

V viewpoints



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Technology Strategy and Management

The Puzzle of Apple

Given Apple's unique characteristics, should it strive to be a platform or a product leader?

ONE OF THE greatest product development companies in history is Apple, Inc., founded by Steve Jobs and Steve Wozniak in 1976. Apple's list of "truly great" products—Jobs' promotional mantra for the Macintosh personal computer—is truly impressive, but the company has too often failed or chosen not to develop industrywide platforms. I will explain.

The Mac, introduced in 1984, pioneered the graphical user interface (albeit copied from Xerox) for the mass market. Other great Apple products include the first mass-market PC, the Apple II, introduced in 1977; the PowerBook, which in 1991 set the design standard for laptops; the unsuccessful though still-pioneering Newton PDA, first sold in 1993; and the iMac all-in-one "designer" PC, released in 1998. More recently, we have seen the iPod digital media player (2001), the iTunes music and other digital media service (2003), and the trendsetting iPhone (2007). Jobs does not take personal credit for all these products. He was absent from the company during

1985–1997 and returned only when Apple acquired his other company, NeXT Computer. That firm provided the basis for another hit Apple product released in 2001, the Mac OS X operating system. But Jobs created the design culture and hired or supervised the people (such as Jonathan Ive, chief designer of the iMac, the iPod, and the iPhone) most responsible for the company's current success and historical legacy.

But I have often wondered what the world would have been like if Steve Jobs had thought a bit more like his archrival, Bill Gates. Microsoft, founded in 1975, does not generally try to develop "truly great" products, although occasionally some are very good. Mostly, Microsoft tries to produce "good enough" products that can also serve as industry platforms and help bring cheap and powerful computing to the masses (and mega-profits to Microsoft). MS-DOS, Windows, and Office have done this since 1981.^a

^a See Michael A. Cusumano and Richard W. Selby, *Microsoft Secrets*, Free Press/Simon &

We can define the term "platform" as a foundation product or key technology in a system like the PC or a Web-enabled cell phone. A platform should have relatively open technical interfaces and easy licensing terms in order to encourage other firms to contribute complementary products and services. These external innovations create an ecosystem around the platform. The critical distinguishing feature of a platform is "network externalities": the more external firms in the network that create complementary innovations, the more valuable the platform becomes. This dynamic should cause more users to adopt the platform, more complementors to enter the ecosystem, more users to adopt, almost ad infinitum.^b (I say "almost" because there is some evi-

Schuster, NY, 1995.

^b For more discussion on platform dynamics, see Annabelle Gawer and Michael A. Cusumano, *Platform Leadership: How Intel, Microsoft, and Cisco Drive Industry Innovation*, Harvard Business School Press, Boston, MA, 2002 and our recent article "How Companies Become Platform Leaders," *MIT Sloan Management Review* 49, 2 (Winter 2008), 28–35.



dence that too many complementors can reduce the incentives of new complementors to invest.^c) Some markets with strong network externalities (such as through incompatible formats) and little opportunity for differentiation or niche strategies tend to evolve into “winner take all” or “winner take most” businesses, like Windows and Office for PC software, eBay for online buying and selling, or Akamai for Internet content hosting services. Google is moving in this direction as well for Internet search and contextual advertising.^d

We have seen many platform battlegrounds in the history of technology, with prominent examples coming from the commercialization of electricity, radio, and television. My first platform-related research was the battle between

Sony—another great product company in its heyday—and Japan Victor Corporation over the home videocassette recorder (VCR).^e During 1969–1971, Sony engineers had compromised their technology goals to produce an earlier standard using $\frac{3}{4}$ -inch-wide tape, the U-Matic, in order to get the support of other firms. This product never succeeded with consumers because of its bulk and cost. When Sony engineers produced a smaller $\frac{1}{2}$ -inch tape version in 1975, the Betamax, Sony management tried to persuade other firms to adopt this product as the new standard. Sony refused to revise the design to accommodate other firms such as GE in the U.S., which wanted a longer recording time.

Japan Victor, backed by its giant parent Matsushita Electronics, came

out in 1976 with its own product, the VHS recorder. Some observers thought it was technically inferior. But JVC and Matsushita treated VHS more as an industry platform. They incorporated feature suggestions from other firms, broadly licensed the new technology, provided essential components to licensees, and aggressively cultivated a complementary market in prerecorded tapes. The much larger number of firms licensing VHS encouraged tape producers and vendors to make and sell many more VHS than Betamax tapes. Users responded and bought more VHS machines, encouraging more firms to license the standard and then more tape producers and distributors and consumers to adopt VHS. Betamax disappeared.

We can tell almost the same platform vs. product story with the Macintosh. Apple chose to optimize the hardware-software system and monopolize revenues from the product. By contrast, a platform strategy would have meant licensing the Macintosh operating system widely and working openly with other companies and complement producers to evolve the platform and create applications for the mass market. Apple did not do this and remained (for the most part) the only producer of the Mac, keeping prices high (about twice the cost of an IBM-compatible PC using technology from Microsoft and Intel) and diffusion low. The Macintosh survived as a second standard with a few percent of the market only because it found two niches—desktop publishing as well as consumers who were willing to pay for an easier-to-use and more elegant product. But software applications producers—the major complementors of computer platforms—overwhelmingly chose to support the more broadly selling IBM-compatible machines.

Which brings me to more recent “truly great” products from Apple that have done better in the market. The iPod, with its unique “click wheel” interface and new touchscreen, is the best-selling music player in history, currently with about a 70% market share. It also has attracted complementary hardware that have made it more valuable, such as connectors for car or home-stereo systems, or add-ons that turn the iPod into an FM radio, digital recorder, or cam-

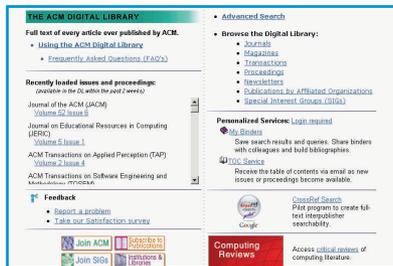
^c See Kevin Boudreau, “Too Many Complementors? Evidence on Software Firms,” Working Paper, HEC-Paris School of Management, November 2006.

^d For characteristics of “winner take all” markets, see Thomas Eisenmann, Geoffrey Parker, and Marshall W. Van Alstyne, “Strategies for Two-Sided Markets,” *Harvard Business Review*, October 2006, 1–10.

^e See Richard S. Rosenbloom and Michael A. Cusumano, “Technological Pioneering and Competitive Advantage: The Birth of the VCR Industry,” *California Management Review* 29, 4 (Summer 1987); and Michael A. Cusumano, Yiorgos Mylonadis, and Richard S. Rosenbloom, “Strategic Maneuvering and Mass-Market Dynamics: The Triumph of VHS Over Beta,” *Business History Review* (Spring 1992).

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era. Initially, however, Apple introduced the iPod as a closed system that worked only with the Macintosh and iTunes music warehouse and did not support non-Apple music formats or software applications. It was as if Microsoft produced Windows and then built Office but did not allow other software companies to build Windows-compatible applications. Eventually, under pressure, Apple opened up the iPod software (but not the hardware) to play some other music formats, but not those from Microsoft or Real. Apple also uses proprietary digital rights management (DRM) technology on the iPod and the iTunes store, creating problems with potential ecosystem partners as well as customers. (To its credit, though, Apple did introduce an iPod in 2002 compatible with Windows and then a Windows version of iTunes in 2003.)

Then we have the iPhone—probably the most exciting electronics product to hit the market since the Macintosh. This “smartphone”—a cell phone with many of the capabilities of a digital media player as well as a Web-enabled handheld computer—also boasts a remarkable user interface driven mainly by touch and virtual keyboard technology. But the original iPhone would not run applications not built by Apple, and it would not operate on cell phone networks not approved by Apple (initially only AT&T in the U.S., but later Deutsche Telekom/T-Mobile in Germany, Telefonica/O2 in the U.K., and Orange in France). Fortunately for consumers, hackers around the world found ways to unlock the phone and add applications. A black market also developed for “hacked” devices. This market pressure persuaded Apple that its great new product was becoming a platform and needed to be more open to outside applications. In March 2008, Jobs also announced that Apple would license Microsoft’s email technology to enable the iPhone to connect to corporate email servers. But Apple has yet to allow consumers to use the iPhone on any service network they choose.

If Steve Jobs and the rest of the Apple team had thought to make “great platforms” first and “great products” second, then it is possible that most PC, digital media, and smartphone users

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today would be using Apple products. Despite faster recent growth than Microsoft, Apple relies too much on the fleeting nature of “hit” products. Apple still is just half the size of Microsoft in revenues and much less profitable. Apple won the battle for digital media players but that product, like PDAs, is likely to disappear in favor of smartphones. Apple may yet win the smartphone battle but still trails RIM’s BlackBerry and Symbian/Nokia smartphones by a wide margin. We shall see how the market plays out, as Nokia, Samsung, and other firms introduce products that look and feel similar to the iPhone.

Which leads me to the puzzle alluded to in the title for this column: Is it possible for a company with Apple’s creativity, foresight, and independence to think “great platform” first and still produce “truly great” products? Based on Sony’s experience with VCRs, or Microsoft’s with MS-DOS and Windows, it is clear that platform companies must work with industry players and be willing to make technical and design compromises, as Nokia has done with the Symbian consortium. Jobs and other Apple managers have been acutely aware of the product versus platform challenge and have preferred not to follow an open platform strategy. But customers have eventually pressured Apple to open its products and it has done so without losing too much distinctiveness. This evolution suggests that Jobs and Apple could have pursued product and platform leadership simultaneously. Just a thought about what might have been. □

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