

# Making the World a Better Place

**W**hen I first began working for OZON, I fell instantly in love. What drew me was the ability for us to make seemingly minor changes that had tremendous real-world impact. Here we were, in the vastness of Russia, building a business that would soon deliver books to millions of people, some in places with hardly a road to speak of. We could make it possible, in these places at the ends of the Earth, for people to choose among hundreds of thousands of books. And, eventually, the same service would deliver equipment for their homes, toys for their children, parts for their cars—all shipped straight to their door.

This astonishing aspect of the work was what I found so exciting: what we did within the digital realm could so quickly alter the possibilities of the physical one. At massive scale and incredible speed. That is what I fell in love with. The benefits felt boundless. In many ways, they still do.

## **TECH AS DRIVER OF ECONOMIC AND SOCIAL PROGRESS**

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If we look more specifically at some of the key indicators of economic and social progress (GDP, poverty, life expectancy, literacy), the positive impact of digital technologies is evident across the board.

While there are debates on how to measure the impact of the digital economy on GDP due to the amount of free digital products created by the industry and the lack of clear definition of what the “digital economy” covers exactly, the OECD<sup>1</sup> assessed that in 2015 the information and communication technology sector accounted for 4.5 percent of total value added in OECD countries. Access to broadband internet is as clear a booster of economic development as anything. The World Bank estimates that an increase in fixed broadband penetration of 10 percentage points results in a

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<sup>1</sup>OECD Economic Outlook 2017, [https://www.oecd-ilibrary.org/science-and-technology/oecd-digital-economy-outlook-2017\\_9789264276284-en](https://www.oecd-ilibrary.org/science-and-technology/oecd-digital-economy-outlook-2017_9789264276284-en)

1.35 percent increase in per capita GDP for developing countries and a 1.19 percent increase for developed countries.<sup>2</sup>

Digital innovation is improving the standards of living of millions of people thanks to greater efficiency and lower costs across industries, starting with agriculture and transportation. From better irrigation and pesticide and fertilizer use to more efficient agricultural supply chain management, there are countless examples around the world of technology improving the life of people. Mobile supercomputers in our pockets connect us with people virtually anywhere on the planet, play our music, and look up any fact. Smart homes, powered by personal digital assistants that learn our preferences as we use them, offer enhanced security monitoring, automated climate control, and shopping with a few voice commands. Augmented and virtual reality is available in our living rooms, offering new frontiers for entertainment and education. Plant-based meat is now served at fast-food restaurants. Drones and mini-cameras have revolutionized videography. And look at how 3D printers throughout the world helped manufacture the necessary parts for ventilators, as well as face masks and nasal swabs, to fight the COVID-19 pandemic.<sup>3</sup>

Technology is also helping to improve health and increase life expectancy. Living beyond 100 is likely going to become the norm for most children in the developed world before the end of this century. The British Office for National Statistics estimates that in 2043 in the UK, 20.8 percent of newborn boys and 26.1 percent of newborn girls are expected to live to at least 100 years of age.<sup>4</sup> Thanks to technology we will have a longer life and also a healthier one, with fewer diseases and side effects associated with old age. From Alzheimer's and Parkinson's to cancer, tech is making progress toward a future where they all might be curable.

Similar lines of research into faster cures via better drug delivery are seeing astonishing breakthroughs thanks to artificial intelligence. In February 2020, a team of researchers announced their AI program had invented a drug molecule that had gained approval for use in human trials—a first for machine learning. Typically, drug development takes about five years, often longer, before it gets to human trials. The AI developed drug took just 12 months.<sup>5</sup>

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<sup>2</sup>Michael Minges, "Exploring the Relationship Between Broadband and Economic Growth," World Bank, 2016, <http://pubdocs.worldbank.org/en/391452529895999/WDR16-BP-Exploring-the-Relationship-between-Broadband-and-Economic-Growth-Minges.pdf>

<sup>3</sup>Macy Bayer, "3D printing community fighting coronavirus by making crucial medical parts," TechRepublic, April 3, 2020, <https://www.techrepublic.com/article/how-3d-printing-can-be-used-for-coronavirus-testing-kits-masks-and-ventilator-parts/>

<sup>4</sup>Office for National Statistics, "Past and projected period and cohort life tables, 2018-based, UK: 1981 to 2068," December 2, 2019, <https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/lifeexpectancies/bulletins/pastandprojecteddatabfromtheperiodandcohortlifetables/1981to2068>

<sup>5</sup>Jane Wakefield, "Artificial intelligence-created medicine to be used on humans for first time," BBC, January 30, 2020, <https://www.bbc.com/news/technology-51315462>

COVID-19 social distancing requirements have boosted telemedicine services into everyday use, but long before the pandemic these services were complementing local health services in remote, rural communities. Data sharing and comprehensive meta-analyses have sped up the flow of information between health systems and hospitals, and mobile software applications are allowing both healthcare professionals and patients to check in and monitor situations constantly and remotely.

In one of the most heartwarming examples I have come across, a nonprofit called Living Goods provides digital tools and information via mobile phone for parents and community health workers in impoverished areas that have little access to doctors. “Thanks to technology, you can turn an ordinary person into someone who can diagnose and in most cases deliver a treatment that directly reduces child mortality,” said CEO Nicola Crosta of Impact46, a social impact accelerator. After three years, the nonprofit demonstrated a 27 percent reduction in under-five mortality in Uganda. Infant and neonatal—under 1 month—mortality was also significantly reduced by 33 and 27 percent, respectively.<sup>6</sup>

The access that an increasing number of us have to seemingly infinite information is unlike anything to have happened before in human history. Massive Open Online Courses (MOOCs) reached 110 million people in 2019, with more than 13,500 courses available. And those numbers don’t even include China, the largest nation with more people online than any other.<sup>7</sup> Tusome, a literacy platform in Kenya adopted by the Kenyan government, has benefited over 6.5 million children nationwide,<sup>8</sup> throughout 23,000 government-run primary schools as well as 1,500 private schools. It has increased literacy, as well as deepened and widened the impact of good teachers and teaching methods.<sup>9</sup> MindSpark, a program focused on STEM learning in India, improved students’ performance in math by 38 percent in just five months. The program costs merely \$2 a year per student when scaled up to more than 1,000 schools.<sup>10</sup>

And of course, technology has revolutionized the workplace, in ways too numerous to count. From software that puts data analysis on steroids to robots that make and package products, dramatic efficiencies have made businesses more competitive and profitable.

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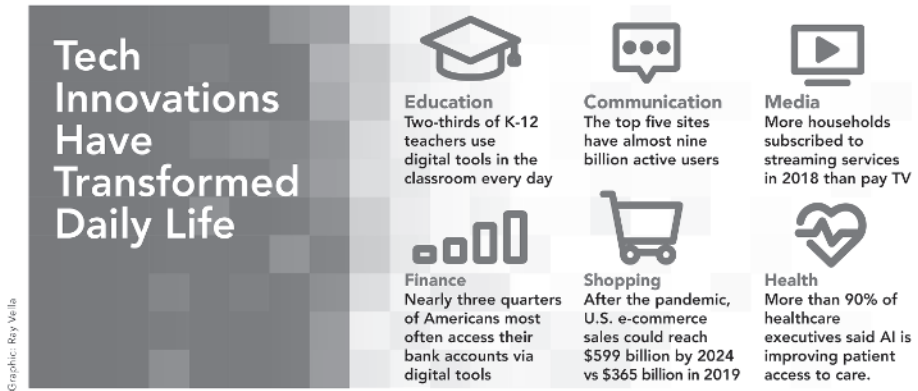
<sup>6</sup><https://livinggoods.org/what-we-do/results-evidence-and-research/research-initiatives/>

<sup>7</sup>Dhawal Shah, “By the Numbers: MOOCs in 2019,” Class Central, December 2, 2019, <https://www.classcentral.com/report/mooc-stats-2019/>

<sup>8</sup>Nathan Ochunge, “US government extends funding for Tusome program,” *The Standard*, September 8, 2019, <https://www.standardmedia.co.ke/article/2001341132/us-government-extends-funding-for-tusome-programme>

<sup>9</sup>“In poor countries technology can make big improvements to education,” *The Economist*, November 17, 2018, <https://www.economist.com/international/2018/11/17/in-poor-countries-technology-can-make-big-improvements-to-education>

<sup>10</sup>Stefan Dercon, “Is technology key to improving global health and education, or just an expensive distraction?” World Economic Forum, May 31, 2019, <https://www.weforum.org/agenda/2019/05/technology-health-education-developing-countries/>



Source: Gallup, New Schools Venture Fund, Statista, Deloitte, KPMG, ABA/Morning Consult, eMarketer

### FIGURE 1.1 Impact of tech innovation on daily life.

Source: Gallup, Statista, Deloitte, KPMG, ABA/Morning consult, eMarketer

Finally, digital technologies will also likely be what will help us with the next big challenge humanity is facing: the degradation of our environment and climate change. Solar and wind energy now produce electricity more cheaply than coal. The entire field of Climate Informatics, which is continuously deepening our understanding of the long-term and short-term impacts of climate change, could not exist without AI and the tools necessary to capture and analyze increasingly complex sets of climatic data.

These are remarkable accomplishments, worthy of praise and admiration. And tech companies receive both from us, overwhelmingly. A survey conducted by The Verge at the end of 2019 found that the vast majority of users—around 90 percent—view brands like Amazon and Google favorably, while around 70 percent of users believe that they remain a positive influence on society.<sup>11</sup> I know exactly how they all feel, because I still swoon over much of tech, too.

## HIDDEN EFFECTS

So why is this book mainly focused on the problems tech is creating for humanity? For starters, because tech is now so deeply ingrained in everyday life, many of its

<sup>11</sup>Casey Newton, “The Verge Tech Survey 2020,” The Verge, March 2, 2020, <https://www.theverge.com/2020/3/2/21144680/verge-tech-survey-2020-trust-privacy-security-facebook-amazon-google-apple>

more insidious effects also occur in the background, like some kind of white noise that is easy to ignore. Yet tech companies' influence over everything from the nature of work, to our privacy, to the contours of our cities, to the underlying fairness of our economies and the health of our democracies, is massive, and growing more so by the minute. As explained by William Davidow, author of *The Autonomous Revolution*, the technologies of the future (AI, robotics, Internet of Things) "not only make society more efficient and productive; they transform its structure."<sup>12</sup>

Moreover, I don't accept the oft-heard tropes of tech that these problems are necessary trade-offs to get us the many benefits technology brings us. In most cases, they are not. Or that these trade-offs are not worth public scrutiny due to their inevitability or their complexity. Or that disruption for disruption's sake is a good thing. Or that the negative effects of the tech revolution are similar to those of previous ones, and sort themselves out in the end. This book seeks to document how the staggering size and world-bending power of tech's unicorns is central to this particular revolution, and why that poses an existential threat that we must grapple with, and soon.

One of the many difficulties in addressing these issues is the "attention economy" that tech has created. When so much competes for our attention, and when we are trained to expect and demand instant gratification, it is hard to focus on the bigger picture.

Just think back to your first time using Facebook and marveling at the ability to connect with people around the world, before learning how it data-mines your posts and profile and tracks your every digital move. Or, if you have a small business, how Google drives big sales increases until you realize how dependent you are on them when suddenly the search giant tweaks its algorithm and kills your business. And there is nothing you can do. We often tend to think this way: very short-term, very self-centered. As long as we don't know about the sweatshops making our phones, or the trackers following our every move as we navigate through the internet, it's fine. Ignorance really is bliss, and tech is very good at keeping us distracted with an endless stream of shiny new toys and capabilities.

To be sure, it is difficult and complicated to directly measure tech's negative impact on our day-to-day life. A lot of the effects are not caused by the technology directly, as with previous waves of innovation (like a car generating carbon monoxide, which affects the atmosphere in ways we can measure objectively). Rather, these effects are often complex changes in human behavior that some technology provokes (we stop believing in facts; our attention span decreases) or secondary effects (increase of rents for locals because of the increase of short-term rentals for tourists).

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<sup>12</sup>William Davidow, "Forget STEM, Study Sociology," LinkedIn, June 22, 2020, <https://www.linkedin.com/pulse/forget-stem-study-sociology-william-davidow>

This opacity is further compounded by:

- Massive scale and the network effects that build it making it hard to track how tens of millions of people are affected.
- The refusal of Big Tech to disclose data: we can't say how many people have decided to not vaccinate their children because they've been exposed to bogus claims on the side effects of vaccines. We don't really know how much the traffic has gotten worse because Uber and Lyft won't tell us how many cars they have on the street at any given time.
- The lack of ethics boards (like the ones universities have) to vet tech's behavioral experiments on people. A few engineers can decide to test something, change a few lines of code, and start experimenting right away. "Unlike academic social scientists, Facebook's employees have a short path from an idea to an experiment on hundreds of millions of people," noted a profile of Facebook's data team.<sup>13</sup>

Big Tech's scale is powered by the fact that a set of goods and services can be provided to a near infinite number of additional customers, all at the same time, at an incremental cost that is often close to zero. This, and the network effects that Big Tech enjoys—which means people have few alternatives to the platforms that all their friends and family use—help create near monopolies, enormous growth and profits, and unrivaled political power.

We are living in a period of historic, exponential growth and change. In the near term, that might be the best we can do: to begin to notice, and grapple with, technology's implications. So much of the technology that governs our world is opaque, hidden away from us under secretive algorithms and impenetrable code, like so many black boxes. Only there are people there, inside the boxes, writing the code. And people who lead them.

I am not arguing that all is lost. Instead, I am passionate about pushing tech to evolve, not only for the greater good but because it makes sound business sense, so that we can continue to enjoy the best that tech brings us without dystopian consequences that can be avoided, or at least minimized. So, let's open up the boxes. They aren't black, very often. Mostly they're quite glassy, airy, and based around the San Francisco Bay and other tech hubs. There's a bubble that surrounds them, cutting off the culture inside from the rest of the world.

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<sup>13</sup>Kashmir Hill, "Facebook Manipulated 689,003 Users' Emotions for Science," *Forbes*, June 28, 2014, <https://www.forbes.com/sites/kashmirhill/2014/06/28/facebook-manipulated-689003-users-emotions-for-science/>