

## Billion dollar patents?

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*Forbes* has just published its annual list of America's richest. The top 10 includes Bill Gates, Warren Buffet, Larry Ellison, the Koch brothers, a bunch of Waltons, and Michael Bloomberg. They made their money in computer software, investing, manufacturing, retail, and news services. But did any use patents to make their fortunes?

Not one Top 10 member used their patents to build their billions. And while it isn't surprising that these retail, manufacturing, and investing fortunes didn't require patents, you would have expected many more patents by Gates and Ellison because their fortunes were built on innovative technologies. In descending order of U.S. patents granted to the top 10, Gates has eight, Ellison has five, Bloomberg has one, and Buffet, the Walton's, and the Koch's have none. Although Gates founded Microsoft in 1975, his first patent didn't grant until 1996 and his other seven all granted after 2005. Ellison founded Oracle in 1977, yet his five patents all granted after 2001. Bloomberg's single patent granted in 2008.

A very different picture emerges when we examine the patent filings of America's top 50 technology billionaires. This list includes the founders of Microsoft (Gates, Steve Ballmer and Paul Allen), Oracle (Ellison), Google (Sergey Brin and Larry Page), Dell (Michael Dell), Amazon (Jeff Bezos), Facebook (Mark Zuckerberg), and Apple (Steve Jobs).

One clear trend that emerges is that while older technology companies were slow to build their patent portfolios, younger companies have patented early and patented often. "Toddler" Facebook is only six years old and already has some important social networking patents and a respectable pipeline of patent applications. "Teenagers" Amazon and Google have steadily grown their patent portfolios, and continue to increase their filing rates. "Middle aged" Microsoft, Oracle, Apple, and Dell started out slowly, but now all possess massive patent portfolios.

Here's a look at three "classes" of patent filers:

### Light Filers

- The patent filings by Microsoft's founders are incredibly low and astonishingly late, especially considering the range and complexity of Microsoft's products. Half of Gates' patents and Allen's single Microsoft patent granted only this year. Ballmer's sole patented invention is a magazine storage rack.
- The story is similar with Ellison and Dell. Ellison's first of his five patents granted in 2002.
- Michael Dell has no patents.

The rise of Microsoft, Oracle, and Dell had virtually no reliance on the founder's patents. Today, Microsoft has over 16,000 U.S. patents, Oracle has ~4,000, and Dell ~2,500. But these massive portfolios were obtained only relatively recently and long after these companies came to dominate their respective markets.

## Medium Filers

In contrast to the light filers, the medium filers have actively pursued patents during periods of their company's growth. Their patents generally focus on fundamental or "core" aspects of their innovations, or key features of their products.

- Founded in 1998 by Sergey Brin and Larry Page, Google's first patent granted in 2003. They now have about 500, of which Brin holds eight and Page four. The founders' patents relate to organizing findings from ambiguous search queries, extracting ordered lists of information from the web, and detecting duplicate search findings.

Page also has four patents owned by Stanford University, where Page and Brin both studied as graduate students. These patents are almost certainly licensed by Google because they relate to methods for enhancing search engine performance by scoring and ranking web findings. These methods form the core of Google's famous search engine.

- Steve Jobs founded Apple in 1976, and has 62 of Apple's ~3,500 patents. Jobs' patents cover a wide range of innovations, including displaying movie files, an articulated monitor, multi-state icons, an "active" horizontal toolbar, and an iPhone interface. The iPhone patent is directed to detecting finger contacts on the interface, and using heuristics to execute a command. Jobs' other patents encompass some of the intuitive and user-friendly features synonymous with Apple's products.
- Facebook was founded by Mark Zuckerberg in 2004, and he's listed as an inventor on three of Facebook's five patents. Facebook's patents are directed to automatically locating other social network members, ranking related member's search results, managing member's information according to a social timeline, dynamically displaying member's news information, and generating community flyers within social groups.

Although all five patents granted this year, Facebook has at least twenty pending patent applications. These applications are related to, in the context of social networking, polling members, targeted advertising, networking among members, tagging digital media, translation services, displaying demographic data, sharing digital content, and tracking discussion forums. These filings are directed to many of the popular features of Facebook and to possible future features that Facebook may add. Based on his patent pipeline, Zuckerberg may vault into the "heavy filers" category within a few years.

## Heavy Filer

Amazon was founded by Jeffrey Bezos in 1994. Today Amazon has almost 400 patents, its first granting in 1999. Bezos has been instrumental in building this portfolio, and is a named inventor on 52 of Amazon's patents.

Amazon shot to patent fame with its "one-click" patent that claimed a web-based shopping transaction using a single mouse click. In 1999, Amazon alleged that Barnes & Noble's "Express Lane" infringed its one-click patent. In the resulting trial, Barnes & Noble was ordered to cease offering "Express Lane" until proceedings concluded. Although the case eventually settled, the suit highlighted Amazon's determination to protect its patent rights.

Emboldened by one-click, Amazon has continued to pursue wide ranging patents covering various aspects of online retailing. Bezos' patents show his continued involvement with the development of online retailing. His filings can be generally grouped under three headings; a) transactional, b) payment, and c) user interface.

Bezos' filings cover core aspects of Amazon's operation and key features of the Amazon.com site. This wide range of patents and Amazon's willingness to assert them creates significant barriers to market entry. This strategy has helped establish Amazon as one of the world's dominant online retailers.

## Lessons for medical device companies

Relative to their age, all these technology companies have significant patent portfolios. Google's in-license of Stanford's patents provides it with early patent rights dating back to before Google's founding. Earlier investors must have been reassured to know that Google's search and ranking algorithms were protected. Freed from meaningful competition on their core technology, Google could focus on building market share.

Facebook's pipeline of pending applications illustrates their intention to significantly grow their patent portfolio. By filing on current and future features of the user interface and operational aspects of the site, Facebook is building a sizeable war chest of patents. As Facebook grows it will become more difficult for its competitors to keep pace with Facebook's innovations. And don't be surprised if Facebook starts asserting its newly gained patent rights, as Amazon has.

Amazon's use of its patent portfolio is legendary. And its success in the courts also highlights the quality of its patent filings. A significant portion of patents are invalidated during litigation because of serious defects with the asserted patents or because invalidating prior art is newly discovered.

All the technology companies mentioned above have significant experience with patent litigation in U.S. courts. At last count Microsoft has had ~220 cases, Oracle ~45, Dell ~190, Apple ~180, Amazon ~90, Google ~80, and Facebook ~20. With the average patent case costing 3-10 million dollars, these companies have spent a combined 2-8 billion dollars litigating patents. But these numbers grossly underestimate total patent costs because they don't include the costs of matters that settle, preparing and prosecuting patent applications, freedom-to-operate opinions and other counseling work, or damages awards.

Obtaining, defending, and asserting patents is an expensive proposition. But today's most valuable technology companies have all come to realize the vital role that patents play in their businesses. To make their billions, all of the founders, sooner or later, have had to spend some of their money on patents.

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