

図1 Google(Alphabet)の売上高、営業利益、対売上高営業利益率の推移 2000-2018[単位: 100万ドル]

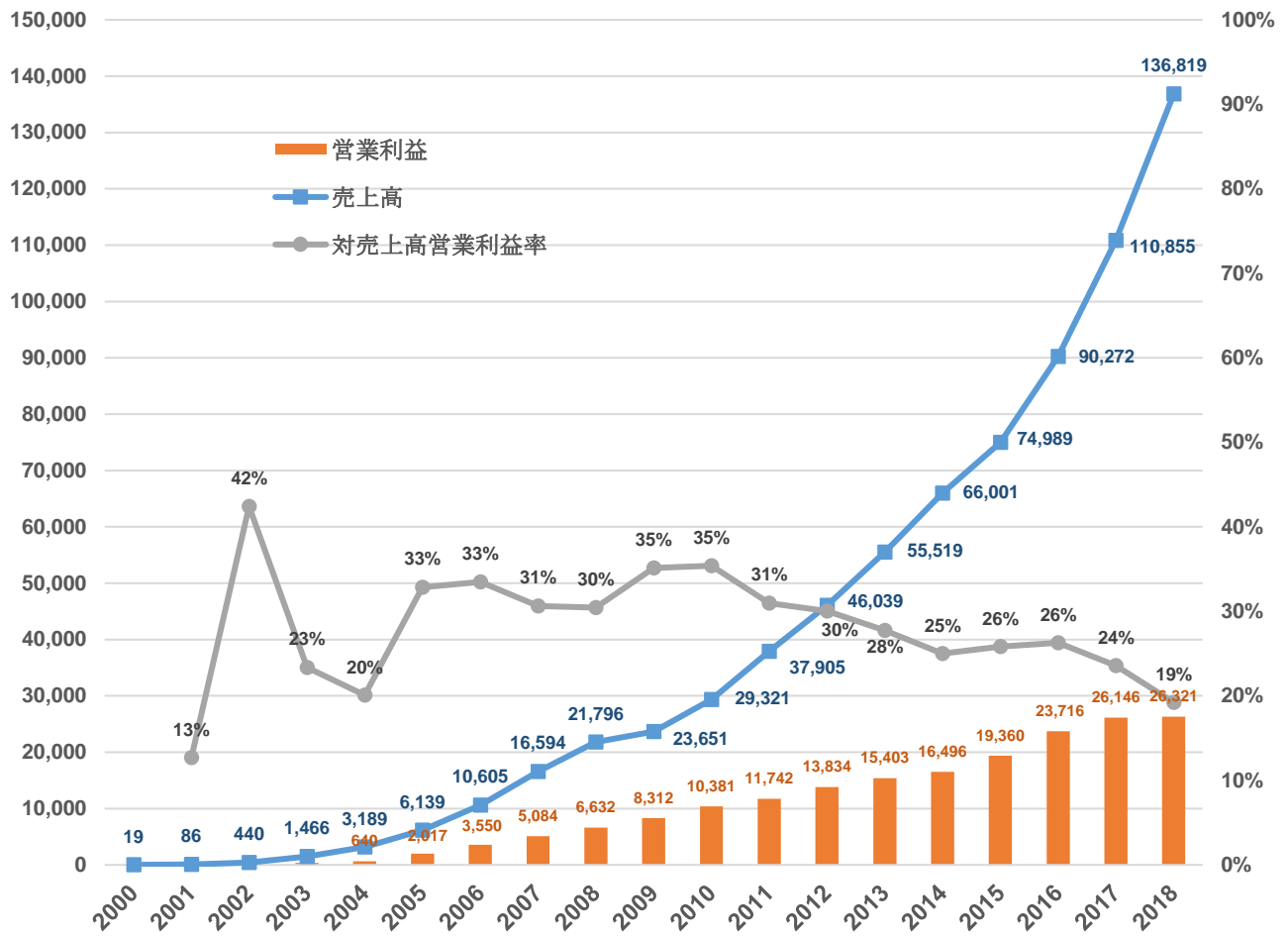


図2 Googleの研究開発費、対売上高研究開発費率の推移 2000-2018[単位: 100万ドル]

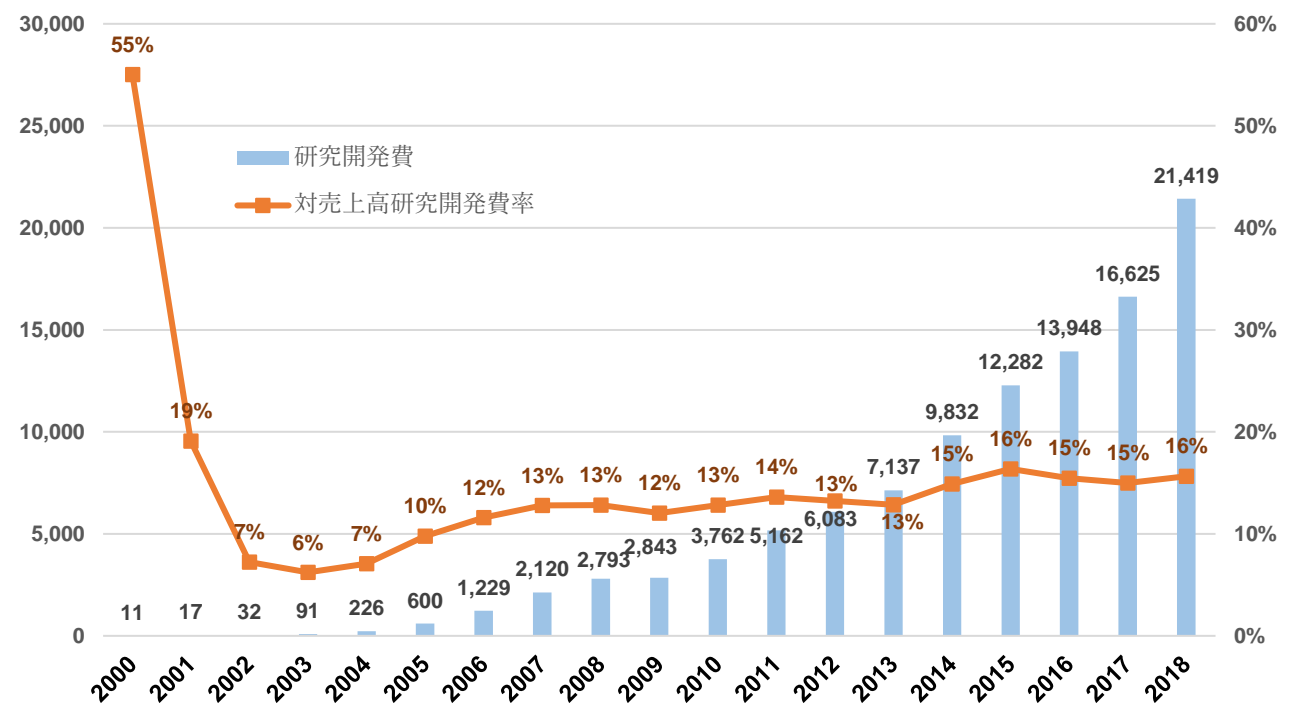


表1 Google の売上高、営業利益、研究開発費、研究開発費の 5 年間平均の推移(単位:100 万ドル)

	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>
	2000/1-2003/12	2004/1-2008/12	2009/1-2013/12	2014/1-2018/12
売上高	503	11,664	38,487	95,787
営業利益	131	3,585	11,934	22,408
研究開発費	37	1,393	4,997	14,821
研究開発費率	7.5%	12%	13%	16%

[注] Google Inc.が設立されたのは 1998 年 9 月 27 日であるが、その株式公開(IPO)は 2004 年 8 月 19 日である。それゆえ 10-K をアメリカ証券取引委員会の [Edgar database](#) でダウンロードできるのは 2004 年度以降である。そうしたこともあり、10-K から確認できる Google の売上高などのデータは 2000 年以降のデータとなっており、1999 年のデータは 10-K では確認できない。

そのため T1 の時期のみ、4 年間平均となっている。

Google(Alphabet)の研究開発費率は任天堂やアップルに比べ T2 以降の過去 15 年間ずっと高水準である。しかも売上高を急速に拡大させている中で、研究開発費率を持続的に増加させている。その結果として最近 5 年間(T4 の時期)には平均売上高が Apple の 40%、平均営業利益が Apple の 34%と小さいにも関わらず、平均研究開発費は Apple よりも約 1/4 以上も大きい。Strategy&(2018)「2018 年グローバル・イノベーション 1000 調査結果概要」p.1 によれば、Amazon.com Inc.に次いで世界第 2 位の研究開発費支出である。

表2 Apple の売上高、営業利益、研究開発費、研究開発費の 5 年間平均の推移(単位:100 万ドル)

	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>
	1999/10-2004/9	2004/10-2009/9	2009/10-2014/9	2014/10-2019/9
売上高	6,715	27,530	136,737	240,871
営業利益	102	5,714	41,784	65,485
研究開発費	443	894	3,622	12,029
研究開発費率	7%	3%	3%	5%

表3 Amazon(売上高、営業利益、研究開発費の単位:100 万ドル)

	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	T <sub>4</sub>
	1999/1-2003/12	2004/1-2008/12	2009/1-2013/12	2014/1-2018/12
売上高	3,344	12,025	48,467	148,547
営業利益	-309	552	964	4,625
研究開発費	236	649	3,402	17,871
研究開発費率	7%	5%	7%	12%

Strategy&(2018)「2018 年グローバル・イノベーション 1000 調査結果概要」2018.10.30,p.1(<https://www.strategyand.pwc.com/jp/ja/media/innovation-1000-data-media-release-jp-2018.pdf>)によれば、研究開発費は売上高を大きく伸長させた Amazon.com Inc.が 2017 年、2018 年ともに世界 1 位であり、Google(Alphabet)は第 2 位である。

## 参考資料 1. 研究開発(R&D)に重点的投資を続けている Google (Alphabet)

### a. Alphabet(2016) *Annual Report 2016*,p.23

As we continue to look for new ways to serve our users and expand our businesses, we will invest heavily in R&D and our capital expenditures will continue to fluctuate.

We continue to make significant research and development (R&D) investments in areas of strategic focus for Google, such as search and advertising, as well as in new products and services across both Google and Other Bets. The amount of our capital expenditures has fluctuated and may continue to fluctuate in the long term as we invest heavily in our systems, data centers, real estate and facilities, and information technology infrastructure. In addition, acquisitions remain an important part of our strategy and use of capital, and we expect to continue to spend cash on acquisitions and other investments. These acquisitions generally enhance the breadth and depth of our offerings, as well as expanding our expertise in engineering and other functional areas.

[出典] [https://abc.xyz/investor/pdf/20151231\\_alphabet\\_10K.pdf](https://abc.xyz/investor/pdf/20151231_alphabet_10K.pdf) の p.27/127

### b. Alphabet(2016) *Annual Report 2016*,p.8

#### RESEARCH

We continue to invest in our existing products and services, including search and advertising, as well as developing new products and services through research and product development. We often release early-stage products. We then use data and user feedback to decide if and how to invest further in those products. Our research and development expenses, which includes the vast majority of engineering and technical headcount responsible for research and development, as well as their associated costs, were \$7.1 billion, \$9.8 billion, and \$12.3 billion in 2013, 2014 and 2015, respectively, which included stock-based compensation expense of \$1.6 billion, \$2.2 billion, and \$2.7 billion, respectively. We expect to continue investing in hiring talented employees and building systems to develop new products and services and improve existing ones.

[出典] [https://abc.xyz/investor/pdf/20151231\\_alphabet\\_10K.pdf](https://abc.xyz/investor/pdf/20151231_alphabet_10K.pdf) の p.12/127

### c. Alphabet(2017) *Annual Report 2017*,p.6、p.23

We continue to invest in our existing products and services as well as developing new products and services through research and product development. We often release early-stage products. We then use data and user feedback to decide if and how to invest further in those products. Research and development expenses include the vast majority of engineering and technical headcount responsible for research and development of our existing and new products and services, as well as their associated costs.

[出典] [https://abc.xyz/investor/pdf/20161231\\_alphabet\\_10K.pdf](https://abc.xyz/investor/pdf/20161231_alphabet_10K.pdf)

As we continue to look for new ways to serve our users and expand our businesses, we will invest heavily in R&D and our capital expenditures will continue to fluctuate.

We continue to make significant research and development (R&D) investments in areas of strategic focus for Google, such as search, advertising, and machine learning, as well as in new products and services across both Google and Other Bets. The amount of our capital expenditures has fluctuated and may continue to fluctuate in the long term as we invest heavily in our systems, data centers, real estate and facilities, and information technology infrastructure.

## 参考資料 2. Alphabet Inc. (2019) *Form 10-K*, p.3 に記述されている事業概要

- conventional company ではないことや unconventional spirit の強調、technology に関して多くの企業が取る incrementalism を不適切とし evolutionary ではなく revolutionary であることを強調

### PART I > ITEM 1. BUSINESS > Overview

As our founders Larry and Sergey wrote in the original founders' letter, "**Google is not a conventional company. We do not intend to become one.**" **That unconventional spirit has been a driving force throughout our history** – inspiring us to do things like rethink the mobile device ecosystem with Android and map the world with Google Maps. As part of that, our founders also explained that you could expect us to make "smaller bets in areas that might seem very speculative or even strange when compared to our current businesses." **From the start, the company has always strived to do more, and to do important and meaningful things with the resources we have.** Alphabet is a collection of businesses -- the largest of which is Google. It also includes businesses that are generally pretty far afield of our main internet products in areas such as self-driving cars, life sciences, internet access and TV services. We report all non-Google businesses collectively as Other Bets. Our Alphabet structure is about helping each of our businesses prosper through strong leaders and independence.

#### ***Access and technology for everyone***

The Internet is one of the world's most powerful equalizers, capable of propelling new ideas and people forward. **At Google, our mission is to make sure that information serves everyone, not just a few.** So whether you're a child in a rural village or a professor at an elite university, you can access the same information. We are helping people get online by tailoring digital experiences to the needs of emerging markets. For instance, our digital payments app in India, now called Google Pay, helps tens of millions of people and businesses easily pay with just a few taps. We're also making sure our core Google products are fast and useful, especially for users in areas where speed and connectivity are central concerns.

Other Alphabet companies are also pursuing initiatives with similar goals. For instance, Loon announced that it will bring its balloon-powered internet to regions of central Kenya, starting in 2019.

#### ***Moonshots***

**Many companies get comfortable doing what they have always done, making only incremental changes. This incrementalism leads to irrelevance over time, especially in technology, where change tends to be revolutionary, not evolutionary.** People thought we were crazy when we acquired YouTube and Android and when we launched Chrome, but those efforts have matured into major platforms for digital video and mobile devices and a safer, popular browser. **We continue to look toward the future and continue to invest for the long-term. As we said in the original founders' letter, we will not shy away from high-risk, high-reward projects that we believe in because they are the key to our long-term success.**

#### ***The power of machine learning***

**Across the company, machine learning and artificial intelligence (AI) are increasingly driving many of our latest innovations.** Within Google, our investments in machine learning over a decade have enabled us to build products that are smarter and more useful -- it's what allows you to use your voice to ask the Google Assistant for information, to translate the web from one language to another, to see better YouTube recommendations, and to search for people and events in Google Photos. Our advertising tools also use machine learning to help marketers find the right audience, deliver the right creative, and optimize their campaigns through better auto-bidding and measurement tools. Machine learning is also showing great promise in helping us tackle big issues, like dramatically improving the energy efficiency of our data centers.

Across Other Bets, machine learning helps self-driving cars better detect and respond to others on the road, assists delivery drones in determining whether a location is safe for drop off, and can also help clinicians more accurately detect sight-threatening eye diseases.

表4 Google(Alphabet)の売上高、営業利益、対売上高営業利益率の推移 2000-2018[単位:100 万ドル]

会計年度	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	19年間 平均	最近5年間 平均
売上高	19	86	440	1,466	3,189	6,139	10,605	16,594	21,796	23,651	29,321	37,905	46,039	55,519	66,001	74,989	90,272	110,855	136,819	38,511	95,787
営業利益	-15	11	186	342	640	2,017	3,550	5,084	6,632	8,312	10,381	11,742	13,834	15,403	16,496	19,360	23,716	26,146	26,321	10,008	22,408
営業利益率		13%	42%	23%	20%	33%	33%	31%	30%	35%	35%	31%	30%	28%	25%	26%	26%	24%	19%	26%	23%

表5 Google(Alphabet)の研究開発費、対売上高研究開発費率の推移 2000-2018[単位:100 万ドル]

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	19年間 平均	最近5年間 平均
研究開発費	11	17	32	91	226	600	1,229	2,120	2,793	2,843	3,762	5,162	6,083	7,137	9,832	12,282	13,948	16,625	21,419	5,590	14,821
研究開発費率	55%	19%	7%	6%	7%	10%	12%	13%	13%	12%	13%	14%	13%	13%	15%	16%	15%	15%	16%	15%	15%