

## The Big Five: Intangible Assets and R&D of Big Tech

### Key Takeaways

- Intangible assets are not easily accounted for but are important for determining the present value of a company. Examples include brand value, patents, trademarks, and company culture. We focus this Signal on a few giants: \$AAPL, \$AMZN, \$FB, \$GOOGL, and \$MSFT.
- Intangible assets generally have finite lives in terms of usefulness. For accounting purposes, they're amortized over the period where they are useful. They are "non-rival" goods, like the internet, and can be consumed or possessed by multiple users.
- Intangible Assets and R&D are some of the key areas in which Big Tech makes investments to protect their moats. We dive into where the companies are investing and competing.
- Obviously, Big Tech's P/E ratios have significantly decreased in 2022. Tech is now trading at a similar multiple to Staples. We dive into the "fab 5" Tech companies' efforts to build enduring moats through innovation and acquisitions.

"Tomorrow's outcomes that are different than today's perceptions lead to revisions in expectations that are the source of excess return...What is in an investors control is gaining a solid understanding of a company's prospects for creating value."

-Michael J. Mauboussin and Dan Callahan, *One Job: Expectations and The Role of Intangible Investments*

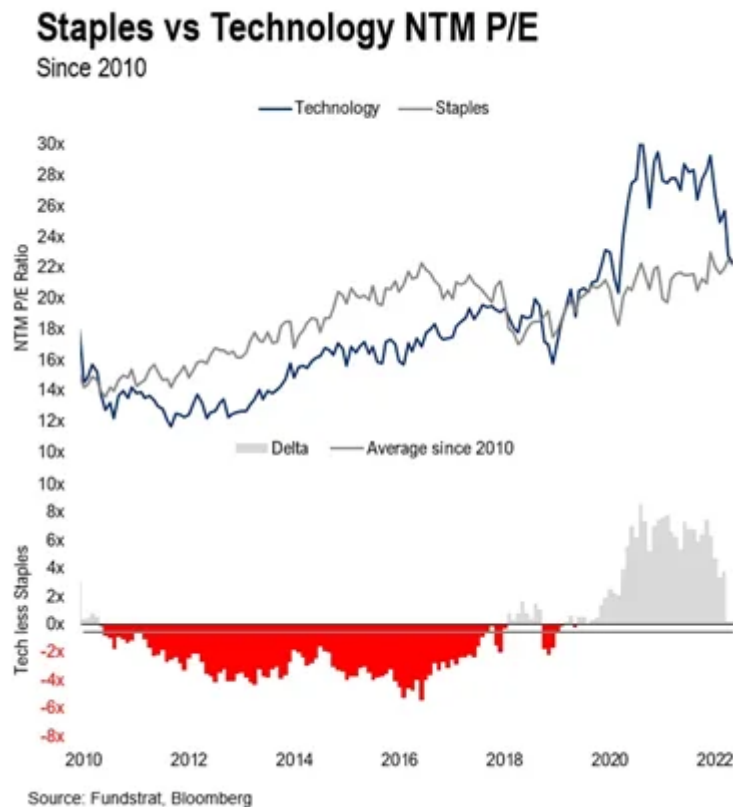
Tangible Assets	Intangible Assets
Cash	Patents
Furniture	Logo
Plant and Machinery	Copyright
Vehicles	Brand Value
Building	Self-developed softwares
Stock	Customer data
Equipment	Trademark
Computers	Goodwill

Source: Accountingcapital.com

Over time, the nature of what is valuable has changed with the rise of technology. We've gone from the industrial age to the information age. The tangible has taken a backseat to the intangible, the ephemeral, and that which cannot be touched. The relatively high P/E ratios of technology companies imply that there's a high net present value of future growth opportunities that have yet to manifest themselves as significant revenue. Like clockwork, when technology was rising during the late 1990s, US companies' intangible investments overtook tangible investments. Ever since, intangibles have broken away and have become a crucial part of the strategy of technology titans. So, the mix of investments has changed over time, requiring investors to amend their analysis methods for assessing future earnings potential of projects.

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We understand that markets are incredibly perilous, and we don't think the bottom is necessarily in. In the short term, Tech may have some more downside action ahead. But, as Our Head of Research, Tom Lee, has stressed, it's hard not to see this recent multiple compression as anything but an opportunity over a medium to long-term time horizon. For example, Technology now has roughly a comparable P/E ratio as a group as Consumer Staples.

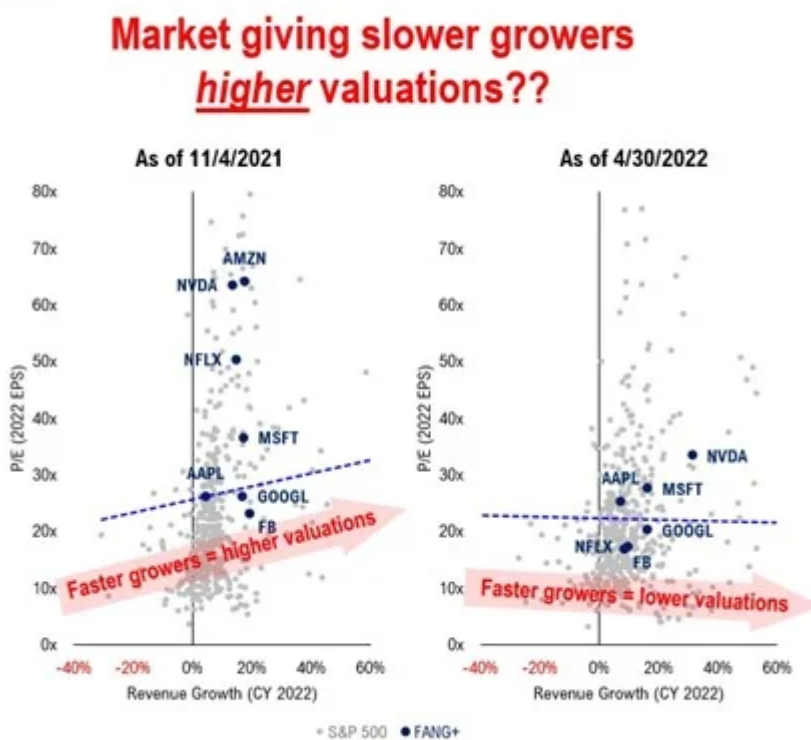


One potential source of alpha is deciphering their extensive and sometimes confusing efforts to get exposure to high-growth technologies and emerging technological trends. Who, for instance, will win the race to scale and capitalize on quantum computing? This is a tough question, but one thing is clear: It's probably safer to have exposure to these exciting technologies through the well-known and high-earnings Big Tech companies than a small startup or SPAC with virtually no revenue.

Kroger and PepsiCo might be good companies with appealing characteristics, but they aren't going to produce self-driving cars or redefine how humans interact with technology. We try to look for anomalous divergences in markets. Right now, for example, given the tumult, the market appears to be undervaluing faster growers. We strongly feel that if we do indeed face more of a growth scare, capital will seek the higher-than-average growth, which the Fab Five can deliver. Part of the reason the market feels confident they can deliver lies in their remarkable investments in the technologies that will shape our future.

## P/E 2022: Faster growers now a discount??

2022 Revenue Growth vs. P/E Ratio (2022 EPS)



Source: Fundstrat, Bloomberg, Factset

Their combined sales clock in at around \$350 billion, and their combined market caps reached the neighborhood of \$10 trillion before a recent multiple contraction began. Ian Bremmer, founder of Eurasia Group, contends that they have a form of "[digital sovereignty](#)" and splits them into three groups based on their relationship to the state. There have been other industries that have reached a similar apex of power, such as the Energy industry in its earlier days or the Big Three American Automakers at their power's height.



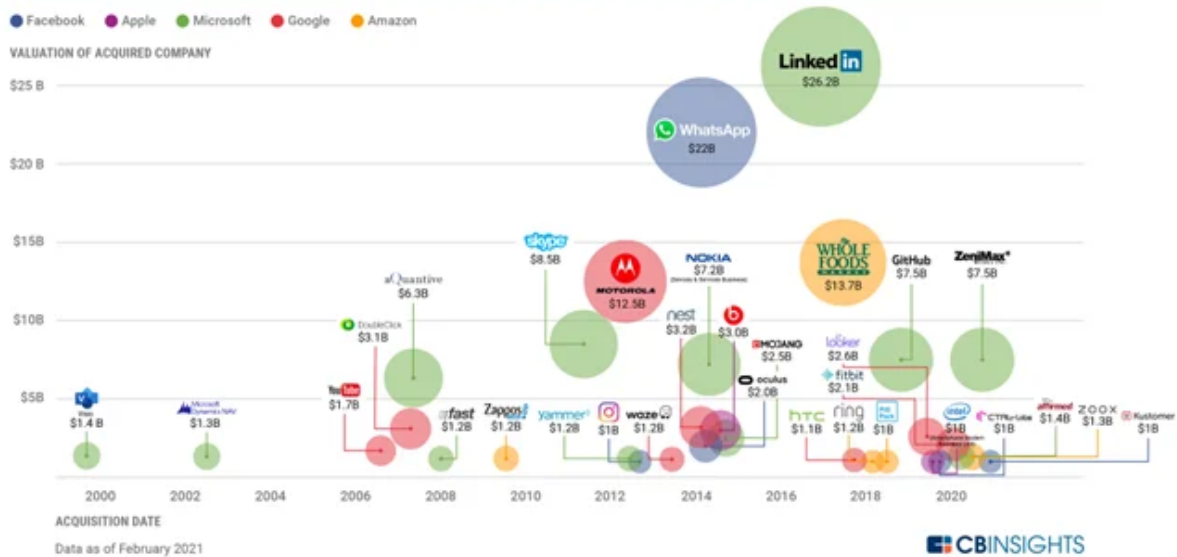
Source: [Is It Time To Bow Before Our Tech Overlords](#), Ian Bremmer

### Can You Stay Dynamic with All the Money in the World?

None of these previous top dogs have been quite so powerful as the titans of tech. For this article, we'll focus on the "Fab Five" of Amazon, Apple, Microsoft, Alphabet, and Meta. The newer cadre learned from Microsoft's antitrust stumbles and has mastered bolstering their position capably parrying antitrust efforts from both sides of the aisle. If you were a hill staffer that could put two sentences together on Big Tech, you're probably working at one of these prodigious companies. But the government affairs prowess of these firms is merely a reflection of their massive war chests, which they deploy to ensure they can maintain the high levels of growth that investors expect.

## TIMELINE OF TECH GIANTS' BILLION-DOLLAR ACQUISITIONS

Every \$1B+ acquisition made by Facebook, Amazon, Microsoft, Google and Apple. Bubble size represents maximum valuation.



Source: CBInsights.com

The frontier technologies such as AI, space, autonomous driving/electric vehicles, FinTech, Quantum Computing, and the Metaverse are becoming key battlegrounds between these titans. There are few emerging dazzling technologies where at least two or three of the Big Tech names aren't facing off against one another. It's also worth keeping an eye on where they're spending their money: The Big Five technology firms are investing about 9% of their available funds in autonomous driving, vs. less than a third of that proportionally in the wider Venture Capital space. Similarly, legacy industries such as Healthcare and Finance have become targets for future disruption as Tech brings its prowess with data to create potentially industry-shaking efficiencies. Alphabet's acquisition of Fitbit is a good example.

They try to preserve their seemingly indomitable position by gobbling up other innovators and attracting leading minds to ensure they have multiple, and hopefully lucrative, growth levers to pull as their core revenue-driving business segments mature. Some people worry whether the Fab Five are moving toward monopolizing innovation itself. In 2020, there was \$713 billion spent on R&D. More than 20 percent was from the Big 5 technology titans. But it's hard to argue that the competition between these titans isn't bringing new technologies to market effectively.

They're often dominant in their core business and revenue drivers. But they're paranoid about suffering the same fate their disruption inflicted on incumbents. The "killer acquisition" is a key strategy all five of the firms employ. They acquire innovative competitors before they have a chance to become a real threat. Therefore, one of the main ways this powerful oligopoly strategizes to maintain its dominant position is by investing in projects that can drive future growth. Then they replace the high growth in their maturing core businesses by absorbing smaller players or conducting the research with their war chest of highly motivated and highly paid talent.

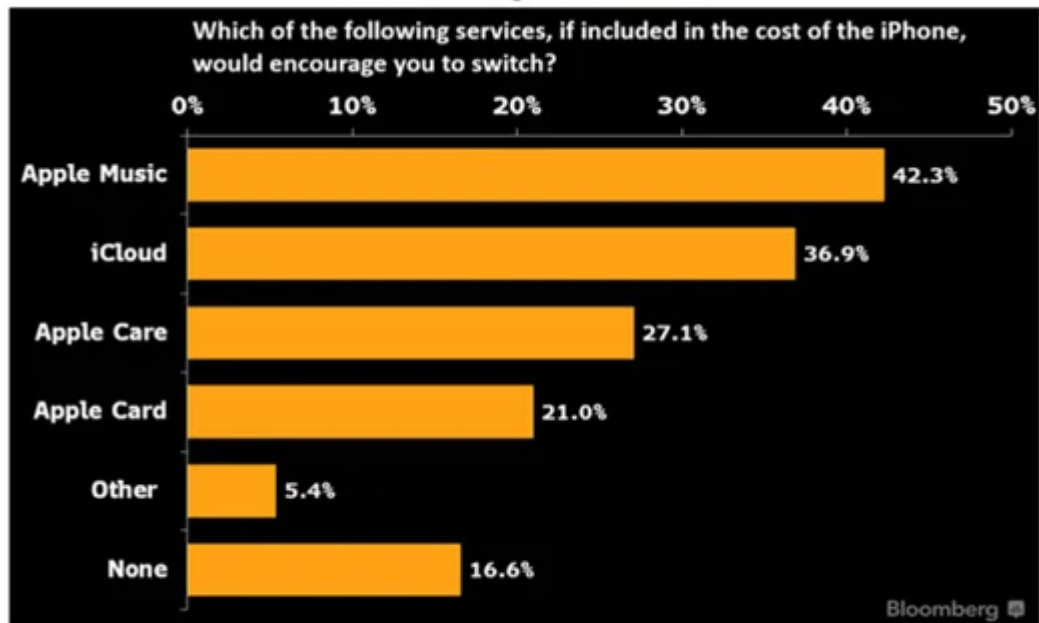
Also, unlike previously dominant industries, the nature of their advantage enables them to significantly disrupt legacy industries, such as healthcare and even the auto industry itself, because their technology and commercial capabilities can generally result in major value accretion made even more effective by their vast networks of users. Let's dive into where Apple, Amazon, Meta, Alphabet, and Microsoft invest their substantial fortunes to achieve future growth.

### **(\$AAPL) Apple**

Apple is the world's largest company. They are generally a bit more conservative than their peers in terms of acquisitions, but they still swing for the fences. Apple's R&D has tripled in the last decade. The company is also shoring up key current revenue drivers by making revenue for key segments more predictable with a subscription model. Typically, the iPhone cycles have caused volatility in earnings, but that should reduce. Apple's most public moonshot is probably its much-anticipated entry into the field of autonomous driving. The hype itself reflects another key intangible that this titan has, the most valuable brand on the planet earth. The company culture at Apple is also different than a lot of the Valley.

You'll see employees shift between Alphabet, Amazon, and Meta pretty frequently, but Apple employees are a bit more reserved. Working at Apple might be more like working at the NSA than at other titans in Silicon Valley. Apple employees are so tightly managed on their individual tasks that it is nearly impossible for employees to play company politics in the traditional sense. A culture of minding one's own business, respect for privacy, and an unprecedented romance with its consumers make this company unique.

## Switching Services



Source: Bloomberg Intelligence, Attest

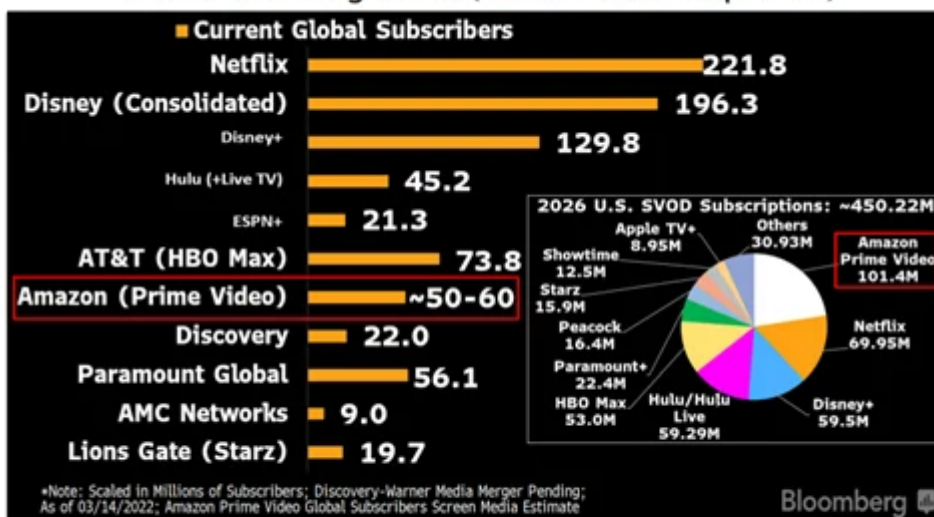
Apple is the second-largest investor in the Metaverse, and recently this has made up the lion's share of its acquisitions. It has a diverse frontier technologies portfolio, obviously with major investments in cars and high-profile hires of Battery Electric Vehicle inclined talent from top competitors like BMW and Tesla. It also has made investments in health care, FinTech, and Robotics. The fact that millions of kids were essentially "raised" on Apple products that many had thought lost their economic luster is a positive that we believe should be a long-term tailwind for the firm. Apple also has a lot of VR/AR/Metaverse investments.

**(\$AMZN) Amazon**



Amazon has become a behemoth in every sense of the word. It is also probably among the least desirable places for talent compared to its peers for a few reasons. We think this is a negative for intangible value as talent and keeping talent happy is a matter of survival for large technology companies. Amazon has gotten so big it has to now deal with real-world problems like factory efficiency. This is the focus of a lot of its long-term investments. Amazon is currently the "king of cloud," and its AWS makes up nearly 45% of its revenue. This segment has long-term margin expectations of 40%. It has others like Microsoft nipping at its heels and trying to knock it down a peg. One item that all big tech firms spend a lot of R&D on is data storage capabilities. The company just had a big earnings miss that seemed like a *mea culpa*, but the numbers are moving in the right direction for the cloud segment. The lower margin Infrastructure as a Service (IaaS) portions of AWS revenue is being replaced by higher margin platform-as-a-service (PaaS).

### The Streaming Wars (Million Subscriptions)



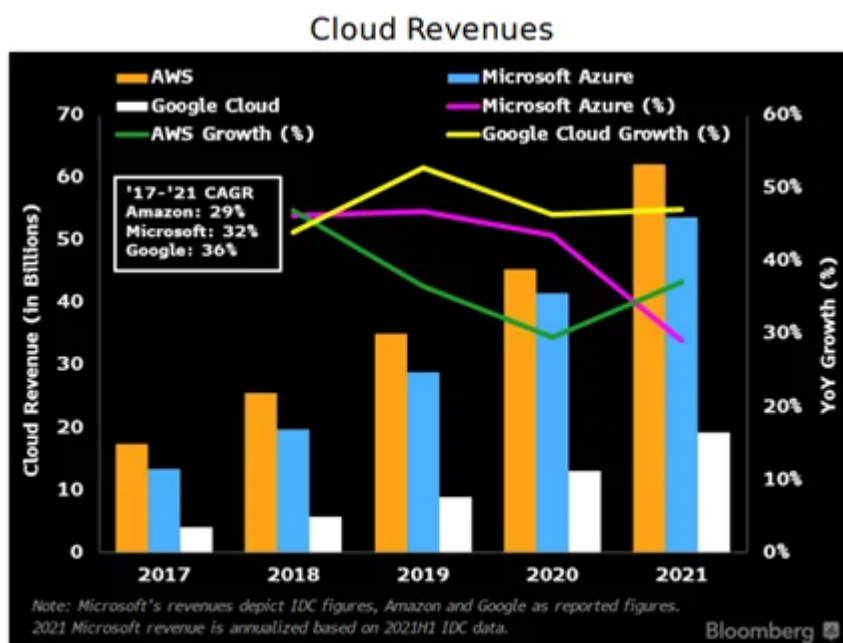
Source: Digital TV Research, Screen Media, Company Filings, Bloomberg Intelligence

Amazon has become dominant in many industries that are hard to keep high levels of growth in. One is streaming. This is an excellent example of how attrition from higher costs can eventually sap the profitability and contribution to earnings per share. This is precisely why Tech companies invest in future growth to replace lost growth in segments that inevitably mature and become less profitable. Amazon has invested big in cars and mobility, which is likely aimed at reducing delivery costs. It has made major investments and acquisitions in robotics for efforts to lower labor costs and increase factory efficiency. It is the leader of the Fab Five in terms of the number of investments it made in frontier technologies from 2019 to 2021.

## Alphabet (\$GOOGL)

Alphabet's predecessor Google pioneered Silicon Valley's approach to attracting and retaining talent. Many folks laughed when the firm turned its offices into adult playgrounds but eventually, it had the intended effect and was emulated by competitors. However, more recently, that has changed. There are culture problems now marked by employee walkouts, sexual harassment, and other issues with employee satisfaction. The company's primary revenue driver of ads may be a little more exposed to an economic downturn than peers' other core revenue drivers.

This is because it is exposed to the real economy. After all, many small businesses buy the firm's ads, and when times are tough, they cut spending in the area. The firm has made some prolific acquisitions that show the amazing things that can be achieved with the right accretive acquisition. YouTube was acquired by the company about 15 years ago for what seemed like an astronomical price of \$1.65 billion at the time. That is now contributing more than 10% of the company's total revenue. Somewhat quietly, YouTube has become a power in its own right.



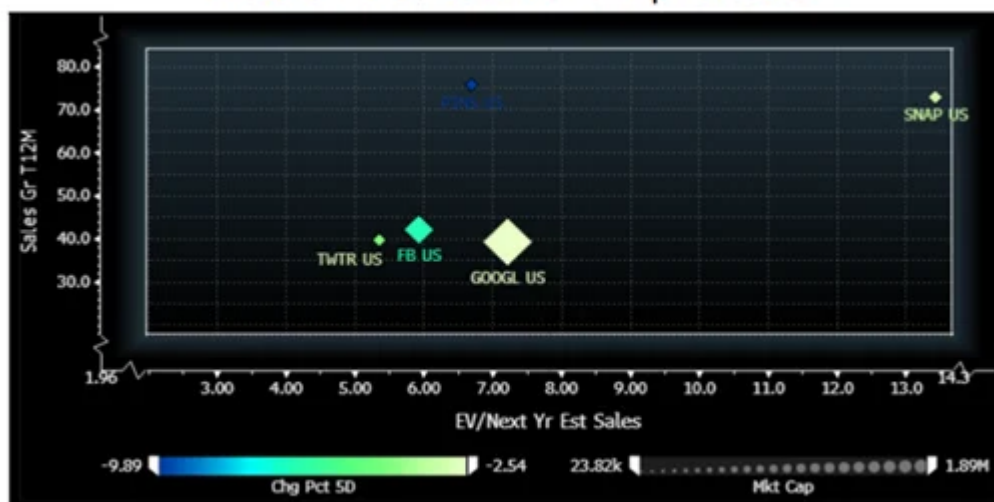
Source: IDC

Alphabet is making acquisitions to try to catch up to Microsoft and Amazon in the cloud. The firm is also making strides into healthcare, and more than any of the other FAANGs, the firm has a particular strength in applied artificial intelligence. Oh, and this brings us to one of the other intangible things that can really help a major technology advance. Alphabet's massive amounts of valuable data allow it to utilize AI effectively. AI is beneficial in biological applications, which might explain their acquisition of the genome-editing firm Editas Medicine.

## Meta Platforms (\$FB)

Meta is one company where it is pretty easy to discern its long-term strategy for maintaining growth. Compared to other big five members, it has staked its future in the Metaverse more than any other frontier technology. One issue that forced them to pivot is the bad reaction their traditional consumers had to some reputational issues. Once their core customer base, millennials have decided to flee the platform though it is still one of the largest networks on the internet. It is also a real-life example of a core large technology product being disrupted by a newer entrant. The word Tik Tok has appeared quite often in recent earnings calls because, in terms of user growth, the Chinese social media firm is eating Meta's lunch.

### Meta's Valuation Trails Alphabet's



Source: Bloomberg Intelligence

The problem for Meta is that the massive investments it is currently making will likely take years to play out. Surveys of teens indicate that while many of them own virtual headsets or possess the capability to access the metaverse, very few spend a lot of time on it. There is a serious lack of metaverse enabled content that is problematic for their strategy as well. However, Wall Street has been warming to the firm after its recent prolific fall. The company is partnering with companies like Roblox and Unity to help realize its meta dreams quicker. Still, the concentration of its investment in the Metaverse could be a double-edged sword. Meta's issues also exemplify how competition between the FAANG members can significantly affect a firm's earnings. One of the main reasons Meta missed so badly in Q12021 was because Apple decided to punch it in the nose, so to speak, by changing its policy to affect Meta's ad revenue adversely.

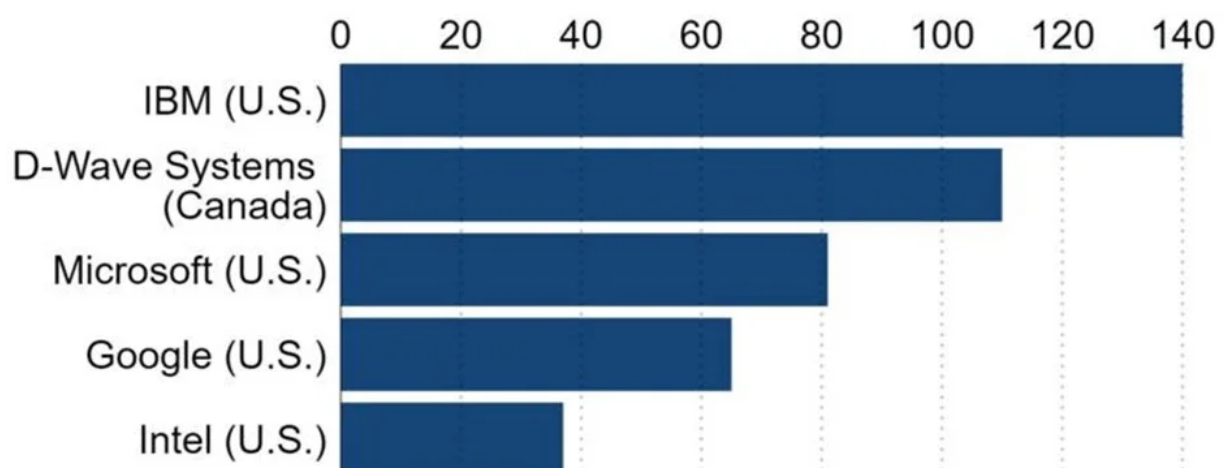
### Microsoft (\$MSFT)

Microsoft is the oldest member of the group and, in many ways, is the "sultan of software." It has one of the stickiest eco-systems and is used by enterprises worldwide for their software needs. It has a lead in productivity business software that many competitors, large and small, have tried unsuccessfully to best. It is investing in the cloud to try to catch AWS. Microsoft has invested less than its peers in many technologies like Metaverse. Both Alphabet and Microsoft have made investments in the emerging area of the commercial space industry.

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## Number of patents related to hardware in quantum computing



Source: Valuenex

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The firm is a big spender. It recently bought Nuance Communications, which is a healthcare-focused cloud/software company. This was a huge deal for \$19.7 billion. Its enormous purchase of Activision is obviously a major play as well. Unlike some of the other Big Five, this stalwart is not shy about making big and flashy uses of its ample cash. The firm has invested a lot in moving data to the cloud with firms like Mover.io and CloudKnox, which focuses on cyber security. Microsoft is a key partner of Uncle Sam and a leader in defensive cyber capabilities. However, the most far-out thing Microsoft is focusing on is Quantum Computing. It has more patents here than any other member of the furious five. Microsoft acquired PsiQuantum, which has the potential to be one of the more scalable quantum technologies.

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