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These Companies Were the Patent Powerhouses of 2024 › Amazon, Apple, and Snap dominate the rankings

BY KOHAVA MENDELSOHN GWENDOLYN RAK | 23 APR 2025 | 6 MIN READ

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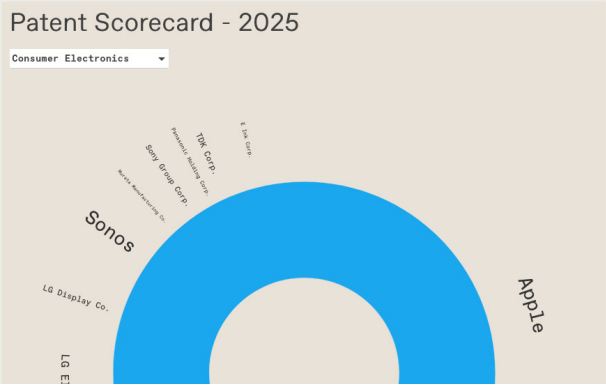


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In 2006, *IEEE Spectrum* ranked patenting powerhouses in our first annual patent survey. The survey, conducted by the research firm 1790 Analytics, examined the number and influence of U.S. patents generated by more than 1,000 organizations. Semiconductor manufacturer Micron Technology came out on top at the time, with IBM, Hewlett-Packard, Intel, and Broadcom rounding out the top five.

Nearly 20 years later, every company on the top 10 list has been usurped. Once mighty companies have fallen in the ranks, others have come and gone, and the top spots are largely filled by today's Big Tech companies. In place of semiconductors and computer systems, the top categories in this year's scorecard are all about Internet services—the category labeled "Telecom and Internet"—and consumer electronics.

Digging into the data reveals Amazon's might, the hidden power of subsidiaries, and which countries are producing U.S. patents—it's not just the United States. You can explore it all for yourself in the interactive graphic below. Simply click on a category to see which companies produced the most powerful patent portfolios in 2024.



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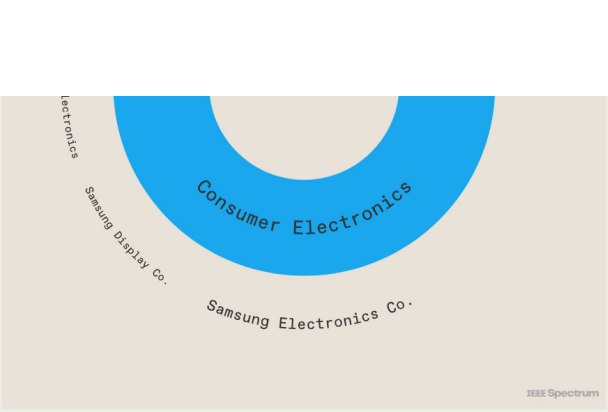
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The rankings are based on **Pipeline Power**, a metric calculated by 1790 Analytics that combines several elements of an organization's patent portfolio into one number. In addition to the number of patents granted in a given year, this metric takes into account four variables representing the quality and impact of those patents. (More details on the calculations are below in the Methodology section.)

Amazon Tops the List

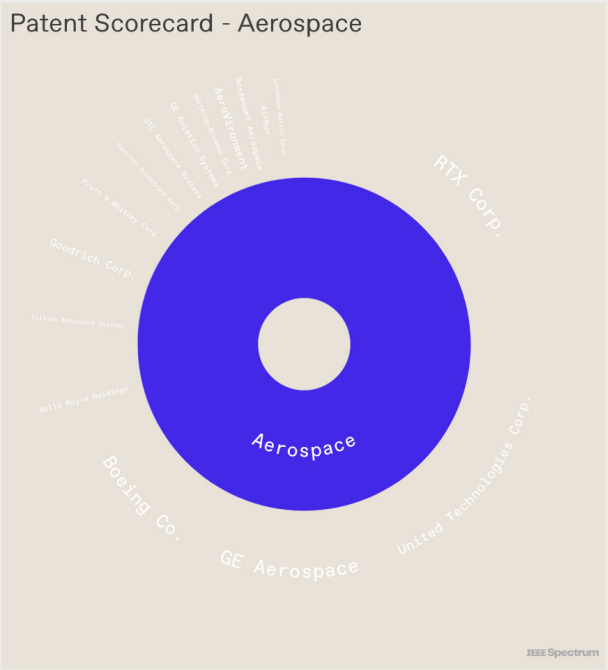
At a glance, it's clear that Amazon leads with the highest patent power. The tech giant has produced a more influential patent portfolio than entire industry categories.

However, Amazon didn't produce the largest *number* of patents in 2024. That achievement goes to Samsung; with more than 9,000 patents, the electronics company was granted more than twice the number produced by the second most prolific company, Taiwan Semiconductor Manufacturing Co. (TSMC).

Meanwhile, Amazon ranked 20th in terms of the raw number of patents. So how does it have the largest power? In short, because its patents tend to be cited more frequently, and by a variety of other patents. Similarly, Snap, the company that owns Snapchat and Bitmoji, ranks above more frequent filers Qualcomm and Google, despite being granted just 770 patents last year.

Hidden Power in Subsidiaries

Several companies have a greater patent power than is immediately visible, when you consider their subsidiaries. For example, Alphabet is categorized as a conglomerate with a patent power of about 4,056. But it has two subsidiaries: Google and Waymo, both in the Telecom and Internet category. Adding in its subsidiaries, Alphabet's patent power would roughly double, achieving a score higher than those of all the other conglomerates combined.

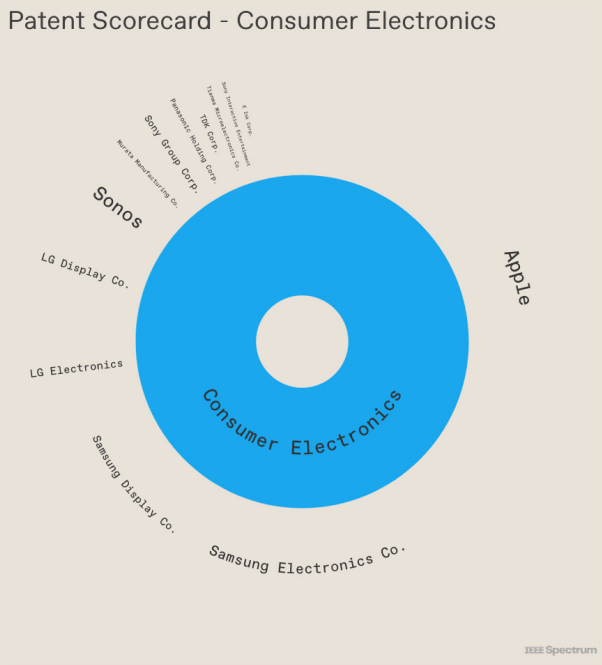


Defense contractor RTX (formerly Raytheon) has the most subsidiaries included in the data collection. Seven companies listed in the Aerospace category are all owned by RTX, in addition to RTX itself. Adding their combined patent power to RTX's accounts for more than two-thirds of the combined patent power of all

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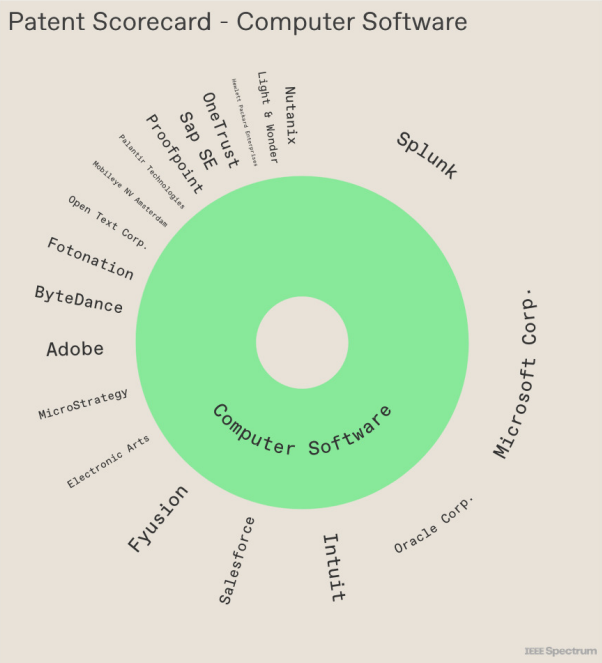
Aerospace companies. RTX is the only company with more than two subsidiaries included in the survey. Sony, Johnson & Johnson, and GE Vernova all have two each, and several other companies have one.

In Consumer Electronics, Apple leads the pack by a large margin, with about 40 percent of the category's patent power. Samsung has patents filed both under its primary company, Samsung Electronics, and a subsidiary that focuses on display technology. These two companies take the second and third place in the category. But even grouped together, their combined patent power is well behind Apple's.



Western Digital's Sandisk Corp, in the Computer Peripherals category, is the subsidiary with the largest patent power for 2024. Sandisk has a score of about 5,087, more than triple that of its parent company. In fact, Sandisk's successes in flash storage led to its launch as an independent public company in February of 2025.

The AI Boom and Patents



Splunk, owned by Cisco, tops the Computer Software category, beating out Microsoft, Oracle, and Intuit. This company specializes in collecting and

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organizing large amounts of machine-generated data. While Splunk is less of a household name than Microsoft, its research into managing data generated by AI has helped launch it to the top of its category.

Overall, the number of AI patents filed has grown over the past few years, according to 1790 Analytics. Although many of these were submitted by organizations in the Computer Software category, some AI powerhouses fall under other categories, like Conglomerates.

Which Countries Are Producing U.S. Patents?

The companies represented here include only those with at least 25 patents granted by the U.S. Patent and Trademark Office in 2024. Out of 247 organizations that meet this requirement, 148 were from the United States. So where else are companies filing U.S. patents from?

Japan comes in second place, with 24 companies. These companies span a range of categories, including Consumer Electronics, Computer Peripherals, and Semiconductors. The Japanese company with the highest patent power is Semiconductor Energy Laboratory, taking the top spot in its category.

After Japan, Germany and South Korea are tied with nine companies each, and Taiwan has eight listed. The South Korean companies are nearly all in the Consumer Electronics or Automotive and Transportation categories, the Taiwanese companies are mostly in Computer Peripherals, and the German companies span a wider range of categories. Following these, France and China both have seven companies listed, and many more countries have one or two companies listed.

Big Names, Small Patent Power

Patent power is but one measure of a company's impact. Some well-known companies have surprisingly small patent power, compared to their cultural or market influence. Microsoft, for example, ranks 31st in patent power, despite being one of the most valuable companies based on market capitalization.

Meta also falls surprisingly low, considering the company's hefty research and development budget. In 2024, the social media mammoth spent US $43 billion, an amount surpassed only by Alphabet in one survey. (Notably, the survey omitted Amazon because it doesn't report R&D expenses as a separate line item. Amazon's R&D spending likely exceeds that of Alphabet.)

Looking at the strength of a company's patent portfolio doesn't replace these other metrics, but it does provide another view of an organization's impact. Amazon, Apple, Snap, Samsung, and Qualcomm, in that order, are 2024's victors. What companies will rise to the top in 2025?

Methodology

The scorecards are based on patents issued by the U.S. Patent and Trademark Office. Focusing on a single patent system helps 1790 Analytics more easily track which previous inventions are referenced by patents, because citation practices vary across different patent systems. Note that focusing on U.S. patents does not restrict the analysis to U.S.-based innovation; approximately half of all U.S. patents are from other countries.

In constructing the scorecards, 1790 Analytics measured the following four metrics for each organization:

Growth measures if an organization produced more patents in 2024 than in the previous five years. For example, if an organization averaged 100 patents per year between 2019 and 2023 and was granted 125 patents last year, its Pipeline Growth for 2024 would be 1.25.

Impact measures how frequently all patents issued in 2024 cite a specific organization's patents from the past five years. It is calculated by counting how many times that organization's patents were cited and dividing that number by the average number of citations for all patents from the same technology. That number is then adjusted to remove high amounts of self-citations. This is done by discounting all self-citations that make up more than 30 percent of an organization's total citations.

Originality measures the variety in the sources of an organization's 2024 patents. Patents that draw from a wide range of earlier technologies to create something new are deemed more original than patents that make incremental improvements upon the same technology.

Generality measures how varied the 2024 patents are that cite earlier patents from a given organization. It is based on the idea that patents cited by later patents from many different fields tend to have more general application than patents cited only by later patents from the same field.

Together, the total patents produced by an organization multiplied by its growth, impact, originality, and generality define that organization's **Pipeline Power**. In the patent scorecard, organizations are ranked by their Pipeline Power, accounting for both the quality and quantity of their patents.

Category descriptions

Aerospace: These companies develop and manufacture commercial airplanes, spacecraft, and military aircraft. This includes companies that supply specific parts, like engines.

Automotive and Other Transportation: Companies that develop cars and car parts, including electric and autonomous vehicles and their parts, are included in this category. Companies involved in making trains and motorcycles are as well.

Biomedical Devices: Firms that manufacture or design systems for medical and health care applications, such as prosthetics, imaging systems, and drug-delivery systems are included in biomedical devices.

Biotechnology and Pharmaceutical: Companies that use genetic engineering or chemical processes to discover and create new drugs and therapeutics are included in this category.

Computer Software: These companies develop firmware and applications for personal devices and other computing systems.

Computer Hardware: Companies that manufacture computer systems and storage devices fall under this category.

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Computer Peripherals: Companies that manufacture auxiliary devices that connect to computers, such as keyboards and mice, scanners, or printers are included in this category.

Conglomerates: Organizations in this category don't fit neatly into one category. Many companies patent in several industries, but tend to focus on one; others are trickier to label. 3M, for example, makes consumer products, medical devices, and adhesives, along with other products.

Electrical Power and Energy: The patents in this category may belong to companies investing in renewables (like solar and wind power), energy infrastructure, and more.

Consumer Electronics: These companies primarily make devices people can use in their everyday lives for fitness, cleaning, entertainment, and more.

Government: Federal agencies, military groups, and national labs all fall into this category. While some may seem to fit well within a single type of patents—NASA in aerospace, for example—government agencies frequently patent across a range of industries.

Robotics: With greater demand for automation, the robotics industry is growing. In particular, robots are being used to make manufacturing more efficient, but this category also includes home robots and surgical robots, for example.

Semiconductors: This category includes patent producers that design and manufacture chips, as well as those producing the equipment needed for that manufacturing. The majority of these companies, however, focus on manufacturing chips.

Telecom and Internet: Many of today's tech giants—including Amazon, Google, and Meta—fall under Internet services. This category also includes home Internet and wireless providers.

Universities: Like government entities and conglomerates, universities tend to produce patents across various industries.

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Zhiying Wei 2 MAY 2025

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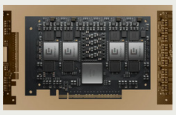
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