
APPLE INC.: PRODUCT PORTFOLIO ANALYSIS

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CASE DESCRIPTION

This case assesses a company's product line mix relative to two marketing environmental factors and explores four product line growth strategies using a product portfolio analysis approach. The case provides a history of the Apple Computer Company and its key product lines. An approach to analyzing a company's product portfolio is reviewed and applied to Apple's product lines. Students will be able to see how each Apple product line fits within the portfolio analysis tool and will be asked questions relative to possible strategies for Apple's product portfolio. The case has a difficulty level 2 and is designed to be covered within one (75 minute) class period. The required preparation time is about 2 hours. It is appropriate for marketing principles, marketing strategy, strategic management, and corporate entrepreneurship classes. The purpose of this case is to illustrate to students one approach to making decisions about a company's line of products. The case also stimulates critical thinking in regards to the future direction of a company's product portfolio.

CASE SYNOPSIS

The Apple Computer Company is arguably one of the most innovative technology companies to emerge in the last three decades. Apple, Inc. is responsible for bringing to market such products as the Macintosh desktop and the portable computer, iPod and iTunes, and most recently, the iPhone. The success of the company can be traced to the ingenuity of their founder and CEO, Steven Jobs. His philosophy has always been to create products that consumers find easy to use and integrate innovative technology. Throughout Apple's history it has accomplished these goals. However, with a growing line of products, a competitive market landscape, and an unpredictable technology lifecycle curve, the company faces challenges as to the direction of its product lines. The case gives an overview of a tool that is used to analyze a company's product line portfolio and applies it to Apple, Inc.'s array of products. Questions for discussion are provided to enable students to use critical thinking skills in applying the case material.

INTRODUCTION

Apple, Inc. stands for innovation in personal computing and digital media distribution. The company aims for nothing short of a revolution when designing, developing, and distributing its line of products (www.Hoovers.com). Apple's products range from a host of desktop and portable computers geared for the consumer and education markets, digital music players (iPod), online music store (iTunes), and SmartPhone (iPhone). Applications are designed for user convenience and productivity.

Competition for market share in any one of Apple's product offerings is fierce and top competitors come from a formidable list which include Dell, Hewlett Packard, Microsoft, and Nokia (to mention a few). Users of Apple's products can be fickle, which causes a revolutionary product like the iPod to give way to newer technologies like the iPhone within the span of five years. Thus, the ability to accurately assess and forecast the market demand for products can mean the difference between corporate profit and loss.

At the helm of these important decisions is Apple's visionary CEO, Steven Jobs. Jobs understood that given the competitive landscape and market growth opportunities for Apple's products, it is critical for him and the company to periodically assess its product line portfolio. This case provides the background of Apple Inc., its core product lines, and presents the feasibility of utilizing a product line portfolio tool to assist Jobs and Apple in identifying strategies to hold, build, harvest, or divest their product lines.

HISTORY OF APPLE, INC.

The Apple Computer Company was founded by two college dropouts Steve Jobs and Steven Wozniak in 1976. Within 2 months of building their first computer circuit board in their garage, they had sales orders for 200 units. The venture was capitalized from money raised by the sale of Job's van and Wozniak's HP calculator and the company was named after a 220 acre farm in Oregon that Jobs was part owner (Wozniak and Smith, 2006; Young and Simon, 2005). Working as a team, Wozniak was the technical genius and Jobs was the visionary whose mission was to bring an easy-to-use computer to the market (Yoffie and Slind, 2008). Fueled by the successful launch of the Apple II computer (a simple machine that people used straight out of the box), which sold more than 100,000 units, Apple began selling publicly offered stock by the end of 1980.

Jobs was forced to leave Apple in 1984 after the company sustained net income losses of 17%. In the years leading up to this crisis, Apple introduced the Macintosh computer ("Mac") which, despite its sleek and user friendly design, sales lagged. The estimated reasons for the collapse in sales were the slow processing speeds and incompatible software.

Jobs was replaced by John Sculley, whose focus was to improve the Mac design to lead the computer industry in desktop publishing and provide a more user friendly alternative to users of IBM compatible machines. Under Sculley, Apple was able to drive down costs by shifting much of its manufacturing to subcontractors. But because gross margin on Apple products fell to a 10 year low in 1993, Apple's board decided to appoint a new company president. This move prompted Sculley to leave Apple. From 1993 to 1997, Apple cycled through two more company heads, Michael Spindler and Gilbert Amelio.

Spindler's focus was on the education (K-12) and desktop publishing markets which Apple held 60% and 80% market share respectively. Expansion internationally was a priority under Spindler since 45% of 1992 sales came from outside the U.S. To slash costs, Research and Development spending was cut and 16% of Apple's workforce was reduced (Yoffie, 2005).

Despite these efforts, Apple's customers became disloyal. A 1995 *Computerworld* survey revealed that almost half of Apple's users expected to buy an Intel-based PC (Yoffie,

1996). This consumer sentiment was realized as Apple reported a \$69 million loss for its first fiscal quarter of 1996 (Kehoe, 1996). Gilbert Amelio, an Apple director replaced Spindler as CEO in 1996. He saw the need to update the Mac operating system and announced that Apple would acquire NeXT Software Company to refresh the Mac OS. NeXT founder, Steve Jobs was hired on as part time advisor and ultimately returned as the interim CEO of Apple when Amelio was released due to poor company earnings under his leadership (Apple lost \$1.6 billion during this period).

In 1997 Apple was once again under the control of Steve Jobs and he wasted little time in turning the company turnaround. He arranged for Microsoft to invest \$150 million in Apple. He was committed to making Apple's products compatible with Microsoft Office, a move that pleased many users (Moisescot, 2008). Products such as the iMac were introduced allowing consumers to "plug and play" peripherals compatible with Windows-based machines. During this period, Jobs changed Apple's image to a "hip" alternative to other brands – computers that offered a cutting-edge, tightly integrated user experience (Edwards and Burrows, 2007). The company thrived under Job's visionary leadership. By the new millennium, digital convergence of the personal computer with other consumer electronics had become a reality and in 2010, Jobs was named Fortune Magazine's "CEO of the decade" (November 5, 2009). However, to continue this trend of innovative product offerings, Jobs and Apple Inc. needed to remain in front of the demand curve by strategically designing and marketing new products to capture the productivity, communication, and entertainment needs of a very loyal customer base.

APPLE PRODUCT LINES AND BUSINESS STRATEGY

Since 2001, Steve Jobs worked to make Apple, Inc. a household name and a cultural force (Deutschman, 2000). Apple offers a range of personal computing products including desktop and portable personal computers, related devices, and peripherals. Software products include the Mac OS X (proprietary operating system software for the Mac), server software and related solutions, professional application software, consumer education, and business oriented application software. Apple also designs, develops, and markets to Mac and Windows users its family of iPod digital music players and its iPhone mobile communication devices, along with related accessories and services, including the online distribution of content through the Apple iTunes Store. This array of product offerings has made Apple Inc. one of the most financially successful technology companies of the last decade. Exhibit 1 illustrated the annual net sales revenue of Apple products since 2005.

Apple's business strategy is to "bring the best personal computing, portable digital music and mobile communication experience to consumers, students, educators, businesses, and government agencies through innovative hardware, software, peripherals, services, and Internet offerings." (Apple Inc. Annual Report, 2008). This strategy allows Apple to leverage its unique ability to design and develop its own operating system, hardware, application software, and services to provide its customers new products and solutions with superior ease-of-use, seamless integration, and innovative industrial design. Continual investment in research and development is believed to be the key to capitalizing on the convergence of the personal computer, digital

consumer electronics, and mobile communications market. However, like many companies that offered a broad spectrum of product and service lines, some means to periodically assess and adjust the product/service portfolio is necessary. The following section describes a tool that Jobs and Apple could utilize to examine and make some strategic decisions relative to their line of products.

Exhibit 1: Apple Inc. Net Sales by Product Line 2005-2010 (in millions of dollars)						
Product Line	2005	2006	2007	2008	2009	2010*
Desktop Computers ^a	3,436	3,319	4,020	5,603	4,324	1,532
Portable Computers ^b	2,839	4,056	6,294	8,673	9,535	2,228
iPod	4,540	7,676	8,305	9,153	8,091	1,861
Other music products ^c	899	1,885	2,496	3,340	4,036	1,327
iPhone and related products	NA	NA	123	1,844	13,033	5,445
Peripherals and other hardware ^d	1,126	1,100	1,260	1,659	1,475	472
Software, services, and other sales ^e	1,091	1,508	628	2,207	2,411	634

* Quarter ending March 27, 2010. Sources: Apple financial statements (www.apple.com), Yoffie and Slind (2008).

^a Includes iMac, eMac, Mac Mini, Mac Pro, Power Mac, and Xserve product lines.

^b Includes MacBook, iBook, MacBook Pro, and PowerBook product lines.

^c Includes sales from iTunes Music Store, iPod-related services, and iPod related accessories.

^d Includes sales of Apple-branded and third-party displays, wireless connectivity and networking solutions, and other hardware accessories.

^e Includes sales of Apple-branded operating system, application software, third-party software, AppleCare Services, and Internet Services.

PRODUCT PORTFOLIO ANALYSIS BACKGROUND

Utilizing a product portfolio analysis, Jobs and his management team could potentially evaluate the various Apple products to determine which are expected to be the most profitable to the firm in the future. Such an analysis would be important because it would impact the allocation of resources, the amount of cash available to fund other Apple ventures, and signal to shareholders the direction of the company.

Typically, a portfolio analysis is performed at the product line level of the firm and each product line usually represents a strategic business unit (SBU) within the scope of the company (Ingram, LaForge, Avila, Schwepker, and Williams, 2009). Although each SBU should have an independent management structure responsible for a single product line's profits and losses, it could be tailored to a company like Apple where a single set of marketing and sales goals are common to the entire corporation.

For firms like Apple with multiple brands or product lines, a product portfolio analysis is necessary to determine where resources should be applied or reallocated to ensure the maximum profitability of the corporation. Maintaining product lines that commanded a substantial share of a competitive and growing market is the ultimate goal while deciding to divest or sell off products lines that lag in growth and competitive market share. However, such decisions are not easy or apparent for firms. This is because forecasts for product demand are not always accurate (take for example the quick obsolescence of Apple's iPod shuffle – or in earlier years entertainment technologies like the laser disc, mini CD, and VHS Camcorders). These examples suggest that even the best business and marketing plans may not account for rapidly easing of demand for such products. In addition, many competitors marketed the same or similar products,

which impact a product line's successful contribution to profit margin. To account for both the market growth rate (demand) of a product line and its market share strength (share compared to its largest competitor), the Boston Consulting Group (BCG) developed a product portfolio analysis tool.

BCG GROWTH-SHARE MATRIX

The BCG Growth/Share matrix emerged as a popular portfolio analysis methods used by industry practitioners. It is a tool that could be applied to Apple's array of products. This tool enabled firms to classify all of their product lines in a 2 x 2 matrix according to the dimensions of relative market share and market growth rate. An example can be seen in Figure 1.

		Relative Market Share	
		High	Low
Market Growth Rate	High	Star <ul style="list-style-type: none"> • High growth and share • Profit potential • May need heavy investment to hold/sustain position 	Question Mark <ul style="list-style-type: none"> • High growth, low share • Build into stars or phase out • Requires cash to hold
	Low	Cash Cow <ul style="list-style-type: none"> • Low growth, high share • Established and successful product line • Source of harvesting cash for other product lines 	Dog <ul style="list-style-type: none"> • Low growth and share • Low profit potential • Consider divesting product line

The dimension of relative market share (horizontal axis) is defined by the product line's market share as compared to its *largest* competitor in the industry (Farris, Bendle, Pfeifer, and Reibstein, 2006). For example, in the personal computer industry, Apple's largest competitor was Dell (with 26% market share). Therefore, Apple's (9%) share of the personal computer market relative to Dell was approximately .34 (9/26). Thus, the delineation between low and high relative market share for a particular product line is 1.0. Market growth rate (vertical axis) is a measure of how attractive a particular market is to the firm and is quantified by the annual growth rate (usually expressed as percent growth) for that product line. For example, the projected growth rate of the entire personal computer market would be predicted by industry analysts like the Gartner group (www.gartner.com) and based on market research, forecasting, and expert opinion.

Given the estimates of relative market share (low-high) and its market growth rate (low-high), a product line can be categorized in one of the four cells illustratively named for the amount of resources generated from and required from the firm (Grewal and Levy, 2010). Figure 1 illustrates that a product line that is considered to be a *star* is one where the expected market demand (growth) is high and relative market share is also high. Resource requirements for stars suggested that a heavy investment in production and promotion are required. Financial resources to fund these activities typically come from product lines that generated cash (i.e., *cash cows*).

Product lines that are in low-growth markets but have high relative market share are *cash cows*. Such product lines had been stars at some point in time but because of a decrease in product demand (e.g., due to market saturation, new product introductions, etc.), financial resources are unnecessary for research and development and new production facilities. Instead, cash could be harvested from these product lines to fund new up and coming product lines in higher-growth markets (i.e., *question marks*). *Question marks* are product lines that are in high-growth markets but do not overcome the larger competitors due to higher levels of relative market share.

To compete more aggressively, significant financial resources are needed to market and promote these product lines. Ideally, the strategy is to build question marks into stars, however based on the question mark's position in the portfolio analysis matrix, it could move left and become a star (if market share increased) or it may move south (if demand for the product line decreased) and divestiture of the line becomes an option (i.e., *dogs*). *Dogs* are product lines with low market growth rates and low relative market share. Unless the firm has a compelling reason to keep these product lines in the product portfolio (e.g., they are needed to complement another product or service) strong consideration should be given to divesting them. The likelihood that dogs will become stars is low and the resources needed to sustain these product lines needs to be taken from others that contribute to the company's revenue and profit goals.

ASSESSING APPLE'S PRODUCT LINES

Desktop and Portable Computers

Steve Jobs and Steve Wozniak built Apple, Inc. from the development of its flagship line of desktop personal computers, known as the "Mac" (Kahney, 2004). Since its introduction in 1984, the Mac computer had undergone many transformations but had always been known for its stylish design, high performance levels, and competitive price (Linzmayr, 2004). Today's version of the iMac desktop computer, targeted at consumer, education and business customers features two duo processors running at up to 3.06GHz, up to 4GB of SDRAM memory, a faster graphics card option, built-in sight video camera, wireless networking, and Bluetooth compatibility. Over the last decade, the desktop computer market has been dominated by a few large Apple competitors. Exhibit 2 illustrates that currently, over 60% of the market is shared by Dell Computer (26.2%), Hewlett Packard (25.7%), and Apple (8.8%) (www.gartner.com^a). The industry outlook for desktop computer demand shows a downward trend, as last year, desktop computer sales (in units) registered only a modest increase of 2.9% and the forecast for 2010 suggests a decline of about 20.2% (www.physorg.com). This trend is illustrated in Exhibit 3.

However, Apple's outlook for its line of laptop personal computers is a bit brighter. Jobs introduced the first laptop (notebook) computer in 1991. The original "PowerBook" line was very successful and evolved over the next 18 years to the current version known as the MacBook. This portable computer was designed specifically for consumer and education users; included a 13-inch widescreen display, a built-in video camera, and a magnetic power adapter. Newer MacBook models featured an all-metal enclosure, LED-backlit glossy widescreen

display, Intel Core 2 Duo processors running at up to 2.4GHz, built-in wireless networking and Bluetooth capabilities (Kahney, 2008).

Exhibit 2: Top competitors by Product Line 2008-2009 (% share of units sold)		
Product Line	2008	2009
Desktop and Portable Computers		
Apple	8.6	8.8
Dell	29.9	26.2
Hewlett Packard	26.0	25.7
MP3 Players		
Apple	72.0	71.0
Scandisk	10.0	11.0
Microsoft	3.0	4.0
SmartPhones		
Apple	2.8	14.4
Nokia	47.4	36.4
Research in Motion	17.3	19.9
Sources: Van Buskirk (2009), www.gartner.com ^a , www.gartner.com ^b , www.gartner.com ^c , Hefflinger (2008), Schonfeld (2010).		

Although Apple continues to chip away at market share from its biggest competitor (Dell), it still lags behind (see Exhibit 2). But, the market forecast for portable computer (laptop/notebook) sales suggests that it is a growing segment with industry experts predicting an annual (2009-2010) increase upwards of 50%, a trend primarily driven by the demand for smaller devices and ubiquitous internet access (www.gartner.com^a).

iPod

Jobs and Apple were late to enter the MP3 market. In 2001 they began selling their line of iPods (versions included a full size, mini, nano, and shuffle). The iPod was released to compete with traditional MP3 players and its major advantages were its compact size, large storage capacity, and speed of uploading music. The original iPod was sleek and small, weighing only 6 ½ ounces. It had the ability to hold up to a thousand songs in its huge five gigabyte hard drive and could load one thousand songs in as little as ten minutes. Its battery could hold a charge for up to 10 hours and it was simply integrated with its popular iTunes online music store.

Apple's iTunes was the first to introduce an online store for selling music downloads and quickly gained market share as consumers quickly took to this new and innovative way of obtaining music (Boddie, 2005). For as little as 99 cents per song, consumers could choose music from the major record labels and thousands of independent ones (Yoffie and Slind, 2008). Today, the popularity of the iPod since its inception puts it on track to become the all time largest selling consumer electronics product (Mark and Crossan, 2005).

To date, over 71% of all industry MP3 player sales are Apple iPods relative to Scandisk's 11% share and Microsoft's 4%. Exhibit 2 illustrates Apple's dominance in this market (Van Buskirk, 2009). However, demand for MP3 players is shrinking (see Exhibit 3) and based on other devices that can provide music playing capabilities, there are risks that the MP3 player is due for a market freefall (Hesseldahl, 2008). Sales of 2009 MP3 player units registered about 9.9 million, down 16.2% from 2008 (Elmer-Dewitt, 2009). However, projections for 2010,

suggest a more modest decline of about 2.1% over 2009 sales. Some reasons for the slowing decline are the introduction of more feature-rich models like the iPod touch, which includes a touch screen and wireless access to the internet and thousands of “apps”.

iPhone

In 2007 Apple joined forces with AT&T and introduced the iPhone. Marketed as the most sophisticated “smart phone”, the iPhone featured music playing capabilities, a 3.5 inch high quality interactive touch screen, a 2 mega-pixel camera, GPS capability, and access to thousands of Internet applications. Alliances with Yahoo!, YouTube, and Google provided popular services and video applications. The original iPhone models sold for between \$399 and \$499 and despite its initial selling price, iPhone sales exceeded 270,000 in the first 30 hours of its U.S. debut. The iPhone was a big hit! However, the introduction of the iPhone was not without its challenges. Users complained that the network access was slow, battery was not replaceable, and memory capacity could not be increased. In response to such customer feedback, Apple released a newer and faster version in 2008 that addressed some but not all of the problems. Upon releasing its fourth generation (G4) of the iPhone, Apple users once again experienced problems – this one stemming from a poorly designed antenna that would be blocked when users handled the phone. In response to this latest “hiccup”, Apple provided consumers a case, at no cost as a remedy.

The iPhone’s shortcomings allowed competitors to maintain market share in the smart phone industry. Recent industry market share estimates indicated a surge in iPhone sales between 2008 and 2009 (from 2.8% to 14.4%) (www.gartner.com^b). Despite this rapid increase in demand, Apple’s share of the smartphone market still lags relative to industry leaders Nokia (36.4%) and Research in Motion (19.9%) (O’Brien, 2009). The good news for Apple is that the growth and demand outlook for the smartphone market remains strong as industry experts predict the attractiveness of this market continuing for the next few years (Sutherland 2009).

Product Line	2008	2009	% Growth ('08-'09)	2010*	% Growth* ('09-'10)
Desktop Computers ^a	133.7	137.6	2.9	109.8	(20.2)
Portable Computers ^b	141.6	168.2	18.8	256.3	52.4
MP3 players	11.8	9.9	(16.2%)	9.7	(2.1)
SmartPhone/ related products	139.3	172.4	23.8	250.5	45.3

*Projected Sources: www.physorg.com, Southerland (2009), Elmer-Dewitt (2009), Schonfeld (2010), Purdy, J. (2009).

MARKETING AND DISTRIBUTION STRATEGY

Apple’s overwhelming success can be attributed to the marketing and distribution strategies for the iPod and iPhone (arguably its two most innovative products). Steve Job’s overall approach to marketing Apple products is to produce fresh and imaginative products that have a great style and design with sleek and enticing communications direct to the consumer (<http://www.verygoteam.com>). An effective advertising strategy for Apple was to depict their

products as trendy, cool, and hip (e.g., silhouettes of young people dancing with iPod headphones, iPhone user talking with friends while simultaneously accessing popular phone “apps”). It was cool and prestigious to own Apple products.

Both the iPod and iPhone entered markets that were already mature and saturated. Portable music devices such as the “walkman” enabled users to listen to music on the go as early as the 1980’s. However, the iPod’s early ability to store and retrieve up to 1000 songs revolutionized the portable music product line. By 2008, the iPod was responsible for Apple’s rapid success as a company. Not an instant success, when the iPod was introduced in 2001 it was initially a flop. Some say it was a product ahead of its time. But one factor (and early iPod “hiccup”) was that internet connections were initially very slow and until broadband became more common, high speed music downloads were problematic. In addition, Apple invested very little in the original communication and advertising of the iPod, relying mostly on word of mouth and “buzz” communication.

The iPhone also entered the saturated mobile phone market but not as a direct competitor to other phones designed to make phone calls or send text messages. Apple managed to develop a revolutionary product that some hailed as 5 years ahead of its competitors. The iPhone’s touch user interface and sleek/trendy design guaranteed its position as a one of a kind product crossing between a mobile communication device and a laptop computer (<http://www.vertygoteam.com>). The prestige of owning and using an iPhone has become a motivating factor in consumer adoption of the product (“there’s an app for that”). Its success and rapid growth in share has sparked other companies to mirror its functionality (e.g., the Android). There were however, several marketing glitches in Apple’s introduction of its iPhone. For one, the introductory price of the first iPhone was \$599. Within 3 months of the product launch, the price was reduced to \$399. Although rebates were made available to early adopters, Apple’s most faithful customers might have felt betrayed and exploited. A second mistake was forcing customers to sign with AT&T, the exclusive carrier of the iPhone. An oversubscribed AT&T network caused users to experience dropped calls, poor reception, and prevented consumers under contract with other mobile providers to obtain an iPhone.

The primary distribution strategy for Apple products are retail stores. These stores are known as “tech shrines” because they provide a space where consumers can see feel and touch all of the Apple products. Similar to Best Buy’s version of the “Geek Squad”, retail consultants are available to answer questions about the products and consumers can consult experts at the Apple store’s “genius bar”. Apple stores are a place where users of Apple products can get service and all consumers can try out new products and get excited about what the company has to offer. If imitation is the best form of flattery then Apple is doing something right with its in-store distribution strategy. Heavy hitting tech firms like Microsoft and Sony have begun to mirror Apple’s retail store environments.

SUMMARY

Steve Job’s business strategy for Apple Inc. centers on its ability to provide innovative computer, portable digital music, and mobile communication products to its customer base.

Such markets are characterized by rapid technological advances in both hardware and software resulting in the frequent introduction of new products with competitive price, feature, and performance characteristics. Price competition in these markets has been intense. Apple competitors who sold personal computers based on other operating systems aggressively cut prices and lowered their product margins to gain or maintain market share. In addition, as the personal computer industry and its customers placed more reliance on the Internet, an increasing number of Internet devices that were smaller, simpler, and less expensive than traditional personal computers were emerging.

The mobile communications industry is also highly competitive and includes several large, well-funded and experienced companies. Jobs and Apple anticipate that competition for SmartPhone customers will intensify as others attempt to imitate the iPhone's functionality and applications. Apple's music products and services face significant competition from other companies promoting their own digital music and content, including those offering free music and video services. Competitors with substantial resources may be able to provide such products and services at little or no profit or even at a loss to compete with Apple's iPod offerings.

Steve Jobs understands that the future of Apple Inc. rests with its ability to continue its strategy of offering new and innovative products. So far Jobs has done exactly that. Unlike other technology companies who hold focus groups and conduct market research, "Apple does not ask people what they wanted, it tells them what they were going to want next" (Grossman 2010, p 37). The main challenge for Steve Jobs, the visionary, is to be able to periodically and accurately assess their product line portfolio and to remain competitive and maximize Apple's corporate earnings. This case demonstrates how Apple might use the BCG Growth-Share portfolio analysis tool to accomplish this task.

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