

Apple Tunes Up¹

*On March 5, 2001, RIAA (Recording Industry Association of America) won a temporary injunction, which ordered Napster to stop trading copyrighted music over its network. In July 2001, despite attempts to overturn the court-imposed shutdown ruling, Napster had to close the doors on its MP3 file-trading network to comply with the court decision. On September 24, 2001, Napster finally agreed to pay over \$26 million to settle its legal battle with songwriters and music publishers and an additional \$10 million against future royalties.*²

As music industry sales were tumbling due to illegal file sharing services such as Napster, the market for digital music recording devices soared. The illegal downloading of music fueled the sales of these portable music players. Apple embraced this market and took advantage of the backlash against the RIAA (Recording Industry Association of America), which shut down Napster and heavily fined users of the service, by offering a user-friendly, legal downloading service, iTunes, to its consumers. Apple's iTunes cannot be accessed any other way. In its first 16 days, consumers purchased over two million songs from iTunes for \$.99 or \$9.99 for an entire CD. In late 2004, referring to the iPod, Apple's chief executive Steve Jobs said that the success of the iPod was at the core of the company's digital strategy. "We've done very well in innovating and creating new businesses, creating a US\$1 billion business in a few years."³ Apple's success with the iPod reinvigorated the Apple brand as a whole (**Exhibit 1a, 1b, and 1b**).

Birth of iPod

The iPod originated from a business idea dreamed up by Tony Fadell, an independent contractor and hardware expert, who had helped develop handheld devices at General Magic and Philips. Fadell's idea was to design and market a small hard-disk based MP3 player with a complementary music service.⁴ In early 2001 Fadell left Philips and approached several companies with the idea. One of these companies was RealNetworks. He joined RealNetworks to develop this product but quit only six weeks later over an argument over him moving to Seattle. Subsequently, he attempted to develop the MP3 player himself, via a startup, Fuse. Fuse collapsed because Fadell was unable to generate a second round of funding. It was then that Apple contacted Fadell to work on a product that was shrouded in the secrecy typical of Apple. All Fadell was told was that he was "qualified" to work on the project. After accepting an eight-week contract, he was told he would be designing an MP3 player compatible with Apple's iTunes platform.⁵ Satisfied with his work, Apple hired Fadell and assigned him a team to work on a portable MP3 player that would eventually become the iPod. Fadell is currently the vice president of Engineering for Apple's iPod Division and is credited with developing the first two generations of Apple's portable music device, the iPod.

¹ Designed by Gerard J. Tellis and prepared with the assistance of Om Singh and Kethan Tellis for classroom discussion only. © Gerard J. Tellis, Marshall School of Business, USC. Rev 7/31/07. **Please do not distribute.**

² Borland, John (2001) "Napster reaches settlement with publishers," *CNET News*, September 24.

³ Gibson, Brad (2004) "For Apple, Success Is Spelled 'i-P-o-d'," *Mac Observer*, April 15.

⁴ Kahney, Leander (2004) "Inside Look at Birth of the iPod," *Wired News*, July 22.

⁵ Levy, Stephen "The Perfect Thing" www.wired.com (November 2006)

Soon after being hired by Apple, Fadell approached PortalPlayer, a company that was already working on a couple of reference designs for an MP3 player.⁶ Ben Knauss was a senior manager at PortalPlayer. According to Knauss, in one of his first meetings with PortalPlayer, Fadell said, “This is the project that’s going to remold Apple and 10 years from now, it’s going to be a music business, not a computer business.”⁷ At the time, PortalPlayer had 12 customers designing MP3 players based on the company’s reference designs. Most were Asian hardware manufacturers, but also included Teac and IBM. However, PortalPlayer decided to go exclusively with Apple. “The interesting thing about the iPod was that since it started, it had 100 percent of Steve Jobs’ time,” said Knauss. “Not many projects get that. He was heavily involved in every single aspect of the project.”⁸

At the beginning of the project, Jobs held meetings about the iPod every two to three weeks, but when the first iPod prototypes were built, Jobs became involved daily. “They’d have meetings and Steve would be horribly offended he couldn’t get to the song he wanted in less than three pushes of a button,” Knauss said. “We’d get orders: ‘Steve doesn’t think it’s loud enough, the sharps aren’t sharp enough, or the menu’s not coming up fast enough.’ Every day there were comments from Steve saying where it needed to be.”⁹ In its ease of use, the iPod bears the stamp of Jobs, who has been relentless in his drive to simplify the look and feel of gadgets and rid them of buttons.¹⁰ As the iPod project neared completion, it was nearly killed when tests showed that the iPod drained its batteries even when powered down. The problem was eventually fixed and the iPod was launched successfully.

iPod through Generations

Early on, portable MP3 players could store only 10-20 songs. There were larger devices with built-in magnetic hard drives, able to store hundreds of songs, but were considered too large to be easily transported. There were also players that used flash memory, which were small but expensive. Up until 2002, only 5 million portable devices had been sold since their introduction in 1998, according to the Consumer Electronics Association (Arlington, VA).¹¹

Apple saw this inconvenience as an opportunity to create a portable, stylish product. It introduced the iPod, in October 23, 2001, weighing 6.5 oz with a 1,000 song capacity. The original iPod was a hard-disk based digital music player that was smaller than most of the portable music players available at the time. Hard-disk based MP3 players had been in the marketplace for some time, but Apple distinguished the iPod from these players in several ways. By using a 1.8” 5 GB hard-disk, Apple was able to make the iPod smaller than most other hard-disk MP3 players. At the same time, it was small enough to compete against flash-based players, whose capacity was an order of magnitude less than the 5 GB available on the iPod. Thus, the iPod was superior to both flash-based and hard-disk based players simultaneously.

Besides its remarkable size and capacity, the iPod also had impressive industrial design, something which had been distinctly missing from other hard-disk players in the marketplace. Apple took a simple hardware interface consisting of five buttons and a scroll wheel, and combined it with a simple user-interface based on Mac OS X’s column view. Additionally, the iPod used FireWire as its I/O

⁶ Sherman, Erik (2002) “Inside Apple iPod Design Triumph,” *Electronics DesignChain*, Summer Issue.

⁷ Kahney, Leander (2004) “Inside Look at Birth of the iPod,” *Wired News*, July 22.

⁸ Kahney, Leander (2004) “Inside Look at Birth of the iPod,” *Wired News*, July 22.

⁹ Kahney, Leander (2004) “Inside Look at Birth of the iPod,” *Wired News*, July 22.

¹⁰ Wingfield, Nick (2007), “Hide the Button: Steve Jobs Has His Finger on It,” *Wall Street Journal*, July 5, A1.

¹¹ Harris, Nicole (2002) “Listen Up: Manufacturers of MP3 Players Say New Devices Are Smaller and Easier to Use,” *Wall Street Journal*, March 5.

interface, as opposed to USB 1.1 which was the default standard at the time. The FireWire cable could sync the iPod thirty times faster than other portable music players, which used a USB cable. It also had a sophisticated 10-hour battery that recharged during synchronization. Further, the iPod could be used as a fast storage device for non-music files, such as pictures. Initially, iPod's greatest limitation was that it was only compatible with Macs. Jobs explained that this was intentional: "Our strategy is making Macintosh a digital hub, to make the way we do movies and image viewing and music to a point where you can't live without them."¹² This intention quickly changed, which allowed Apple to dominate the digital music player market.

The original iPod was a 5 GB hard drive, only compatible with Macs. The high pricing point of \$399 was not for the impulse buyers. Regardless, the iPod was wildly successful because of its portability and ease of use, a feature expected of Apple products. On July 17, 2002, Apple introduced a Windows-compatible iPod, with its internal hard drive formatted in FAT32 (file system used by windows) instead of the original HFS+. An iPod with its hard drive formatted as HFS+ operated only with a Macintosh, because Windows does not support HFS+, but since the Macintosh could handle FAT32, an iPod formatted as FAT32 could operate with a Macintosh as well as with a PC. Today, the iPod offers 30GB and 60GB models that hold up to 15,000 songs, full-color album art and up to 25,000 photos, 150 hours of video and a 2.5-inch color display. Apple has practiced innovation via expanded capabilities, including podcasts, and now, video. Within twenty days of introducing the iPod with video capability, over one million videos had been purchased from iTunes. This volume reflects a huge market that Apple is just tapping. Initially, the only doubt about the product was its pricing and its Mac exclusivity. However, soon thereafter, Apple addressed these issues by offering more bang for the buck through increased storage capacity and PC compatibility.

Mini

Launched in January 2004 as a less expensive and smaller alternative to the original iPod, with 4GB capacity and \$249 pricing point, the Mini was even more innovative in style and came in five colors. While it was still more expensive than its competitors, Apple was again relying on its ease of use and stylish design to capture the microdrive based digital music player market from competitors such as Creative's Zen Micro and Digital Networks' Rio Carbon. There were doubts, however, that its price point was too high to make significant inroads into this market. For only \$50 more, consumers could purchase an original iPod with over three times the capacity of the Mini. Such doubts were laid to rest as response to the Mini was exceedingly favorable, and demand for the Mini exceeded supply.¹³ Up until the point it was discontinued, the Mini was Apple's most successful product.

Shuffle

Launched in January 2005, the iPod Shuffle was introduced as an even smaller (smaller than a pack of gum), and inexpensive alternative to the higher priced Minis and original iPods.¹⁴ Within weeks, Apple sold out its initial inventory and was taking advance orders. Six months after the launch, the Shuffle was the market leader in the flash player market, with a 58% market share.¹⁵ Further, its sound quality is believed to be superior to that of the Mini. While it did not feature a screen nor control over the order of songs, the 528 MB and 1 GB Shuffles, at \$99 and \$149 respectively, made the product accessible to consumers who could not previously afford an iPod. A reviewer on Amazon commented "This is an

¹² Levy, Steven (2001) "Mac Music," *Newsweek*, November 5.

¹³ Dillon, Nancy (2004) "Giant Success for iPod Mini Demand Exceeds Apple Supply," *Daily News*, March 1.

¹⁴ Burrows, Peter (2005) "Apple's Bold Swim Downstream," *BusinessWeek*, January 24.

¹⁵ Bulik, Beth Snyder (2005) "iPod Shuffle," *Advertising Age*, November 7.

amazingly small version of an iPod that can hold a fair amount of music (about 12-15 CDS or so) and play it back with the really great sound that Apple's much pricier iPod players have."¹⁶

There was a risk that the low-priced Shuffle could cannibalize Apple's line of higher-priced iPods, but the sales of iPod's higher priced versions remained unaffected. Another risk in entering the flash-memory player market was the tougher competition expected from the established players. Thus overall, the Shuffle seems to have been very successful.

Nano

In September 2005, Apple took a risk by discontinuing its most successful product, the Mini, and introduced the Nano. This move was highly debatable because Apple scrapped a successful product to make way for an entirely new product. Apple justified the move as a necessary step to maintain innovation. "We're all consumers [at Apple] and we know what consumers like,"¹⁷ CEO Steve Jobs explained in an interview after his keynote. In other words, Jobs implied that Apple's engineers and programmers build products that they themselves want to use.

The Nano was 62% smaller than the Mini, 1.5 ounces, featuring a color screen, stopwatch, and superior sound quality to the iPod Mini. The pricing was slightly higher than the Mini, \$199 for the 2GB version and \$249 for the 4GB version.¹⁸ There certainly were doubts about the introduction of a substitute when the iPod Mini was doing so well. If the Mini had been in the marketplace, it is estimated that 7.4 million Minis would have been sold in the fourth quarter of 2005.¹⁹ There were complaints about battery quality and easy scratching. One bad batch of the Nano, with cracked and failing screens, received much attention. Yet, as with earlier iPod models, Nano's demand far exceeded supply at product launch. Clearly, Nano's incredibly compact size and portability has been a major draw, a reviewer on Amazon commented about this: "The 4GB Nano is great for storing a fair amount of songs to get you through various daily tasks. I use mine to get me through my workouts and I love it."²⁰

Over the years, the iPod has faced competition from players such as Creative's Zen, Microsoft's Zune, Digital Networks' Rio, and other devices from Samsung, SanDisk and Sony, but none has been able to challenge iPod's domination (**Exhibit 2**). Given Apple's strong brand identity and aggressive marketing campaign, non-iPod devices have had to compete on price to gain adoption. Even on price, because Apple has a massive relative shipment volume with the iPod as compared to other MP3 players, other manufacturers find it difficult to replicate the economies of scale achieved by Apple. Also although the competitors often have similar if not broader features than the iPod, they haven't been able to compete in two key areas: user friendliness and the "cool" look.

The iPod's sales show a sharp takeoff in 2004 and continued growth in sales with a seasonal pattern emerging (**Exhibit 3a**). The iPod has grown to dominate the digital audio player market in the US (**Exhibit 3b**), frequently topping best-seller lists. According to the latest financial statements, iPod accounts for 73% market share in the US (**Exhibit 2**). In other countries, the iPod market share may be lower, mostly due to high import taxes and less ubiquitous marketing. So, flash-memory or hard-disk players from competitors like Creative are dominant.

¹⁶ Sherman, D. R. (2005) "Good for what it is -- a dumbed down iPod in a small package," *Amazon Customer Reviews*, January 22.

¹⁷ Lewis, Peter (2006) "Tiny Apple has oversized influence," *CNN Money*, Jan 11.

¹⁸ Kobrin, Michael (2005) "New Nano May Be the Best iPod Yet," *PC Magazine*, November 8.

¹⁹ Burrows, Peter (2005) "Did Jobs Kill the iPod mini Too Soon?" *BusinessWeek*, October 12.

²⁰ Reihing, Todd M. (2006) "For the Gym, a walk or a job," *Amazon Customer Reviews*, January 25.

iTMS (iTunes Music Store)

Prior to the mid-1990s, the recording industry's product delivery life cycle was relatively stable, with no major upheavals in the way business operated. However, in the late 1990s, the internet began to take hold as a marketing vehicle for reaching some of the music industry's core customers. AOL, Yahoo, and others started to promote online music to their customers and music publishing companies began to consider licensing their content under new terms. But it wasn't until the advent of illegal Peer-to-Peer (P2P) file sharing services like Napster, KaZaa and others that the industry began to grasp the enormity of the situation. Online music piracy exploded during this period, peaking in mid-2001 with Napster claiming to have as many as 65 million individual visitors²¹. In an attempt to stave off this explosion in online piracy, the Recording Industry Association of America (RIAA), representing the record companies, filed a lawsuit against Napster in December 1999, in addition RIAA also decided to file lawsuits against individual users of P2P services. As consumers became increasingly aware of both the rewards and risks of illegal music downloading, they started to turn to legitimate digital music services. iTunes Music Store, launched in April 2003, provided one such platform

The iTunes Music Store is an online music service run by Apple with its iTunes application. Introduced on April 28, 2003, the store, which uses digital rights management (DRM) technology to ensure copyright protection, grew rapidly and has proven the viability of online music sales (**Exhibit 4**). By far the most popular legal music download service, as of April 9, 2007, it had sold over 2.5 billion songs worldwide, which accounts for over 50% and 70% of retail and digital music sales, respectively²² (**Exhibit 5a and 5b**). The store was the result of a deal with all four major record labels, EMI, Sony BMG, Universal and Warner Bros. It also included over 600 independent labels, with a total offering of over 2,000,000 songs, including exclusive tracks from several well known artists. Each song could be downloaded for \$.99. Free 30-second previews were available of every song and most albums were priced at \$9.99. After download, the user could copy songs to an unlimited number of iPods and upto 7 specific playlists or discs.

In 2004, while talking to reporters, Eddy Cue, Apple's vice president of Applications said, "The iTunes Music Store offers the world's most extensive collection of downloadable music with over one million tracks available". "With more than one million songs, over 600 independent labels and dozens of innovative features, iTunes is the ultimate destination for discovering and downloading music."²³

Songs in the iTMS are offered using the AAC file format at 128 kbps, which is of higher quality than the MP3 format at the same bit rate. Moreover, unlike MP3s, they can be digitally protected from unauthorized re-distribution and re-play. Apple's decision to adopt the AAC/FairPlay specification pushes users towards its iPod portable MP3 player, the only portable media device that can play the files purchased from the iTMS. Apple's strategy has been to use iTMS not just to sell songs but rather to promote the sale of iPods by offering owners a convenient service for downloading music. Steve Jobs has publicly stated, "We would like to break even (or) make a little bit of money (on the iTunes Music Store) but it's not a money maker."²⁴

Beyond its massive song catalog and easy-to-use interface, Apple differentiates itself with exclusive content, online tools, and one of the largest audiobook collections. The iTMS features exclusive

²¹ Fost, Dan (2001) "Napster Use Can Be Research," *San Francisco Chronicle*, March 8.

²² Musgrove, Mile (2006) "Big Hit of the Holidays: 14 Million iPods Sold," *Washington Post*, January 11.

²³ Apple Press Release (2004) "iTunes Music Store Catalog Tops One Million Songs," August 10.

²⁴ Orłowski, Andrew (2003) "Your 99c belong to the RIAA – Steve Jobs," *The Register*, November 7.

releases from many independent labels and also offers a free new single every week on Tuesday for download. Discovering new music is simple with Apple's extensive playlist browsing, sharing, and recommendation features. Lastly, the iTunes Music Store (iTMS) boasts one of the largest audiobook collections among its peers with over 5,000 titles available starting at \$2.95 per item.

Since 2004, iTunes has been facing competition from Napster, RealNetworks, MusicMatch and Microsoft's MSN music store (**Exhibit 6**) for the share of online music market. Microsoft and RealNetworks have accused Apple of using iPod, the iTunes Music Store, and FairPlay DRM technology to lock iPod users into using iTunes exclusively (and vice versa), creating a vertical monopoly. For a short time in 2004, RealNetworks had advertised that tracks purchased from their RealPlayer Music Store could be played on an iPod through the use of their Harmony technology²⁵; however, an iPod update released soon after disabled files created by Harmony.

Microsoft has been trying to challenge Apple's dominance of the online music business. In 2004, at the launch of MSN music store, Yusuf Mehdi, MSN vice president, commented, "Number one, our strategy is certainly to offer a multitude of devices. I think the iPod's a great product, but there are a lot of opportunities....There are a number of other great devices that are coming out. I personally have spent time with a bunch of hardware manufacturers who will launch hardware products when we ship our service that will look and feel as good as the iPod product....The proposition is that you can buy a number of different devices with the MSN Music service as opposed to just a single device from Apple."²⁶ As a result, unlike iPod and iTunes, music downloaded from MSN music store can be played on all the music players that support Microsoft's Windows Media Audio format and copy-control technology.

On October 12, 2005, Apple introduced iTunes 6.0 which added support for purchasing and viewing of video content from the iTunes Music Store. iTunes initially offered thousands of music videos and five TV shows including ABC's *Lost* and *Desperate Housewives*, within 24 hours of airing, as well as the collection from past seasons; since then the collection has expanded with shows from NBC, Universal, USA Network, and Sci-Fi Channel, in addition to further Disney-owned networks' shows. iTunes also has a large collection of movie trailers. Format for purchased videos is 128 kbit/s MPEG-4 video. iTunes 6.0 also introduced official support for video podcasting. Users can subscribe to RSS feeds through the iTunes Music Store or by entering the feed URL. Video podcasts could contain downloadable video files (MOV, MP4, M4V, MPG) and also streaming sources.

iTunes online catalog features a wide range of music and includes all the main genres such as Rock, Jazz, Latin, New Age, Inspirational, Opera, R&B/Soul, Reggae, Alternative, Folk, Hip-Hop/Rap, and other international music categories. To maintain its lead, Apple has been on a hunt to find exclusive music, everything from out-of-print singles in music company vaults to songs that have never been pressed onto a CD and even recordings from the estates of deceased artists.

On the conference call about iTunes music store, Steve Jobs said, "getting such songs [obscure music] online is one of the next hurdles for online services and the music industry."²⁷ In general, he observed that labels have less than a third of the music in their vaults available for sale because it's too expensive to distribute such CDs to stores. Following up on that strategy, in 2004, Apple struck a deal with Motown Records to put the first 45 Motown singles and 45 classic albums on iTunes in honor of

²⁵ Cohen, Peter (2004) "RealNetworks' Harmony promises iPod compatibility," *Macworld Online*, July 26.

²⁶ Paczkowski, John (2004) "Jobs to Gates: And you better not call it MiTunes.," *SiliconValley*, August 23.

²⁷ Dean, Katie (2004) "iTunes Birthday Gift: More Songs," *Wired News*, April 29.

Motown's 45th birthday., "iTunes is currently the leader and it seemed like a good fit,"²⁸ said Harry Weinger, vice president of artist and repertoire at Universal Music Enterprises, the catalog arm of Universal Music Group. "More than half of the singles chosen had not been in any digital format before, Weinger said. The company elected to put 16 albums like *Moods of Marvin Gaye* -- which had been available overseas but not in the United States - in the iTunes music store. Six albums had never been on CD and 23 albums had been printed on CD at one time, but were now out of print. Commenting on the ever growing size of iTMS library, Alek Luke, director of music programming and label relations for iTunes said, "Even Steve [Jobs] himself will occasionally send me an e-mail pointing me in the direction of a missing album or artist that he's looking for, and we'll go and find it."²⁹

Apple has realized that there's money to be made in selling songs that aren't in the Top 10 or even top million. Some consumers want nothing but concert tapes of Phish (80's rock band most noted for its extended jams and unique improvisation), or vocal music from Africa or songs from little known Indie bands. Although there is low demand or low sales volume for such songs they can collectively make up a market share that rivals or exceeds the relatively few current bestsellers and blockbusters, if the store or distribution channel is large enough. In keeping with that strategy, iTMS provides users a means to discover new artists and genres and old and rare songs, while making it easy, affordable, and risk-free to buy their favorites.

What About Sony?

In early 2002, the executives at Sony headquarters were facing a problem which was small enough to fit in their pocket yet heavy enough to weigh on their minds, the problem in question was Apple's iPod, the snazzy little MP3 player that had captured the consumer's imagination in the same way Sony's Walkman did some 20 years ago. Ideally, Sony should have owned the portable music player business because of its complete domination of the market segment since the 1970's when it introduced the Walkman. But the 21st century "Walkman" belonged to Apple, not Sony.

In the summer of 2001, Kunitake Ando, President of Sony, had envisioned that the personal computer was quickly losing its status as the heart of the information revolution. Soon, he said, the real action in information technology would migrate to the living room, the family room, the automobile, the beach, the holiday retreat.³⁰ When the average consumer has a hard-disk not just in the PC but in half a dozen other gizmos - all connected by wireless networks that zap their contents freely from one to another - life will be richer. Ando wanted nothing less than for Sony to reinvent itself. But that never happened because the company was frozen by its fear of piracy. Sony's digital Walkman device was a good example. Where the iPod would simply let one sync its contents with the music collection on one's personal computer, Walkman users were hamstrung by laborious "check-in/check-out" procedures designed to block illicit file-sharing.

And a Walkman with hard drive, when asked about it, Keiji Kimura, senior VP at Sony headquarters said, "We do not have any plans for such a product, but we are studying it."³¹ In fact a Sony Walkman with a hard drive was highly unlikely since Sony's copy-protection mechanisms didn't allow music to be transferred from one hard drive to another - not an issue with the iPod. Sony was facing a peculiar predicament, its electronics side of business needed to let customers move files around effortlessly, but its

²⁸ Dean, Katie (2004) "Apple Wants to Open Song Vaults," *Wired News*, May 12.

²⁹ Dean, Katie (2004) "Apple Wants to Open Song Vaults," *Wired News*, May 12.

³⁰ Kunii, Irene M. (2002) "Can Sony Regain the Magic?" *BusinessWeek Online*, March 11.

³¹ Rose, Frank (2003) "The Civil War Inside Sony," *Wired Magazine*, February 11.

entertainment side wanted to build in restraints, because it saw every customer as a potential thief. “We have many things to resolve,” Kimura acknowledged. “Protection is one side of it - of course we have to protect our copyrights. But the challenge is how to excite the user.”³² The company’s internal divisions reflected those in the marketplace, where entertainment executives had declared war on consumers over file-sharing. “The whole security/digital rights management/copyright arena is a critical battlefield,” said Howard Stringer, CEO of Sony Corp. of America, which includes the music label and film studio. “We all have to invent the business plan for the future. And even though we have sides of Sony that will disagree, finding a consensus is Sony’s style.”³³ At such a juncture, Sony was at crossroads, it could settle the fight and flourish, or do nothing and be hobbled.

Sony finally launched an online music store named Connect (www.connect.com) in May 2004. However, it has lagged behind other major players in the market.

Is it Sustainable?

The success of the iPod has led to a dramatic increase in Apple’s profits and capitalization relative to competitors (**Exhibit 7**). The iPod’s success could be due to many factors, including superior memory (**Exhibits 8a and 8b**), stylish design (**Exhibit 9**), superior product attributes (**Exhibit 10**), ease of use, integration across platforms, regular line extension (**Exhibits 11 and 12**), appeal of iTunes, or an effective marketing campaign. The iPod serves a new generation of consumers, typically young, mobile and demanding, by offering a range of products that suit various needs and budgets. Perhaps the greatest impact of the iPod is that it has generated a new platform for enjoyment of audio and video. A \$1 billion industry of accessories has sprung up on the iPod platform, including travel cases, speaker systems, adapters for hooking into current electronics, and docking stations for home, auto, and air. 70% of 2007 U.S. car models are offering iPods and 6 airlines may let passengers charge iPods and watch videos.³⁴

In the summer of 2005, Microsoft chairman Bill Gates shared some insights regarding the future of MP3 players, and the iPod in particular, with German newspaper *Frankfurter Allgemeine Zeitung*. “As good as Apple may be, I don’t believe the success of the iPod is sustainable in the long run,” he said. “You can make parallels with computers -- Apple was very strong in this field before, with its Macintosh and its graphics user interface -- like the iPod today -- and then lost its position.”³⁵ Making no secret of its desire to challenge Apple’s dominance of the portable digital music players market, Microsoft disclosed in July 2006 that it had been working on a number of music and entertainment hardware devices for a year and would launch the first such device, named Zune, in late 2006³⁶.

However, after spending over 100 million dollars on marketing to promote the Zune, the music player failed to pose an immediate threat to sales of the iPod after it was released.³⁷ A survey taken in November 2006, soon after its release in the USA on November 14, found that 75% of salespersons recommended the iPod, only 8% recommended the Zune, and the majority of salespersons were unaware that Microsoft was the Zune’s manufacturer.³⁸ In the niche category of hard-drive based music players, Zune achieved a market share of 10.2%, 9.9% and 8.7% in December 06, January 07, and February 07,

³² Rose, Frank (2003) “The Civil War Inside Sony,” *Wired Magazine*, February 11.

³³ Rose, Frank (2003) “The Civil War Inside Sony,” *Wired Magazine*, February 11.

³⁴ Burrows, Peter (2007), “Welcome to the Apple World,” *Business Week*, July 9-16, p. 89-92.

³⁵ Hales, Paul (2005) “Gates predicts demise of the iPod,” *The Inquirer*, May 12.

³⁶ BBC Staff Reporter (2006) “Zune challenge beckons for iPod,” *BBC News*, July 22.

³⁷ Solman, Gregory. “Microsoft Preps Big Spend for Zune MP3 Player,” *Brandweek*

³⁸ Wikipedia.org Online Encyclopedia

respectively.³⁹ When compared to the broader category of all MP3 music players, the Zune carried about 3% market share in January 2007 (**Exhibit 2**). By June 2007, the Zune ranked 7th in sales, falling behind five models of the iPod and one SanDisk player.⁴⁰

In recent times, Apple's business model that seamlessly integrates the iPod player and the iTunes Music store has also come under criticism from anti-trust groups. The iTunes Music store offers media that can only be played on the iPod which means that if customers want to switch to a different MP3 player they would have to abandon their entire music collection bought from iTunes. The tight coupling between iPod and iTunes creates an anti-competitive environment, in which customers get more tightly bound to the iPod whenever they buy a song from iTunes. In June 2006, French lawmakers voted to break the linkage between the iPod player and the iTunes Music store⁴¹. The French law if enacted would mandate that Apple modify its DRM protection in such a way as to allow customers to play music bought from iTunes on any of the iPod's rivals. But the law contains a loophole which gives copyright holders - such as record labels and musicians - the right to say they don't want interoperable systems and might not impact Apple's prospects in France in the short-term but many see the legislation as a victory for the open-source and interoperability proponents. The French law might have set the ball rolling for similar anti-trust maneuvers against Apple as it tries to hold on to its dominance of the portable music player market.

While Apple's rivals have cried out against Digital Rights Management's (DRM) restrictions that binds music purchased on iTMS to the iPod, Apple itself has tried to weaken it. On February 6, 2007, Steve Jobs requested that the Big Four record labels allow their music to be sold DRM-free.⁴² On April 2, 2007, Apple announced that the British label EMI would offer their music DRM-free and at a high bit speed (256kbit/s AAC), although the songs would be 20-40 cents more expensive. In addition, the new DRM-free music and video purchased through Apple have been renamed iTunes Plus Music by Apple.

The rapid inclusion of music options on mobile phones, the expected face-off against new MP3 players, coupled with the uncertainty over future anti-trust moves against Apple makes it hard to predict the long-term prospects of the iPod and raises some interesting questions. Is the iPod a flash in the pan or a replay of the Mac? What were the real causes of its success and is the latter sustainable? Does Gates have a game plan? Does he envision outmaneuvering Jobs again or just trying to save face? If so, is the Zune the tool for this? Will the competition ever catch up? In particular, why was Sony, which pioneered the Walkman, apparently sleeping while Apple engulfed its market? Was Apple wise to scrap the Mini? Why would Jobs want to end DRM for songs sold on iTunes? What should be Apple's future strategy?

³⁹ Bishop, Todd, "Zune market share slips in February," Seattle Post-Intelligencer

⁴⁰ Amazon.com (June 8, 2007)

⁴¹ Walt, Vivienne (2006) "France Sings a Different Tune," *CNN Money Online*, July 17.

⁴² Wikipedia.org Online Encyclopedia

Exhibit 1a Apple Computer: Annual Revenue By Product Categories 1999-2006

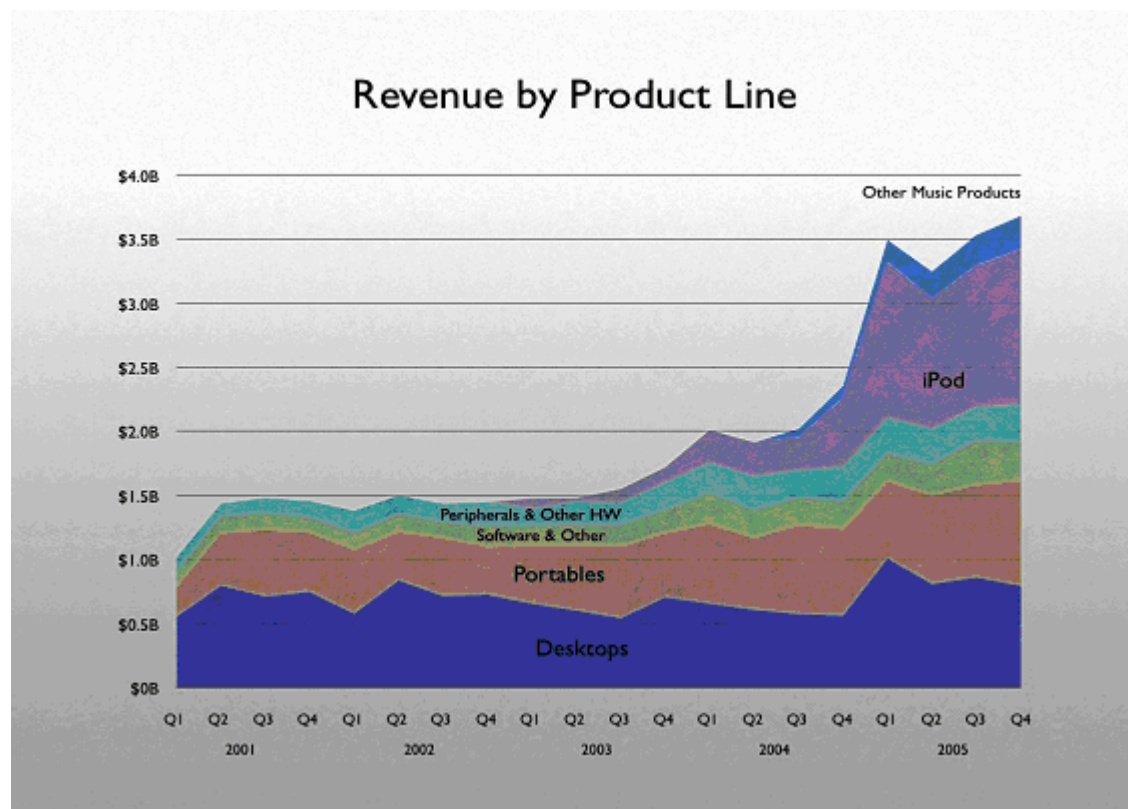
	1999	2000	2001	2002	2003	2004	2005	2006
Desktops	3,440	5,128	2,781	2,214	2,475	2,373	3,436	3,319
Portables	832	1,757	1,622	2,323	2,016	2,550	2,839	4,056
Total Macintosh Net Sales	4,272	6,885	4,403	4,534	4,491	4,923	6,275	7,375
iPod	-	-	-	143	345	1,306	4,540	7,676
Other music related products & services	-	-	-	4	36	278	899	1,885
Peripherals and other hardware	-	-	-	527	691	951	1,126	1,100
Software, service and other net sales	1,052	1,098	960	534	644	821	1,091	1,279
Total Net Sales	6,134	7,983	5,363	5,742	6,207	8,279	13,931	19,315

Source: Apple Computer Annual Financial Reports (All figures in \$ millions)

Desktops include Power Macintosh and iMac. Portables include Powerbook and iBook.

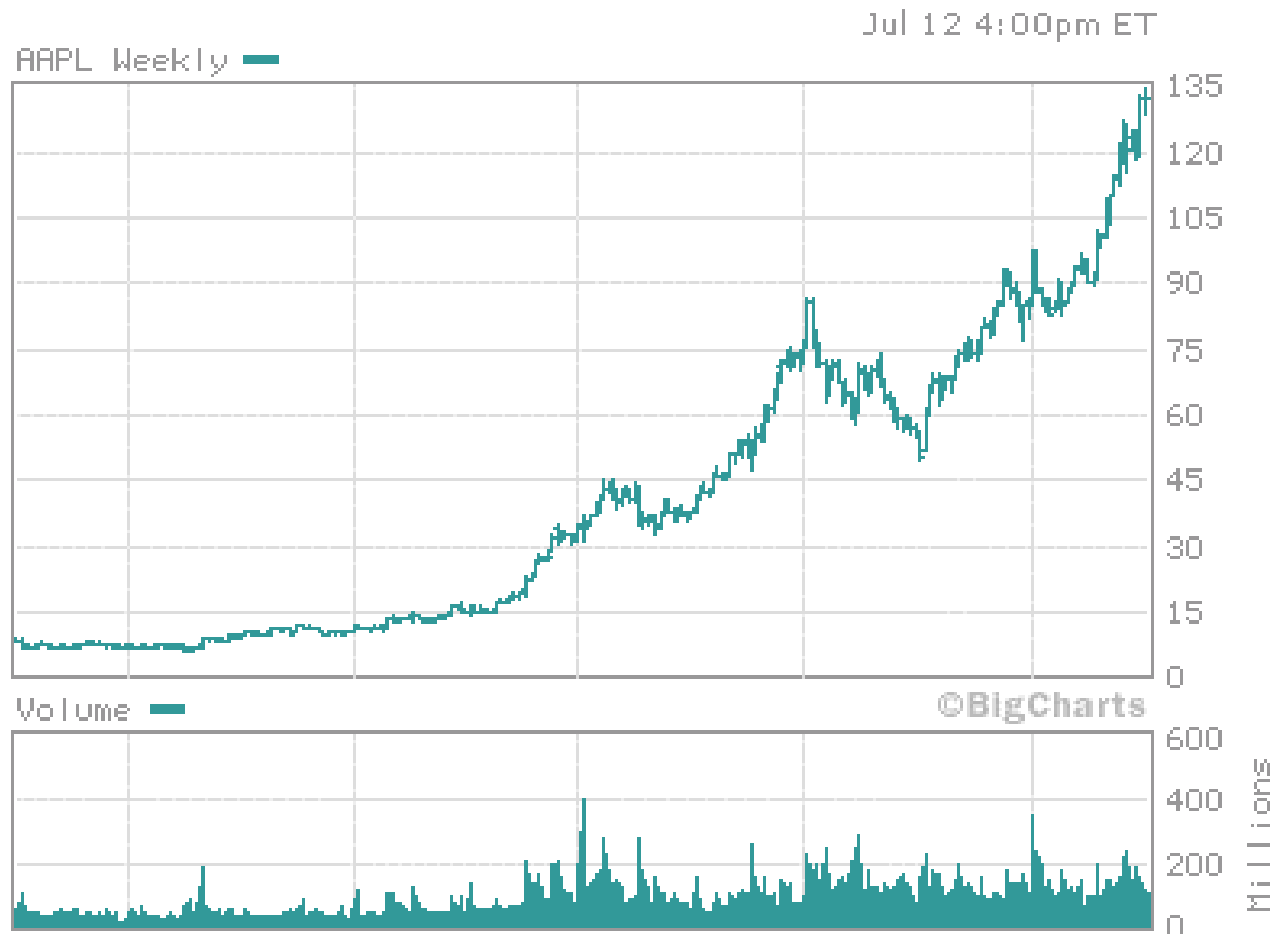
Other music related products & services consist of iTunes Store sales, iPod services, and Apple-branded and third-party iPod accessories

Exhibit 1b Apple Computer: Quarterly Revenue By Product Categories 2001-2005



Source: Apple Computer Annual Financial Reports

Exhibit 1c: Apple Computer (AAPL) Historical Stock Price Data, Jul 2002 to Jul 2007



Source: CNN Money.

Exhibit 2 Market Share of Portable Digital Music Players, 2006

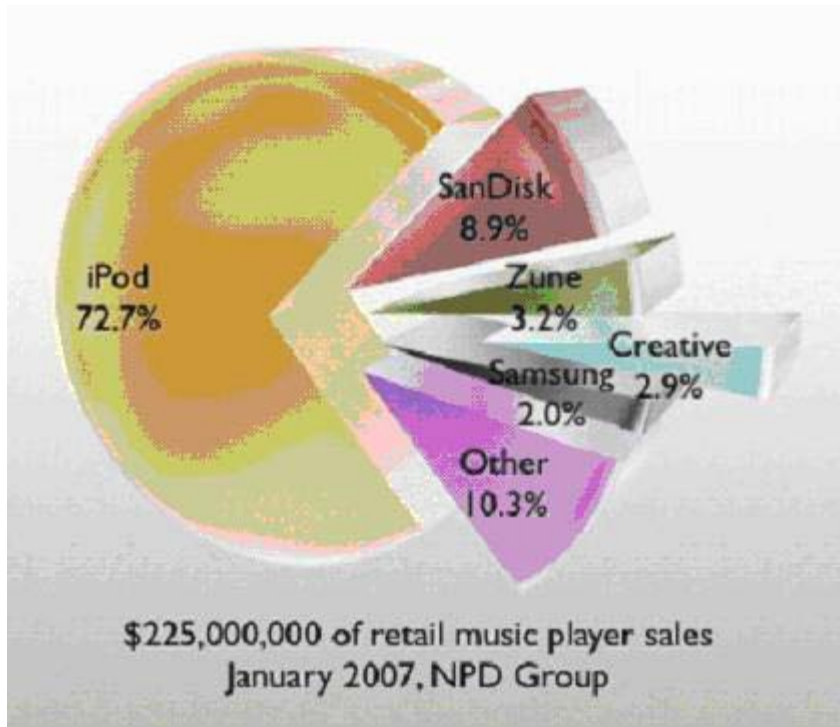


Exhibit 3a iPod Sales Figures, 2003-2007

Fiscal quarter	iPods sold
2003 Q1	205,000
2003 Q2	710,000
2003 Q3	340,000
2003 Q4	336,000
2004 Q1	733,000
2004 Q2	807,000
2004 Q3	860,000
2004 Q4	2,016,000
2005 Q1	4,580,000
2005 Q2	5,311,000
2005 Q3	6,155,000
2005 Q4	6,451,000
2006 Q1	14,000,000
2006 Q2	8,526,000
2006 Q3	8,111,000
2006 Q4	8,729,000
2007 Q1	21,066,000
2007 Q2	10,549,000

Source: Apple Computer Annual Financial Reports

Exhibit 3b iPod and Creative's Zen: Net Sales (in \$ million), 2001-2005

Fiscal year	Apple	Creative
2001	---	70
2002	143	73
2003	345	231
2004	1306	268
2005	4540	769
2006	7676	---

Source: Hoover's Company Research. Creative Technology sales data is for all portable digital players including Zen.

Exhibit 4 iTunes Purchase Songs by Week

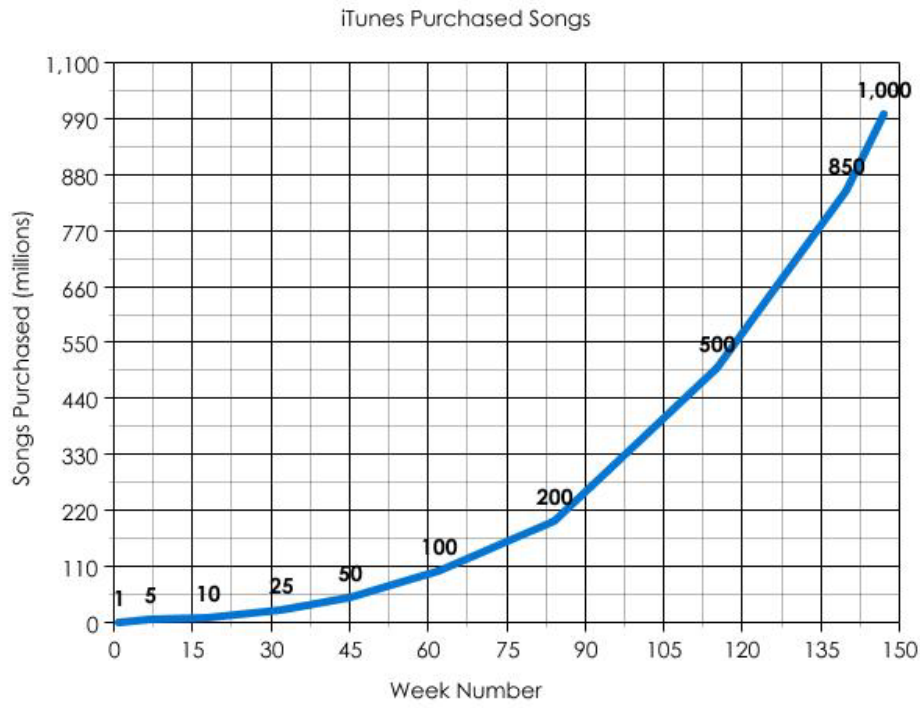
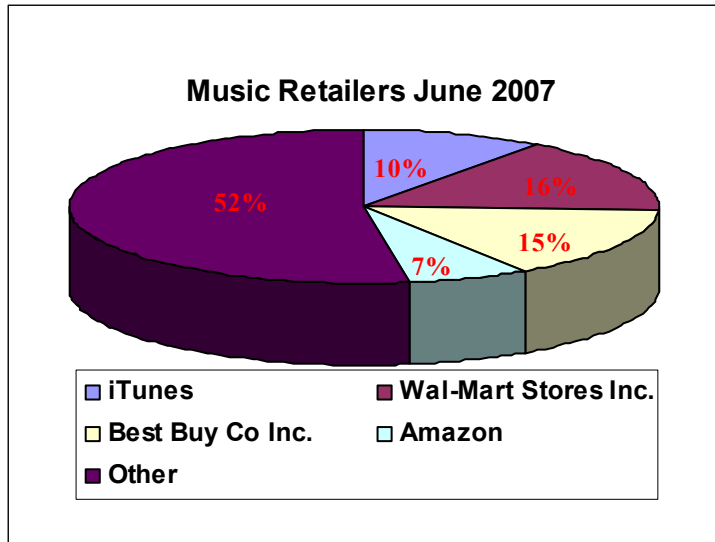
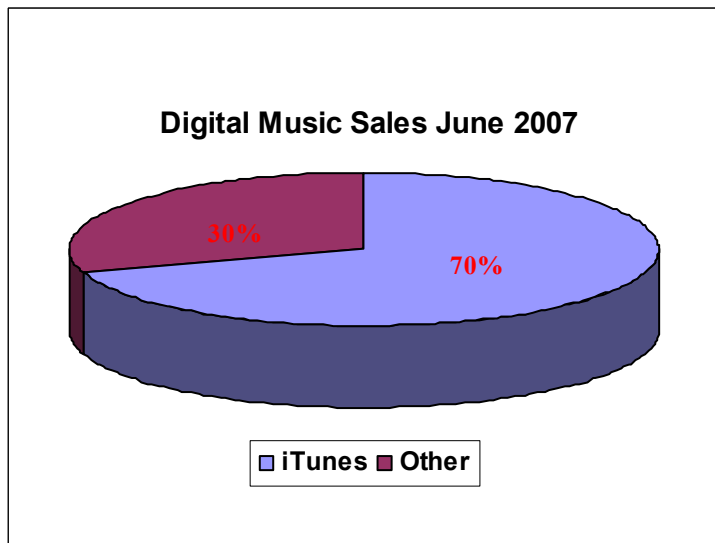


Exhibit 5a iTunes Market Share of Retail Sales



Source: NPD Group June 2007

Exhibit 5b iTunes market share of digital sales



Source: NPD Group June 2007

Exhibit 6 Top Digital Music Download Providers, 2005

	Download or Subscription?	Pricing:	Requires player app?	Number of claimed songs:	File format:	Bit rate:	DRM technology:	Works with Firefox on Linux?	Burn options:	Portable player support:	Family plans?	DMA support?	
eMusic	Download	\$10/month for 40 downloaded tracks	No, but requires eMusic download manager	500,000	MP3	Varies by track, 192Kbits/sec and 320Kbits/sec is common	None	No	No, download manager needs Windows or Mac	At your discretion	Any player that supports MP3	No	Yes, if DMA/server supports MP3
iTunes Music Store	Download	99 cents/track	Yes	1,000,000	AAC	128Kbits/sec	FairPlay	Not officially, but hacks exist	Tracks can be burned to CDs, but the same playlist may only be burned up to seven (7) times.	iPod only	No	AirPort Express with iTunes can stream iTunes music to any audio device	
MSN	Download	99 cents/track	No	1,000,000	WMA	VBR, average bit-rate 160Kbits/sec	Microsoft	No	Tracks can be burned to CDs, but the same playlist may only be burned up to seven (7) times.	Any player that supports Janus/W MP 10	No	Yes, if DMA supports Janus/WMP 10	
MusicMatch	Download and Subscription	\$9.95/month for Music on Demand, 99 cents/track for downloaded tracks	Yes	850,000	WMA	160Kbits/sec	Microsoft	No	Tracks can be burned to CDs, but the same playlist may only be burned up to seven (7) times.	Any player that supports Janus/W MP 10	Yes	Yes, if DMA supports Janus/WMP 10	
Rhapsody	Download and Subscription	\$9.95/month, 99 cents/track burned to CD	Yes	1,000,000	WMA	128Kbits/sec	Microsoft	No	99 cents/track burned	Any player that supports Janus/W MP 10	No	Yes, list of supported DMAs on Rhapsody site, and Janus-compatible DMAs	
Virgin	Download and Subscription	\$7.95/month for Music on Demand, 99 cents/track for downloaded tracks	Yes	1,000,000+	WMA	128Kbits/sec	Microsoft	No	Purchased tracks can be burned to CD	Any player that supports Janus/W MP 10	No	Yes, if DMA supports Janus/WMP 10	
Napster	Download and Subscription	\$9.95/month for streaming PC music; 99 cents per purchased track. To Go service: \$14.95/month for unlimited transfers to MP3 players	Yes	1,000,000	WMA	128Kbits/sec	Microsoft	No	Only purchased tracks can be burned to CD.	Any player that supports Janus/W MP 10	No	Yes, if DMA supports Janus/WMP 10	
Connect	Download	99 cents/track	Yes	not quoted	ATRAC3 Plus	128Kbits/sec	Sony OpenMG	No	Only purchased tracks can be burned to CD.	Select models of Sony portable players	No	No	
Wal-Mart	Download	88 cents/track	No	500,000	WMA	128Kbits/sec	Microsoft	No	Purchased tracks can be burned to CD 10 times. Unlimited transfer to compatible portable players	Any player that supports Janus/W MP 10	No	Yes, if DMA supports Janus/WMP 10	

Source: Extremetech.com Online Consumer Resource

Exhibit 7 Apple and its Competitors: Selected Financial Information, 2003-2005

Apple Computer	Sep 03	Sep 04	Sep 05	Sep 06
Revenue	6,207	8,279	13,931	19,315
Cost of Goods Sold	4,386	5,870	9,709	13,717
SG&A Expense	1,683	1,910	2,393	2,920
Depreciation & Amortization	113	150	179	225
Total Net Income	69	276	1,335	1,989
Dividends per Share	0	0	0	0
Total Assets	6,815	8,050	11,551	17,205
Total Liabilities	2,592	2,974	4,085	7,221
Shares Outstanding (mil.)	733.5	782.9	835.0	855.3
Net Operating Cash Flow	289	934	2,535	2,220
Net Change in Cash	1,144	(427)	522	2,901
Market Capitalization	7,599	15,172.6	44,764.3	114,476
Napster	Mar 03	Mar 04	Mar 05	Mar 06
Revenue	120.4	99.3	46.7	94.7
Cost of Goods Sold	28.1	28.5	26.7	69.2
SG&A Expense	92.1	99.8	74.6	80.4
Depreciation & Amortization	9.7	10.6	12.8	6.6
Total Net Income	(9.9)	(44.4)	(29.5)	(57.6)
Dividends per Share	0.00	0.00	0.00	0.00
Total Assets	152.9	203.3	220.9	155.5
Total Liabilities	36.9	58.9	49.4	39.8
Total Equity	116.2	144.4	171.4	115.8
Shares Outstanding (mil.)	19.6	33.5	43.0	43.8
Net Operating Cash Flow	9.6	(30.8)	(30.5)	(44.5)
Net Change in Cash	(10.5)	2.2	98.5	(88.6)
Market Capitalization	121.5	149.7	279.9	148.6
Creative Technology	Jun 03	Jun 04	Jun 05	Jun 06
Revenue	701.8	814.9	1,224.4	1,127.5
Cost of Goods Sold	421.0	507.6	921.3	963.2
SG&A Expense	221.6	237.1	278.6	284.7
Depreciation & Amortization	31.9	25.9	27.9	25.0

Total Net Income	23.4	134.2	0.6	(119.0)
Dividends per Share	0.25	0.25	0.25	0.25
Total Assets	646.8	940.8	1,077.5	830.6
Total Liabilities	218.1	249.4	496.5	437.5
Total Equity	428.8	691.5	581.1	393.1
Shares Outstanding (mil.)	79.7	81.4	83.6	83.3
Net Operating Cash Flow	99.7	(20.7)	(208.5)	49.3
Net Change in Cash	65.1	(21.0)	(23.8)	26.8
Market Capitalization	630.4	842.4	540	--

RealNetworks	Dec 02	Dec 03	Dec 04	Dec 05
Revenue	182.7	202.4	266.7	325.1
Cost of Goods Sold	38.5	57.1	76.9	98.3
SG&A Expense	141.9	145.1	180.4	(186.9)
Depreciation & Amortization	13.1	12.4	15.3	16.4
Total Net Income	(38.4)	(21.5)	(23.0)	312.3
Dividends per Share	0.00	0.00	0.00	0.00
Total Assets	462.1	580.9	602.5	1,113.0
Total Liabilities	112.3	214.5	221.7	271.3
Total Equity	349.8	366.5	380.8	841.7
Shares Outstanding (mil.)	157.7	164.2	170.6	166.0
Net Operating Cash Flow	(0.8)	(8.8)	7.0	460.8
Net Change in Cash	17.6	76.2	21.4	432.5
Market Capitalization	600.8	937.5	1,129.3	1,252.9

Yahoo	Dec 02	Dec 03	Dec 04	Dec 05
Revenue	953.1	1,625.1	3,574.5	5,257.7
Cost of Goods Sold	74.7	252.8	1,133.2	2,096.2
SG&A Expense	680.8	917.0	1,441.7	1,656.6
Depreciation & Amortization	109.4	159.7	311.0	397.1
Total Net Income	42.8	237.9	839.6	1,896.2
Dividends per Share	0.00	0.00	0.00	0.00
Total Assets	2,790.2	5,931.7	9,178.2	10,831.8
Total Liabilities	527.9	1,568.2	2,076.8	2,265.4
Total Equity	2,262.3	4,363.5	7,101.4	8,566.4
Shares Outstanding (mil.)	1,189.7	1,321.4	1,383.6	1,430.2
Net Operating Cash Flow	302.4	428.1	1,089.8	1,711.4
Net Change in Cash	(61.7)	402.6	407.8	606.0
Market Capitalization	9,731.7	29,744.7	52,134	36,508.5
Microsoft	Jun 03	Jun 04	Jun 05	Jun 06
Revenue	32,187.0	36,835.0	39,788.0	44,282.0
Cost of Goods Sold	4,247.0	5,530.0	5,345.0	7,650.0
SG&A Expense	13,284.0	21,085.0	19,027.0	19,257.0
Depreciation & Amortization	1,439.0	1,186.0	855.0	903.0
Total Net Income	9,993.0	8,168.0	12,254.0	12,599.0
Dividends per Share	0.08	0.16	0.32	0.34
Total Assets	79,571.0	92,389.0	70,815.0	69,597.0
Total Liabilities	18,551.0	17,564.0	22,700.0	29,493.0
Total Equity	61,020.0	74,825.0	48,115.0	40,104.0
Shares Outstanding (mil.)	10,771.0	10,862.0	10,710.0	10,062.0
Net Operating Cash Flow	15,797.0	14,626.0	16,605.0	14,404.0
Net Change in Cash	3,422.0	9,544.0	(9,453.0)	1,863.0
Market Capitalization	242,670.6	274,156.8	264,429.9	286,872.8
Sony	Mar 03	Mar 04	Mar 05	Mar 06
Revenue	63,264.0	72,081.0	66,912.0	63,541.2
Cost of Goods Sold	40,672.0	42,175.0	40,673.0	43,786.9
SG&A Expense	15,402.0	22,152.0	18,856.0	12,446.4
Depreciation & Amortization	5,621.0	6,462.0	6,057.0	5,682.2
Total Net Income	978.0	851.0	1,531.0	933.4

Net Profit Margin	1.5%	1.2%	2.3%	1.7%
Dividends per Share	0.20	0.21	0.23	0.20
Total Assets	70,857.0	87,410.0	88,627.0	90,165.9
Total Liabilities	51,548.0	64,545.0	61,846.0	62,933.2
Total Equity	19,308.0	22,865.0	26,780.0	27,232.7
Shares Outstanding (mil.)	925.5	926.4	996.1	135.5
Net Operating Cash Flow	7,227.0	6,083.0	6,036.0	3,398.8
Net Change in Cash	248.0	1,309.0	(654.0)	(646.0)
Market Capitalization	32,105.5	38,473.3	39,734.4	--

Source: Hoover's Company Records (All figures in millions)

Exhibit 8a Recording Medium Comparison

Format	Recording Length (Time in minutes)	Recording Volume (10^{-3} m^3)	Metric (Recording /Volume)
78 rpm record	7 minutes (around 3.5 minutes per side)	0.5892	11.8
45 rpm record	8 minutes (around 4 minutes per side)	0.2880	27.7
LP 33½ record	60 minutes (up to 30 minutes per side)	0.8484	70.7
8-Track cartridge	Up to 76 minutes	0.055	1381.8
Compact Audio cassette	60 minutes (usually 30 or 45 minutes per side)	0.0042	14,285
CD (Compact disc)	Usually 74 to 80 minutes.	0.0135	5926
DVD (Digital Versatile Disc)	Up to 600 minutes of digital audio.	0.0135	44,444
Flash Drive (1GB)	Around 16 hours of MP3 music, depending on bit rate	0.008	120,000
Compact Hard-Disk (40 GB)	Around 600 hours of MP3 music, depending on bit rate	0.0211	1,706,100
Compact Hard-Disk (80 GB)	Around 1200 hours of MP3 music, depending on bit rate	0.0105	3,450,000

Note: 78 record, 45 record and LP record had the following diameters: 25 cm, 17.5 cm and 30 cm. The thickness of records was about 6 mm.⁴³The 8-track cartridge tape was 6.35 mm wide and 20 μm thick with four stereo tracks running at 9.5 cm/sec. The audio cassette tape (for C60 format) is 3.18 mm wide and 15 μm thick with four stereo tracks running at 4.76 cm/sec.^{44,45}

The CD has a diameter of 12 cm and is 1.2 mm thick. The DVD also has a diameter of 12 cm and is 1.2 mm thick.⁴⁶

A standard USB flash drive has following dimensions: 40 mm x 20 mm x 10 mm. A compact hard-disk (like the Hitachi 1.8 in ATA disk used in iPod) has the following dimensions: 54 mm x 78.5 mm x 5 mm.⁴⁷

⁴³ Holmes, Gillian S. "LP Record," *How Products are Made*, Volume 5

⁴⁴ Wikipedia.com, Online Encyclopedia

⁴⁵ Schoenherr, Steve (2005) "Recording Technology History," <http://history.sandiego.edu>, July 6.

⁴⁶ Wikipedia.com, Online Encyclopedia

⁴⁷ Media Advisory (2003), "Toshiba SDD Unveils 40 GB 1.8 Inch Hard-disk Drive," www.toshiba-europe.com, November 11

Exhibit 8b

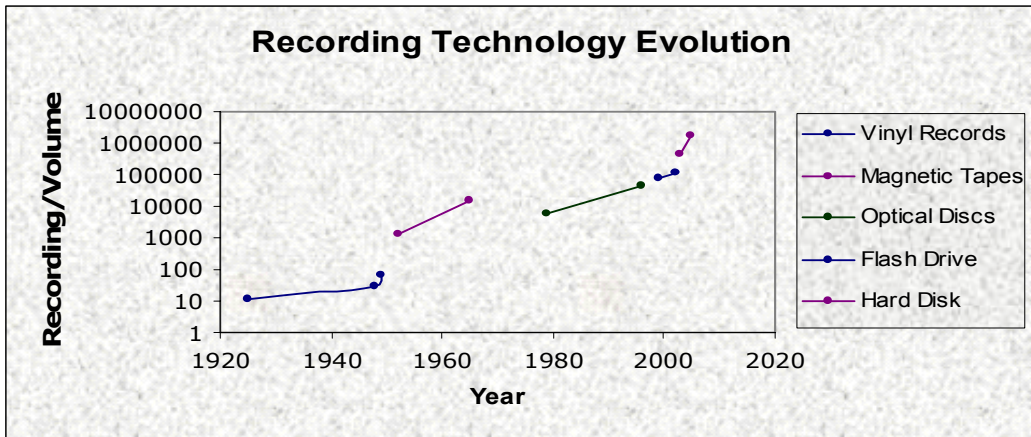


Exhibit 9 Apple's iPod and Its Main Competitors (By Generation)



First generation iPod



Creative Zen



Rio Carbon



iPod photo with colored screen



iPod with an iTrip



Creative Zen Touch



iPod Shuffle with earphones



Rio Forge Sport



iPod Mini



Creative Zen Micro



iPod Nano



Microsoft Zune



iPod Shuffle Second Generation





Exhibit 10 A Comparison of Apple's iPod to its Main Competitor's Latest Releases





Name	Manufacturer	Released	Player type	Internal capacity	Storage	Dimensions (in.)	Depth (in.)	Weight (oz.)	Firmware version
Archos 404 (camcorder)	Archos	September 2006 December 2006	Portable media player	30GB	Hard drive	3.9 x 3.1	0.59	6.75	1.6.20
Archos 704 WiFi	Archos	March 2007	Mega-sized PMP	40 GB 80 GB	Hard drive	7.05 x 4.96	0.78	22	1.7.20
Cowon A3	Cowon	February 2007	Portable media player	30 GB	Hard drive	5.2 x 3.1	0.9	10.5	No release
Cowon D2	Cowon	February 2007	Micro-sized PMP	2GB 4GB	Flash memory	3.07 X 2.18	0.65	3.21	2.46
Gigabeat S	Toshiba	April 2006	HD-DAP contemporary	30GB 60GB	Hard drive	3.93 x 2.36	0.58	4.8 5.3	No release
GP2X	GamePark Holdings	November 2005	Portable media player Handheld game console	None	External flash memory - SD	5.65 x 3.26	1.34	5.68	3.0
iAUDIO X5	Cowon	May 2005	HD-DAP contemporary	30GB 60GB	Hard drive	4.08 x 2.39	0.56 0.72	5.11 6.35	2.10
iPod 5.5G	Apple	September 2006	HD-DAP contemporary	30GB 80GB	Hard drive	4.1 x 2.4	0.43 0.55	4.8 5.5	1.2.1
iPod nano 2G	Apple	September 2006	Flash DAP contemporary	2GB 4GB 8GB	Flash memory	3.5 x 1.6	0.26	1.41	1.3.1
iriver clix 2G	iriver	May 2006 November 2006	Micro-sized PMP Handheld game console	2GB 4GB 8GB	Flash memory	3.16 x 1.84	0.32-0.5	1.9	1.07
Meizu M6 miniPlayer	Meizu	May 2006 March 2007	Micro-sized PMP	2GB 4GB 8GB	Flash memory	3.1 x 1.9	0.39	1.94	2.002.3




<u>PlayStation Portable</u>	<u>Sony</u>	<u>December 2004</u>	<u>Portable media player</u> <u>Handheld game console</u>	None	<u>External flash memory - MS Duo</u>	6.7 x 2.9	0.9	9.92	3.50
<u>Sansa e200R series</u>	<u>SanDisk</u>	<u>October 2006</u>	<u>Flash DAP contemporary</u>	2GB 4GB 6GB 8GB	<u>Flash memory</u>	3.5 x 1.7	0.6	2.7	1.0.2.165
<u>TrekStor vibez</u>	<u>TrekStor</u>	<u>November 2006</u>	<u>Flash DAP contemporary</u>	8GB 12GB	<u>Microdrive</u>	4.13 x 1.97	0.71	2.5	1.04
<u>Walkman NW-A800 series</u>	<u>Sony</u>	<u>March 2007</u>	<u>Flash DAP contemporary</u>	2GB 4GB 8GB	<u>Flash memory</u>	3.5 x 1.7	0.4	1.9	1.02
<u>Yepp YP-T9</u>	<u>Samsung</u>	<u>October 2006</u>	<u>Flash DAP contemporary</u>	2GB 4GB 8GB	<u>Flash memory</u>	3.3 x 1.7	0.4	1.7	1.60
<u>ZEN V Plus</u>	<u>Creative</u>	<u>June 2006</u>	<u>Flash DAP contemporary</u>	1GB 2GB 4GB 8GB	<u>Flash memory</u>	2.7 x 1.7	0.6	1.55	1.11.01
<u>ZEN Vision:M</u>	<u>Creative</u>	<u>December 2005</u> <u>August 2006</u>	<u>HD-DAP contemporary</u>	30GB 60GB	<u>Hard drive</u>	4.1 x 2.4	0.7	5.7	1.62.02 1.21.02
<u>ZEN Vision W</u>	<u>Creative</u>	<u>September 2006</u>	<u>Portable media player</u>	30GB 60GB	<u>Hard drive</u>	5.27 x 2.95	0.86	9.73	1.10.01
<u>Zune</u>	<u>Microsoft</u>	<u>November 2006</u>	<u>HD-DAP contemporary</u>	30GB	<u>Hard drive</u>	4.4 x 2.4	0.6	5.6	1.4
<u>ZVUE 250</u>	<u>HandHeld entertainment</u>	<u>December 2006</u>	<u>HD-DAP contemporary</u>	None	<u>External flash memory - MMC/SD</u>	4.33 x 2.91	0.8	4.2	I_060929

Source: Wikipedia.com Online Encyclopedia

Exhibit 11 iPod Models

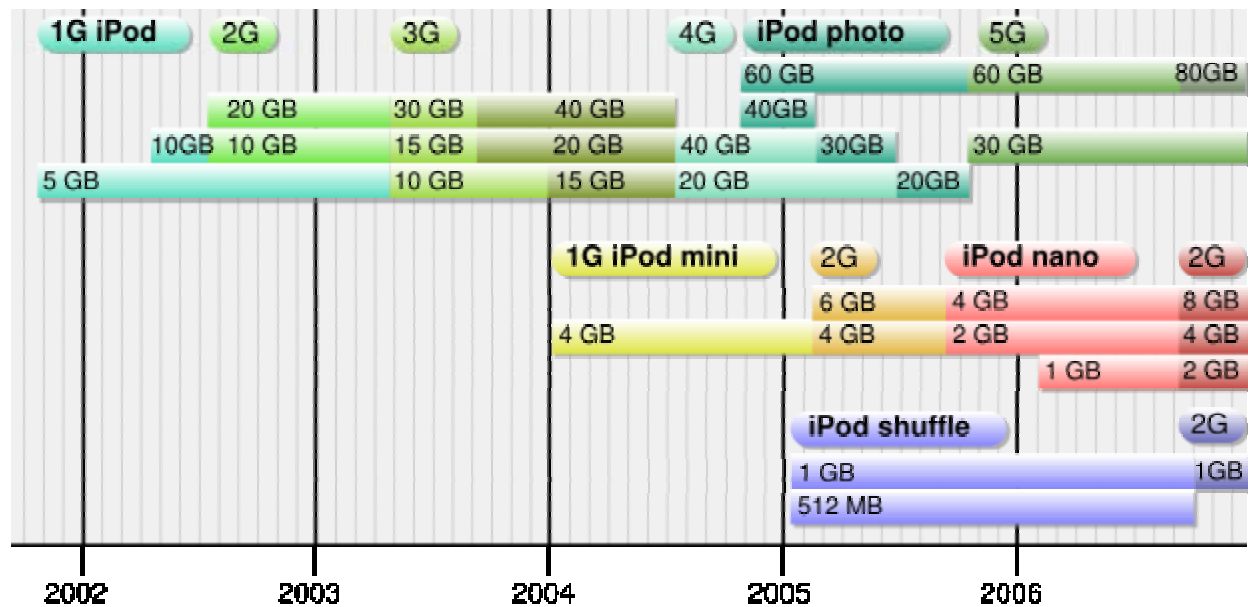
Model	Generation	Image	Capacity	Changes introduced	Connection	Original release date	Launch price (US\$)
iPod	first		5, 10 GB	First model, with mechanical scroll wheel.	FireWire	23 October 2001	\$399, \$499
	second		10, 20 GB	Touch-sensitive wheel. FireWire port had a cover. Hold switch revised.	FireWire	17 July 2002	\$399, \$499
	third		10, 15, 20, 30, 40 GB	Central row of touch-sensitive buttons. Dock Connector port introduced. New backlit touch-sensitive buttons introduced.	FireWire (USB for syncing only)	28 April 2003	\$299, \$399, \$499
	fourth (photo)		20, 30, 40, 60 GB	Buttons integrated to form “Click Wheel”. Color display with photo viewer introduced in October 2004. It replaced the monochrome model in June 2005.	FireWire or USB	19 July 2004	\$299, \$349, \$399, \$449

	fifth (video)		30, 60, 80 GB	<p>Slimmer design, introduced in white and black variants. Larger screen with video player and lyrics support. No AC adapter, Universal Dock, or A/V cables included.</p> <p>The September 2006 revision (often called generation 5.5) featured a brighter display, longer video battery life, and a music search function. The 60GB model was upgraded to 80 GB.</p>	USB (FireWire for charging only)	12 October 2005	\$299, \$399 (later \$249, \$349)
iPod mini	first		4 GB	New model, available in 5 colors. Introduced the “Click Wheel”, later adopted by the fourth generation iPod.	USB or FireWire	6 January 2004	\$249
	second		4, 6 GB	Brighter color variants with longer battery life. Click Wheel lettering matched body color. No AC adapter and discontinued gold model.	USB or FireWire	22 February 2005	\$199, \$249
iPod Nano	first		1, 2, 4 GB	New model as a successor to the iPod mini. Slimmer design with flash memory , color screen and lyrics support. Available with white and black variants. Similar to the 5th generation iPod.	USB (FireWire for charging only)	7 September 2005	\$149, \$199, \$249

	second		2, 4, 8 GB	Anodized aluminum case in 6 colors, similar to minis. Brighter screen, longer battery life and a music search function.	USB (FireWire for charging only)	12 September 2006	\$149, \$199, \$249
iPod shuffle	first		512 MB, 1 GB	New model. The iPod without a screen or click wheel. First iPod to use flash memory instead of hard drive storage.	USB	11 January 2005	\$99, \$149 (later \$69, \$99)
	second		1 GB	Aluminum case with smaller form factor, plus built-in clip. Multi-colored models later released.	USB (via dock only)	12 September 2006	\$79

Source: Wikipedia.org Online Encyclopedia

Exhibit 12 iPod Release Timeline



Source: Wikipedia.org Online Encyclopedia

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