2011).

[a]Android was introduced in 2008; data before that year were not applicable.

[b] Includes Bada in 2010 and 2011.

[c] Symbian included in "Others" for 2013; Nokia stopped shipping Symbian phones in mid-2013.

Exhibit 8 Worldwide Tablet Shipments by Operating System, 2010–2014

OS	2010	2011	2012	2013	2014
iOS					
Sales (millions of units)	14.8	40.5	65.8	74.3	64.9
Market share (percent)	76.1	58.9	45.6	33.8	27.5
Android					
Sales (millions of units)	4.6	26.4	75.1	137.5	159.5
Market share (percent)	23.6	38.4	52.1	62.5	67.6
Research In Motion (RIM)					
Sales (millions of units)	NA	0.9	0.8	0.4	--
Market share (percent)	NA	1.3	0.6	0.2	--
Windows					
Sales (millions of units)	NA	NA	1.3	6.5	10.9
Market share (percent)	NA	NA	0.9	3.0	4.6
Others					
Sales (millions of units)	0.1	0.9	1.2	1.2	0.5
Market share (percent)	0.3	1.4	0.8	0.5	0.2

Source: Adapted from Tom Mainelli, "Worldwide and U.S. Media Tablet 2012–2016 Forecast," IDC Research, April 2012, http://www.idc.com, accessed May 2012; and Jean Philippe Bouchard, "Worldwide and U.S. Tablet Plus 2-in-1 2014–2018 Forecast Update," IDC Research, December 22, 2014, www.idc.com, accessed March 2015.

Exhibit 9 Worldwide Smartwatch Sales, 2013–2014 (thousands of units, millions US$)

	2013			2014		
	Units Shipped	Revenue	Mkt. Share (Revenue)	Units Shipped	Revenue	Mkt. Share (Revenue)
Samsung	800	240	33.8%	1,200	300	23%
Lenovo/Motorola	--	--	--	500	125	10%
LG	--	--	--	420	97	7%
Pebble	300	45	6.3%	700	91	7%
Garmin	200	60	8.4%	400	88	7%
Sony	250	50	7.0%	550	83	6%
Fitbit	450	59	8.2%	600	72	6%
Others	**1,150**	**258**	**36.2%**	**1,625**	**283**	**34%**

Source: Adapted from "Top 10 Smartwatch Companies 2013 (Sales)," Smartwatch Group, http://www.smartwatchgroup.com/top-10-smartwatch-companies-sales/; and "Top 10 Smartwatch Companies 2014 (Sales)," Smartwatch Group, http://www.smartwatchgroup.com/top-10-smartwatch-companies-sales-2014/, accessed March 22, 2015.

Endnotes

[1] Apple Inc., Form 10-Q, for the Fiscal Quarter Ended December 27, 2014.

[2] This discussion of Apple's history is based largely on Jim Carlton, *Apple: The Inside Story of Intrigue, Egomania, and Business Blunders* (New York: Times Business/Random House, 1997); David B. Yoffie, "Apple Computer—1992," HBS No. 792-081 (Boston: Harvard Business School Publishing, 1992); and David B. Yoffie and Yusi Wang, "Apple Computer—2002," HBS No. 702-469 (Boston: Harvard Business School Publishing, 2002). Unless otherwise attributed, all quotations and all data cited in this section are drawn from those two cases.

[3] Carlton, *Apple,* p. 10.

[4] "Steve Jobs Takes Another Bite at Apple," *The Independent*, January 6, 1997.

[5] Yoffie, "Apple Computer—1992."

[6] David B. Yoffie, "Apple Computer—1996," HBS No. 796-126 (Boston: Harvard Business School Publishing, 1996).

[7] Charles McCoy, "Apple, IBM Kill Kaleida Labs Venture," *Wall Street Journal,* November 20, 1995.

[8] Louise Kehoe, "Apple Shares Drop Sharply," *Financial Times,* January 19, 1996.

[9] David Kirkpatrick, "The Second Coming of Apple," *Fortune,* November 9, 1998.

[10] David Gebler, "Illuminating Apple's Culture of Secrecy," Portofolio.com, April 17, 2012, http://www.portfolio.com/companies-executives/2012/04/17/david-gebler-on-how-apple-can-shed-its-culture-of-secrecy#ixzz1u5HXYOz7, accessed May 2012.

[11] Walter Isaacson, *Steve Jobs* (New York: Simon and Schuster, 2011), p. 569.

[12] "MacBook Air and the environment," http://www.apple.com/macbook-air/environment.html, accessed March 2010.

[13] "IDC Expects PC Shipments to Fall by -6% in 2014 and Decline through 2018," IDC press release, March 4, 2014.

[14] See Angelo Zino, "Computers: Hardware," S&P Capital IQ Industry Survey (New York: September 2014), p. 26; "IDC Expects PC Shipments to Fall by -6% in 2014 and Decline through 2018," IDC press release; and "PC Leaders Continue Growth and Share Gains as Market Remains Slow," IDC press release, January 12, 2015.

[15] IDC (International Data Corp.) data, as cited in Megan Graham-Hackett, "Computers: Hardware," Standard & Poor's Industry Surveys, December 8, 2005, p. 7.

[16] Dylan Cathers, "Computers: Hardware," Standard & Poor's Industry Surveys, October 27, 2011, p. 15; and Angelo Zino, "Computers: Hardware," S&P Capital IQ Industry Surveys, September 2014.

[17] FY 2014 financial results for Acer, ASUS, HP, and Lenovo, and FY 2013 results for Dell from ThomsonOne, accessed February 11, 2015; see also Charles Arthur, "How the 'Value Trap' Squeezes Windows PC Manufacturers," *The Guardian*, January 9, 2014, http://www.theguardian.com/technology/2014/jan/09/pc-value-trap-windows-chrome-hp-dell-lenovo-asus-acer, accessed February 11, 2015, which reached a similar conclusion for the same companies for 2013.

[18] Peter Misek, Jason North, and Billy Kim, "Computer Hardware—Cutting HP and Dell Estimates: Checks Indicate PC Sales Slowing Materially," Jefferies, March 15, 2012, p. 9; and James Chiu and Kevin YH Chen, "Lenovo: Premium Valuation Justified; Initiate with OW," Piper Jaffray, March 9, 2012, p. 13.

[19] Gartner Personal Computer Quarterly Statistics Worldwide Database, 2/12, cited in Mark Moskowitz, Anthony Luscri, Mike Kim, Gokul Hariharan, Alvin Kwock, John DiFucci, Sterling Auty, Tien-tsin Huang, and Harlan Sur, "Global Technology: IT Spending Pulse: 2012 Off to a Good Start in Most Tech Segments; Lifting PC and Tablet Forecasts," JP Morgan, March 13, 2012, p. 29. See Rajani Singh, "Worldwide PC 2014–2018 Forecast Update: November 2014," IDC, December 29, 2014, http://www.idc.com/getdoc.jsp?containerId=252724&pageType=PRINTFRIENDLY, accessed February 10, 2015.

[20] Rajani Singh and Linn Huang, "Worldwide and U.S. PC Client Sub Form Factor 2012–2015 Forecast," IDC, March 2012, p. 4; Rajani Singh and David Daoud, "Worldwide PC 2011–2015 Forecast Update: December 2011," IDC, December 2011, p. 7; and Singh, "Worldwide PC 2014–2018 Forecast Update: November 2014," p. 6.

[21] Thomas W. Smith, "Computers: Hardware," Standard & Poor's Industry Surveys, October 22, 2009, p. 18.

[22] "Why Buy a Generic PC?" *PC Generic*, April 30, 2009, http://www.pcgeneric.com/articles/5131/Why-buy-a-generic-PC, accessed March 2010; and "Profiting in China's White-Box PC Market," Gartner Research, August 21, 2012.

[23] "PC Market Stumbles on HDD Shortage While U.S. Market Sees World Annual Growth Since 2011," IDC press release, January 11, 2012, http://www.idc.com/getdoc.jsp?containerId=prUS23261412, accessed April 2012.

[24] Chiu and Chen, "Lenovo," p. 1.

[25] Kulbinder Garcha, Deepak Sitaraman, Vlad Rom, Alban Gashi, Talal Khan, and Matthew Cabral, "Hewlett-Packard: Still in Transition," Credit Suisse, February 23, 2012, p. 1, accessed April 2012; and Kulbinder Garcha, Deepak Sitaraman, Vlad Rom, Alban Gashi, Talal Khan, and Matthew Cabral, "Hewlett-Packard: Transition continues with reorganization," Credit Suisse, March 21, 2012, p. 1, accessed April 2012.

[26] "PC Market Stumbles on HDD Shortage While U.S. Market Sees World Annual Growth Since 2011," IDC press release.

[27] "PC Leaders Continue Growth and Share Gains as Market Remains Slow," IDC press release, January 12, 2015.

[28] See Connie Guglielmo, "Dell Officially Goes Private: Inside The Nastiest Tech Buyout Ever," *Forbes,* October 30, 2013, http://www.forbes.com/sites/connieguglielmo/2013/10/30/you-wont-have-michael-dell-to-kick-around-anymore/, accessed February 10, 2015.

[29] See Shane Rao, "Worldwide PC and x86 Server Microprocessor 4Q14 Vendor Shares," IDC, January 28, 2015.

[30] Clyde Montevirgen and Karan Kawaguchi, "Semiconductors," Standard & Poor's Industry Surveys, May 31, 2007, p. 25.

[31] "Global market share held by operating systems of Desktop PCs from January 2012 to December 2014," *Statista*, January 2015, http://www.statista.com/statistics/218089/global-market-share-of-windows-7/, accessed February 11, 2015.

[32] David B. Yoffie, Dharmesh M. Mehta, and Rudina I. Suseri, "Microsoft in 2005," HBS Case No. 705-505 (Boston: Harvard Business School Publishing, 2006).

[33] Arik Hesseldahl, "What's Behind Apple's iWork?" *BusinessWeek Online*, August 10, 2007, via Factiva, accessed April 2010.

[34] Gary Marshall, "Why you should seriously consider a Chromebook as your next laptop," TechRadar, May 23, 2014, http://www.techradar.com/us/news/mobile-computing/don-t-fear-google-s-chromebooks-they-won-t-go-extinct-like-netbooks-did-1249814, accessed March 9, 2015; Gregg Keizer, "Mac and Chromebook Sales Erode Windows PCs' Retail Share," *ComputerWorld,* September 26, 2014, http://www.computerworld.com/article/2687742/mac-and-chromebook-sales-erode-windows-pcs-retail-share.html, accessed March 3, 2015; and Singh, "Worldwide PC 2014–2018 Forecast Update: November 2014."

[35]"PC Leaders Continue Growth and Share Gains as Market Remains Slow," IDC press release, January 12, 2015.

[36] "Windows 7 Release May Test Apple's Winning Streak," Reuters News, October 14, 2009, via Factiva, accessed March 2010.

[37] Dylan Cathers, "Computer Hardware Industry Reports," Standard & Poor's NetAdvantage Database, April 19, 2012, p. 6, accessed April 2012; and "PC Leaders Continue Growth and Share Gains as Markets Remain Slow," IDC press release.

[38] Brent Schlender, "How Big Can Apple Get?" *Fortune*, February 21, 2005, p. 66.

[39] Apple Inc., Form 10-K, October 27, 2014 (Cupertino, CA, 2011), p. 32.

[40] Katie Hafner, "Inside Apple Stores, a Certain Aura Enchants the Faithful," *New York Times*, December 27, 2007, p. C1, via Factiva, accessed December 2007.

[41] Isaacson, *Steve Jobs*, p. 389.

[42] Thomas Ricker, "iSuppli: New iPod Nano Costs Apple Less than $83 in Components," September 19, 2007, http://www.engadget.com/2007/09/19/isuppli-new-ipod-nanos-cost-apple-just-59-and-83-in-component/, accessed March 2010.

[43] Isaacson, *Steve Jobs*, p. 405.

[44] iTunes was available from 2001 with the original iPod, but the functionality as a store did not come until 2003.

[45] Chris Taylor, "The 99¢ Solution," *Time*, November 17, 2003, p. 66, via Factiva, accessed November 2007.

[46] "iTunes Store Tops 10 Billion Songs Sold," Apple Inc. press release (Cupertino, CA, February 25, 2010).

[47] Apple, Inc., December 21, 2001, Form 10-K405 (filed December 21, 2001); Apple, Inc., December 19, 2002, Form 10-K (filed December 19, 2002); Apple, Inc., May 13, 2003, Form 10-Q (filed May 13, 2003); and "Number of iPods sold through 2002: 600,000," Apple press release, July 2002, http://www.apple.com/pr/products/ipodhistory/, accessed May 2012.

[48] Bill Shope, Elizabeth Borbolla, and Mark Moskowitz, "Apple Computer: iPod Economics II," JP Morgan, May 26, 2005, p. 26; and Ronald Grover and Peter Burrows, "Universal Music Takes on iTunes," *BusinessWeek*, October 22, 2007, p. 30, via Factiva, accessed October 2007.

[49] Shope et al., "Apple Computer: iPod Economics II," p. 26; and Grover and Burrows, "Universal Music Takes on iTunes," pp. 8–10.

[50] Michael Arrington, "Spotify Closing New Financing at €200 Million Valuation, Music Labels Already Shareholders," *TechCrunch*, August 9, 2009, http://techcrunch.com/2009/08/04/spotify-closing-new-financing-at-e200-million-valuation-music-labels-already-shareholders/, accessed April 2010.

[51] Hannah Karp, "Apple iTunes Sees Big Drop in Music Sales," *Wall Street Journal*, October 24, 2014, http://www.wsj.com/articles/itunes-music-sales-down-more-than-13-this-year-1414166672, accessed February 10, 2015.

[52] Isaacson, *Steve Jobs*, p. 474.

[53] Donna Fuscaldo and Mark Boslet, "Jobs Says Apple to Rename Itself Apple Inc.," Dow Jones News Service, January 9, 2007, via Factiva, accessed March 2010.

[54] Darrell Etherington, "iPhone 4S: Siri's international limitations," October 14, 2011, http://gigaom.com/apple/iphone-4s-siris-international-limitations/, accessed April 2012.

[55] "Sprint's commitment to Apple might be less than expected," S4GRU, February 28, 2012, http://s4gru.com/index.php?/topic/339-sprints-committment-to-apple-might-be-less-than-expected/, accessed May 2012.

[56] See Neil Hughes, "Apple & Samsung combine for 106% of handset profits as competitors continue to bleed cash," *AppleInsider*, May 8, 2014, http://appleinsider.com/articles/14/05/08/apple-samsung-combine-for-106-of-handset-profits-as-competitors-continue-to-bleed-cash, accessed March 3, 2015; "Gartner Says Smartphone Sales Surpassed One Billion Units in 2014," Gartner press release, March 3, 2015; and Brian X. Chen, "Apple Grabs 93% of the Handset Industry's Profit, Report Says," *New York Times Bits*, February 9, 2015, http://bits.blogs.nytimes.com/2015/02/09/apple-grabs-93-of-the-handset-industrys-profit-report-says/?mabReward=A4&action=click&pgtype=Homepage&region=CColumn&module=Recommendation&src=rechp&WT.nav=RecEngine&_r=0, accessed February 25, 2015.

[57] See Apple Inc., Form 10-Q for the period ending December 27, 2014, p. 26, filed January 28, 2015; and "Worldwide Smartphone Growth Forecast to Slow from a Boil to a Simmer as Prices Drop and Markets Mature," IDC press release, December 1, 2014.

[58] Andy Rassweiler, "iPhone 4S Carries BOM of $188, IHS iSuppli Teardown Analysis Reveals," IHS iSuppli Teardown Analysis, October 20, 2011, http://www.isuppli.com/Teardowns/News/Pages/iPhone-4S-Carries-BOM-of-$188,-IHS-iSuppli-Teardown-Analysis-Reveals.aspx, accessed April 2012.

[59] Arik Hesseldahl, "Tearing Down the iPhone 3GS," *BusinessWeek*, June 23, 2009, via Factiva, accessed April 2010.

[60] "Fair Labor Association Begins Inspections of Foxconn," Apple press release, http://www.apple.com/pr/library/2012/02/13Fair-Labor-Association-Begins-Inspections, February 13, 2012.

[61] Jason Kincaid, "Apple Has Sold 450,000 iPads, 50,000 Million iPhones to Date," April 8, 2010, http://techcrunch.com/2010/04/08/apple-has-sold-450000-ipads-50-million-iphones-to-date/, accessed May 2012; and Steve Ranger, "iOS versus Android. Apple App Store versus Google Play: Here comes the next battle in the app wars," *ZDNet*, January 16, 2015, http://www.zdnet.com/article/ios-versus-android-apple-app-store-versus-google-play-here-comes-the-next-battle-in-the-app-wars/, accessed February 15, 2015.

[62] Ranger, "iOS versus Android."

[63] Walter S. Mossberg, "Apps that Make the iPhone Worth the Price," *Wall Street Journal*, March 26, 2009.

[64] Apple Inc., Apple 10-K, October 27, 2014 (Cupertino, CA, p. 29), accessed February 2014.

[65] Ranger, "iOS versus Android."

[66] "In a Near Tie, Apple Closes the Gap on Samsung in the Fourth Quarter as Worldwide Smartphone Shipments Top 1.3 Billion for 2014," IDC press release, January 29, 2015.

[67] See Rob Price, "Android Just Achieved Something it Will Take Apple years to Do," *Business Insider U.K.*, online, February 2, 2015, http://U.K..businessinsider.com/android-1-billion-shipments-2014-strategy-analytics-2015-2, accessed February 17, 2015.

[68] "In a Near Tie, Apple Closes the Gap on Samsung in the Fourth Quarter," IDC press release.

[69] Gerry Shih, "After China smartphone success, Lenovo plans leap forward overseas," Reuters, August 14, 2014, http://www.reuters.com/article/2014/08/14/us-lenovo-results-idUSKBN0GE01B20140814, accessed February 15, 2015; and "In a Near Tie, Apple Closes the Gap on Samsung in the Fourth Quarter," IDC press release.

[70] See Xiaohan Tay et al., "Xiaomi: A Disruptive Force in China's Smartphone Market," IDC Vendor Profile, IDC, May 2014; "In a Near Tie, Apple Closes the Gap on Samsung in the Fourth Quarter," IDC press release; and Eva Dou, "Xiaomi Expects Sales to Surge in 2015," *Wall Street Journal online*, http://www.wsj.com/articles/xiaomi-expects-sales-to-surge-in-2015-1425532934, accessed March 9, 2015.

[71] See Ranger, "iOS versus Android."

[72] David B. Yoffie, Juan Alcacer, and Renee Kim, "HTC Corp. in 2012," HBS No. 712-423 (Boston: Harvard Business School Publishing, May 2012).

[73] Data are for the first three quarters of 2014; see "Smartphone Apps Processor Revenue Jumped 16 Percent in Q3 2014," *Strategy Analytics*, January 27, 2015, http://www.strategyanalytics.com/default.aspx?mod=pressreleaseviewer&a0=5638; "Qualcomm, Apple, MediaTek grab 80% share in smartphone; applications processor market," *Telecom Lead*, July 16, 2014, http://www.telecomlead.com/telecom-statistics/qualcomm-apple-mediatek-grab-80-share-smartphone-applications-processor-market-51828; and "Smartphone Apps Processor Revenue Reached $5.2 Billion in Q2 2014 says Strategy Analytics," PR Newswire, September 29, 2014, http://www.prnewswire.com/news-releases/smartphone-apps-processor-revenue-reached-52-billion-in-q2-2014-says-strategy-analytics-277467001.html, accessed March 23, 2015.

[74] Erika Brown, Elizabeth Corcoran, and Brian Caulfield, "Apple Buys Chip Designer," *Forbes.com*, April 23, 2008, via Factiva, accessed April 2010; and Ashlee Vance and Brad Stone, "Apple Buys Intrinsity, a Maker of Fast Chips," *New York Times*, April 27, 2010.

[75] Niley Patel, "Apple sues Samsung: a complete lawsuit analysis," *The Verge*, April 19, 2011, http://www.theverge.com/2011/04/19/apple-sues-samsung-analysis/, accessed April 2012.

[76] Isaacson, *Steve Jobs*, p. 396.

[77] Isaacson, *Steve Jobs*, p. 512.

[78] Peter Sayer, "Ericsson seeks US sales ban of Apple iPhone, iPad in patent lawsuit barrage," *PCWorld*, February 27, 2015, http://www.pcworld.com/article/2890052/ericsson-seeks-to-block-sales-of-apple-products-in-us-stepping-up-patent-dispute.html, accessed March 9, 2015.

[79] Isaacson, *Steve Jobs*, p. 567.

[80] Isaacson, *Steve Jobs*, p. 527.

[81] "Apple Sells over 300,000 iPads First Day," Apple Inc. press release (Cupertino, CA, April 5, 2010).

[82] See Apple 10-K, 2012 and 2014.

[83] Tom Mainelli, "Worldwide and U.S. Media Tablet 2012–2016 Forecast," April 2012, p. 12.

[84] Online Publishers Association, "A Portrait of Today's Tablet Users," June 2011, http://onlinepubs.ehclients.com/images/pdf/MMF-OPA_--_Portait_of_Todays_Tablet_User_--_Jun2211_%28Final-Public%29, accessed December 2011.

[85] Sam Costello, "How Many Apps are in the iPhone App Store," AboutTech, http://ipod.about.com/od/iphonesoftwareterms/qt/apps-in-app-store.htm, accessed February 2014.

[86] Tony Daltario, "Advantage Amazon in the e-book Market," *Motley Fool*, April 18, 2012, http://beta.fool.com/tdalmoe/2012/04/18/advantage-amazon-ebook-industry/3715/, accessed April 2012.

[87] Brian X. Chen and Nicole Perlroth, "Settlement in Apple Case over E-Books is Approved," *New York Times online*, November 21, 2014, http://www.nytimes.com/2014/11/22/technology/judge-approves-450-million-settlement-in-apple-e-book-case.html, accessed February 18, 2015.

[88] A. M. (Toni) Sacconaghi Jr., Pierre Ferragu, Alberto Moel, and Stacy A. Rasgon, "Let's Talk Tablets: A Form Factor Revolution?" Bernstein Research, June 2011, p. 13, accessed May 2012.

[89] "Gartner Says Worldwide Tablet Sales Grew 68 Percent in 2013, With Android Capturing 62 Percent of the Market," Gartner press release, March 3, 2014, http://www.gartner.com/newsroom/id/2674215, accessed February 16, 2015; see also "Global market share held by tablet operating systems from 2010 to 2014, by quarter," *Statista*, http://www.statista.com/statistics/273840/global-market-share-of-tablet-operating-systems-since-2010/, accessed February 16, 2015.

[90] "Worldwide Tablet Shipments Experience First Year Over Year Decline in the Fourth Quarter While Full Year Shipments Show Modest Growth," IDC press release, February 2, 2015.

[91] Rosa Golijan, "Amazon's $199 Kindle Fire costs estimated $202 to make," *Technolog*, http://www.technolog.msnbc.msn.com/technology/technolog/amazons-199-kindle-fire-costs-estimated-202-make-119003#/technology/technolog/amazons-199-kindle-fire-costs-estimated-202-make-119003, accessed May 2012.

[92] "Worldwide Tablet Shipments Experience First Year Over Year Decline in the Fourth Quarter," IDC press release.

[93] "Garter Says World Worldwide Tablet Sales Grew 68 percent in 2013," Gartner press release; and Don Clark, "Microsoft Takes $900 Million Writeoff on Tablet," *Wall Street Journal Digits*, July 18, 2013, http://blogs.wsj.com/digits/2013/07/18/microsoft-takes-900-million-writeoff-on-struggling-surface-tablet/, accessed March 17, 2015.

[94] Apple Inc., 2014 Form 10-K, p. 28.

[95] David Goldman, "Tim Cook's Apple is hot. But can it keep going?" CNNMoney, January 29, 2015, http://money.cnn.com/2015/01/29/technology/tim-cook-apple/index.html?iid=EL, accessed February 9, 2015.

[96] "Worldwide Tablet Shipments Experience First Year Over Year Decline in the Fourth Quarter," IDC press release.

[97] Isaacson, *Steve Jobs*, p. 533.

[98] "Apple to Launch iCloud on October 12," Apple press release, October 4, 2011, http://www.apple.com/pr/library/2011/10/04Apple-to-Launch-iCloud-on-October-12.html, accessed April 2012.

[99] Robert McMillon, "Wired Scores Exclusive Aerial Photos of Apple's 'Area i51,'" *Wired Enterprise*, April 6, 2012, http://www.wired.com/wiredenterprise/2012/04/apples-secret-data-center/, accessed May 2012.

[100] Caitlin McGarry, "Apple Pay Adoption Keeps Climbing: Chase Says 1 Million Customers on Board," *Macworld,* February 25, 2015, http://www.macworld.com/article/2889012/apple-pay-adoption-keeps-climbing-chase-says-1-million-customers-on-board.html, accessed February 27, 2015.