

Why tech markets are winner-take-all



'Competition is for losers. If you want to create and capture lasting value, look to build a monopoly'– Peter Thiel, cofounder of PayPal and Palantir

In the 1960s, IBM dominated the mainframe market. It still does. In the 1980s, Microsoft and Intel dominated the PC software and processor markets. They still do. From the 1990s, with the World Wide Web, the winners were Google in search, Amazon in e-commerce and Facebook in social networking. They still dominate those markets. Since 2007, Apple and Google (Android) have dominated the market for mobile internet operating systems.

Dominant tech companies can be 'eclipsed but not displaced'

The pattern is clear. New tech markets are highly competitive, but once a company achieves clear market leadership, it is almost impossible to displace. Instead, the threat is that, at some point, a newer, bigger, adjacent market emerges, dominated by another player, as mainframes and PCs have been overshadowed by online, mobile and cloud-based technologies. In the words of industry analyst Ben Thompson, dominant tech companies can be ['eclipsed but not displaced'](#).

Why are tech markets so concentrated – what are the factors that make them 'winner-take-all'? There are many. The first four reflect economics and technology.

Economics and technology

1. Traditional economies of scale, scope and learning

Much of the tech giants' dominance comes down to traditional economic factors. Digital products and services have high fixed costs and low-to-zero marginal costs, leading to marked economies of scale, reinforced by significant economies of scope and learning. For instance, AI and cloud-based resources can support a wide range of diverse activities, and get better and more efficient the more they are used.

2. Direct (within-market) network effects

The value of a communications network increases disproportionately as it expands, bringing in more other people for each user to connect with – a 'direct' network effect. Obviously, this is especially important for social media such as Facebook.

3. Indirect (cross-market) network effects

Most tech companies are, at least to a degree, 'platform' businesses: they create value by matching customers with complementary needs, such as software developers and users (Microsoft's MS-DOS and Apple's App Store) or advertisers and consumers (Google and Facebook). These network effects are 'indirect' because the value to participants in each market (e.g. diners) depends on the number of participants in the *other* market (e.g. restaurants) and *vice versa*. Once a platform dominates both markets, indirect network effects become self-sustaining as users on each side help generate users on the other.

To succeed, new platform businesses need to achieve critical mass in both or all the key markets simultaneously. The failure rate is high: platform start-ups have to sustain many loss-making years and many never achieve profitability as standalone businesses.

4. Big data and machine learning

Digital businesses gather data relentlessly, cheaply and efficiently. To exploit it, they use analytics, increasingly automated ('machine learning'), mainly to drive continuous improvement in products and services, pricing, personalisation and advertising targeting, leading to more usage – and more data. The combination of big data and machine learning amplifies network effects and returns to scale, further strengthening tech market leaders' dominance and deterring further market entry.

Five behavioural factors

These economic and technology factors are reinforced by five less widely recognised behavioural factors. Two are on the demand side:

5. Strong user brands and habitual usage

Digital products are 'experience goods': users need to try them and learn about them to judge their quality. Well-known, trusted brands are essential in these markets to encourage trial and discourage switching to a competitor. Usage becomes habitual or even addictive, reinforcing the incumbents' dominance. Tech brands like Amazon, Apple and Google are therefore among the most valuable in the world.

6. Switching costs and lock-in

Tech companies also deploy a range of strategies to lock users in by making it difficult or costly to switch to a rival. Incompatibility between providers ('walled gardens' – for example, where iOS apps do not work on Android), non-portable data, time invested in learning a particular system, service customisation, and accruing content such as playlists that cannot be migrated, all discourage switching.

Finally, at least as important as these demand-side factors are three supply-side behavioural factors:

7. Attractiveness to talent

As well as having powerful consumer brands, these companies also have strong employer brands, enabling them to attract the best technical, managerial and commercial staff, further reinforcing their market dominance.

8. Powerful founders and hard-driving corporate culture

All the tech giants have, or had, strong, capable, hard-driving, hands-on founders such as Jeff Bezos, Steve Jobs and Mark Zuckerberg, usually with a majority of voting shares. Their obsessive, relentlessly innovative corporate culture and hyper-aggressive tax and acquisition policies further reinforce their continuing market dominance.

9. Geography – or 'cluster economics'

Despite earlier expectations and the claims of Brexit enthusiasts, geography still matters. Google (Alphabet), Apple and Facebook are all based in Silicon Valley – the archetypal innovation cluster – as are Oracle, Intel and Cisco and many tech start-ups. Amazon and Microsoft are in Seattle, just a two-hour plane ride to the North.

Winners take all – and keep it

Will 'creative destruction' – capitalism's ability to innovate, destroy and reinvent itself – eventually take care of the tech giants' market dominance? This seems unlikely. A challenger to Google in search would have to offer an incentive or a noticeably better experience to attract users, over a period long enough to break their googling habit. This would take years and cost many billions, with no guarantee of success. In 2013, Microsoft's estimated cumulative losses in search were \$11 billion.

These firms do face some direct competition, including from each other, but it is hard to see any of them losing their core market dominance anytime soon. (The partial exception is Apple – still the most profitable company in the world, but increasingly challenged by Samsung and other suppliers of high-end Android devices.)

Is there a problem?

Google users pay nothing for an excellent search service, while search advertisers have a highly effective tool that did not exist 20 years ago, for which they pay a competitive, auction-based market price. This situation creates a new challenge for regulators: extreme market concentration which nonetheless offers customers great value for money.

Responses to date differ between Europe and the US. European antitrust legislation focuses on ensuring fair competition, reflected in the Commission's June 2017 €2.42bn fine on Google for 'systematically' prioritising its own shopping service over rivals in searches. US legislation focuses more narrowly on whether market dominance leads to demonstrable consumer harm. Because the dominant tech platforms are all US-based, this is likely to be an area of growing transatlantic conflict in the future.



Notes:

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Patrick Barwise is [Emeritus Professor](#) of Management and Marketing at London Business School, and contributor (with Leo Watkins) to [Digital Dominance: the Power of Google, Amazon, Facebook and Apple](#), recently [launched at LSE](#). Their chapter can be accessed [here](#).