



Feng Chia University *Outstanding Academic Paper by Students*

Title : Apple, Innovator to Incumbent

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Abstract

The authors of this paper have harbored doubts about the continued viability of Apple stock. Like most people, the majority of the information that the authors absorb on the market is verbal. We have, like everyone else, heard the ‘story stock’ stories. “Amazon will subsidize tablets to sell media, crushing Apple.” “Samsung will sell lots of phones, crushing Apple.” And the ubiquitous “Cheap tablets and phones from China will flood the market, crushing Apple.” In addition, there is the new threat of streaming media. Forget ‘Cloudy with a Chance of Meatballs.’ We are all expecting Apple sauce to fall from the sky.

Keyword : Apple stock



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Apple: Innovator to Incumbent

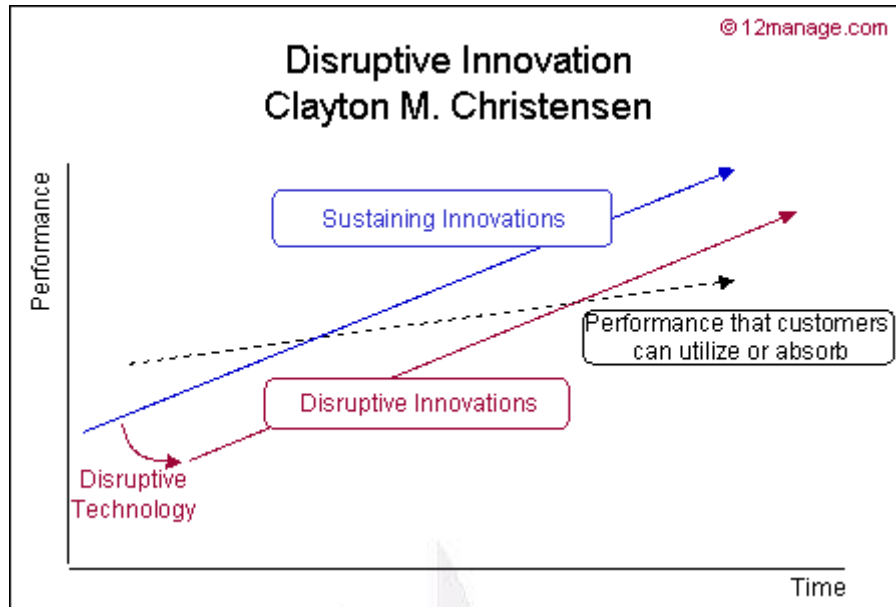
The authors of this paper have harbored doubts about the continued viability of Apple stock. Like most people, the majority of the information that the authors absorb on the market is verbal. We have, like everyone else, heard the ‘story stock’ stories. “Amazon will subsidize tablets to sell media, crushing Apple.” “Samsung will sell lots of phones, crushing Apple.” And the ubiquitous “Cheap tablets and phones from China will flood the market, crushing Apple.” In addition, there is the new threat of streaming media. Forget ‘Cloudy with a Chance of Meatballs.’ We are all expecting Apple sauce to fall from the sky.

And so the authors turned to Apple as a story of Christensen-style ‘disruption from the low-end,’ expecting ample evidence of Apple, as incumbent, under threat. We turned to the authors’ favorite shorthand for change over time: charts. Searching using the ‘image’ option for google is a rich resource. Choosing an appropriate chart is easy, and the veracity of a given chart can be roughly verified by comparison with similar charts. The source of the data is often stated, such as ‘Apple investor relations.’ A stickler would run the numbers himself in a spreadsheet, but for our purposes, this quick-and-dirty method is a valuable means of checking our verbal thought processes against our visual thought processes. Neither is a substitute for the other, but each can keep the other from obvious error. We hope you find our method worthy of consideration. We realize that to actually publish a paper based on these methods might be problematic due to copyright issues. But for quick and dirty analysis, we hope the reader finds the method to have merit.

In addition to looking at the strategies opponents use to threaten Apple, we will initially give some consideration to Apple’s rise, and the forms of innovation it used to disrupt existing industries as it grew into the world’s most valuable company. As part of our consideration of disruptive technology and the rise of Apple, we consider the use of a new term we’ve coined: Kurzweil-style disruptive innovation.

For the innovation part of our story, here are the key concepts we will be working with, depicted visually and verbally.

Figure 1. Disruptive Innovation: Lower-end Technology Displacing Higher-end Technology.



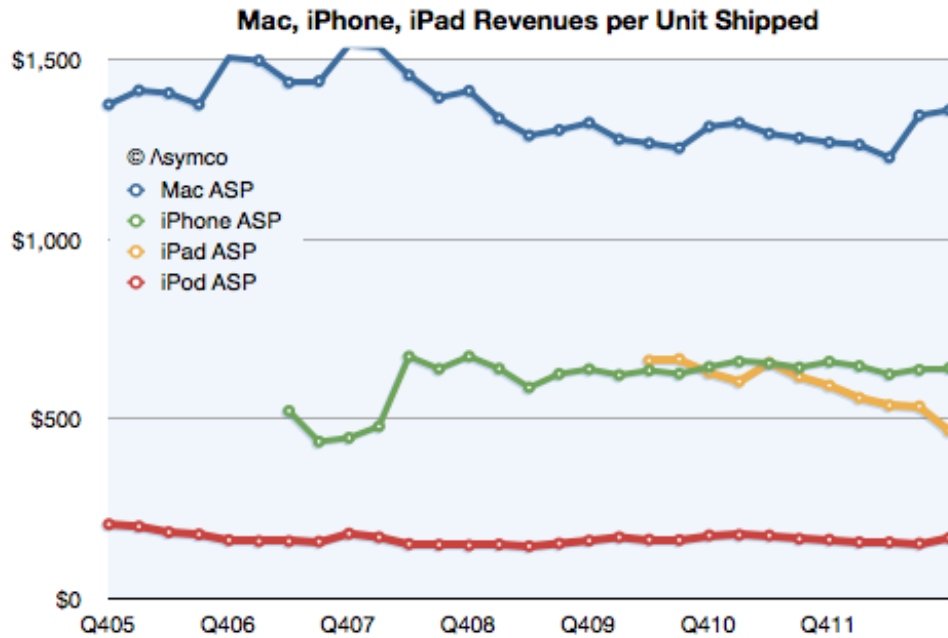
From http://www.12manage.com/methods_christensen_disruptive_innovation.html, based on Christensen, C. (2013). *The innovator's dilemma: when new technologies cause great firms to fail*. Harvard Business Review Press.

The above is a visual depiction of low-end technology disrupting mainstream technology as both improve. The simple underlying idea is that the customer has a need. As the mainstream technology continues to improve, it far surpasses the pre-existing need. Then, the technologies which were initially inferior can fully meet the need at a lower cost, as they too, have improved. Christensen terms the mainstream technologies' improvements 'sustaining innovations,' and the low-end technologies' improvements 'disruptive innovations,' as the latter disrupt the industry and its incumbents.

At least one of the possible disruptions facing Apple as an incumbent follows this model. The rising performance of low-end hardware enables cheap, no-name Chinese phones and tablets to provide 'good enough' performance to take sales from Apple's products, which improve in performance every year, but which Apple keeps at about the same price.

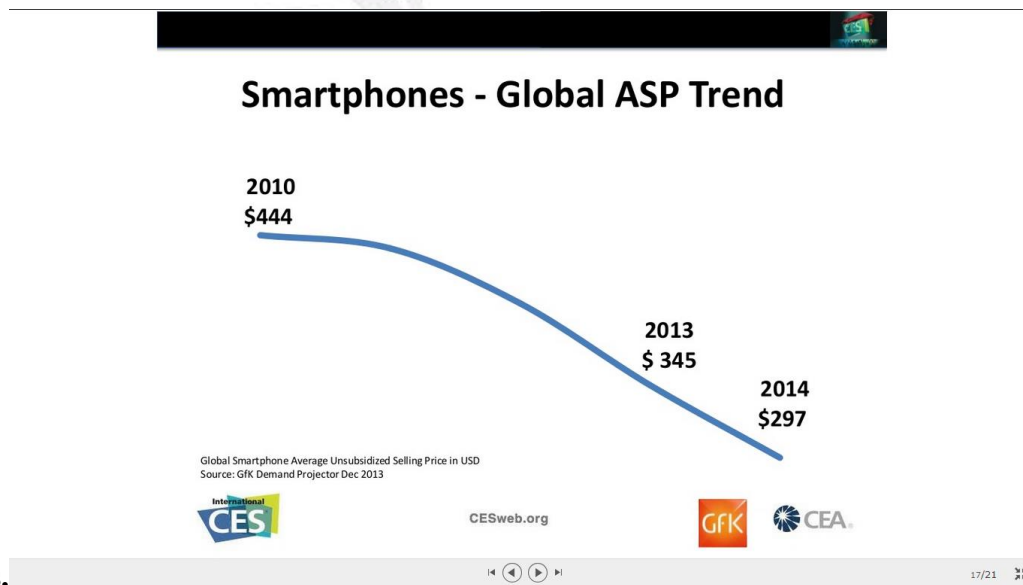
Here is a chart showing Apple maintaining its price and margins. They do this by continuously improving the product. This is exactly what Christensen describes, sustaining innovation at Apple, facing disruptive innovation from Chinese makers and suppliers.

Figure 2. Christensen-style ‘Sustaining Innovation’ Lets Apples Prices Stand.



Compare the six years of relatively stable prices above with the chart below.

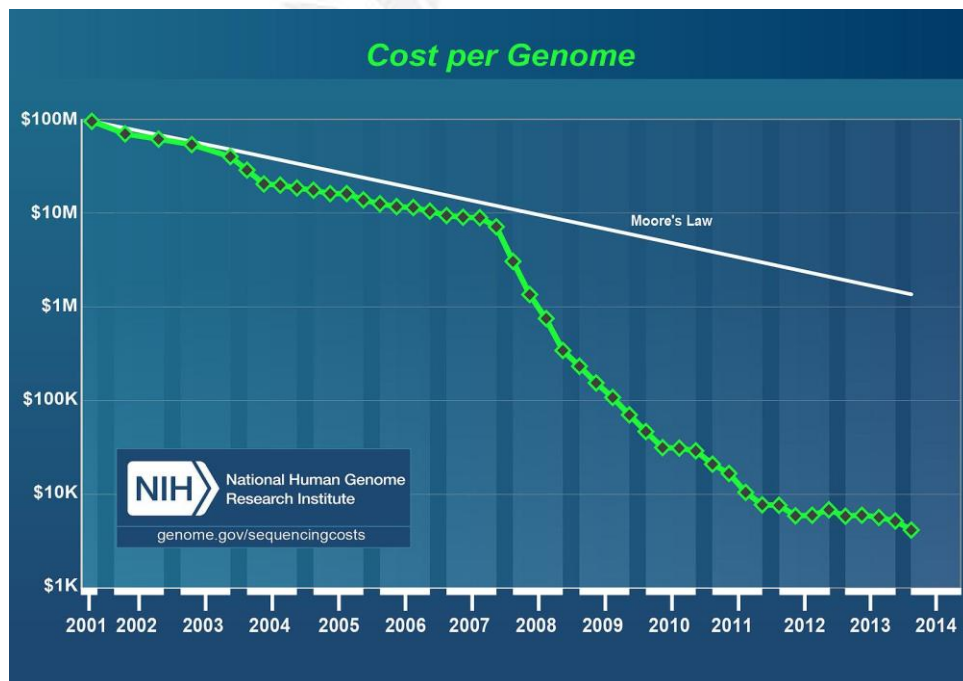
Figure 3. Disruptive Innovation: Falling Price of ‘Good Enough’ Smart Phones Lowers Industry’s Average Selling



Prices.

Now we describe the second form of disruption we mentioned above. Disruption doesn't necessarily come from the low-end. Another pervasive disruptor is the effect of Moore's Law, which has brought the rise of all things digital and has enabled digital media to replace analog media. Moore's Law describes the advancement in transistor density in semiconductors, but there are similar laws describing the exponential progress in hard drives and network speed. The law in hard drives is called "Kryder's Law", formulated by Mark Kryder, who was Seagate Corp.'s senior vice president of research and chief technology officer. "Butter's Law" describes the exponential advance of networking, and there are others for pixels in digital cameras, and so on. Based on these types of observations, futurologist and inventor Ray Kurzweil early on explicitly generalized this idea in his 2001 essay "The Law of Accelerating Returns" which proposed that Moore's Law-types of accelerating change would apply to a growing number of fields, ultimately including biology, which had previously been limited by computing power and/or other exponentially increasing technologies. In later works, including his book The Singularity is Near, Kurzweil shows that the race to unlock the human genome also followed exponential increases in the rate of the decoding of base pairs, and exponential decreases in the costs involved. For example, the cost of sequencing an individual's entire genome had fallen from 100,000 US dollars in 2009 to 1,000 US dollars in 2014.

Figure 4. Accelerating Price Performance Drives Decline in Price Per Genome Decoded.



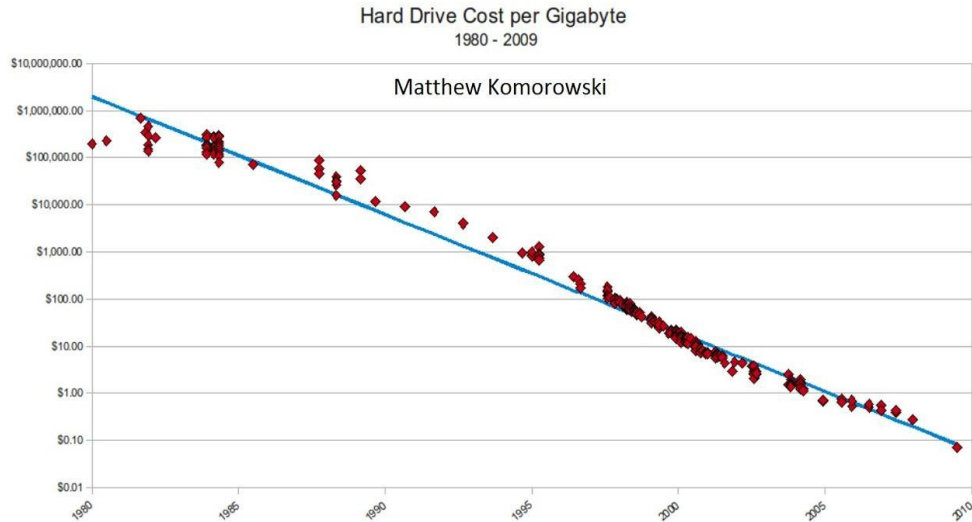
Kurzweil's Law of Accelerating Returns, like Christensen's ideas about Disruptive Innovation, help us to understand Apple's innovations, in which improvements in technology enable entirely new types of devices to be cost-effective or possible at given sizes or weight or with acceptable battery lives.

Kurzweil said of the iPod, in a 2005 interview with NPR, National Public Radio, America's non-profit radio news provider:

“people didn't buy iPods for \$10,000, which is what it would have cost 10 years ago.... So when price performance reaches certain level, whole new applications open up, like the Internet, you know, like blogs, like social networks. And the adoption times for these are accelerating. Blogs, you know, hardly existed three years ago, and the first reference to the World Wide Web in The New York Times was 1993. And the adoption of these new types of technology gets faster and faster, and whole new capabilities open up. And so we utilize that extra, you know, price performance.”

Here is a chart that both Christensen and Kurzweil could lay claim to. It shows the falling cost per gigabyte of hard drive space. On the one hand, successive generations of hard drives came to market, disrupting disc manufacturing incumbents who stuck with the larger physical sizes and higher capacities that their clients said they wanted. Eventually, physically smaller discs held more and were cheaper, and the companies that didn't make the move from the larger, higher-end, higher margin discs to the smaller discs failed, which is an example in Christensen's Innovator's Dilemma. But from Apple's point of view, smaller, cheaper, higher capacity hard drives eventually enabled the creation of the iPod, driving Kurzweil-style disruption, the creation of never-before possible applications which stem from exponentially improving price-performance of initially expensive technologies. Similar charts could be fashioned for almost every other component in the iPod.

Figure 5. Accelerating Price Performance Leads to Entirely New, Disruptive Applications of Existing Technologies.



So in addition to the strict Christensen idea of low-end technologies displacing high-end technologies, graphically depicted as ‘destruction from below,’ we also have, in the case of the iPod, a Kurzweil-type disruption in which increased price-performance allows new applications of computer technology to enter and dominate worlds that were once analog. Note that in this ‘destruction from above,’ a higher-priced technology improves in price-performance until it makes inroads against a previously existing cheaper technology. It’s initial performance so exceeds the original technology that it becomes a compelling high-end product. This redefinition of what is possible allows the consumer to radically redefine his need. Continued declines in price-performance make the new product completely displace the preceding technology. Note that few cassette players or tapes are sold these days. We hope that we can stake out claim on a term that may become popular in the literature: ‘Kurzweil-type destructive innovation from above.’ We also use ‘destruction from above,’ ‘Kurzweil-style innovation,’ ‘Kurzweil-style destruction,’ ‘Kurzweillian destruction,’ ‘Kurzweillian innovation,’ and sometimes use Kurzweillian instead of Kurzweillian because it sounds, well, more Orwellian. And we refer to Christensen-style disruption as ‘disruption from below,’ distinguishing it from, of course, ‘disruption from above.’ We are aware that the terms ‘innovation from above’ and ‘innovation from below’ are already in use in a different context, in organizational behavior, so we avoid those phrases. We hope that the distinction we make here between these two types of innovative

destruction, that from lower cost technologies rising to use, and that from more expensive technologies falling in price and then finding new applications, proves a useful distinction.

Now that we have defined our terms, and shown graphically why we call one ‘disruption from below,’ and the other, ‘disruption from above,’ let’s consider a brief review of Apple’s rise. Some parts of it conform to Christensen’s idea of disruptive innovation from below, and some parts of it conform to Kurzweil’s Law of Accelerating Returns with new application of digital technology replacing analogue technologies or physical distribution. At its birth, Apple popularized the PC, then called a home computer, which eventually limited the growth of mainframe and minicomputers. Clearly, this was a classic case of disruption from the bottom. The Apple II was the first popular home computer, launched in 1977, four years before the IBM PC. Versions of the Apple II remained in production until 1993. The Apple Macintosh brought the Windows-Icon-Mouse-Pointer (WIMP) interface to home computers in 1984, while the first popular version of Windows, Windows 3.0, launched in 1990. These Windows-Icon-Mouse-Pointer (WIMP) computer interfaces had never existed outside the lab before. Personal computers’ potential market, individuals, not corporations, cried out for a more personable interface. The new market potential dictated a new user experience, enabled by technological progress. Both Christensen-style and Kurzweil-style innovation apply to the Mac. The Mac’s hardware represents Christensen-style innovation, and the Mac’s graphic user interface represents Kurzweil-style disruption, in which software that was developed on much more expensive hardware eventually ran on a home computer. For example, the Mac’s predecessor from Apple, the Lisa, shipped for \$9,995 dollars.

The Xerox Star shipped in 1981 for \$16,000 dollars and was intended to be installed in workgroups of three or more with a laser printer for a total installed price of fifty to one hundred thousand dollars.

Working from its installed Mac base, Apple also popularized the MP3 player with its introduction of the iPod in 2001. This specialized little computer was not exactly disruption from the low-end. It cost far more than a Walkman, but did far more, putting “a thousand songs in your hand.” Therefore, disruptive though it was, I am going to call this Kurzweil-style innovative destruction. Apple also popularized legal music downloads with the launch of the iTunes store in

2003. This required price-performance from the network, the Internet, that could not have possibly been achieved a few years earlier in the era of the dial-up modem. Remember that networking was once an expensive, and by current standards, slow technology. Therefore the iTunes Store is also a disruption from a once-high-end technology becoming affordable for a new use, so I am going to call this Kurzweil-style innovation. Apple popularized the smartphone market with the launch of the iPhone in 2007. Again, this one I am going to call Kurzweil-style innovation because it resulted from a new application of technologies made possible by improving technology and price-performance. It was more expensive, not less expensive, than most existing cell phones, but it was also a compelling computer in your hand that was slicker, better implemented, and more useful than anyone else's previous efforts, also putting "a thousand songs in your hand." On the back of each of these disruptive innovations, Apple rose. Whether the innovation was in the style described by Christensen or Kurzweil. And of course, in each market it disrupted, there were incumbents that failed. DEC was once the second largest computer maker in the world; its minicomputer empire yielded to the PC onslaught. The Mac enabled desktop publishing, ending a way of life for printers and those who supplied them with machines. Eventually, the Mac evolved to be the tool of choice for manipulating photos. This, with digital photography, destroyed an infrastructure that had supported Kodak and numerous photo shops. This change was so pervasive that today to say 'Photoshop' out loud is now presumed to be a reference to the Adobe program. The once-popular tape-playing Walkman is now a curiosity, and few people have bought a CD lately. One of the authors has an apartment full of CDs. Looking at them now consistently provokes a single response: is this the best use of this space? CDs were once so valuable for their size and weight that they were frequently taken in burglaries. Now you can't even give them away. And several of the cell phone makers that are now in trouble or changing hands, have lost their mojo due to a failure to compete in a landscape suddenly dictated by the iPhone, or its open-source Google-backed clone, Android. Motorola and Nokia come to mind, but a few moments reflection would yield other cases.

All of this is just to say, Apple is a credentialed beneficiary of 'disruptive innovation' in all its forms. Perhaps mastery of these disruptive forces is Apple's defining characteristic. Consider this quotation from Tim Cook in which he accepts the loss of sales of an expensive product to a cheaper one:

I see cannibalization as a huge opportunity for us,” Cook said Wednesday. “Our core philosophy is to never fear cannibalization. If we don’t do it, someone else will. We know that iPhone has cannibalized some of our iPod business. That doesn’t worry us. We know that iPad will cannibalize some Macs. But that’s not a concern. On iPad in particular, we have the mother of all opportunities because the Windows market is much, much larger than the Mac market. It is clear that it is already cannibalizing some. I still believe the tablet market will be larger than the PC market at some point. You can see by the growth in tablets and pressure on PCs that those lines are beginning to converge.” Tim Cook, Earnings Call, 24 January 2013.

As this paper is the written form of a presentation, we are now going to begin to use some of the graphs and charts that made up the bulk of the presentation. We hope that this will aid in quantifying some of the points we make, and also, as mentioned, we hope it will shed some light on the size and credibility of some of the ‘story stock’ threats facing Apple. They make sense verbally. How do they stack up in the visual language of graphs? Backing up a bit, here is a chart showing that the rise of the iPod drove the legal music download market. Though the sales of the iPod are shown slowing, the installed base is still rising. Also, the decline of the iPod is largely due to the rise of the iPhone, which continued to drive iTunes sales.

Figure 6. The Rising Base of iPods Sold Drives Digital Music Revenues.

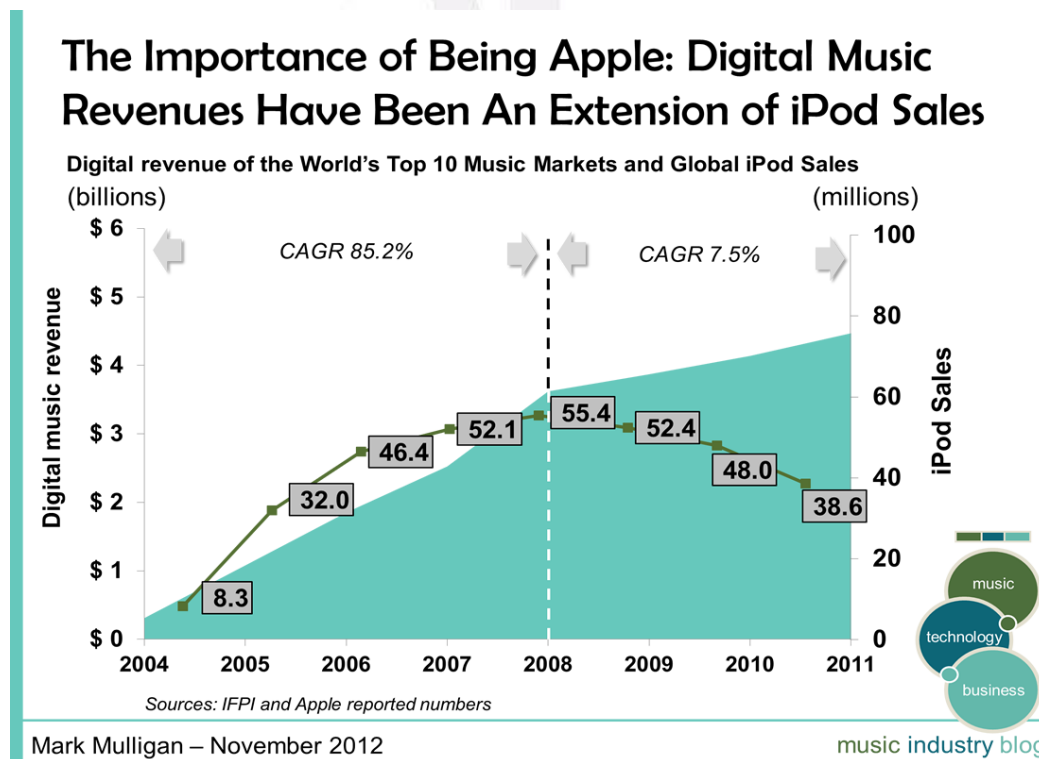
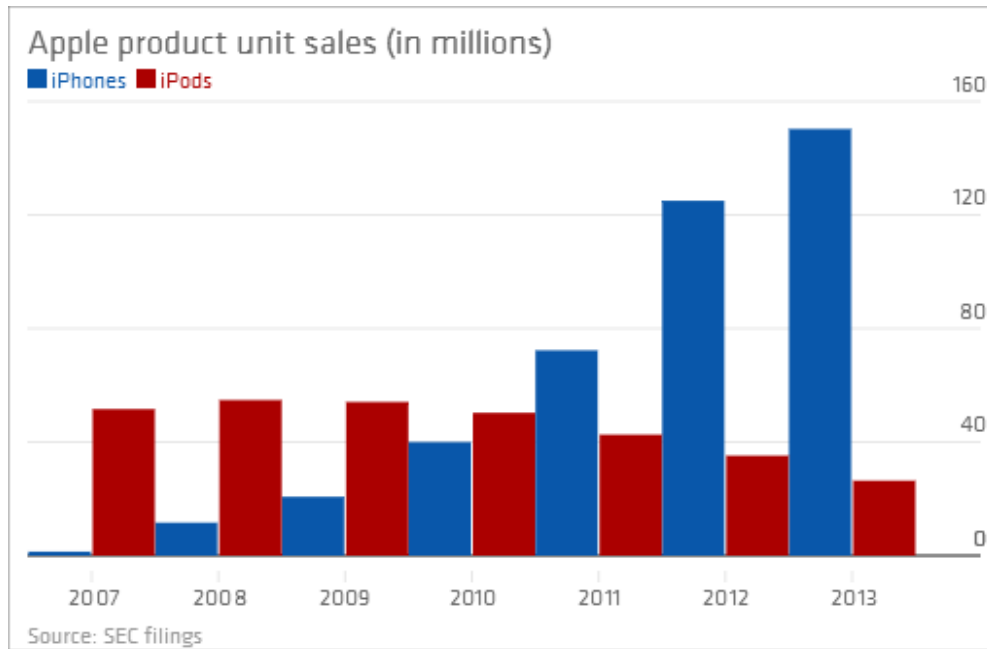


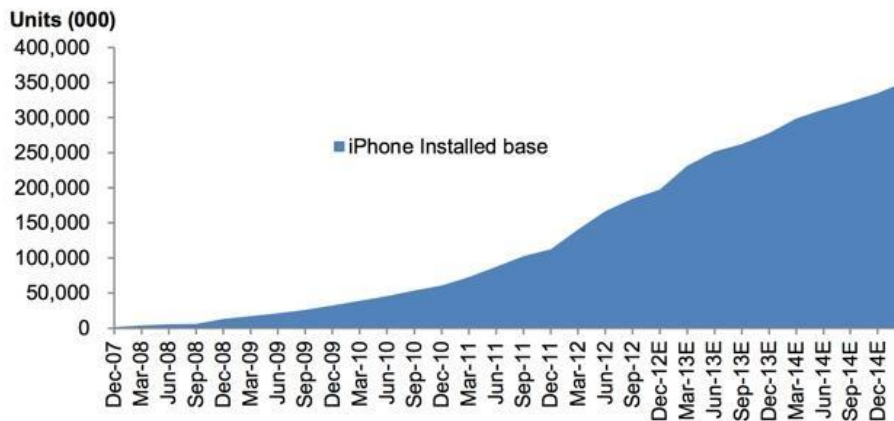
Figure 7. iPhone Kills the iPod. Apple OK With Disrupting It’s No.1 Product.



According to about.com estimates, 350 million iPods were sold by Sept. 2012. For comparison, Evercore Group estimated that a very similar number of iPhones were to have been sold by December of 2014, about 350 million by the following chart.

Figure 8. Estimated Cumulative Sales of the iPhone Through December 2014.

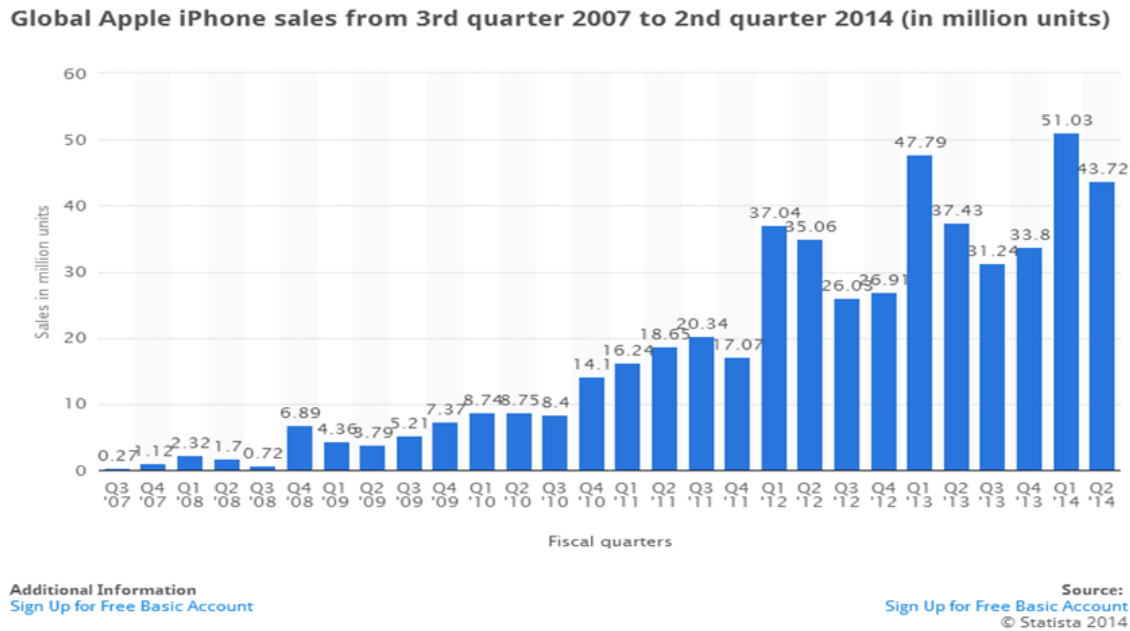
Figure 3: iPhone Estimated Installed Base



Source: Company data, Evercore Group L.L.C. Research

Financially, the single most important product by far driving Apple’s revenues is currently the iPhone, so we will provide a few more graphs depicting its importance.

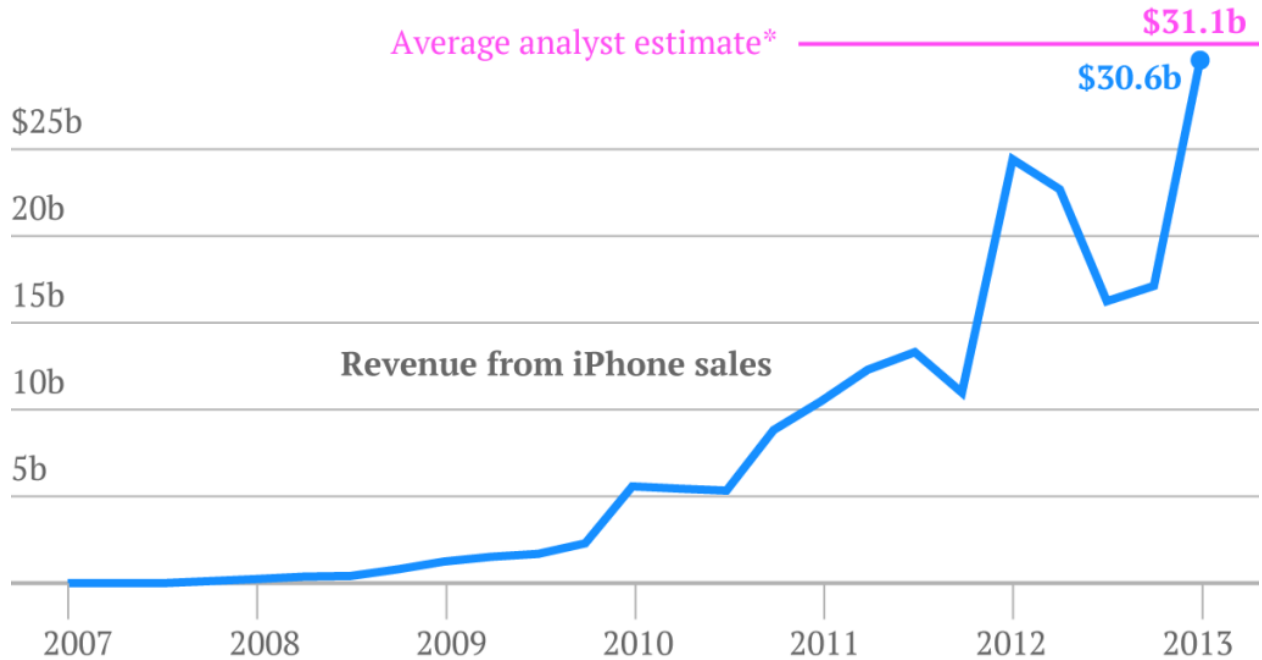
Figure 9. iPhone Unit Sales from Q3 2007 to 2Q 2014.



Though this is a chart of unit sales, not a stock chart, according to the method of stock chart reading called technical analysis, the above chart would be seen as still rising: there are higher highs, as well as higher lows. We also see a pattern developing: highs in the first quarter with the release of the new model iPhone, representing pent up demand, followed by lows later in the year which represent the loss of the pent up demand for the new model, as well as the beginning of the wait for the next model. Even people who have decided to skip a generation of iPhone will conform to this pattern.

The iPhone is so expensive and successful that it is responsible for much of the profitability of Apple.

Figure 10. Apple Revenue from the iPhone Per Quarter!



*The mean estimate of 28 analysts, compiled by FactSet
Ritchie King | Quartz

Data: Apple

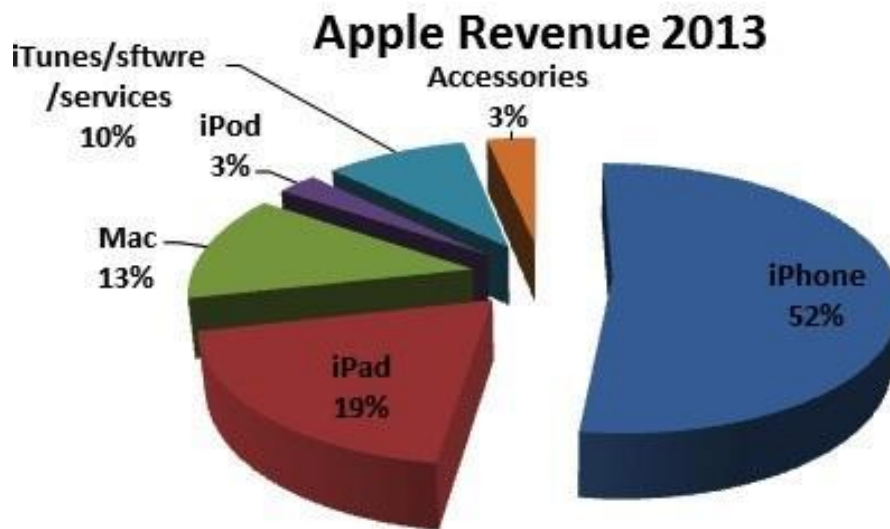
In fact, the website moneynews.com said “it is no longer Apple the tech company — it is really Apple the iPhone company.”

At least one source has described the success of the iPhone as stemming from its role in selling the telecommunications companies’ premier services. This analyst pointed out that there is always far higher demand for the latest iPhone than earlier or cheaper ones concurrently in production. He sees this as a force keeping iPhone prices and sales high, and stabilizing Apple’s revenue from the iPhone in way that does not exist for the iPad, which he sees as more subject to price pressures.

<http://www.asymco.com/2013/01/24/the-job-the-iphone-is-hired-to-do/>

Take a look at this pie chart.

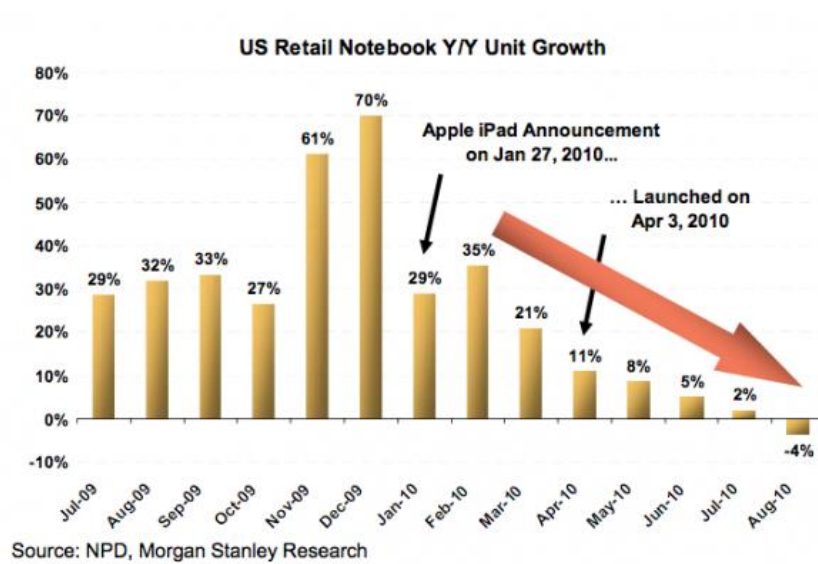
Figure 11. Breakdown of Apple's Revenue 2013 by Product.



In 2013, fifty-two percent of Apple's revenue came from the iPhone alone.

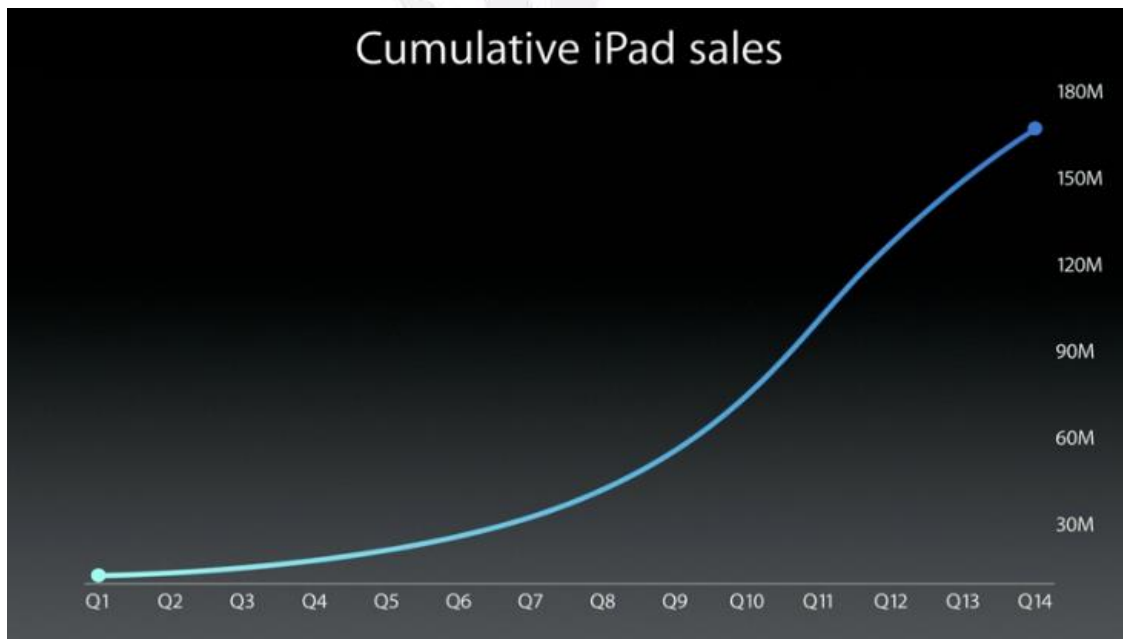
Now let's take a look at the iPad, the first successful tablet computer, which shipped after the iPhone and which has been described as a giant iPhone without the phone function. Arguably, this is an innovation made possible by the declining prices and improved functionality of processors, memory, screen, and so on, Kurzweil-style disruption. But in that it represents a lower-priced product, the tablet, disrupting a higher-priced product, the laptop, it resembles superficially Christensen's disruption of a cheaper technology displacing a more expensive one. Here is a chart showing the alleged effect of the iPad disrupting laptop sales.

Figure 12. iPad Disrupting Laptop Market.



Here is another graph, showing the rising installed base of the iPad

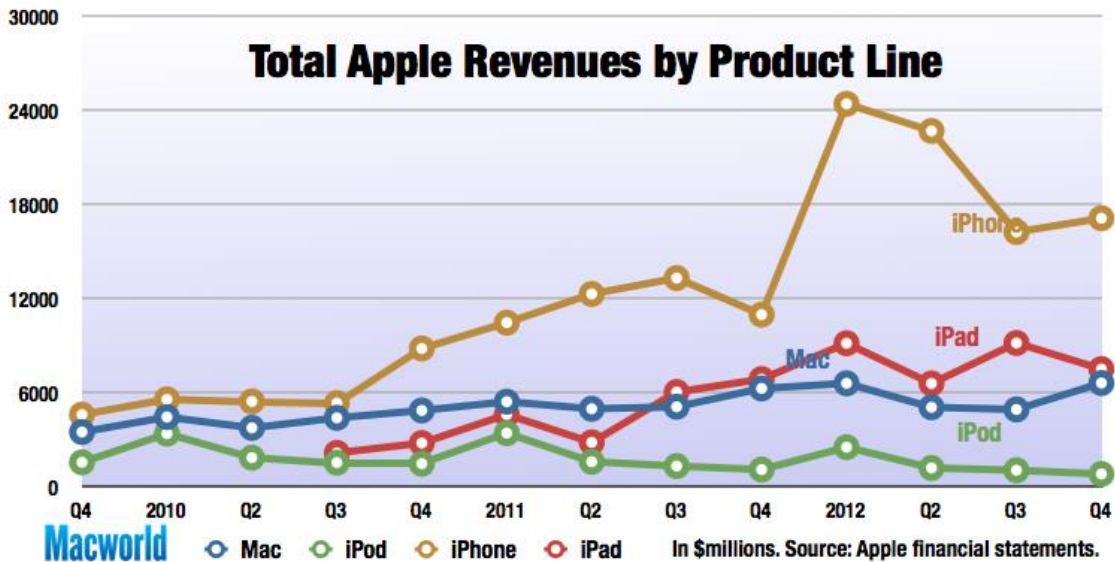
Figure 13 The Rising Installed Base of the iPad.



Note that the x-axis is labeled in quarters after shipment, not dates.

We haven't discussed the Mac much, so I am inserting a graphic below that includes it. Macs are expensive, so even though sales are not that high, revenue from Macs is higher than from iPods.

It is still less than that from iPads, and fraction of that from iPhones. Any Apple purchase is a gateway product.

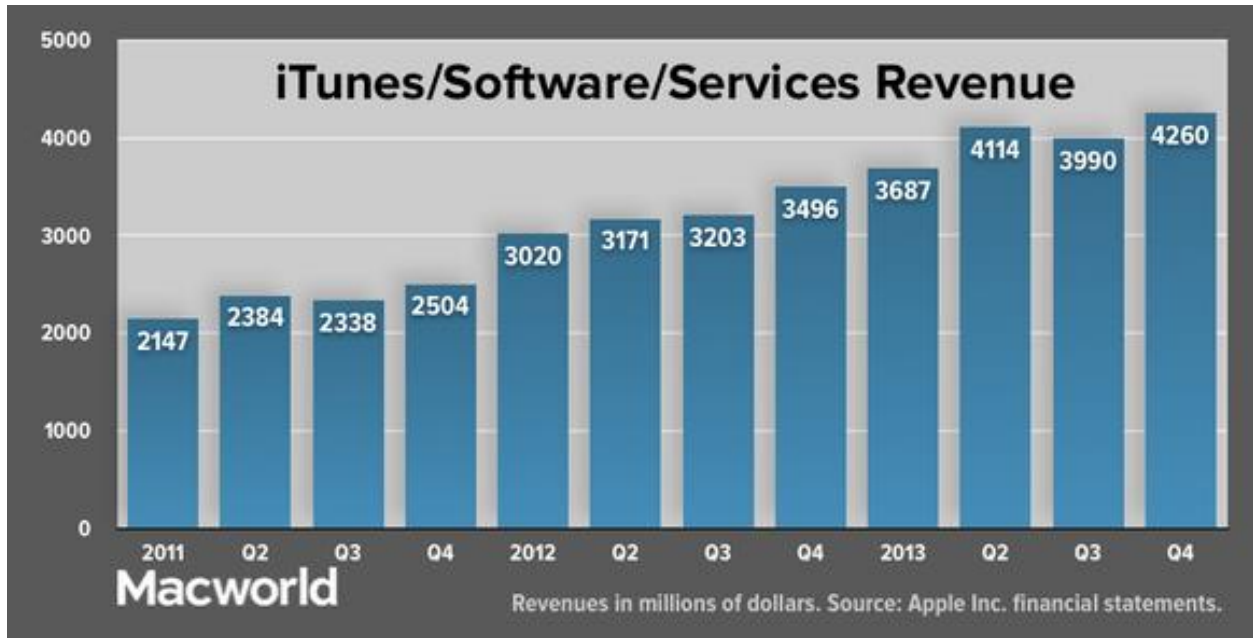


Figure

Figure 14. Apple’s Revenue by Product Line.

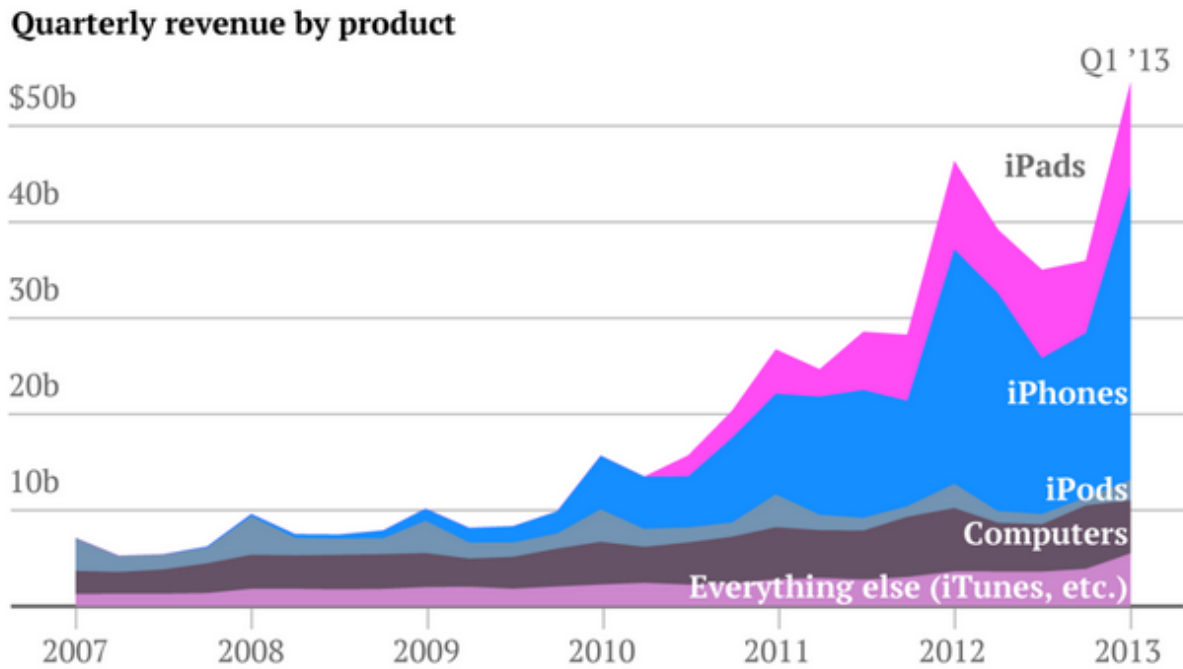
Next we turn our attention to the iTunes Store. We can describe its success in terms of path dependence and first mover advantage. Apple shipped the iPod, opened the iTunes Store, and banged out some other successful products that further aided the iTunes Store: the iPhone and iPad. Also, Steve Job’s negotiating successes with the record companies can’t be overlooked. Of course, one factor in the iPhone’s success was also Steve Job’s success negotiating with the wireless phone companies. Jobs’ persuasiveness was so unusual that it was dubbed the ‘Jobs Reality Distortion Field.’

Figure 15. iTunes Sales Double in 3 Years.



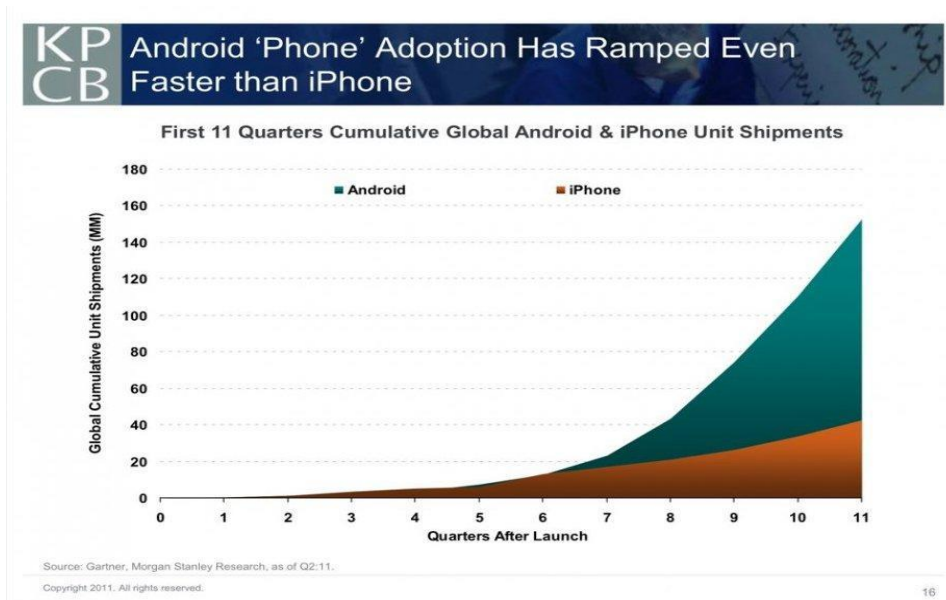
We now provide a chart to summarize Apple's profits while retaining a feel for each of its product lines. This chart represents a 50 billion US dollar revenue 1st Quarter of 2013, about half of which was generated by iPhone sales.

Figure 16. Apple Quarterly Revenue by Product, 2007-2013 Q1.



Now that we have a feel for what Apple does, and the size of its businesses by product type, we can turn to our original question. Is Apple in trouble? Is it under siege in phones and tablets by cheaper Chinese manufacturers? Is its tablet and iTunes Store empires under siege by Amazon? Can a new technology, streaming, make inroads against the iTunes Store? Let's use graphs and a few numbers to take a look.

Figure 17. Android Phone Adoption



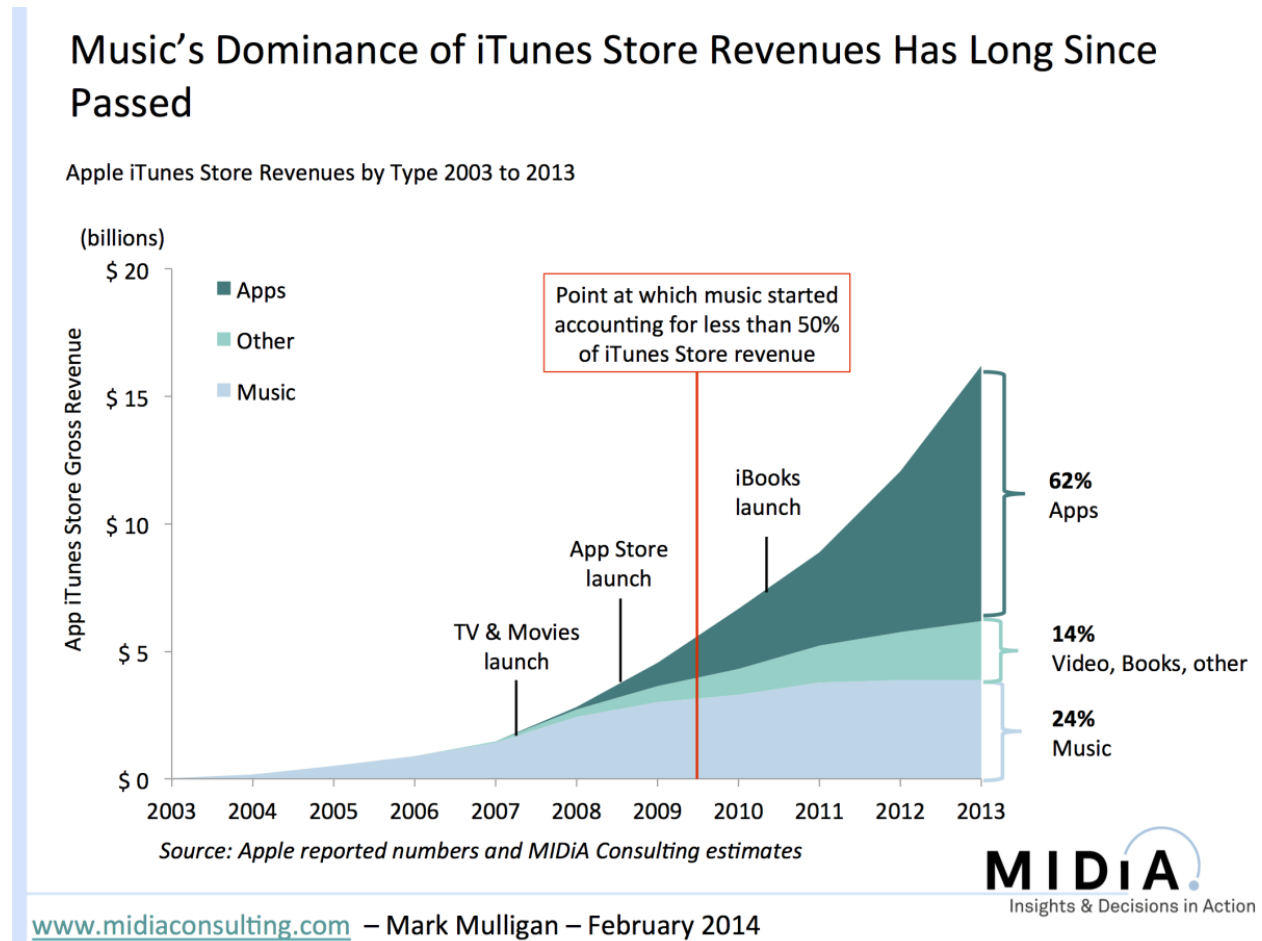
Rate.

The above chart should give us pause. The x-axis is quarters from launch, so the two lines are not concurrent. The accelerated ramp up of Android was in part made possible by Apple introducing people to smart phones. Still, the trajectory is worrying. We are often told that the profits in this market largely belong to Apple. But even if that is true, every Android customer gained is one fewer iPhone customer. Android's rise must eventually limit the iPhone's growth, with implications for the iTunes Store as well. We count this threat as real, even if Apple's growth and revenues are yet to be substantially affected.

We next turn our attention to the story stock claim that Amazon will dump cheap tablets, hurting iPad sales, and leverage these tablets to sell media, hurting the iTunes Store.

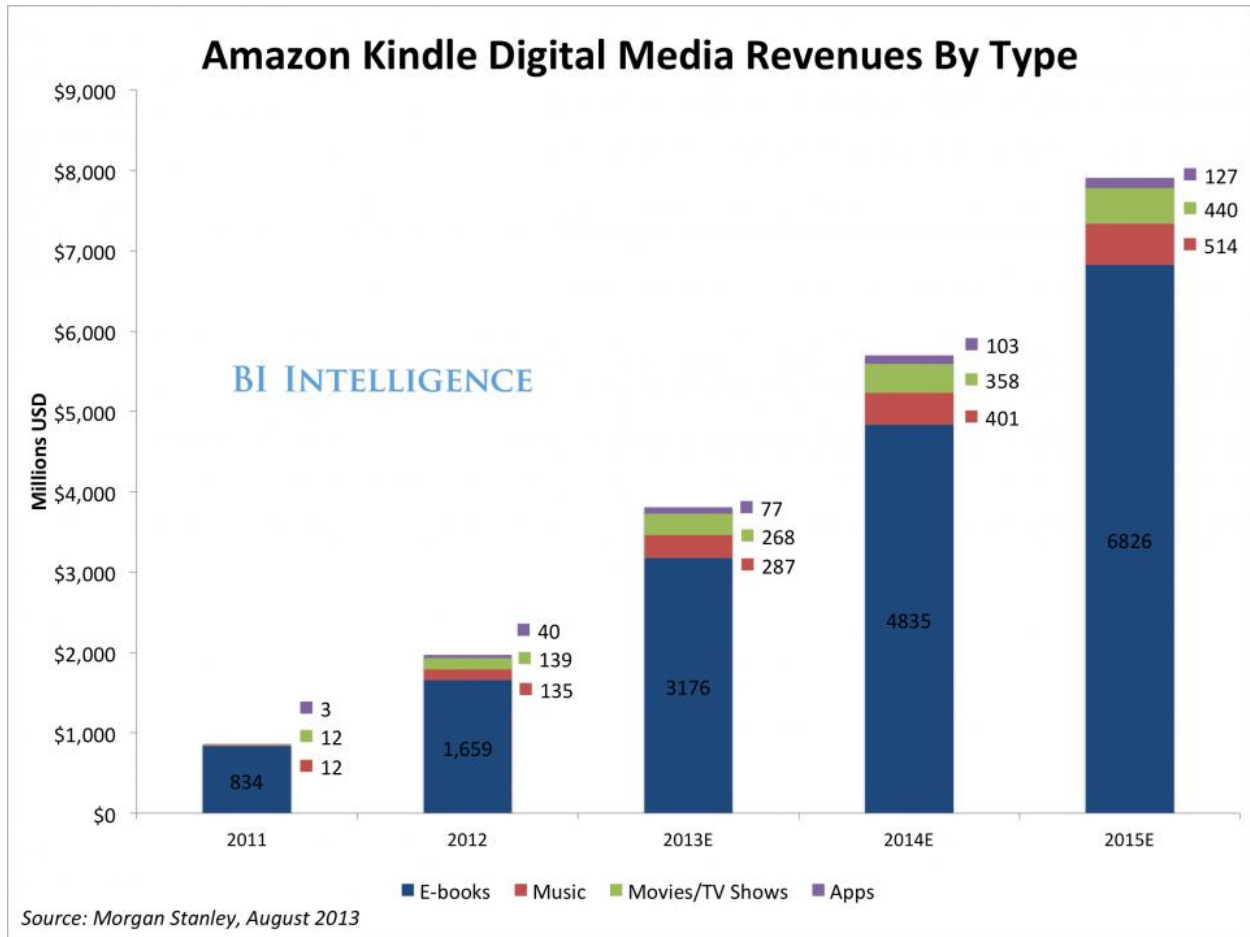
Compare these two graphs.

Figure 18. The Declining Role of Media in iTunes Store Sales.



Note the decelerating rate of increase in media downloads, now 38% of sales versus various types of software downloads for machines Apple sells, which includes Mac software.

Figure 19. Growth of Amazon Media Revenues from Kindle.



<http://www.businessinsider.com.au/a-look-at-amazons-kindle-ecosystem-4-2014-2>

These are projections from Morgan Stanley. If they are accurate, it seems likely that Amazon will become a larger seller of digital media than Apple.

This looks like a credible threat to iTunes Store sales, even though the Kindle Fire tablet itself has not sold all that well. Amazon’s Amazon Prime program is also said to be effective, and may require an answer from Apple. But we should note here that Amazon is not anywhere near as profitable as Apple. Also, Apple has yet to make a big push into sales of media to Android and Windows machines, or streaming. It has the cash to do both, if it chooses. And iPad sales far surpass Kindle Fire sales, though exact Kindle sales figures are hard to come by. One source claimed that prior to the most recent model refresh, Kindle Fire sales represented two percent of

the tablet market. <http://www.businessinsider.com.au/a-look-at-amazons-kindle-ecosystem-4-2014-2>

Amazon seems to pose a unique threat to its competitors, not from efficiencies or an enduring first-mover advantage, but due to uniquely indulgent shareholders. Here are some statements from Business Insider 24 January 2013

“Bloomberg editor Mark Gimen points out that Apple earned \$13.1 billion in profits last quarter. From the time Amazon turned a profit in 2003 to the end of 2011, Amazon has earned \$5.1 billion in profits. (From inception, adding up losses, it's ~\$1.5 billion, says analyst Benedict Evans.) ...if you were to use Amazon's PE for Apple, the stock would be trading at \$144,618 per share, for a market cap of \$136 trillion. (Jay Yarow)”

<http://www.businessinsider.com/amazons-profits-versus-apple-2013-1>

And here is a statement from Slate.com.

“...Amazon, as best I can tell, is a charitable organization being run by elements of the investment community for the benefit of consumers. The shareholders put up the equity, and instead of owning a claim on a steady stream of fat profits, they get a claim on a mighty engine of consumer surplus. Amazon sells things to people at prices that seem impossible because it actually is impossible to make money that way. And the competitive pressure of needing to square off against Amazon cuts profit margins at other companies, thus benefiting people who don't even buy anything from Amazon... if you own a competing firm, you should be terrified. Competition is always scary, but competition against a juggernaut that seems to have permission from its shareholders to not turn any profits is really frightening.”

http://www.slate.com/blogs/moneybox/2013/01/29/amazon_q4_profits_fall_45_percent.html

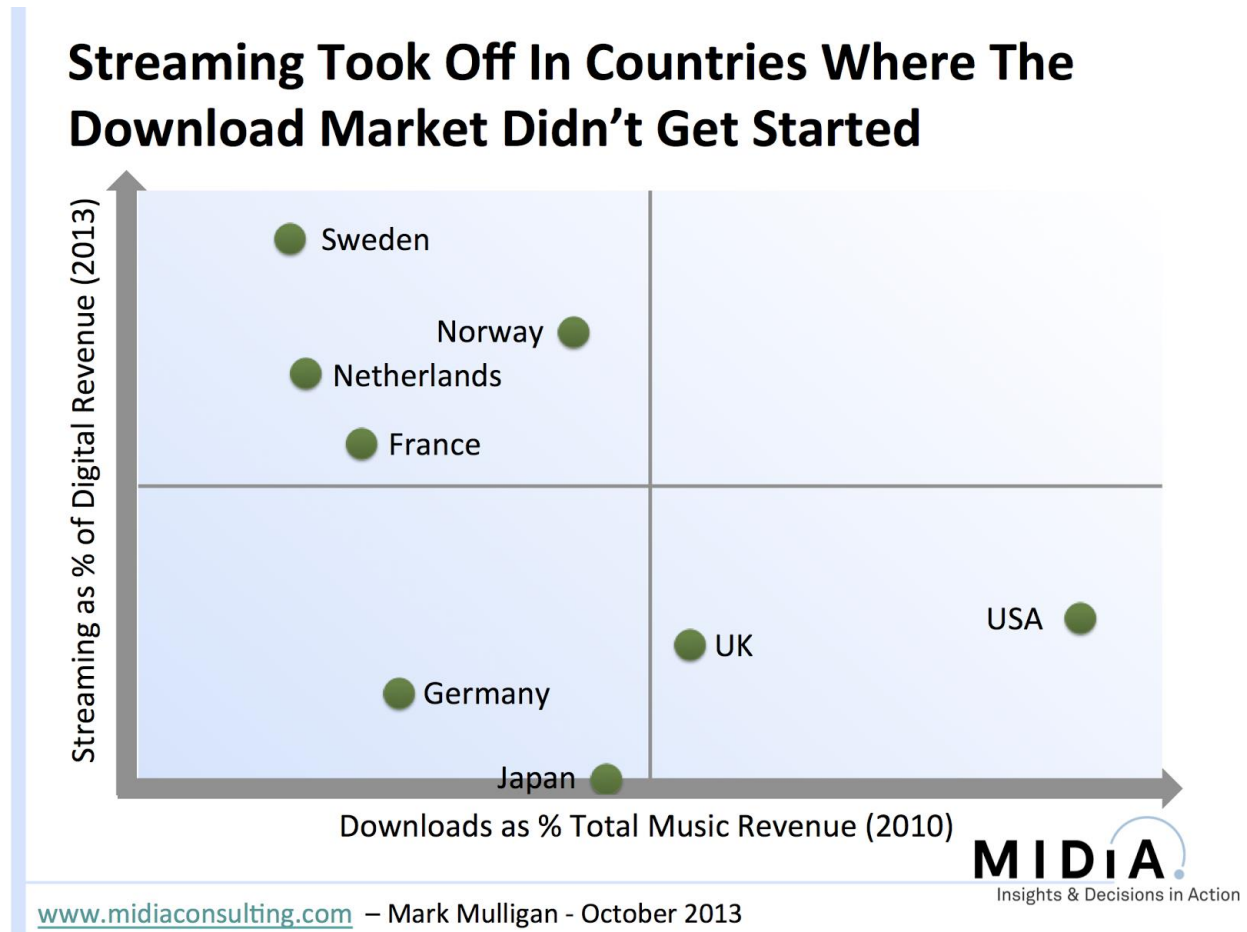
Whether Amazon's extreme lack of profitability will prove a liability in challenging Apple in media is anyone's guess, but Amazon's sales growth success so far and its willingness to make low margins is a red flag for Apple.

The final challenge we see facing Apple is the rise of streaming media. Streaming media is a threat to Apple in two ways. First of all, it is a threat to the download music and video market, in which Apple is the dominant player. Secondly, it is a threat to their hardware pricing model, in which Apple charges more for its models with more memory, far more than the market price for

the memory. With streaming media and the rise of the cloud, processors and networks are now fast enough that it is not as important to have large amounts of storage in portable devices.

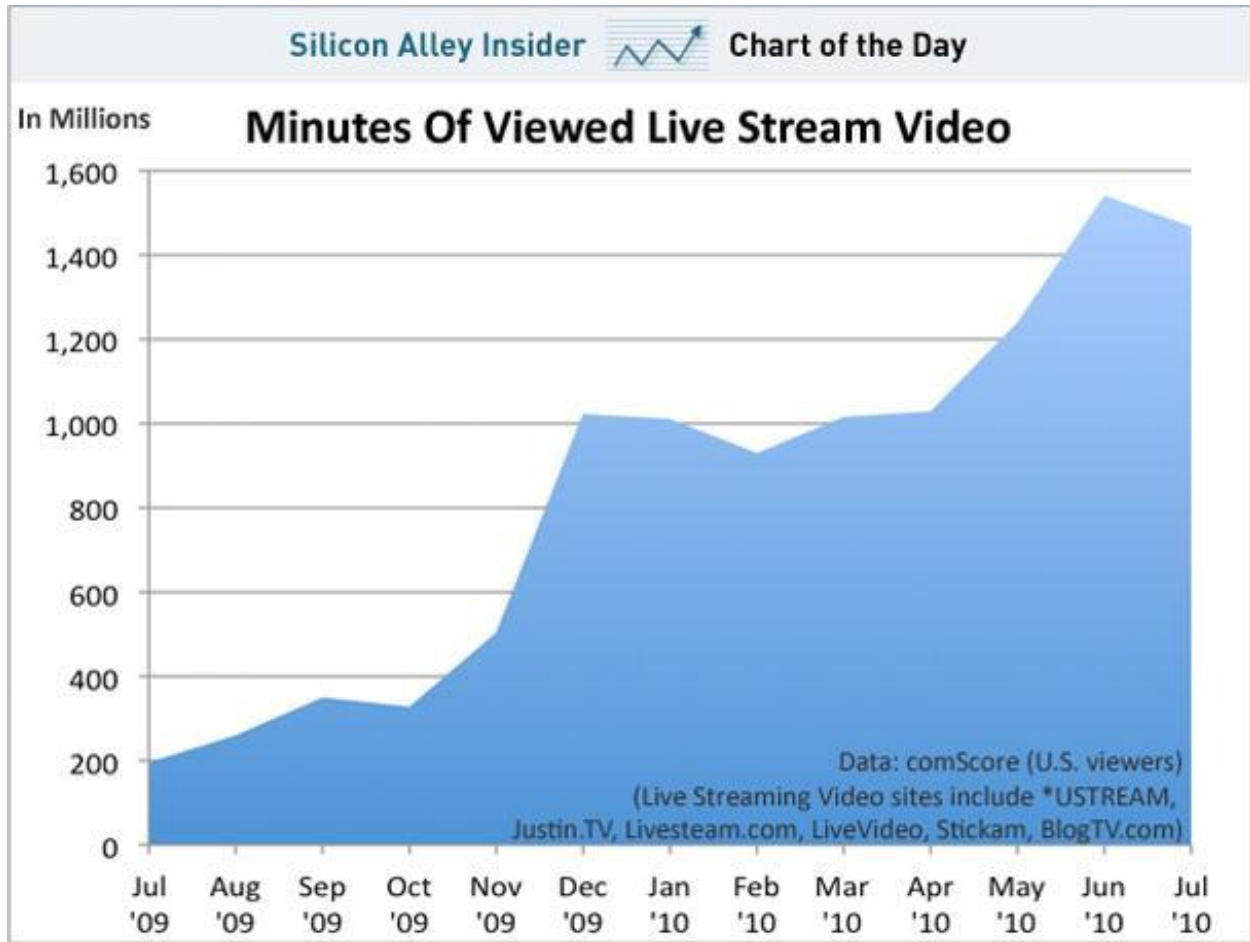
Let's look at streaming. The first observation is that streaming has taken off wherever Apple and legal downloading has not.

Figure 20. Streaming vs. Downloading by Region.



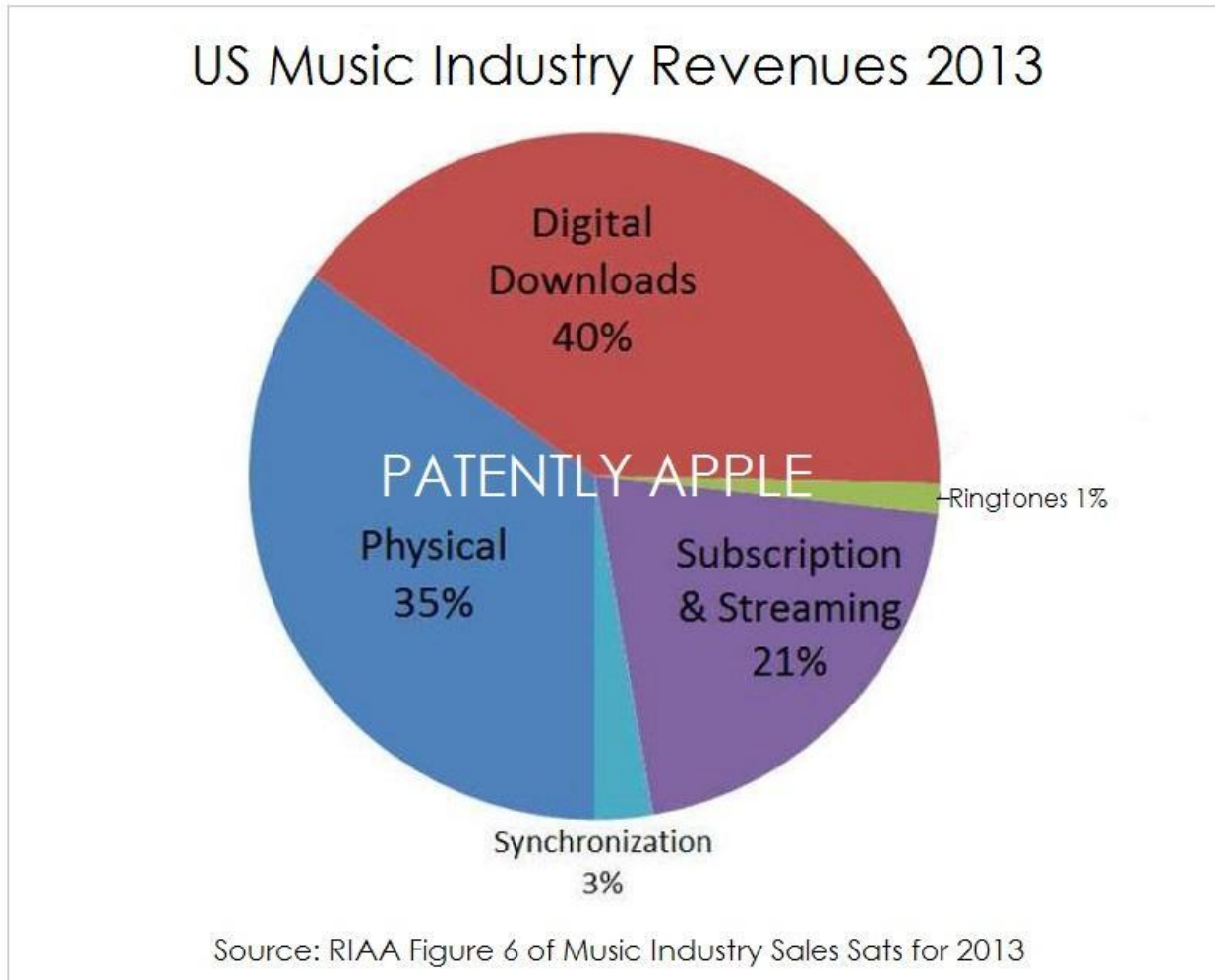
Streaming video has also gotten to be a big deal. The next chart show enormous growth in the year from July 2009 to July 2010. In the authors' own experience, the increasing cost of hard drives since the floods in Thailand have also motivated streaming, in which enormous video files need never take up space on one's own hard drive.

Figure 21. The Rapid Growth of Streaming Video.



The appeal of streaming all things is further intensified by the rise of portable devices which lack hard drives and their enormous capacities. If one is to need a base station anyway to store one's media on, this might as well be that of a universally available service provider available to you on the go, rather than your home computer which is largely only available to you at home. When one's primary device is a PC, one likes to have the media in one's possession on the hard drive. When out and about with a phone or a tablet, the cloud and streaming are better options, compensating for the limited storage of mobile devices. For the moment Apple is where the money is, once again, but the future looks threatened.

Figure 22. Apple is Where the Money Is. US Music Revenues in 2013 Still Favor Downloads.



Another problem with the growth of streaming is the fact that every streaming service seems to have free users subject to ads in numbers far outstripping their paid premium membership. People are getting used to the idea that music should be free. It is not a coincidence that the iPhone does not include an FM radio. Apple wants people to be willing to pay for their music. In addition, people online also claim that the subscription services' paid member numbers are inflated because they include bundled deals provided by telecom companies in Europe.

Here is a user comment from digitalmusicnews.com.

“In any event, Spotify is selling the Premium subscription in a telecom bundle at 1 Euro per month. You don’t really believe Telia is paying 10 Euro per month for each subscription and giving it to customers for free, do you?”

<http://www.digitalmusicnews.com/permalink/2014/01/09/downloadspotify>

Another complaint about streaming services is that they pay artists almost nothing.

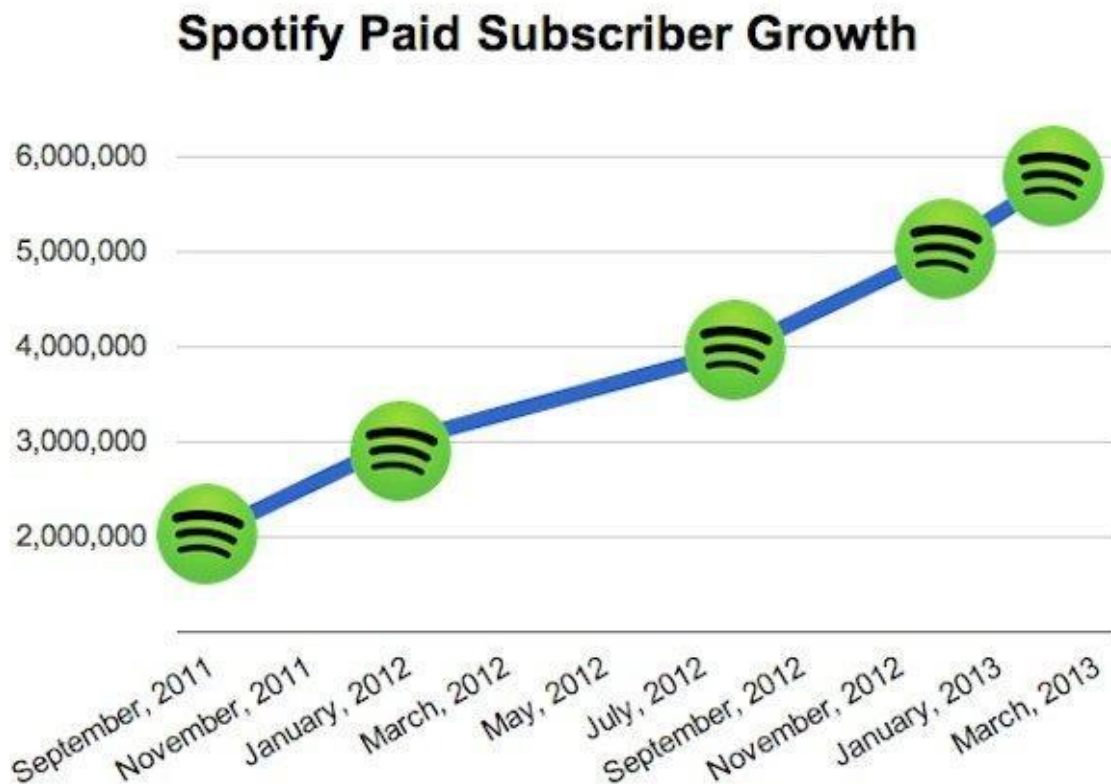
And here is a comment by an artist:

the following comes from Armen Chakmakian, a Grammy-nominated composer, keyboardist, and recording artist... “14,227 performances of music (almost every track 100% owned by me) generated \$4.20.... Someone’s making money, and in true fashion with the music industry, it’s not the artists. Business practices like this are one of the reasons I jumped ship and only write for television now.”

<http://www.digitalmusicnews.com/permalink/2014/04/03/streamingstatements>

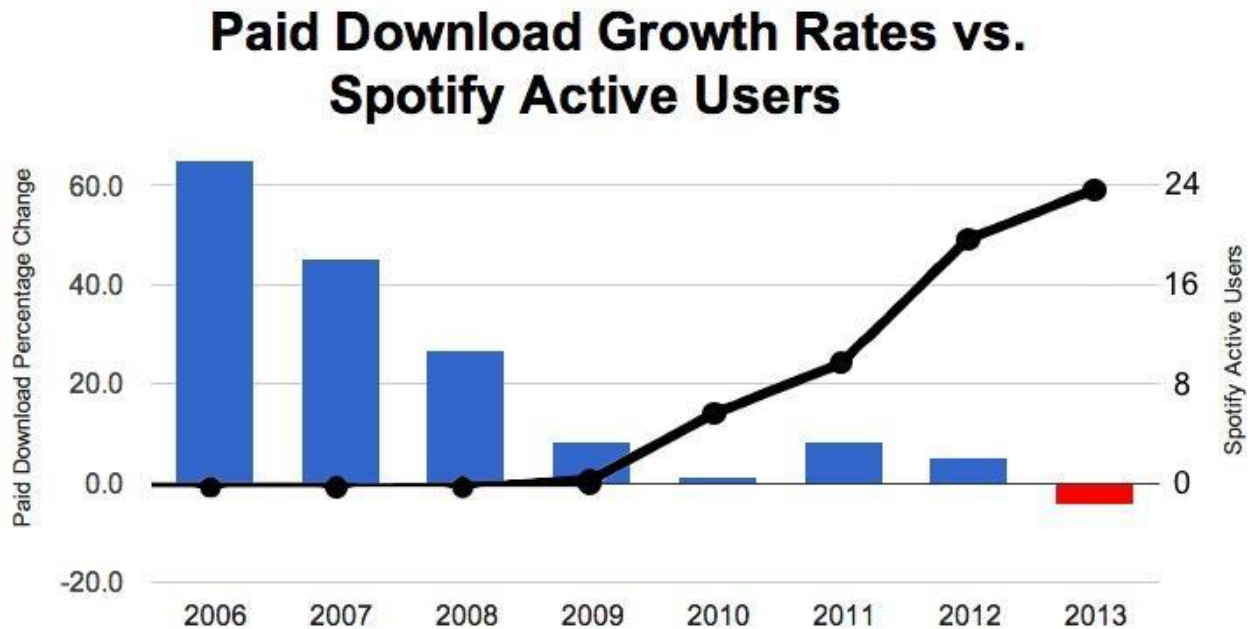
Here is a chart showing Spotify’s amazing growth.

Figure 23. Hitting the Spot.



And the rising trend in streaming seems to be having its effect on downloads.

Figure 24. Downloads Fall as Streaming Climbs.



<http://www.digitalmusicnews.com/permalink/2014/01/09/downloadsspotify>

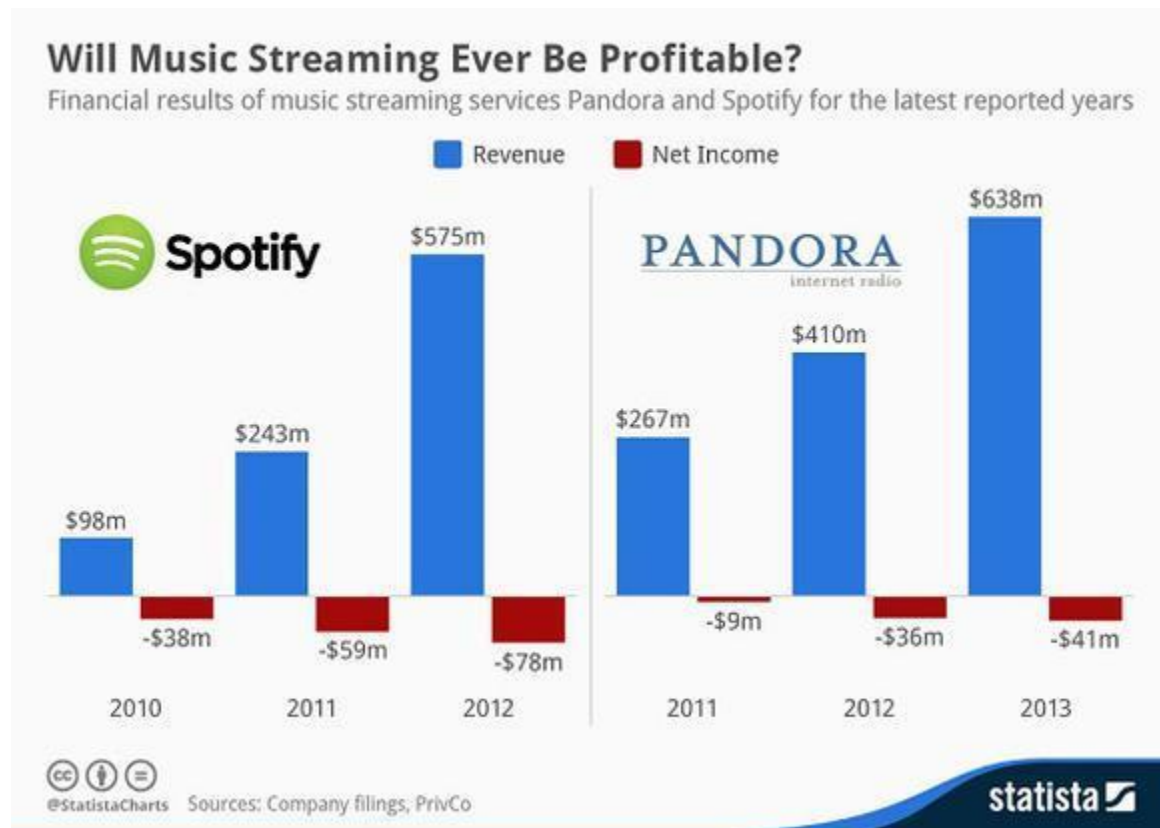
Let's meditate for a moment on the kinds of risks Apple's highly profitable businesses face. In phones and tablets, they face Christensen-style disruption from the low-end as generic SOC phone solutions become 'good enough' and as the iOS clone, Android, does as well. In their download empire, iTunes, they face the threat of an entrant that does not seem to care about profits, Amazon. They also face streaming, which is a Kurzweil-style disruption. Improvements in processing and network speed, and the general growth of the cloud, have enabled a new paradigm in music and video delivery not pioneered by Apple. From comments on the net, it seems that the kind of niceties that Apple worked out in the past between labels and the technology, have not been worked out very well in streaming, and artists are grumbling.

So Apple is looking at trouble trying to compete with several companies that have an aversion to profits. And the nature of the internet is that every competitor is in your backyard. This is

beginning to look like the airline industry. There are enormous upfront costs, and potentially thin or negative margins. Once you are up and running, you have to compete with your cheapest competitor, who may run his own business into the ground looking for market share. And when he fails, another market entrant tries the same thing. If you are all selling a song from Madonna, the final product is indistinguishable, even if the process of getting it is.

And Spotify and streaming? Even without paying much to artists, they have enormous fixed costs they are barely keeping in front of.

Figure 25. Streaming Services Burning Through Cash.



<http://www.fool.com/investing/general/2014/05/24/will-pandora-and-spotify-ever-make-money.aspx>

So here is Apple's quandary. They provide the best products and services, and they charge accordingly. They have made the lion's share of the profits to date in smartphones, tablets, and

media downloads. They are threatened in all these fields now. In smartphones and tablets, they face 'good enough' devices from companies with a low-cost model and ecosystem who do little of their own R&D and accept razor-thin margins. In the download market, they face in Amazon a competitor that is loved by the stock market and is all bravado and no profits. But if they are selling an undifferentiated end product, a song or movie, Apple has a margins problem competing with them. And then there is streaming, for which Kurzweil's Law of Accelerating returns essentially ensures that the hardware involved in streaming, from the Internet to the end device, will all soon be good enough and cheap enough. And in this field, too, are upstarts beloved by the stock market for their stories, selling undifferentiated goods without profits.

What is Apple to do? The common answer is that they should jump into streaming, and their purchase of Beats Electronics suggests that they are working on that. A glib answer is that they should continue to innovate, and if they fail at that, it must be because they have lost Steve Jobs.

But the authors have a long memory, and we remember that when Sony was producing its own generations of disruptive devices, they smoothed the way by buying record labels and movie studios. At the time, many Japanese companies were shopping for American assets, so other factors were also at play. Sony purchased Columbia Pictures Entertainment in 1989 for \$3.4 billion, and CBS Record Group in 1987 for US\$2 billion. Initially these purchases were ridiculed, and the results were poor. But Sony stuck with it, and they are doing fine in entertainment. By comparison, Apple currently has 159 billion US dollars in cash on hand from its innovations in distribution and consumption of media. Before investors circle their wagons and demand it all back, Apple should go shopping for the very content creators its success has devastated in value, the record labels and movie studios. This may also be a part of buying Beats Electronics and getting as employees its principals, rapper and hip-hop producer Andre "Dr. Dre" Young and Interscope-Geffen-A&M Records chairman Jimmy Iovine. Beats brings some streaming moxy, and introduces Apple to streaming on Android. What seems more important to us is that it brings to Apple some credibility and expertise for acquiring and running record labels, were that to be desired. This makes it far more valuable to cash rich Apple than it was to cash poor HTC. Such acquisitions seem to be the only way Apple can distinguish itself from its competitors who can follow its technical innovations with cheaper implementations as prices of technology drop and

who seem to be funded to run without profits. And if they tie-in their hardware with various content promotions, they may continue to profit in hardware, though margins will have to come down. For example, Apple once sold a U2-themed iPod. It would be nice to suggest that Apple could somehow just innovate their way out of this. But having taken music and movies digital, and having put their distribution on the Internet, and taken the lion's share of the profits in doing so, it is hard to see where to go from there. So we reluctantly conclude that the story stocks' stories, while bringing little profitability to the companies telling them, do represent a risk to Apple. We feel it should take the war chest it so justly earned through innovation and buy some assets harder to duplicate, backwards integrating, as it were, its supply chain. Like Sony before them, Apple's move now is to buy the content providers. Competition in delivery is about to get rough. Exploring the validity of this approach will have to await another paper, or be seen as Apple implements it. Remember that Sony was one of just a few companies that Steve Jobs admired, probably the only one in the consumer space, which is the space Apple has dominated from the iPod on. So it seems reasonable to assume that Apple knows every play in the Sony playbook, and they must be considering emulating Sony by buying content providers right about now. Apple could also be considering buying up music and movie back catalogs. Perhaps some content producers would like to monetize their back catalogs to pay for future productions. There are probably a number of ways Apple could set out to acquire ownership of content. We would not be surprised to see such moves from them shortly.

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