

2018 Founders' Letter

After 20-plus years, Google remains a company where anything can happen. Our “healthy disregard for the impossible”—as Larry and Sergey like to call it—is still what gets us out of bed every morning and why we love pushing the boundaries of technology to solve even the toughest problems for our users.

Today, our mission to organize the world’s information and make it universally accessible and useful is as relevant as it was in 1998. Since then, we’ve evolved from a company that helps people find answers to a company that helps you get things done.

Now we are focused on building an even more helpful Google for everyone. We aspire to give everyone the tools they need to increase their knowledge, health, happiness, and success. Here’s how we are thinking about this work.

Building a more helpful Google

With so many users turning to our products for everyday tasks, we have countless opportunities to help in moments big and small. I always think about this in the context of a working parent. Say you’re in the kitchen making breakfast, rushing to get to work and you suddenly realize you forgot to make a doctor’s appointment for your child. We want to help you make that doctor’s appointment hands-free, or one day, even do it on your behalf. We can also help you get to work faster with Google Maps, or book you a ride via the Google Assistant with your favorite ride-sharing service. After all that, we can help you relax with your favorite music at the end of a long day.

Our products are designed to save you time in ways that add up over the course of a day. Smart Compose can help you send emails on the go—collectively saving our users from typing some 2 billion characters every week. Our Translate capabilities can help you check into a hotel or order a coffee sans language barrier. The “busy times” feature on Search lets you know when to expect a wait at your favorite movie theater, while the “Duplex on the Web” technology will enable the Google Assistant to book a rental car for a trip.

One of our most helpful products is YouTube. Every day, people turn to the platform to learn new things: fixing a clogged drain, mastering a new recipe,

speaking a new language, playing a musical instrument—even prepping for a job interview or learning a new skill on the job. YouTube has become one of the world's most accessible educational platforms, and has made it possible to learn anything from anywhere.

Beyond saving you time or helping you learn new skills, we want to help you connect with the people and things you love. For me, I'm reminded of what matters every time I see the photos of my family, friends, and dog Jeffree appear on Google Nest Hub's rotating photo display. For others, those moments of surprise and delight might come when you see your grandchildren on a weekly Duo chat, or when the Assistant remembers your favorite song.

Of course some of the happiest moments come when you're not looking at a screen or holding a device at all. That's why we are working to help you disconnect from technology when you want, with Digital Wellbeing features like WindDown to help you switch off at night, or our FamilyLink app, which helps you to manage your kids' screen time. We're committed to helping everyone find a balance that feels right.

Finding trusted, accurate information

The quest for knowledge has been at the core of our mission since the very beginning. Even after 20+ years there is plenty of runway to grow and improve Search. In fact, about 15% of the queries we see every day we've never seen before.

We continue to evolve Search by applying the most advanced technology to the most urgent problems. Sometimes that means providing a flood victim real-time information in a crisis, or connecting a returning service member or veteran with a job. And by bringing augmented reality directly into Search, we're now able to show, not just tell. So, for example, if you're shopping for new shoes, you can see which pair looks best with your wardrobe.

News is another big part of our mission to organize the world's information. In March 2018, we launched the **Google News Initiative**, committing \$300 million to help journalism thrive globally in the digital age. A major focus for us has been supporting local journalism, which plays an important role in our communities, our democracy, and our daily lives. Alongside McClatchy, we launched the Local Experiments Project to test new approaches in local business models to help the industry learn what works. We've also helped train 100,000 journalists around the world to use digital tools, and we've partnered with multiple newsrooms worldwide to combat misinformation during elections with initiatives like Verificado in Mexico and Comprova in Brazil.

On YouTube, our teams feel a deep responsibility to curb misinformation, keep children safe, and remove harmful content that violates our policies. **Removing hate speech** is both a hard computer science problem and a hard societal problem as the line on what is considered acceptable moves over time and varies across cultures. We continue to review our policies, and we know we have a lot more to do in this area. It's important to note that problematic or borderline content on YouTube accounts for less than 1% of the consumption on the platform. The vast majority of YouTube videos do what we have always intended: they give people a voice and a chance to share their viewpoints, stories, and expertise.

We also continue to stay vigilant so we can protect our platforms from election interference. Over the past three years, we've increased transparency about news sources on YouTube, adding labels under videos uploaded by broadcasters that receive public or government funding. On the ads side, we've added a verification process and required disclosures for election ads and launched an election ad transparency report. Most critically, we've continued our work to detect and disable these efforts on our platform during important elections. Protecting users and preserving the integrity of our platforms remains our top priority.

Building for everyone

We believe that access to high-quality information is crucial not just to an individual's success, but to the success of people and businesses all over the world.

One way we are building for everyone is by focusing on the next billion users coming online in places such as India, Brazil, and Nigeria. For these users, we're adapting core products such as Search, YouTube, and Lens to make sure they work on phones as affordable as \$35. In other cases, we are developing brand new solutions designed for the next generation of users, whether it's helping them to access banking or to ask and find answers to neighborhood questions. Often these tailor-made products are later adopted by users globally. In the case of Maps Offline and Tez (now Google Pay), the products were built for India and are now used around the world.

Building for everyone also means ensuring that people with disabilities can access and enjoy our products. Earlier this year we introduced several products with new tools and accessibility features, including Live Caption, which can caption a conversation in a video, a podcast, or one that's happening in your home. In the future, **Live Relay** and **Euphonia** will help people who have trouble communicating verbally, whether because of a speech disorder or hearing loss.

We don't just think about this in the context of individuals. We are also building with the goal of helping businesses and organizations apply our most advanced technologies to their most important problems—whether that's using AI to help ships navigate safely, connecting offline and online retail with personalized experiences, or using machine learning to help financial institutions detect fraud. Google Cloud is one of the largest areas of investment for Google, and it continues to be a big bet for us. Helping businesses realize their missions is a big part of how we realize ours, and we are committed to being a strong technology partner for the long term.

Keeping users and their data safe and secure

“For everyone” is a core philosophy for Google. Just as it's built into our mission to create products that are universally accessible and useful, we believe privacy and security should be equally available to everyone in the world, no matter where you live, or what type of service you use. To make privacy real, we give everyone clear, meaningful choices around their data. We've long offered features such as Google Takeout (now Download Your Data) so that anyone can take their data with them to whatever service they choose. Recently we announced significant new privacy features, including one-click access to privacy settings from all our major products and auto-delete controls that allow you to choose how long you want data to be saved. And to protect your data from security threats, we just introduced a security key built into Android phones that can provide two-factor authentication.

We're also challenging the notion that products need more data to be helpful. A new technique invented at Google called federated learning allows us to train AI models and make products smarter without raw data ever leaving your device. With federated learning, Gboard can learn new words after thousands of people start using them, without us ever knowing what you're typing. In the future, AI advancements will provide even more ways to make products more helpful with less data.

Investing in our communities

Beyond our investments in products, we're also making significant long-term investments in the communities we call home.

There are three ways we do this. The first way is by helping to generate economic activity. The web is connecting customers with businesses of all sizes, and Google's Search and Advertising tools play a big role in making those connections. In 2018, our tools helped create \$335 billion in economic activity for millions of businesses, website publishers, and nonprofits in the U.S. alone. Globally, Google services are enabling a new generation of small businesses, app developers, and YouTube creators to reach new audiences and generate billions more in economic value. YouTube creators are the next generation of media

businesses: channels making six figures or more in revenue are up more than 40% over last year and are creating new jobs. Beyond creators, many small businesses depend on YouTube to get the word out about their products.

The second way we're investing in communities is through Grow with Google, our global effort to help people learn new digital skills, launch careers, and grow their businesses. We want to extend technology's reach and make sure new opportunities are available to people in every part of the world. We've already trained more than 43 million people in digital skills globally, and we expect that number will rise to more than 60 million by 2022.

The third way we are investing in communities for the long-term is by deepening our commitment. Here in the U.S., we are investing \$13 billion in expanding our data centers and offices across the country. In fact, we are currently growing faster outside of California than in it. But to make sure our home base in the San Francisco Bay Area remains a great place to live and work, we are making a \$1 billion investment in Bay Area housing. We'll repurpose land currently zoned for commercial and office space and use it instead for 15,000 new homes to be offered at all income levels. We are also establishing a \$250 million investment fund that will enable developers to build at least 5,000 affordable housing units across the market—bringing the total to 20,000 homes—and Google.org will give an additional \$50 million to non-profits who are focused on the issues of homelessness and displacement.

Investing in communities also means doing our part to minimize the impact we have on our biggest community of all: Planet Earth. We're the first organization of our size to achieve 100 percent renewable energy two years in a row, something we've been working towards for a long time. We have helped make our data centers seven times more energy efficient today than they were five years ago, and we're committed to sustainable practices over the long-term.

Taking the long term view

We are fortunate to have a timeless mission, and the way we approach it continues to evolve. Each phase change has been the result of careful, long-term planning that began by placing big bets in areas we believed would pay big dividends for society 5, 10, even 20 years down the road.

One good example is our early bet on AI.

In 2012, the Google Brain team built a very large neural network that taught a computer to come up with the visual concept of a "cat" all on its own. That was a huge step forward in scaling up neural networks big enough to start to be really practical. I remember being in a meeting with the team listening to them talk

about this milestone, and having that a-ha moment: machine learning is really going to work.

As we embarked on this new era of computing, we had to rethink our computational architecture. That led to the creation of our tensor processing units which are our custom-built hardware for machine learning. TPUs allow us to run our machine learning algorithms faster and more efficiently—and they helped set the stage for another huge milestone in 2016 when DeepMind's AlphaGo was able to capture imaginations by beating the world's human Go grandmasters. At that point it became clear to me that we were in a unique position to advance the field because we had an amazing team of AI researchers and the computational power required to sustain the work.

Those early investments put us in a strong position to shift the company to an AI-first strategy, and we have pursued that rigorously across our products to better serve our users. One of our clearest insights on AI so far is that its potential is greatest when paired with human intelligence. In the case of breast cancer detection, our latest research shows that pathologists using our algorithms are more accurate and efficient than either pathologists or algorithm alone. We're seeing similar advancements in the early detection of lung cancer.

We believe that we can develop AI in a way that complements human expertise, and we feel a deep responsibility to get this right. That's why last year we announced **seven principles** to guide our work in AI going forward. These are not theoretical concepts; they are concrete standards that actively govern our research and product development and impact our business decisions. And by making AI technologies widely available via our tools and open-source code, we work to empower other organizations who are using technology to improve people's lives.

There are so many reasons to be optimistic about the direction technology is taking. I'm particularly excited about the potential of quantum computing and the world-class team working on it. I met with the team a few weeks ago and was pleased to see the progress they're making. Quantum computing remains a long-term effort for us, and offers us the chance to understand the world in a deeper and more fundamental way than ever before.

A more helpful Google for the future

I'm proud of the work being done across Alphabet to improve lives through technology, whether it's Verily and Calico's game-changing approach to health care, Waymo and Wing's vision of future transportation, Loon's work to expand internet access to more people in more places, or GV and CapitalG helping the next generation of successful companies access resources and expertise.

This kind of collaboration—while remaining focused, independent companies—is exactly what Larry, Sergey, and I envisioned when Alphabet was created a few years ago. What continues to unite us is a shared belief that technology should be developed to serve humanity.

Of course we still face hard problems—some more complex than any we've dealt with in our two-decade journey. We'll approach them in the same way we always have: by staying focused on our users and creating products that improve their lives and society as a whole. Through it all, we will continue to create value for our customers, partners, and shareholders.

From the first day I stepped on to our Mountain View campus, I knew Google was unlike any other company on earth. Since becoming CEO in 2015, my optimism has only increased. A big part of that is because of the people I work with every day. I have the privilege of leading a committed group of employees who are pushing the boundaries of technology and helping us to be a better company.

But the biggest reason I believe in the future is because I believe in the billions of people who let us be a part of their lives every day. As long as we are building technology to help all of you reach your full potential, anything is possible.

A handwritten signature in black ink, appearing to be 'Sundar Pichai', with a horizontal line extending to the right from the end of the signature.

Sundar Pichai
CEO, Google

Every year since 2004, Larry and Sergey have published a letter to shareholders ahead of the annual meeting of stockholders looking back on the previous year. In 2015, Larry added Sundar to the rotation, writing that "in the future, you should expect that Sundar, Sergey and I will use this space to give you a good personal overview of where we are and where we are going." This year, they invited Sundar back to share his thoughts on the future of Alphabet.

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