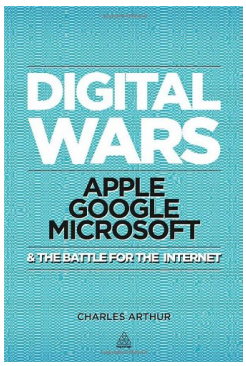

Digital Wars

Apple, Google, Microsoft and the Battle for the Internet

by Charles Arthur
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272 pages

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Take-Aways

- Since 1998, Apple, Google and Microsoft have battled for prominence in four areas: search engines, digital music, smartphones and tablets.
- Steve Jobs, known as an innovative genius, focused Apple on great design and an engaging user experience.
- Bill Gates used his skills and personality to build Microsoft's software supremacy.
- Google filled the search-engine gap that emerged when the web reached a certain size.
- Apple developed iTunes to make the Macintosh a user's "digital hub."
- The design of the iPod, from the scroll wheel to the dock connector, made Apple dominant in digital music.
- Smartphones gave manufacturers an opportunity to make more data available to mobile device users and to gather more information about clients' searches and browsing.
- Despite its lack of support for Internet video, the iPhone built strong customer loyalty.
- Tablet computers allow portable computing in circumstances unsuited for laptops.
- The tablet battle continues between Apple and Microsoft, with Microsoft poised to make the next move.

Rating (10 is best)

Overall	Importance	Innovation	Style
8	**6**	**7**	**9**

Relevance

What You Will Learn

In this Abstract, you will learn: 1) How patent and antitrust laws and lawsuits colored the battle for dominance among Apple, Microsoft and Google; 2) How these companies discovered ways to make money from search engines and digital music; and 3) How they jockeyed for users' loyalty.

Recommendation

Charles Arthur, an experienced technology writer and editor at the *Guardian*, draws on his experience covering the IT industry to report on the highs and lows of Apple, Google and Microsoft as they battled for dominance in consumer computing. By examining their struggles for supremacy in search engines, digital music, smartphones and tablets, Arthur demonstrates that the first company to market is not the one that ultimately reigns; instead, the race goes to the one that can provide an irresistible customer experience and still make a profit. As with all histories capturing events still in progress, each story by necessity ends with a "to be continued" feel that may quickly render the book out of date. However, *getAbstract* recommends it to students of history, technology and corporate success. And if you are reading this abstract on a tablet or phone, you will soon learn more about the myriad decisions that led to the device in your hand.

Abstract

The Fight for Dominance, Segment by Segment

"The legendary statement about Microsoft, which is mostly true, is that they get it right the third time. Microsoft's philosophy is to get it out there and fix it later." (John Sculley)

Microsoft, Apple and Google first shared the digital marketplace in 1998. Since that year, their history has featured one battle after another for dominance and the top position in specific market segments, notably search engines, digital music, smartphones and tablets. In 1998, Microsoft had the upper hand in the software market. This was due to founder Bill Gates's specialized technical skills and personality. Apple founder Steve Jobs focused on users' experience with his organization's devices. Jobs was aiming to produce the best machines in a limited number of categories rather than emulating Microsoft's wide reach. Google, which famously derives its name from misspelling a math term denoting an enormous sum, began when founders Larry Page and Sergey Brin explored the need for a search engine that would help users categorize and navigate the growing number of Internet resources.

"Microsoft Antitrust"

"Steve [Jobs]...doesn't get anything out there until it is perfected." (Sculley)

The first battle came in 2000, when the courts found Microsoft – under new CEO Steve Ballmer – guilty of using its Windows monopoly to extend its influence into other fields. The company ultimately "dodged a bullet" by proving judicial bias to block the initial sentence, which would have required Microsoft to split into two companies. The antitrust case, however, has continued to affect the company for more than a decade, particularly when its executives make product development decisions and must consider the antitrust implications. The ruling made the corporate culture cautious. Journalist Mary Jo Foley reports that Microsoft instituted personnel training and developed a "lingering kind of thought or checklist," developing almost a "chilling effect" due to its continual worries about antitrust allegations. As a result, Apple and Google arguably have more of a monopoly in their spheres than Microsoft now has in its field.

"You'll never hear an Apple employee...talk about 'the' iMac or 'the' iPad. The products aren't named like objects – the door, the window – but like children: Bob, Steve, iPod, iMac."

"Almost as soon as it enlarged its index and made its site more visible, Google began winning plaudits from web users."

"Microsoft never viewed search as central to its business. Microsoft management was focused on...surviving the Justice Department's antitrust suit [and] merging Windows 98 and Windows NT into a common platform for both business and consumers."

"Just at the time that Google made AdWords live, Microsoft shut its own version down."

Search: "Google versus Microsoft"

Once the World Wide Web reached a certain size, users needed an efficient way to sort and use its pages. Many providers offered search engines, but only Google applied mathematical prowess to the task of delivering results. Other search engines treated an Internet page as equivalent to every other page. Google understood that the web contained information about the "reputation" of each page as measured by the number of other pages linked to it: The higher the number of links, the better the page and the higher it should rank among other search results.

Google stood out by emphasizing the speedy delivery of search results and clean work, still epitomized by the tidy appearance of its home page. Data collection drove Google's development process, which included such research as determining which of 40 shades of blue resulted in the most click-throughs or how wide a graphic border should be – not based on design but on encouraging user participation. However, all search engine developers faced the challenge of making the service profitable. Since any search's results page invariably encourages users to click away to another site, developers had to discover a successful method for serving up advertising content linked to specific searches.

As Microsoft promoted its contender, MSN Search, it passed up multiple opportunities to buy businesses that demonstrated the potential of "pay-per-click" advertising. However, Microsoft had a clear advantage in that its products already appeared on millions of desktops as operating systems and Internet Explorer. Shadowed by its brush with antitrust law, Microsoft declined to embed its search engine in these products. However, it saw an opening in the antitrust law that allowed it to put its search engine in the Microsoft Office suite, which had no search function.

Microsoft fought Google's growing dominance by wooing Facebook, then a start-up noted mostly for blocking Google's engine from crawling its content to seek targeted customers for advertisers. Microsoft ultimately bought Yahoo instead. In 2009, Microsoft's search engine, Windows Live Search, became "Bing." Industry insiders joked that Bing must stand for "but it's not Google." Bing failed to match Google's success, so even the US Federal Trade Commission's eventually resolved antitrust scrutiny of Google and its privacy controls didn't give Microsoft a boost.

Digital Music: "Apple versus Microsoft"

In 2000, Apple was faltering, largely because its computers lacked CD burners to facilitate the newly popular trend of swapping digital music files. Jobs, influenced by his work at Pixar, initially believed that DVD viewing – not CD burning – would emerge as the most important use of his systems. Apple responded with the first version of iTunes as a "digital music organizer."

The advent of iTunes opened a gap in the digital music player market, which Apple filled with the iPod, its "first big consumer electronics gadget." Its features fulfilled Apple's historic priority: a great user experience, including easy file transfer, sleek design and the scroll wheel's elegant interface. However, users of the newly designed iPod could not replace its batteries. Jobs wasn't worried; he believed early versions of the iPod would become obsolete before their batteries dimmed. With typical attention to detail, Jobs insisted on perfecting the prototype he used at the launch announcement; he did not like the way the headphone jack "clicked" into its socket.

Apple initially resisted making iTunes available to the Windows marketplace, hoping the popular program would inspire users to buy Mac computers. The iPod reaped positive press exposure, with Oprah Winfrey featuring it on her popular talk show's "Favorite

Things" episode in 2003. The public learned to recognize iPod users by their characteristic white cords and ear buds. When Jobs later announced the availability of iTunes for the Windows market, he did it by projecting a slide that read, "Hell froze over." The iPod's dock connector, the proprietary pin-based interface at the bottom of the device that users plug in to sync with iTunes, insured that Apple would remain a part of any iPod or iTunes transaction, even when Apple made iTunes available for Windows. Apple's eventual release of iTunes for Windows only enhanced the iPod's cachet. The device became an emotional investment for users, not just a financial one. Microsoft never managed to offer a gadget or system that came close in user popularity, even as Apple suffered minor technical glitches such as the iPod Nano's easily scratched screen.

"The standardization of the 30-pin dock and the base of almost every iPod and iPhone...gives Apple its hardware ecosystem, worth around a billion dollars per year in licensing fees from accessory companies."

Apple's iTunes and the iTunes Music Store – which opened in April 2003 and sold three million songs in a month – changed how people interacted with music, and the record industry slumped. If consumers used the iTunes Music Store to make "additive purchases" beyond their normal music buying, then the sales earned money the music industry would not otherwise have made. But when people used the iTunes Store to cherry-pick favorite songs off an album, then the purchase of a 99-cent song could – and often did – mean the loss of a sale of an entire CD.

iPhone "came in like a lawnmower, chopping off the top end of the business for many rivals by grabbing customers willing to pay $600 (and up) for a phone."

Microsoft entered digital music late, focusing instead on its Xbox game console. With the Xbox, Microsoft learned to embrace a business model using the console as a loss leader for the profitable games. This distracted the company from digital music, although it attempted to compete with its technically superior method of "ripping" songs into the Windows Media Audio file format. Microsoft's understanding of digital music's software constraints and of digital rights management still did not enable it to top Apple's user loyalty and sleek designs.

Apple offered the iPod not as a commodity but as a luxury. It declined to place the device in big-box retailers and mass-market discounters, understanding that it would lose control of the presentation of the iPod in those stores. It perceived these retailers as "synonymous with cheap and quick," two attributes that Apple never sought. It also understood that the iPod's absence from the typical retailer lineup had marketing value. If rows of digital music players did not offer an iPod in comparison to the other players, consumers would assume that the iPod was superior to everything on display. Microsoft battled back with the Zune, a device that came with Wi-Fi and song sharing (though the song's recipient could play it only three times), which the iPod lacked. However, Microsoft's intent was to create a "software and hardware ecosystem" linking Zune to Xbox and then to what would come to be known as the "cloud." However, the Zune was complex and harder to use than the iPod, and soon became absorbed into the Xbox brand.

"Whereas the idea of writing applications to run on the iPod had looked like an interesting idea, the iPhone was clearly a computing platform."

Smartphones: "The Revolution Will Be Handheld"

In 1996, Nokia, a Finnish company, introduced the smartphone with its Nokia Communicator. The smartphone was designed to "act like a handheld computer." Google's top brass understood the opportunity these devices posed. They perceived that users ultimately would perform more searches on handheld devices, which would generate more data about the users themselves. Consumers whose handhelds had Internet search and GPS locators might use those devices to get information such as movie times, dinner menus or store hours. In performing such searches, users would share data that providers could use later.

"One [Tanzanian] fisherman said his income had gone up by 30% since getting a mobile phone."

Many expected Apple to release a smartphone – even its name was predictable – but Jobs waited until he was happy with both the operating system and the interface. With classic fanfare, in January 2007, he introduced the iPhone as the smartphone with the

The tablet's "direct forebears are seen on the original 'Star Trek' series and the Etch A Sketch."

best user experience. Its face is a "capacitive screen" the user navigates with a finger swipe rather than with a keyboard or stylus. The screen is made of "two films with a thin separation with a voltage between them; when a conductive item such as a finger comes near, it changes the electric field." This "intimacy" was critical to the iPhone experience. Other devices, like the BlackBerry Storm, tried to compete and, indeed, a customer could reasonably consider the Storm better based on product specs. Yet the lack of unity among Windows Mobile offerings led to a number of failed devices. Microsoft developers tucked them away in what they called "the drawer of broken dreams."

Apple made a marketplace misstep when it rejected Flash (used on Android phones), which would have enabled iPhone users to watch web videos. Apple rejected Flash, in part, due to the amount of control Adobe exercised over it. But Apple reinforced its smartphone dominance with the new App Store, where developers could sell a vast selection of apps for the iPhone and, later, the iPad. The ability to customize your device with selected apps makes smartphones unique.

The iPhone faced several challenges, including a patent infringement suit from Nokia. Apple countered with a patent suit against Android, which Jobs "never lived to see...finally resolved." Perhaps these patent battles – and not the basic technology or user experience – present the biggest challenge to the future of the smartphone because software patents allow "patenting of an outcome rather than a process." Because of this nuance, the fear of patent lawsuits may dissuade small, independent developers from designing apps for a particular platform.

"Even a casual study of how people used iPads showed that they used them in places and at times where they wouldn't dream of using a laptop."

Tablets: "A Third Category of Device"

As early as 2000, Bill Gates predicted that the future of computing would center on tablet devices as eventual replacements for the laptop. However, Microsoft's earliest entries in the field were heavy, expensive and awkward, since they required a stylus to operate. Disputes within the company led to a clumsy interface between the user and a desktop-optimized version of Office.

Apple responded not by being the first entry in the tablet market but by making pivotal changes to improve the user's experience of the tablet devices. For instance, the iPad – which went on sale in early April 2010 – did not need a stylus. The capacitive screen made this improvement possible. Jobs also initially conceived of a tablet computer as a third category of device that would "excel at email, listening to music, playing games and reading e-books." This proved to be a correct assessment, as users ultimately used the iPad to snatch moments of work or play in situations where a laptop would be impractical.

"I fear someone in a garage who is devising something completely new." (Bill Gates)

Microsoft felt the impact of the iPad in that "by the end of 2010, 15.2 million fewer PCs were sold than had been forecast in January." However, Microsoft is fighting back with tablet devices optimized for Windows 8 and a new "Metro" interface – due in late 2012. A Microsoft app store may be in the offing, and the company must overcome the hurdles involved in rewriting programs to run on tablets. Microsoft also is confronting an Internet video problem – like Apple's rejection of Flash – by throwing its support to HTML5. However these issues resolve, the likelihood is that by 2015 tablets will outsell PCs in North America and Europe.

About the Author

As technology editor at the *Guardian,* **Charles Arthur** has covered all the combatants in *Digital Wars.* A speaker, writer and blogger, he regularly covers technology topics.