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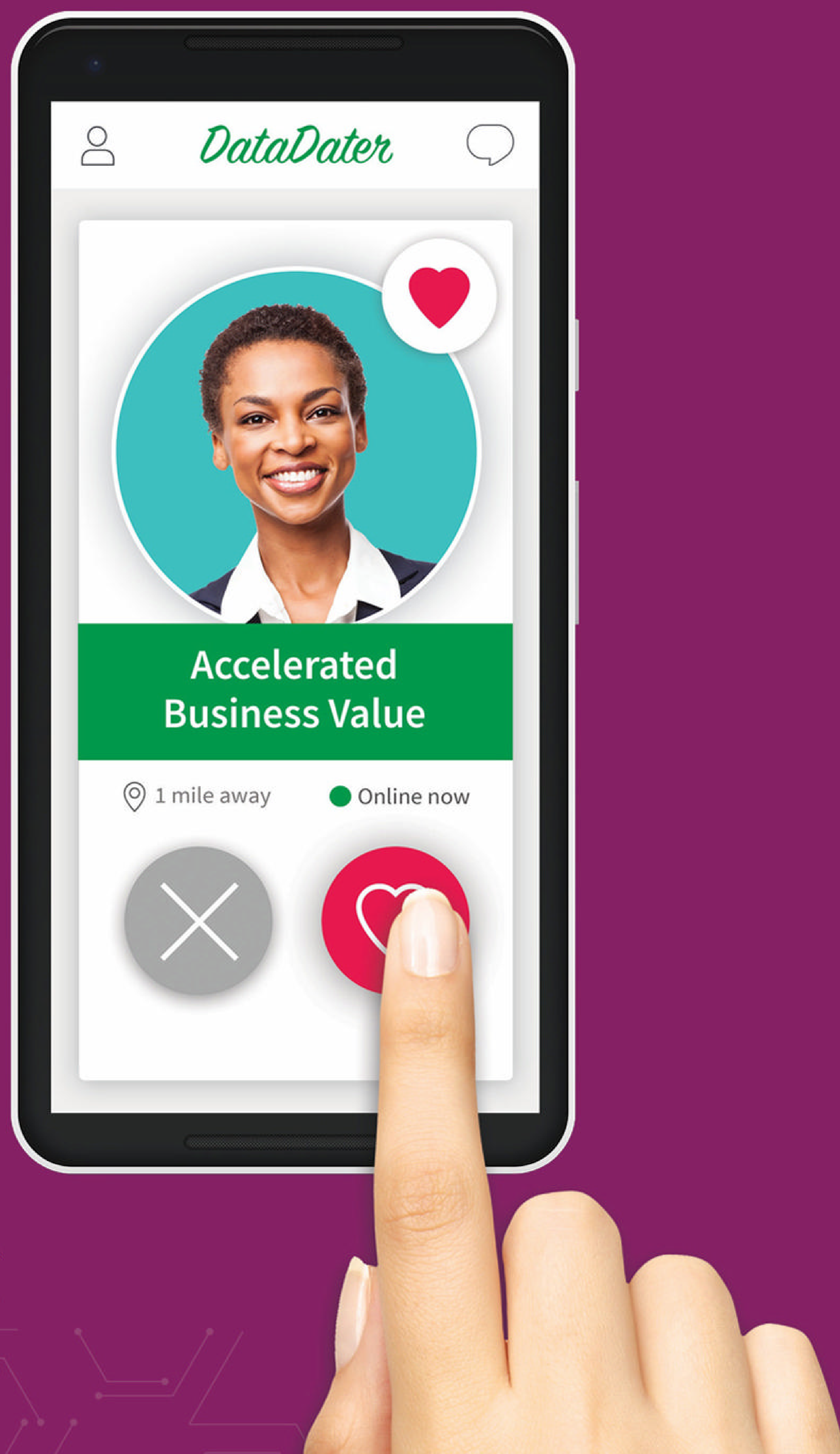
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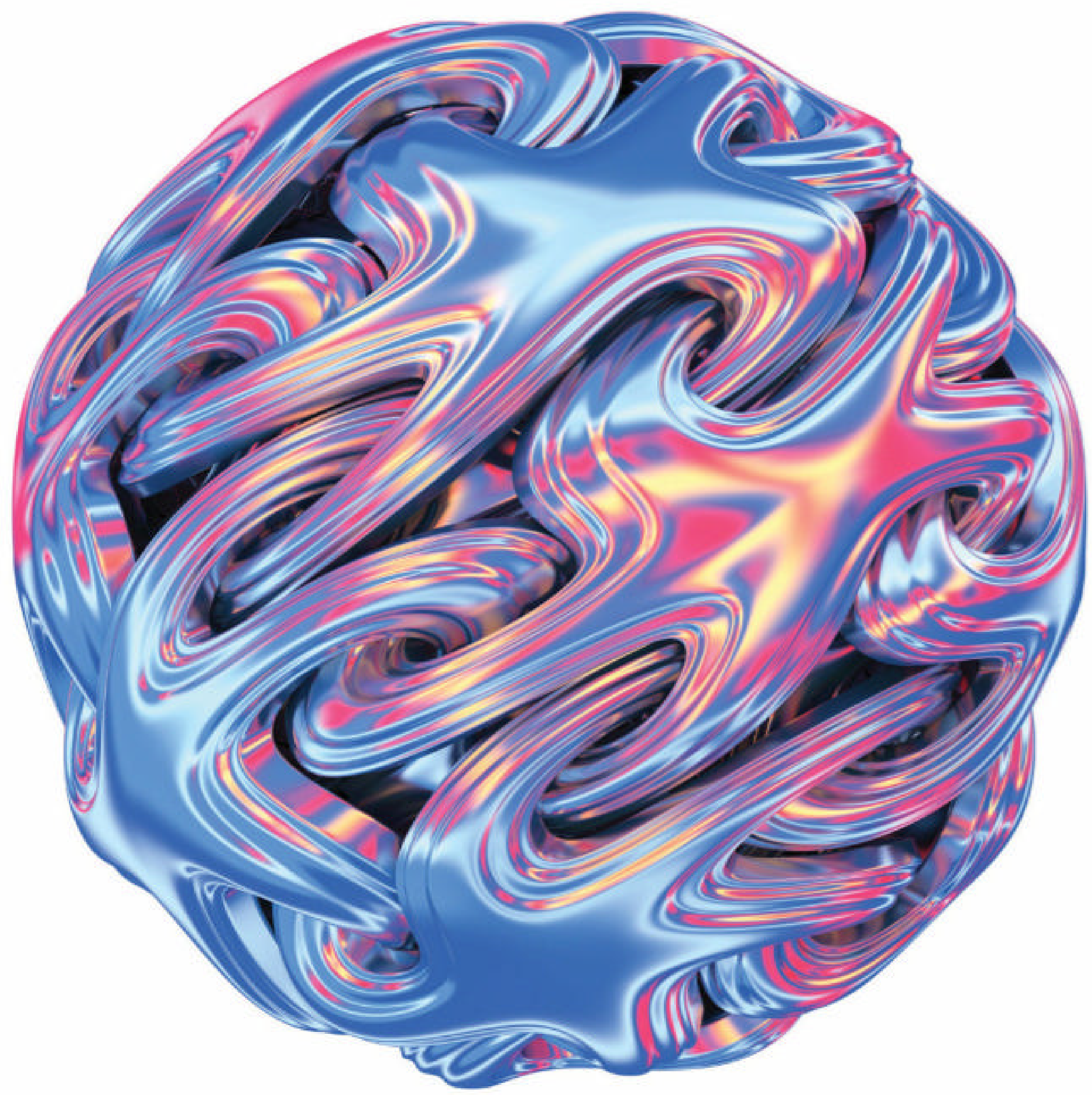

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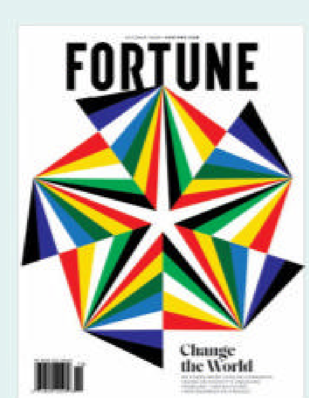

Cover Image by MATT W. MOORE

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WHAT OUR EDITORS ARE UP TO THIS MONTH

You can find all our virtual events at *fortune.com/conferences*, including these must-Zooms:

THE GLOBAL International CEOs set the next decade's agenda at the *Fortune* Global Forum and CEO Initiative annual meeting, Oct. 26–27.

THE YOUNG Women on the rise hone their leadership skills at the MPW Next Gen Summit, Oct. 13–14.

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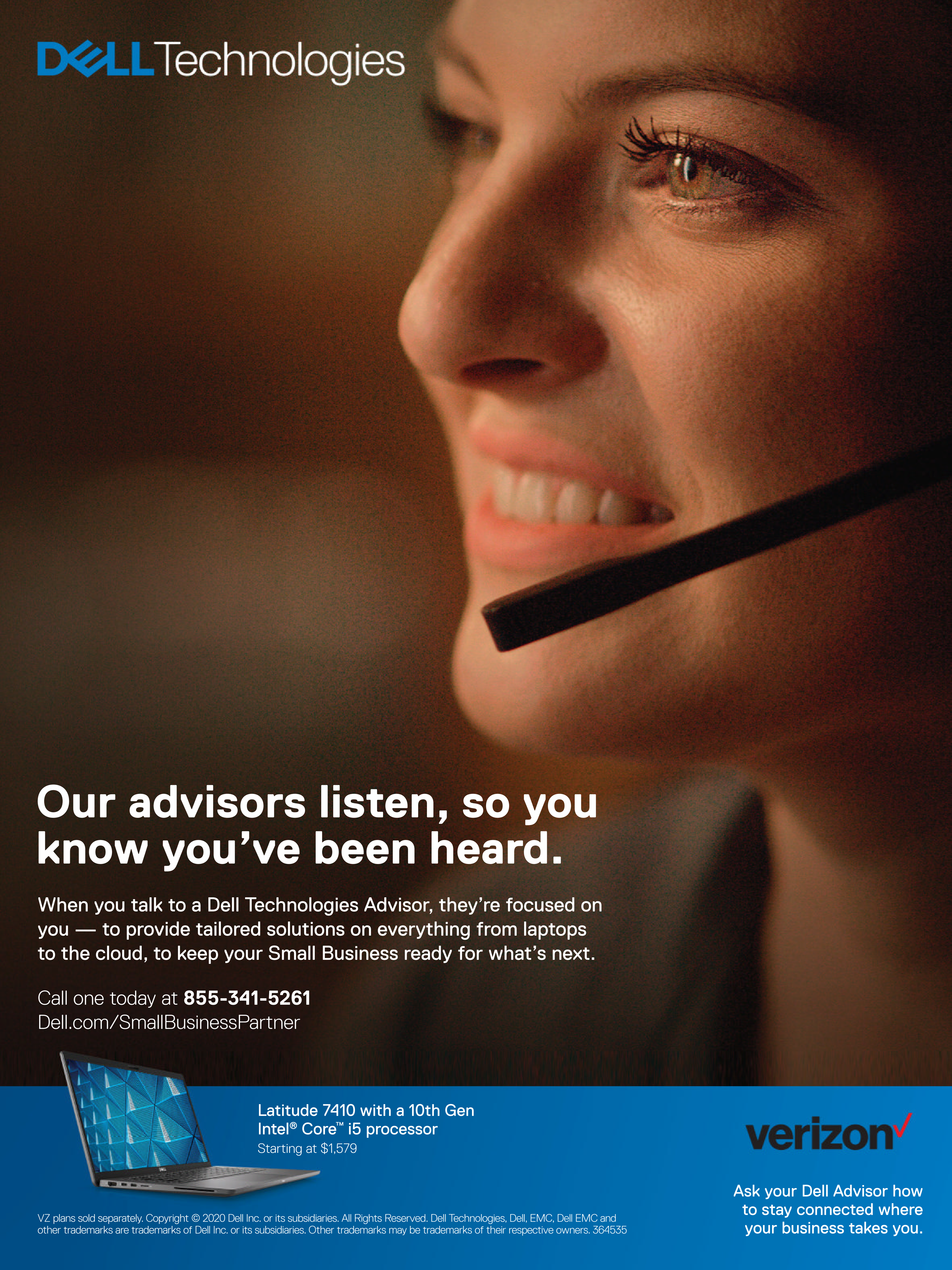
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The Forces COVID Can't Stop

THE DAY BEFORE this issue of *Fortune* went to press, the Bill & Melinda Gates Foundation released its 2020 Goalkeepers Report: the philanthropy's latest scorecard on the global war on poverty and disease. In a sea of disappointing numbers—and line charts bending the wrong way—one data point stands out as particularly alarming: The COVID-19 pandemic has thrust an additional 37 million people around the world into extreme poverty. In case you're wondering, the World Bank defines that threshold as living on less than $1.90 a day.

Those looking for a culprit here can blame a spiky virus around 100 nanometers in diameter. Until the SARS-CoV-2 pathogen spread around the world, we had been steadily making progress in the bulk of the United Nations' Sustainable Development Goals. But the pandemic—and the economic devastation it has wrought—has turned the clock back.

What it hasn't done, though, is stop innovation, or ingenuity, or the catalytic sense of optimism that so many problem-solvers bring to their day jobs. What the pandemic hasn't done is stop creative, ambitious business leaders from figuring out ways to fix what's broken, heal the sick, and clean up the planet.

That is the inescapable takeaway from this issue of *Fortune*; it's a message found in every story in our sixth annual Change the World package, which highlights companies that are finding ways to do well financially in the course of doing good (please see page 81). On this year's roster, of course, are a large number of companies that are tackling the biggest health crisis humanity has faced in memory—from those racing to develop a vaccine to those, like Alibaba (No. 2) and Henry Schein (No. 19), that are making sure frontline medical workers are protected. Chipmaker Nvidia (No. 4) is building sophisticated graphics processing units (GPUs) that are helping drug developers pinpoint molecules that might make promising medicines—and software that can spot COVID on a CT scan. Cemex (No. 39) is creating prefab hospitals that can be assembled in just 15 days. And Ushio (No. 40) is designing a new type of ultraviolet lamp that can kill dangerous microbes without harming human skin or eyes.

But these corporate innovators are taking on challenges that go well beyond the pandemic, too—focusing on job creation (see Walmart, No. 9), financial security (PayPal, No. 3), climate change (BlackRock, No. 5), food science (Green Monday, No. 32), and even mine removal (Grupo Energía Bogotá, No. 12).

For me, this list every year offers a jolt of confidence in humanity—a renewed sense that many of society's most unyielding problems can bend when enough creativity, leverage, and pressure are applied. As much damage as COVID has done to our health and economy this year, I'm counting on world-changing businesses, both on this list and as yet undiscovered, to get us back on track.

CLIFTON LEAF
Editor-in-Chief, Fortune
@CliftonLeaf

ILLUSTRATION BY SAM KERR

From tech star to public health czar: At 64, Bill Gates has already changed the world twice.

The Conversation

BILL GATES

The Microsoft cofounder and cochair of the Bill & Melinda Gates Foundation is spending much of his prodigious fortune [1] trying to change the world—by tackling the diseases that hurt the poorest of the poor. But this year, a generation's worth of progress is being threatened by a once-in-a-century pandemic. Can an all-in bet on science and innovation set us back on course? INTERVIEW BY **CLIFTON LEAF**

THIS EDITED Q&A HAS BEEN CONDENSED FOR SPACE AND CLARITY.

"People's attitudes towards masks and the vaccine will help determine how quickly we bring this pandemic to an end."

PHOTOGRAPH BY **SPENCER LOWELL**

PANDEMIC VS. PROGRESS

Since 2017, the Bill & Melinda Gates Foundation has issued an annual scorecard, called the Goalkeepers Report, on how we're doing in the fight against global poverty and disease. In the latest assessment, you began with words I'm guessing you've never uttered before: "This progress has now stopped."

GATES: Yes, the United Nations developed these goals for humanity, which are about basic needs: getting rid of extreme poverty, providing access to education and health care. And so that creates a framework for us to do a report card every year and try to highlight the countries that are doing things well—we call them exemplars—so that we can get others to adopt best practices. The visibility of gradual progress is very low: Since 2000, we've cut childhood death rates in half, for example, but the progress is mostly invisible to people. This year's report, however, is quite a contrast. Due to the direct effects of the pandemic, in terms of the deaths it has caused, but also due to its gigantic indirect effects on fragile health systems in the developing countries, we've regressed. So routine immunization rates, which we've worked to raise to 84% over the last 25 years, are down 14 percentage points in the past year. The pandemic has pushed almost 37 million more people into extreme poverty—until 2020, that number had been going down every year for two decades. [2] So the call here is to say, "Hey, we've got to bring this pandemic to an end." And then we have to work to catch up and get back to where we were at the start of 2020 on things like vaccination and education, so that we can resume that positive trajectory.

One opportunity for optimism, perhaps, is what seems to be a new wave of collaboration among companies in the wake of COVID-19. Is this new sense of shared purpose in the private sector real?

Well, the pharma industry is certainly stepping up to play their role. A lot of the big companies are agreeing to put their best people on both therapeutics and vaccines, so that's pretty spectacular. And that's why we have six vaccine constructs [methods of building vaccine], each of which could possibly be through an FDA Phase III clinical trial and receive an emergency-use license by early next year. The likelihood is that at least two, three, or four of those will probably prove to be both safe and efficacious. Then we'll be faced with the challenge of scaling up manufacturing to a completely unheard-of level. The form of cooperation that's never been done before is having a company that did not invent the vaccine provide its factories so that they can scale up that manufacture. Serum Institute of India, for example, has deals with AstraZeneca and [Maryland-based vaccine maker] Novavax. So we're facilitating those pairings because the Indian manufacturers are much higher volume. They've got 5,000-liter tanks and huge built-in extra capacity.

NEW THERAPIES

The Gates Foundation has also invested heavily in possible medicines to treat COVID-19. What progress are you seeing there?
So far, in the way of therapeutics, there's dexamethasone [a steroid hormone first approved by the FDA in 1958], which is the only treatment that has significant impact. Even [Gilead Sciences' antiviral agent] remdesivir, right now, is still showing pretty modest results. But there's a pipeline of things being tested, including a number of monoclonal antibodies [lab-produced proteins that act like human antibodies, homing in on specific targets], which have the best chance of having fairly dramatic outcomes. 3 We don't know for sure, but the cure rates could be very high, like 70% or 80%. Some of that data will start being published in the next month or two. The Gates Foundation reserved capacity at a factory owned by Fujifilm to manufacture an antibody product. We have to provide them with the thing by sometime in October, so we're scrambling. If the antibodies don't work out or if we don't have the right ones, then we'll lose some of that money. But that's fine, because the potential impact of having that capacity, which is significant, would let us get it out to developing countries without having just the rich

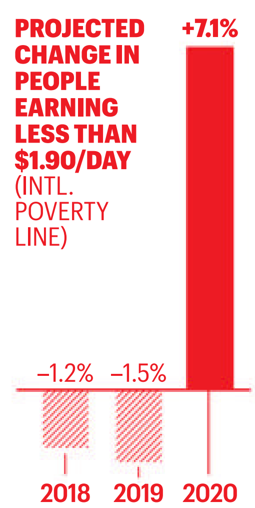
You're known for clearing time on your calendar for "Think Weeks," where you hole up in a cabin, read books, and ponder the world. Why is this so essential?

Adult life is so easy to fill up with activities. The ability to step back and read deeply or think deeply or write up thoughts is largely missing. And so I work hard on my schedule to make sure I'm not filling it up with too many things. It's been a little bit easier with no travel this year. So I think of myself as a student where I need almost like a reading period to consolidate my knowledge. It was particularly challenging when I was CEO of Microsoft. Eventually, I got to two weeks a year that I was setting aside. Since I retired from Microsoft in 2008, I don't have to do it necessarily as one block, a week at a time, but I do set aside lots of days, and then I say, "Did I write the memo that I intended to write?" The act of writing—when you try to explain it to someone else—is where you really are forced to think things through and not be sloppy in your thinking.

BETWEEN THE LINES

(1) Blank check: Since 1994, the Bill & Melinda Gates Foundation has awarded $54.8 billion in grants (through Q4 2019).

(2) A pandemic's economic fallout



SOURCE: GATES FOUNDATION

(3) Fast lane for meds: In March, the Gates Foundation partnered with the U.K. foundation Wellcome and Mastercard in a COVID-19 Therapeutics Accelerator designed to speed up—and scale up—the development of treatments.

countries take all that capacity just for their usage.

The Gates Foundation—in a similar vein as BARDA, the U.S. government's Biomedical Advanced Research and Development Authority—de-risks a lot of the riskier investments that private companies make for the common good. How else can governments encourage innovation on the more revolutionary fronts of science and medicine?
The U.S. is exemplary in this. We've got $42 billion a year of NIH money that often lays the research foundation for understanding the biology so that the product innovation can go on and companies can then develop medicines based on that biology. There is all sorts of friction about what drug prices should be, which is a big, complex topic, but the U.S. system—in terms of creating high-paying jobs and leading companies here and in getting the availability of new medicines to the U.S. very quickly—that's working pretty well.

You mentioned drug pricing. Can these COVID-19 vaccines and medicines be made cheaply enough that the world can afford them?
I have a regular discussion with the pharma CEOs. Their response to the pandemic and this great work that pharma people are doing has reminded many of their capacities and how they can be helpful to the world—as opposed to the industry being viewed as kind of selfish and uncooperative. In the last big, big health crisis we had, when the HIV epidemic came along, the industry didn't have a willingness initially to do tiered pricing, to get the drugs out to the developing countries [at prices they could afford], and they ended up in a lawsuit with former South African President Nelson Mandela. [4] Eventually, they did the right thing. And that's why I think the commitment today by some of these companies to put resources into the vaccine manufacture, and to do it on a nonprofit basis, is pretty valuable. [5]

(4) PR nightmare: In 1998, 39 multinational drugmakers sued the South African government (and Mandela, its former President) for circumventing patent protections on exorbitantly priced medicines for HIV/AIDS. The pharma companies would ultimately lose their legal battle—and much of their reputation.

(5) Rich and poor alike: AstraZeneca and Johnson & Johnson have promised to deliver vaccine on a nonprofit basis through the pandemic. More than 170 nations have signed on to a GAVI-led compact called the COVAX Facility, whose aim is to ensure that vaccines are distributed equitably around the world.

Death averted, compared with a no-vaccine scenario

SOURCE: GATES FOUNDATION

TRUST IN SCIENCE

It's hard enough producing enough safe and effective vaccines against COVID-19. Persuading billions of people to take them may be harder yet.
The issue is just basic trust—how do people think about vaccines? With all the conspiracy theories out there, you know, we've got a challenge with that—not just in the developing countries, but everywhere. The most extreme example was where the polio vaccine was said to be a plot to sterilize women in Nigeria in 2003. And sadly, that led to cases spreading to a dozen countries where the disease had been eliminated. [6] That was a huge setback. But there we got the trusted religious leaders to get the message out and give the vaccine

> "The likelihood is that at least two, three, or four [vaccines] will prove to be both safe and efficacious. Then we'll be faced with the challenge of scaling up manufacturing to a completely unheard-of level."

> "I'm talking to Warren [Buffett] actually more regularly this year than at any time during our friendship… He knows so much more about business, and he sees so much."

to their children, and so, eventually, we overcame that. Today, people's attitudes towards masks and the vaccine, will, in a concrete way, help determine how quickly we bring this pandemic to an end.

Speaking of conspiracy theories, there was an insane one floating on social media about *you*—that you had somehow created this pandemic. You're arguably the best-known champion of public health on the planet. How do you get past that sort of crazy?
Well, it's a new phenomenon. So I can't say I have some great solution or expertise. And even though it's so extreme—you could almost say it's humorous—it is potentially a real problem, particularly when you have some people turning it into a political thing and even talking about taking violent action. So, I'm just learning about this. And, I'm certainly surprised that the organization that's done more to save lives with vaccines is now being treated as though our goals are kind of the opposite.

Strangely, this is happening at a time when vaccine science in general seems to be advancing at breakneck speed. Can the race to create COVID vaccines help us develop one against, say, malaria?
We actually have a concrete project with Moderna to do a malaria vaccine construct using the messenger RNA platform [a method also being used for some COVID vaccine candidates]. That is somewhat interrupted by the pandemic, but it is an approach that we funded. We started backing these mRNA vaccines almost a decade ago. They are very promising and could be used potentially for HIV and tuberculosis as well.

BILLIONAIRE BROMANCE

The legendary investor Warren Buffett, who just turned 90, has entrusted much of his own fortune to your foundation. [7] What have you learned from him in your long friendship?
I'm talking to Warren actually more regularly this year than at any time during our friendship, which is almost 30 years now. And it's because of his ability to look at what's going on in the world and be fascinated and surprised. He and I sit and marvel over the unexpected things that are going on in many frameworks: political, macroeconomic, and in the world at large. He knows so much more about business, and he sees so much. Talking about, "Okay, are people buying furniture this year?" And the answer is yes, actually it's at higher levels than last year. And going through each of his businesses—where has he seen the demand, and why he thinks that is? Or talking about an Austrian 100-year bond selling at 88 basis points [8] and what that means. He hears a little bit from me on the digital realm, or about some of this health-related innovation, particularly related to the pandemic. But, you know, we never run out of things to talk about. He just brings such a sophisticated framework—and he always has this humility that goes with it, which makes it so much fun because he's having fun. He's also very careful about what he claims to know. You know, I'd rather talk to him about business and the economy than anyone else.

(6) Ending a scourge: The Gates Foundation has committed $5.5 billion to the global polio eradication effort.

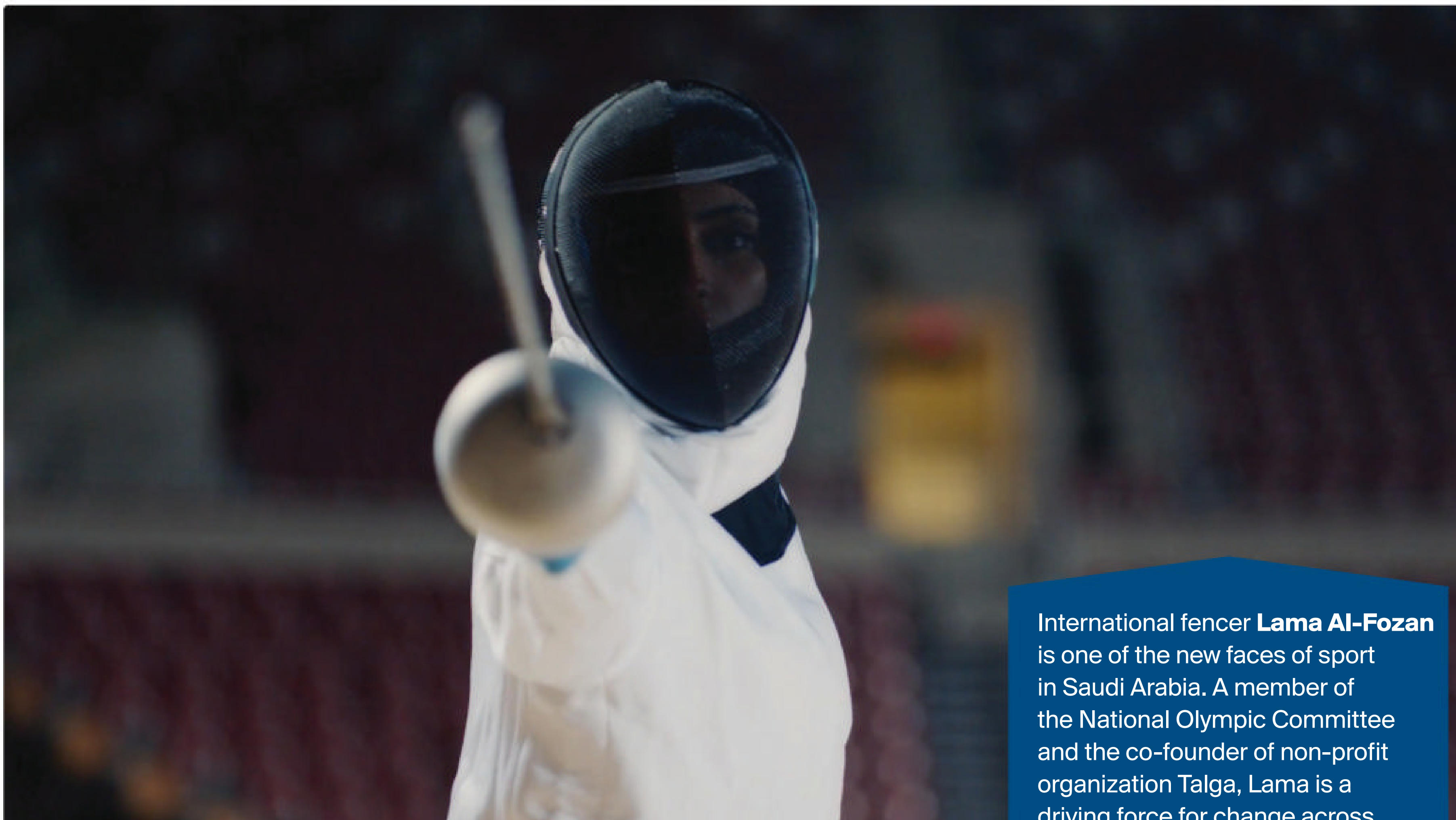
(7) Give it away now: In addition to committing 10 million shares of Berkshire Hathaway stock (in annual payments) to the Gates Foundation, Buffett joined with Bill and Melinda to launch the "Giving Pledge," an effort to encourage fellow billionaires to commit to giving the majority of their wealth to philanthropy.

(8) Long-lasting bond: In June, the Austrian government issued more than $2 billion worth of "century bonds," yielding just 0.88%. One hundred years may seem like a long time to wait for little gain—but with much of the world looking for safety, this auction was oversubscribed.


AI

CHANGE AGENTS

DREAM WITHOUT LIMITS



International fencer **Lama Al-Fozan** is one of the new faces of sport in Saudi Arabia. A member of the National Olympic Committee and the co-founder of non-profit organization Talga, Lama is a driving force for change across Saudi sports and society.

Of the three disciplines in Olympic fencing, the épée, foil, and sabre, the épée may be the most challenging. As well as using the heaviest blade, épée fencers need to develop expert defensive strategies and counterattacking skills, testing their physical and mental endurance to the limit.

Épée specialist **Lama Al-Fozan** has never shied away from a challenge. One of Saudi Arabia's leading female athletes, and a newly elected member of the Kingdom's Olympic Committee, Lama is playing a major role in increasing female participation in sports across the country, and helping to empower Saudi women from all walks of life.

"I am so proud of the female Saudi athletes that are coming through in many different sports," Lama says. "We did not have so many opportunities before, but things are changing fast, and the future for women in Saudi sports looks very bright."

In 2016 in Rio de Janeiro, a female fencer represented Saudi Arabia at the Olympic Games for the first time, competing with the foil. At Paris 2024 and Los Angeles 2028, Lama thinks the Kingdom will be a force to be reckoned with across a range of Olympic sports. "I have no doubt that women from Saudi Arabia will soon be competing for medals at the regional and global levels," she says.

As a member of the Athletes' Commission of the Saudi Arabian Olympic Committee, Lama is working to support the emergence of a new generation of elite sports talent. Meanwhile, partnering with the Ministry of Sports as regional director of sports initiative Master Me, she is creating opportunities for Saudis from all walks of life to use sports to express themselves and improve their health, well-being, and self-esteem.

"The whole ecosystem for sports in Saudi Arabia is growing very rapidly," Lama says. "There has been an incredible amount of change in the last two years. We are waking up the sleeping giant of the sports world."

How fast are sports growing in Saudi Arabia?
When I first started fencing, there were no facilities in Saudi Arabia, and women had to train outside the country. Since the launch of Vision 2030, the pace of change has been incredible. My fencing federation now has an eight-year plan

CULTURE OF TALENT

“

IN SAUDI ARABIA, WE ARE DEVELOPING A NEW AND INSPIRING GENERATION OF MALE AND FEMALE ATHLETES WHO WILL SOON BE CHALLENGING FOR MEDALS AT THE HIGHEST LEVELS OF COMPETITION.

–

LAMA AL-FOZAN, FENCER AND HEAD OF PARTNERSHIPS AND ALLIANCES, KAFD

”

and is training athletes to compete at Paris 2024 and Los Angeles 2028. The Ministry of Sports and the Olympic Committee are working hard to develop the sporting ecosystem and give ordinary Saudis more opportunities to participate in sports. There has been a huge improvement in the last two years.

Why do you think sports are so significant for the future of Saudi Arabia?
Nelson Mandela said that sports have the power to change the world. When you play sports, there is no discrimination; sports is all based on your capabilities, how well you play, and your ethics while you play. The values and the discipline that we learn in sports will be crucial to the new Saudi Arabia. Sports are also extremely important for girls, and can help give them self-confidence and improve their mental as well as their physical health. I have gone through many tough times in my life by picking up my sword, going to training, and blocking out all the bad things.

Tell us about your day job at the King Abdullah Financial District [KAFD] in Riyadh. How is life for women changing in the Saudi business world?
I am head of partnerships and alliances in one of the largest and fastest-growing financial centers in the world. That itself shows just how fast things are changing in Saudi Arabia. At KAFD, I can see more and more women in positions that used to be held only by men. I do not believe there is a glass ceiling anymore. I am confident that we have broken it.

We are making tremendous progress when it comes to female empowerment. In the last 15 years, 70% of all scholarships have been awarded to women. One of the main goals of Vision 2030 is to increase female participation in the workforce from 22% to 30%. We are seeing female leaders everywhere in the private and public sectors. There has been a massive change in mentality. This is our time to shine.

As well as these social changes, how is the Saudi economy transforming?
We have a young population—70% are under the age of 30—and we are tech-savvy, educated, and motivated. Male and female entrepreneurs will help us diversify away from oil and create a more dynamic, knowledge-based economy. It is an exciting time to be a Saudi.

You are also the co-founder of Saudi nonprofit organization Talga.
Four years ago, I participated in a special UN program for young people on developing an action plan for Sustainable Development Goal 1—to end poverty in all its forms everywhere. This inspired me to co-found a nonprofit initiative that looks for sustainable solutions to social problems within the Kingdom. We called it Talga, the name of a long-lived and very resilient fig tree that is common in southern Saudi Arabia.

Since we launched Talga, we have been involved in many campaigns, ranging from recycling initiatives to support for local artisans. The team is currently working on a campaign to help break taboos about mental health.

My father Abdullah Al-Fozan taught me to always believe in myself. I am passionate about helping people fulfill their potential, wherever they are. We should all try to live the best life we are capable of. In sports and in ordinary life, everyone should have the chance to reach for their goals.

Creating Brighter Smiles and a Better Future

By sharing its innovative recyclable tube technology with competitors, **Colgate** puts purpose over profits.

AS A CONSUMER GOODS BRAND USED IN more homes around the world than any other, Colgate embraces its many opportunities to make sustainability a household habit. The company recently debuted its 2025 sustainability strategy, a list of actionable goals designed with measurable targets in mind to help create a sustainable future—like saving water, accelerating action on climate change, and achieving zero waste. To achieve these goals, Colgate doesn't view sustainability as a separate track. Rather, the company embeds sustainability directly into its corporate strategies, consumer products, and business practices.

To understand just how serious the company is about sustainability as part of its overall strategy, look no further than Colgate's desire to achieve 100% recyclable, reusable, or compostable packaging by 2025. It has undertaken an enormous effort to meet that goal.

"Eliminating plastic waste is among our top priorities," says Ann Tracy, chief sustainability officer at Colgate. In the U.S. alone, more than 1 billion plastic toothpaste tubes are discarded each year, ending up in landfills. Colgate was determined to be part of the solution, so the company embarked on a five-year journey to develop a recyclable plastic tube—the first of its kind to be recognized by the Association of Plastic Recyclers, with whom Colgate worked closely during the lengthy technical design process. "Partnerships are vital to success in sustainability because solutions have to be effective, economical, and scalable. And companies and people have to want to adopt new practices or buy new products to see a significant impact," says Tracy.

Consider Colgate's recyclable tube, which is now used by the Tom's of Maine toothpaste brand and is being introduced for use by the Colgate Optic White toothpaste sub-brand and other Colgate sub-brands in North America. Perhaps most impactful is that Colgate is sharing its innovative technology with other companies, including competitors—demonstrating its commitment to sustainability by doing its part to create healthy, livable communities.

"We've been sharing our recyclable tube technology because we want all toothpaste tubes on the market to become recyclable," Tracy says. "Purpose-driven brands are good business. [Focusing on sustainability is] equally as good for business as it is for the planet." ■

THE BRIEF

BUSINESS. DISTILLED.

WORKFORCE

The Activist Employee Hasn't Gone Away

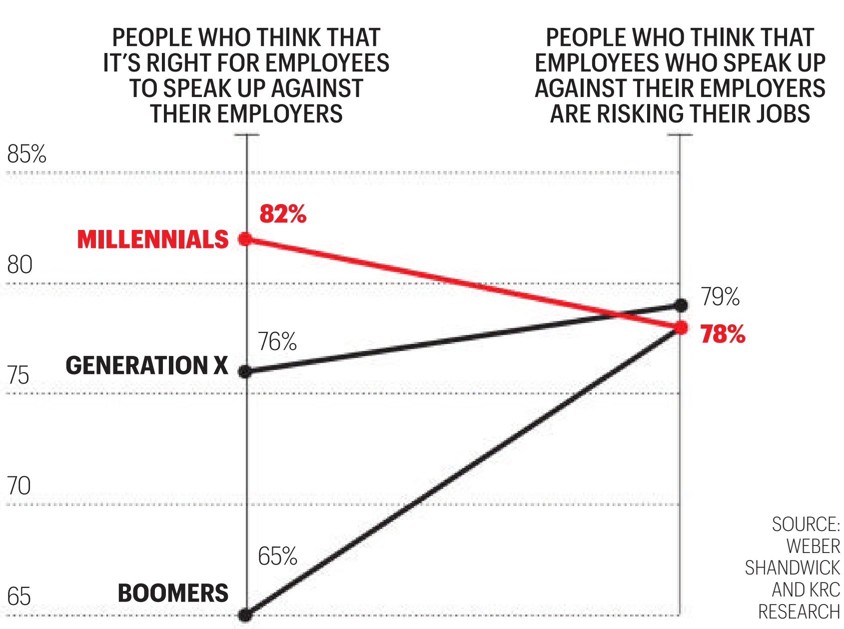
While the pandemic, election, and racial unrest in America have taken precedence, the trend in workers taking action against employers is here to stay. BY GEOFF COLVIN →

PHOTO ILLUSTRATION BY SELMAN DESIGN

As the election approaches, the building trend of employee activism against employers seems to be taking a benign turn—but don't imagine that America's employers and workers are now united in peace and love. While high-profile employee walkouts and protests have faded in the pandemic era, a new kind of friction, with higher stakes, is on the way. The election's outcome will strongly influence how it plays out.

The largest employee protests have shocked many. Last year some 3,000 Amazon employees walked out in opposition to the company's climate policy, and hundreds of Wayfair workers walked out to protest the company's sale of furniture to U.S. immigrant detention centers. In 2018 an estimated 20,000 Google employees marched to protest the company's generous severance payment to an executive accused of sexual misconduct. Such large-scale employee revolts over issues unrelated to pay, benefits, or working conditions were unprecedented. Something truly new was happening in the workplace.

OPINIONS ON EMPLOYEE ACTIVISM



Temporary factors have tamped down the activism so far this year. It's hard to organize attention-grabbing walkouts when everyone is working from home. In addition, intense social activism in the form of massive nationwide protests over racial inequities and police behavior have largely outweighed complaints against individual companies.

At least for the moment, hundreds of companies have also found a welcome way to unite employee activism with corporate purpose. They're offering incentives for employees to vote and facilitate voting (see sidebar). Workers and employers are likely relieved to be collaborating on what they agree is good for the country.

Such amity is only a lull, however, as these two groups work out the terms of a new relationship. "Employee activism has become normalized," says Leslie Gaines-Ross, who recently left the Weber Shandwick communications firm after 14 years there researching corporate reputation and, more recently, employee activism. "It's now permissible to take sides on social and political issues. Everyone is taking sides—CEOs, coaches, Nobel Prize winners. It's normal today."

Still, it's one thing to take sides, another to carry placards down the street denouncing your employer for behavior that doesn't affect your paycheck or safety. Recent research from the University of Southern California finds that most companies aren't prepared for such baffling behavior. In a survey of public relations executives, most said their companies have no policies on employee activism, and most don't even know whether their companies support employee involvement in activist activities.

Today's employee activism is explained in part by the psyche of millennials, for whom such seemingly bizarre behavior doesn't seem bizarre at all. They're just as aware as their elders that it risks getting them fired, says 2019 research from Weber Shandwick. They just don't care as much.

The reason is that, on average, millennials much more than previous generations value working for a company with a noble mission, recognized for making a positive impact on society. Research from Deloitte finds that 80% of them say they'd be more motivated working for such a company. Because so many of them feel that way, working for one of those companies gives them prestige among their peers.

Result: For millennials especially—and increasingly for workers of all ages—an employer's behavior in the larger world is part of the employee's working conditions. It isn't irrelevant. It's the kind of thing for which workers go on strike.

That fact has been noticed by organizations that help workers go on strike, labor unions. Employee activists "see the value of collective action. It makes their voices more powerful," says Elizabeth Shuler, secretary-treasurer of the AFL-CIO. When an Amazon activist group, Amazon Employees for Climate Justice, held an online conference in April, a key speaker was AFL-CIO president Richard Trumka, the most powerful person in U.S. labor.

Organizers of the walkouts at Amazon and Google have conferred with officials of various unions—which group initially approached the other is not clear—and have met with other employees about potentially unionizing. Google executives have met with IRI Consultants, one of the many firms that advise companies on how to prevent unionization, and the company fired some of the activists for violating corporate policies. (Firing someone for advocating unionization is illegal.)

Amazon has also fired employee activists, a move that CEO Jeff Bezos defended at the company's annual meeting in May. "We support every employee's right to criticize their employer's working conditions," he said, "but that also doesn't mean that they're allowed to not follow internal policies."

The almost entirely nonunionized big tech firms are far from the only ones with activist employees, but they are the most prominent. For them especially, employee activism could evolve into a fight over unionization. "The tech industry is the next frontier for the labor movement," says the AFL-CIO's Shuler. In January the Communications Workers of America launched the Campaign to Organize Digital Employees (CODE). Its initial targets are the video game makers.

Success for the established unions is not assured. While a Biden victory in November would strengthen their position enormously, many tech workers and millennials are leery of unions as relics of a bygone age. And some successful companies—think of Nike and Patagonia—have embraced employee activism and even led it, to their benefit. What seems certain is that such activism will continue to grow, bumping up uncomfortably against the hard realities of running a business. ■

COURTESY LEVI STRAUSS & CO

By early September, Time to Vote had recruited 350,000 poll workers.

BIG BUSINESS FOR THE CIVIC GOOD

Time to Vote wants employers to pay their workers for time they spend voting and volunteering on Election Day. It's had an astonishing effect on poll worker recruitment.

It's a striking new phenomenon in this election year: More than 900 companies are offering to pay employees for the time they spend voting in November, and in many cases for staffing polling places. The catalyst is Time to Vote, a nonpartisan, business-backed nonprofit formed in 2018 by Levi Strauss, Patagonia, PayPal, and other major corporations. In this year's combustible political atmosphere, its uncontroversial purpose has struck a chord. It also alleviates a COVID-19 problem: Many poll workers are elderly and shouldn't spend a long day interacting with thousands of strangers. Time to Vote set a goal of recruiting 250,000 poll workers this year. By early September it had recruited 350,000.

THE AGILITY ADVANTAGE

SUPPLY CHAIN FLEXIBILITY IS KEY DURING THE PANDEMIC AND BEYOND.

SUPPLY CHAINS ENDURED AN UNEXPECTED STRESS test this year, courtesy of the COVID-19 pandemic. Gaping vulnerabilities came to light when demand went haywire, assembly lines shut down, and scores of warehouses were unequipped to handle an e-commerce surge.

Now, as companies navigate still-choppy waters and look ahead to the post-pandemic future, they're rethinking supply chains to incorporate greater agility.

"As the pandemic starkly brings risks to life, it transforms the way companies think about supply chains and the logistics of connecting them," says the 2020 State of Logistics Report, released in June by the Council of Supply Chain Management Professionals (CSCMP). "A pendulum that once swung toward ultra-efficient, single-source, just-in-time supply chains will swing back for flexibility to avert risks."

Industry leaders have learned what's needed the hard way. In the second quarter of 2020, a McKinsey & Company survey of 60 senior supply chain executives found 85% struggled with insufficient digital technologies during the pandemic. Seventy-three percent ran into sourcing woes, while 75% reported problems with production and distribution.

Now almost all (93%) have resolved to make their supply chains more resilient. Action items on corporate agendas include multi-sourcing of raw materials, moving production closer to end markets, and boosting inventory levels, especially in key locations.

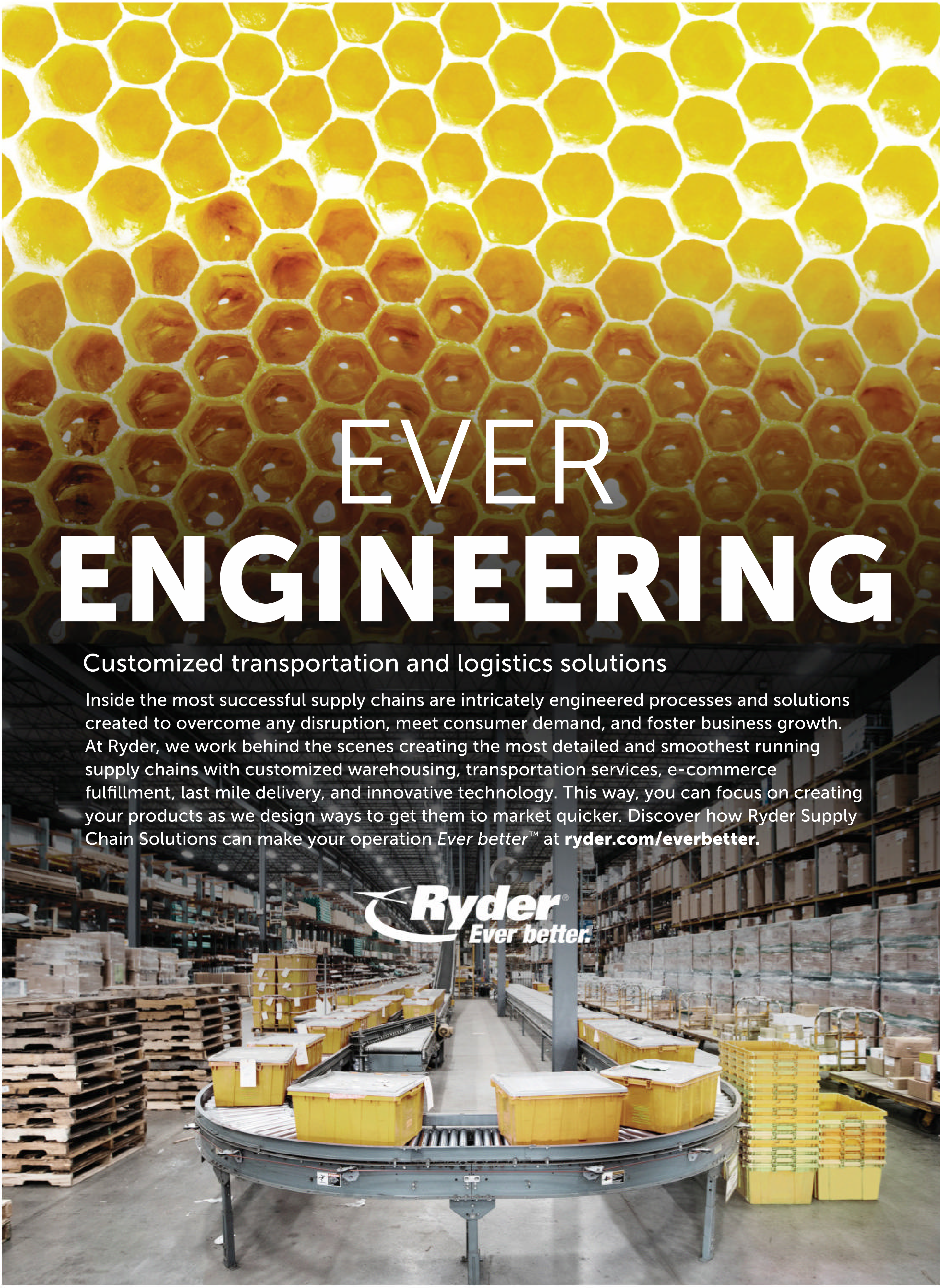
"Companies are realizing that if you can't get your product, it doesn't matter how much you saved [by sourcing it overseas]," says Steve Sensing, president of global supply chain solutions at Ryder, a leading North American provider of logistics and transportation services. He says companies are exploring alternatives, including sourcing from Mexico, where Ryder vehicles make more than 20,000 border crossings each month.

The good news is supply chains were already evolving in the right direction, says CSCMP president and CEO Rick Blasgen. Logistics specialists have long been adapting to trends that are only accelerating during the pandemic, he says, such as nearshoring, automation, e-commerce, and digitally tracking freight.

But applying today's technologies could require some fresh thinking, especially as geopolitical concerns and trade wars take a toll.

"More and more companies are concerned that now the government will say, 'Nope, you can't go produce that in China,' and that that may happen with other countries as well," Blasgen says. "You may not want to put your strategic items in those locations any longer."

Agility means being able to pivot quickly when plans get upended, as happened so dramatically when COVID-19 hit the U.S. And new supply chain management tools are enabling decision-making based on real-time information. For instance, Do It Best, a hardware chain based in Fort Wayne, Ind., was able to keep shelves stocked during the pandemic by using RyderShare™, a digital



platform that lets customers and carriers track shipments and adjust plans for managing inventory in real time.

Manufacturers also needed nimble partners to replenish bare shelves. Makers of paper towels, for instance, relied on Ryder to deliver straight from factories to grocery stores, bypassing distribution centers during peak demand. "Circumventing two or three steps out of the supply chain allowed all of us to be able to get that product in stores," Sensing says.

Warehousing, too, is poised to play a key role in the future. Having experienced shortages during COVID-19, companies are now stockpiling larger inventories to ensure they don't get caught short again, according to the 2020 State of Logistics Report. And with e-commerce sales now projected to climb by $900 billion over the next five years, JLL predicts more than 1 billion square feet of industrial real estate will be needed by 2025 just to handle the needs of e-commerce.

Yet rather than build or buy their own facilities, companies are finding the scale and flexibility they need by tapping into underutilized warehouse capacity. Flowspace, a three-year-old tech startup with offices in Los Angeles and Cincinnati, uses a cloud-based logistics platform to link businesses with the types of spaces they need. Many in its network of more than 1,500 warehouses are e-commerce equipped, temperature-controlled, or otherwise outfitted to suit specific needs in strategic, downstream locations. With no long-term leases, companies can follow the data that Flowspace collects and place the right amount of product where it's needed, near consumers who will buy it.

"Offering flexible warehouse solutions to merchants around the country also enabled a lot of other things that people needed, like fulfilling inventory quickly," says Jason Harbert, cofounder and chief technology officer of Flowspace.

The pandemic has taught that rigidity brings risk, especially when it prevents adjustments to new market conditions. Business leaders are taking that lesson to heart—and they have nimbler supply chains to show for it. ■

COURTESY OF BRIDGEWATER ASSOCIATES

THE NEW OFFICE

A HEDGE (FUND) IN THE FOREST

RAY DALIO FOUNDED BRIDGEWATER ASSOCIATES UPON THE PRINCIPLE OF "RADICAL TRANSPARENCY." THIS PROBABLY WASN'T WHAT HE HAD IN MIND.

By Jen Wieczner

OUT AMONG the pine trees across from Bridgewater Associates' headquarters in Westport, Conn., sit as many as 50 employees who help manage the $140 billion in assets of the world's largest hedge fund.

Tracking the coronavirus, Bridgewater had shut its offices to all but essential staff at the end of February. But a couple of months later, missing in-person teamwork, it sought to reopen them. Staffers soon realized they could not collaborate inside. "I was like, we got to take the masks off," says Nir Bar Dea, cohead of Bridgewater's investment engine. The multitude of safety protocols were "more stressful than calming," he adds. "The move outside just flipped that completely."

While everyone on campus takes COVID-19 tests twice a week, masks are not required out in the woods, where furniture is spaced well apart. The firm's team quickly assembled open-sided tents as shelter from the elements, upgraded the Wi-Fi, and procured additional kayaks for socially distanced recreation. Bridgewater's famous Monday morning meeting now includes 25 people congregated under the main meeting tent, plus more than 100 others Zooming in on the large screen mounted to its side. For employees irritated by feathered neighbors chirping during video calls, Bridgewater deployed noise-canceling software Krisp, which also helps those with kids and barking dogs at home.

The team plan to work alfresco as long as they can, whether in parkas and hats, until the end of October, they estimate. After all, productivity metrics for the investment engine have improved since the move; the group intends to use the woodsy workspace next summer too.

AUTOS

Ford, Just Admit It: You're a Truckmaker Now

A new CEO in Dearborn can reverse trajectory by focusing on what Ford does best. BY SHAWN TULLY

Ford's production lines returned to full capacity in June after three months of lockdown.

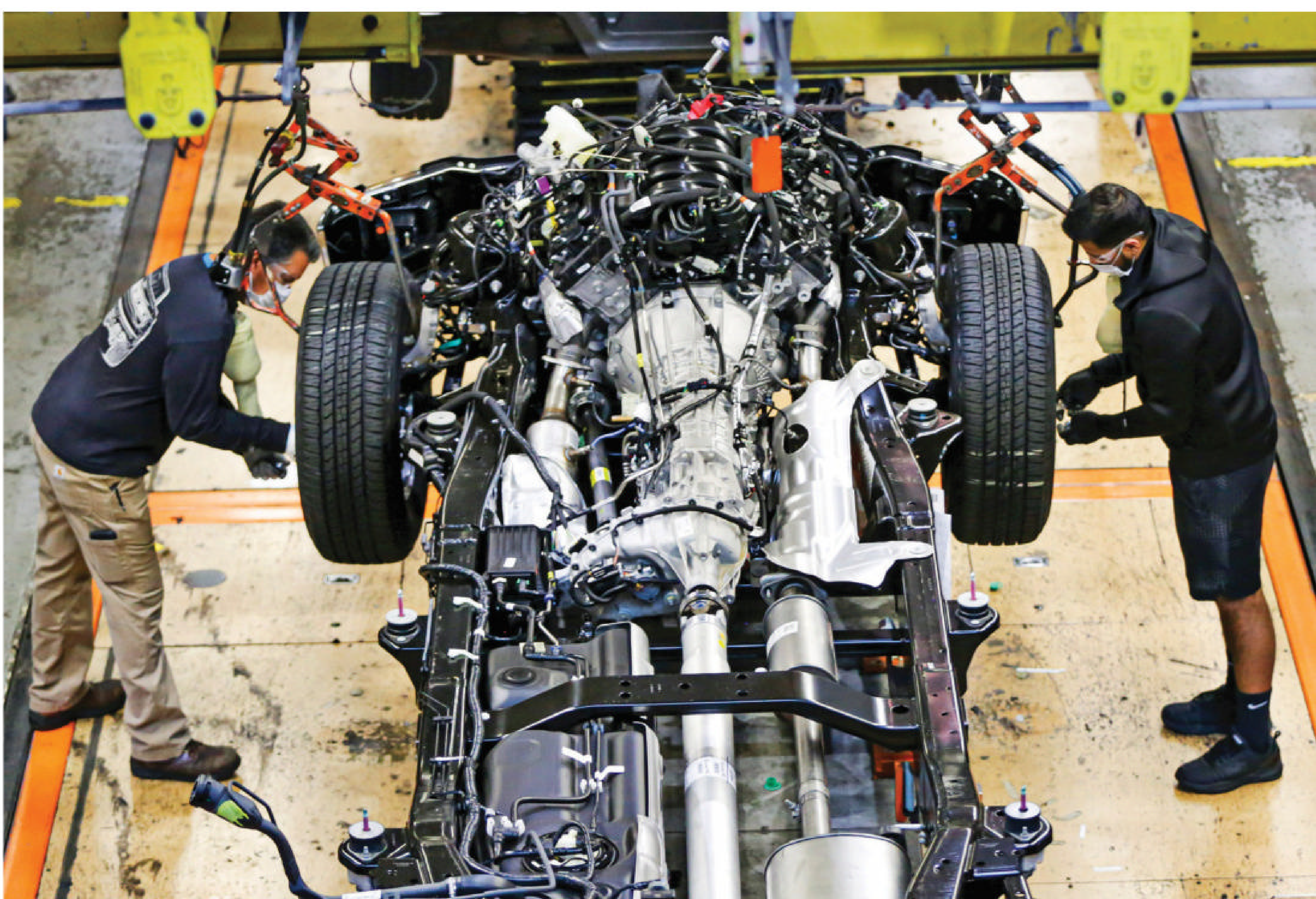
FORD MOTOR CO. prides itself on thinking big. The 117-year-old icon's long-running strategy centers on preserving its status as a universal nameplate serving all the world's major geographies and offering a wide array of vehicles from subcompacts to luxury SUVs, in a variety of flavors soon to widely encompass electric.

But it's a company that's sliding: After posting $7.4 billion in profit in 2015, Ford's earnings barely broke even last year, and that was before COVID-19 and its subsequent lockdowns took a sledgehammer to its North American profitability. In the second quarter of this year the company lost nearly $1 billion in the region. Jim Hackett was ousted as CEO shortly after, and a new round of buyouts was announced.

New CEO James Farley, who was promoted from chief of operations, has a monumental challenge on his hands but also has everything he needs to make Ford a success, if he's willing to make some hard choices around product and strategy.

So what should Ford look like in 2021 and beyond? *Fortune* spoke to analysts and industry experts and studied Ford's public filings to assemble a plausible blueprint for its revival.

Farley has a rare opening to seize the moment. The pandemic's onslaught makes investors a lot more tolerant of tough decisions that cause short-term pain but build on what makes money, shelves losers, and jettisons lofty ambitions.



This is a crisis Ford can't afford to waste.

Junk more unprofitable models in North America

▶ For years, North America has been Ford's only consistently profitable market. "But margins there have been falling, and are well below where they need to be," says Stephen Brown, an analyst with Fitch Ratings. The big problem is a cost base that jumped $8.3 billion from 2016 to the end of last year, outpacing sales increases of just $5.5 billion; that combination shrank margins from over 10% to just 6.7%. In mid-2018, Ford announced an $11 billion worldwide restructuring plan aimed at securing bigger, better deals with suppliers, automating production by adding fleets of robots, rightsizing its workforce, and phasing out nearly all traditional passenger cars in North America.

But the company will see greater wins by winnowing the portfolio to three high-margin franchises, two of which are growing fast.

The first, and by far the biggest, is the F-series pickup. Last year, Ford sold an astounding 897,000 F-series trucks, led by the F-150, America's bestselling vehicle. The much-hyped electric F-series, which could be unveiled as soon as next year, is going to be a make-or-break addition to a line that constitutes 40% of Ford's total domestic sales.

The second category encompasses "commercial vehicles" or CVs, its Transit-brand vans used by businesses from couriers to carpenters, as well as boxy passenger versions that are the successors to the old Econoline models. Like the F-series, they boast double-digit margins according to Wall Street analysts.

The third category, SUVs, are a tougher call. Last year, Ford sold 831,000 in the category including the Escape and Explorer in the U.S., but its sales and market share are dropping, the latter falling from 12% in 2015 to just under 10% in 2019.

Still, SUVs are a promising business stateside. They're generally high-priced, lucrative products, and even if they don't grow much, can remain so. That's because key models share the "body on frame" architecture and are produced on the same platforms as the trucks that Ford manufactures in gigantic volumes, lowering unit costs. The new Bronco SUV shares the same chassis, and many other parts, with Ford's second pickup brand, the Ranger, and is being made alongside its cousin in Wayne, Mich. The Expedition, its largest SUV, and the high-end Lincoln Navigator use the same underpinnings as the F-150. By contrast, two of the smaller models, the EcoSport and Escape, employ a different system called "unibody," and hence don't offer the same economies. "Ford should phase out the EcoSport and Escape, which are low-margin anyway," says Jon Gabrielsen, an industry consultant. Put simply, Ford can prosper if it speeds faster on the same route by shedding the marginal SUVs and hitting the brakes on costs.

In Europe, get out of sedans and go all-in with vans

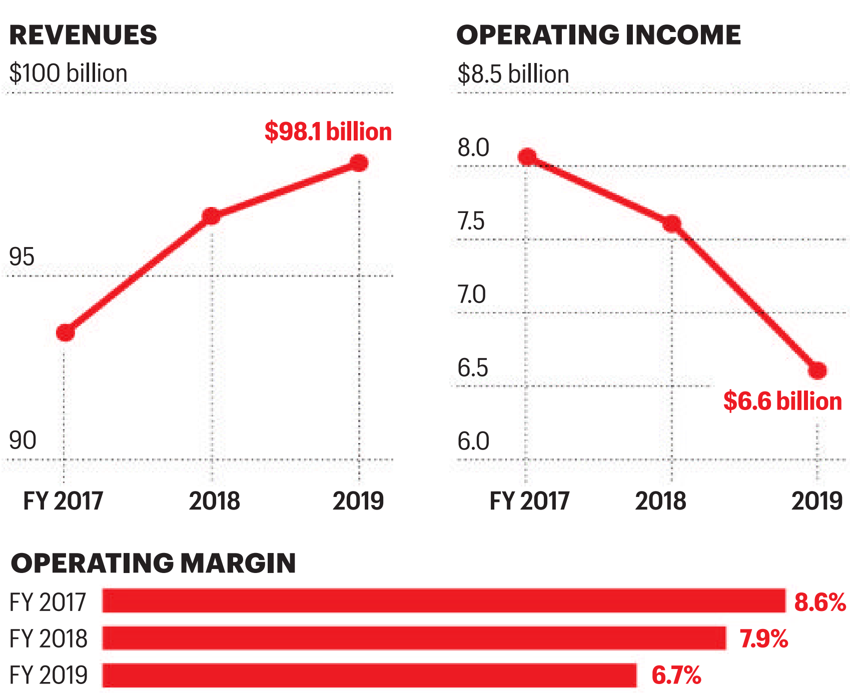
▶ Ford's biggest problems lie overseas. If the automaker could simply sell its foreign operations to a rival at no gain, its road to success would be far shorter and straighter. Ford should leave South America as quickly as possible. Its operation there, serving mainly Brazil and Argentina, hasn't earned its cost of capital in decades.

In Europe, where GM wisely withdrew via a sale to Peugeot in 2017, Ford is pledging to downsize its line of low-margin, high-volume passenger vehicles and invest heavily in growing its star performers, commercial and passenger vans. This doesn't go far enough.

Ford should focus on dominating the van market. The company is

FORD NORTH AMERICA AUTOMOTIVE SALES

MANUFACTURING AND SERVICING OF FORD AND LINCOLN VEHICLES



SOURCE: SEC FILINGS

NEW CEO JAMES FARLEY HAS A RARE OPENING TO SEIZE THE MOMENT. THIS IS A CRISIS FORD CAN'T AFFORD TO WASTE.

CHARLOTTE SMITH—FORD MOTOR CO.

the market-share leader in commercial vehicles in Europe at 15.1%. Sales are growing, hitting over 264,000 vehicles last year, and according to industry experts, its Transits are generating double-digit margins.

Achieving large-scale production is crucial to keeping its lead in vans. A new joint venture with Volkswagen should help a lot. VW has pledged to source commercial vans in Europe and a pickup based on the Ranger for all markets engineered and manufactured by Ford.

But in shrinking its passenger vehicle lineup, Ford will no longer benefit from scale in engineering and purchasing, and thus won't be able to keep costs competitive. It needs to get out of this segment entirely.

The picture for SUVs is cloudier. Last year, Ford sold just under 300,000 SUVs in the U.K. and on the Continent, largely manufactured in the region. Unlike the situation in sedans, Ford is designing and making large volumes of the same SUVs in the U.S., some sharing platforms with its F-150s. So Ford would achieve economies by continuing to manufacture and sell the most popular models in Europe.

Scale back China ambitions and play to your strengths

▶ Just five years ago, Ford was on a roll in China, holding an almost 5% market share and generating $765 million in pretax profits on $10.7 billion in sales. (Earlier figures are for the Asia-Pacific region, heavily dominated by China.) A stunning free fall ensued, erasing all earnings by 2019 and sending revenues plunging 35%, to $7.0 billion. Fortunes improved in the first half of 2020 with the introduction of new versions of the Ford Escape and Lincoln Corsair SUVs. But its market share is still just 2.5%, and it faces obstacles similar to those in Europe: A heavy dependence on low-margin passenger cars, and the challenge of achieving volumes big enough to compete on sedans and SUVs.

Though Ford doesn't disclose the exact breakdown, *Fortune* estimates that of the 159,000 vehicles that Ford sold in China in Q2, roughly half were sedans, led by the midsize Focus and compact Escort, and SUVs. As in Europe, China is moving rapidly to EVs. Undaunted, Ford is pledging to introduce 30 new models over the next three years, 10 in all-electric versions. But China has over 400 domestic producers vying for that market. And EVs for now are far less profitable than conventional vehicles, because battery costs remain elevated, while volumes remain too low.

That doesn't mean that Ford should abandon China. Rather, it should once again play to its strengths. Its light commercial vehicles are big hits in China, just as in Europe. Ford should transform itself into a specialty manufacturer concentrating on vans and small pickups. Its growing output in the U.S. and Europe, including in new EVs, will help provide the scale essential to winning in the world's largest auto market. It's also starting with fat margins in those vans and pickups, which should ease the transition to EVs.

As sales shrink, costs need to keep pace

▶ A New Ford that's resized and profitable might be two-thirds as big as the current model, meaning that sales would shrink from $156 billion last year to around $100 billion. But that template can work only if Ford crunches overhead. Since it would be shifting to a mix of much higher-margin products, the automaker wouldn't need to lower costs quite as fast as sales to become far more profitable. But the transition would still be brutal. Entire engineering and sales teams behind axed models would have to go en masse.

Ford has a core of great products that are being diluted by trying to do too much in too many places. A daring plan for downsizing would mean the end of the global empire of old, but it could ensure that the blue oval survives on what Ford does best. ■

COURTESY FORD MOTOR CO.

THE NEW BRONCO IS AN EXAMPLE OF EVERYTHING FORD IS DOING RIGHT

SHARED PLATFORM
The engineering platform, chassis, and several parts for the Bronco are shared with Ford's new Ranger pickup truck, which has already proved to be a hit seller.

BANKABLE NOSTALGIA
Ford isn't afraid to look to the past and trade on nostalgia—take the Ford GT and its entire Mustang line for evidence. But with the Bronco that nostalgia is paired with a practical vehicle, and one that will appeal to younger drivers.

GENUINE PERFORMANCE
The Bronco is going right up against the proven off-road credentials of the Jeep Wrangler, and only by beating the Wrangler will it succeed in the market. The released specs show Ford is taking this fight very seriously.

BEST WORKPLACES

Blue Ribbons for Blue- and White-Collar Work

Two new rankings recognize great workplaces in all kinds of industries.

BY BROOKE HENDERSON

FORTUNE **PARTNERS** with research and analytics firm Great Place to Work to analyze feedback from more than 4.7 million workers, creating annual lists of workplaces that many employees never want to leave. GPTW surveys measure factors like the level of trust between colleagues and the opportunity to reach full potential—identifying companies that excel, across industries.

At the top of this year's list of best workplaces in manufacturing sits a familiar name: Stryker. The medical device company tops the large-company segment for the fifth time in seven years. Stryker shows a commitment to diversity in both hiring practices and partnerships. In 2018 alone, it spent over $228 million with businesses owned by people of color, women, and veterans.

Among the best large companies for women, financial services powerhouses like Pinnacle Financial Partners and Edward Jones return to the top 10. Giant retailer Target, meanwhile, reported that nearly half its 1,800 stores are run by women, with more strides to come. Visit Fortune.com for full lists of the world's top employers.

BEST WORKPLACES FOR **WOMEN**

		HQ	U.S. EMPLOYEES	WOMEN EXECUTIVES
01	HILTON	McLean, Va.	55,281	33%
02	ULTIMATE SOFTWARE	Weston, Fla.	5,099	43%
03	TARGET	Minneapolis	N.A.	41%
04	PINNACLE FINANCIAL PARTNERS	Nashville	2,397	19%
05	EDWARD JONES	St. Louis	46,572	22%
06	WEGMANS FOOD MARKETS	Rochester, N.Y.	49,018	27%
07	NOOM	New York City	1,140	13%
08	CISCO	San Jose	38,990	21%
09	PROGRESSIVE INSURANCE	Mayfield Village, Ohio	39,966	N.A.
10	NEW AMERICAN FUNDING	Tustin, Calif.	3,167	53%

BEST WORKPLACES IN **MANUFACTURING**

		HQ	U.S. EMPLOYEES	WORK SITES
01	STRYKER	Kalamazoo, Mich.	18,244	120
02	JM FAMILY ENTERPRISES	Deerfield Beach, Fla.	4,247	26
03	HILCORP	Houston	2,292	30
04	W.L. GORE & ASSOCIATES	Newark, Del.	7,451	37
05	MARS	McLean, Va.	14,039	67
06	ARTHREX	Naples, Fla.	3,451	9
07	SCHNEIDER ELECTRIC HOLDINGS	Boston	16,312	194
08	REYNOLDS AMERICAN	Winston-Salem, N.C.	5,023	N.A.
09	AMEREN CORP.	St. Louis	N.A.	189
10	COOPERCOMPANIES	San Ramon, Calif.	2,571	17

ILLUSTRATION BY SAM PEET

Small business is no small task.
So Progressive offers commercial auto and business
insurance that makes protecting yours no big deal.
Local Agent | ProgressiveCommercial.com
Progressive Casualty Ins. Co. & Affiliates. Business and Workers' Compensation coverage provided and serviced by affiliated and third party insurers.
PROGRESSIVE
COMMERCIAL

Cofounder Jack Ma celebrates Alibaba's IPO on the New York Stock Exchange in 2014.

SCOTT EELLS—BLOOMBERG VIA GETTY IMAGES

FINANCIAL MARKETS

An IPO Coup for the Trade War Age

The debut of China's Ant Group is expected to break IPO records. But rather than list in New York, Ant is going public at home.

BY NAOMI XU ELEGANT

ON THE MORNING of Sept. 19, 2014, the opening bell rang in the New York Stock Exchange, and a crescendo of cheers, whistles, and applause erupted on the crowded trading floor. Alibaba Group, the Chinese e-commerce giant that Jack Ma founded in 1999, had broken the record for the largest initial public offering in history.

As the bell clanged in Manhattan, fireworks exploded in the night sky above Alibaba's headquarters in Hangzhou, China, where hundreds of company employees had gathered outdoors in the rain for the occasion. A live feed of the exchange floor played on a huge screen, framed by a replica NYSE facade.

Alibaba's IPO raised $25 billion, and a NYSE press release touted it as "emblematic of the truly global nature of capital markets."

Six years later, Jack Ma may again see a company he founded break the record for the largest IPO in history. This time, though, the experience won't have an American flavor.

Chinese fintech firm Ant Group is going public in an IPO that analysts say could raise as much as $30 billion and occur as soon as October. (Ant didn't disclose its listing date or how much it aims to raise in its IPO prospectus. Ant declined to comment.)

Ant runs Alipay, the world's biggest mobile payment platform. In June, 711 million people used Alipay. The platform is central to consumers and businesses in China, where credit cards never really took off and even cash has become scarce. Ant's rapid growth since its 2014 launch helped it soar to an estimated value north of $200 billion, for which it's considered the world's most valuable privately held "unicorn."

If Ant breaks the IPO record, the festivities will be limited to a single time zone: Ant, based in Hangzhou, is going public with dual listings in Hong Kong and Shanghai. It has shunned New York altogether.

If Alibaba's groundbreaking IPO represented the exuberant global mood of capital markets in 2014, Ant's debut is the most high-profile reflection yet of how those same markets are now drifting apart.

The U.S.-China feud in recent years has escalated from gripes about trade into a full-throttle campaign by the Trump administration to sever the ties that bind the world's two largest economies. The effort has reached the U.S. markets, and some U.S.-traded Chinese firms have opted to delist in take-private deals or pursue secondary listings closer to their home markets.

In June, NYSE-listed Chinese car-listings site Bitauto announced a $1.1 billion deal to go private. That same month, China's biggest online classifieds firm, NYSE-listed 58.com, said it would go private in an $8.7 billion deal. Hong Kong–listed Chinese chipmaker SMIC delisted from the NYSE last year and listed in Shanghai in July in China's biggest IPO in a decade.

"In the past two years, the odds for [Ant] listing in New York have just been getting lower," says Bruce Pang, head of macro and strategy research for China Renaissance Securities. "It has to be thinking about all these uncertainties and risk factors."

Those "uncertainties" include a bill, passed unanimously in the Senate in May, that would give the Securities and Exchange Commission the power to delist from U.S. exchanges foreign companies that don't comply with U.S. auditing requirements. The bill mandates that certain foreign firms disclose whether Chinese Communist Party members sit on their board, information that China's state secrets law prohibits domestic firms from sharing. Bill sponsor Sen. John Kennedy (R-La.) said it's aimed at stopping Beijing "from cheating on U.S. stock exchanges."

In August, Treasury Secretary Steven Mnuchin recommended that the SEC delist companies that don't cooperate with U.S. accounting rules as soon as the end of 2021—an even earlier timeline than the Senate bill proposed.

Ant itself has already hit a wall in Washington. It tried to buy U.S. money transfer company MoneyGram to expand its presence in the U.S. and diversify a business that is overwhelmingly China-based. U.S. regulators blocked the $1.2 billion deal over national security concerns in January 2018.

"IN THE PAST TWO YEARS, THE ODDS FOR [ANT] LISTING IN NEW YORK HAVE JUST BEEN GETTING LOWER. IT HAS TO BE THINKING ABOUT ALL THESE UNCERTAINTIES AND RISK FACTORS."

Ant experienced these "attacks on Chinese companies, particularly tech companies," says Xiaomeng Lu, senior geo-technology analyst at political risk consultancy Eurasia Group. "That's why Ant decided, 'We don't have a big market in the U.S.; we are not raising money in this capital market; we should look at other options for our [IPO].' "

People familiar with the matter said a dual listing in Hong Kong and Shanghai was Ant's first choice for an IPO.

It's not just that the U.S. has become inhospitable to Chinese firms like Ant, it's that markets on Ant's home turf are increasingly friendly. Shanghai's Nasdaq-style STAR Market, where Ant will list, launched in 2019 with relaxed listing criteria to attract tech firms. On July 22, the Shanghai Stock Exchange added STAR-listed firms to its Shanghai Composite Index calculations to reflect the growing clout of tech listings.

After missing out on Alibaba's massive 2014 IPO, the Hong Kong Stock Exchange in 2018 reformed some listing criteria to lure tech companies, like allowing companies with a weighted voting-rights structure to list and letting "innovative" Chinese companies listed overseas to pursue secondary listings in Hong Kong.

The recent changes in Hong Kong and mainland exchanges have made listing there "less complicated and less time-consuming," Pang says, adding that a closer-to-home listing could help Chinese firms achieve higher valuations and better liquidity compared with a U.S. listing.

Chinese companies like Ant can count on domestic familiarity with their products to attract investor interest and raise capital onshore in Shanghai, says Michael Wu, a senior equity analyst at Morningstar Investment Management in

LARGEST STOCK EXCHANGES BY IPO VALUE

■ CHINA-BASED MARKET

	FIRST HALF OF 2019		FIRST HALF OF 2020	
NO. 1	NEW YORK (NYSE)	$19.1 B.	NASDAQ	$16.2 B.
NO. 2	NASDAQ	14.8 B.	SHANGHAI (SSE)	15.4 B.
NO. 3	HONG KONG (HKEX)	9.3 B.	HONG KONG (HKEX)	10.5 B.
NO. 4	LONDON (LSE)	5.1 B.	NEW YORK (NYSE)	5.2 B.
NO. 5	SHANGHAI (SSE)	4.9 B.	SHENZHEN (SZSE)	3.9 B.

SOURCES: BLOOMBERG; KPMG. ANALYSIS BASED ON DATA AS OF 22 JUNE 2020, INCLUDING OVER-ALLOTMENT. EXCHANGE RATE FOR USD/HKD IS 7.78.

THE 5 BIGGEST CHINESE IPOS OF 2020

	SMIC	Beijing-Shanghai High Speed Railway	JD.com	NetEase	Yum China
Date, location of IPO	7/16, Shanghai	1/16, Shanghai	6/18, Hong Kong	6/11, Hong Kong	9/10, Hong Kong
Amount raised	$7.6 billion	$4.5 billion	$4.4 billion	$3.1 billion	$2.2 billion
	China sees Semiconductor Manufacturing International Corp. as key to achieving its goal of semiconductor self-sufficiency. SMIC delisted from NYSE in 2019; it trades in Hong Kong too.	The rail operator runs the 800-mile line between China's two largest cities. Its passenger volume, revenue, and profit have plummeted because of the coronavirus.	The Hong Kong listing of JD.com, China's second-largest online retailer behind Alibaba, was a secondary offering. The e-commerce giant has traded on Nasdaq since 2014.	The Hong Kong debut was a secondary offering for China's second-largest gaming firm, which has traded on the Nasdaq for 20 years. Its sales have boomed during the pandemic.	The NYSE-listed parent of KFC and Taco Bell in China flopped in its secondary listing in Hong Kong. Its debut was the worst among billion-dollar listings on the exchange in over a year.

Hong Kong. China's retail investors especially will be drawn to a brand whose name and products they know, Wu says.

Hong Kong and Shanghai listings also mean Ant is raising funds nearer to Southeast Asia, where it has invested in fintech startups in Thailand, Indonesia, Myanmar, and the Philippines. All told, listing in Hong Kong and Shanghai over New York is "the easier way for Ant," Pang says.

What's easier for Ant makes things harder for U.S. investors seeking a piece of the blockbuster IPO. Investors in the U.S. are able to buy shares in Hong Kong–listed companies and will have access to Ant's Hong Kong shares. Still, there are operational challenges in monitoring a market 12 hours ahead of New York, Lu says. Ant's Shanghai-listed shares, meanwhile, are almost inaccessible to U.S. investors. Foreign investors can purchase shares in mainland-listed companies only through strictly regulated trading programs limited to a small number of institutional investors.

U.S. exchanges, meanwhile, miss out on the listing fees, transactions, and trading activity that a giant IPO like Ant's would bring.

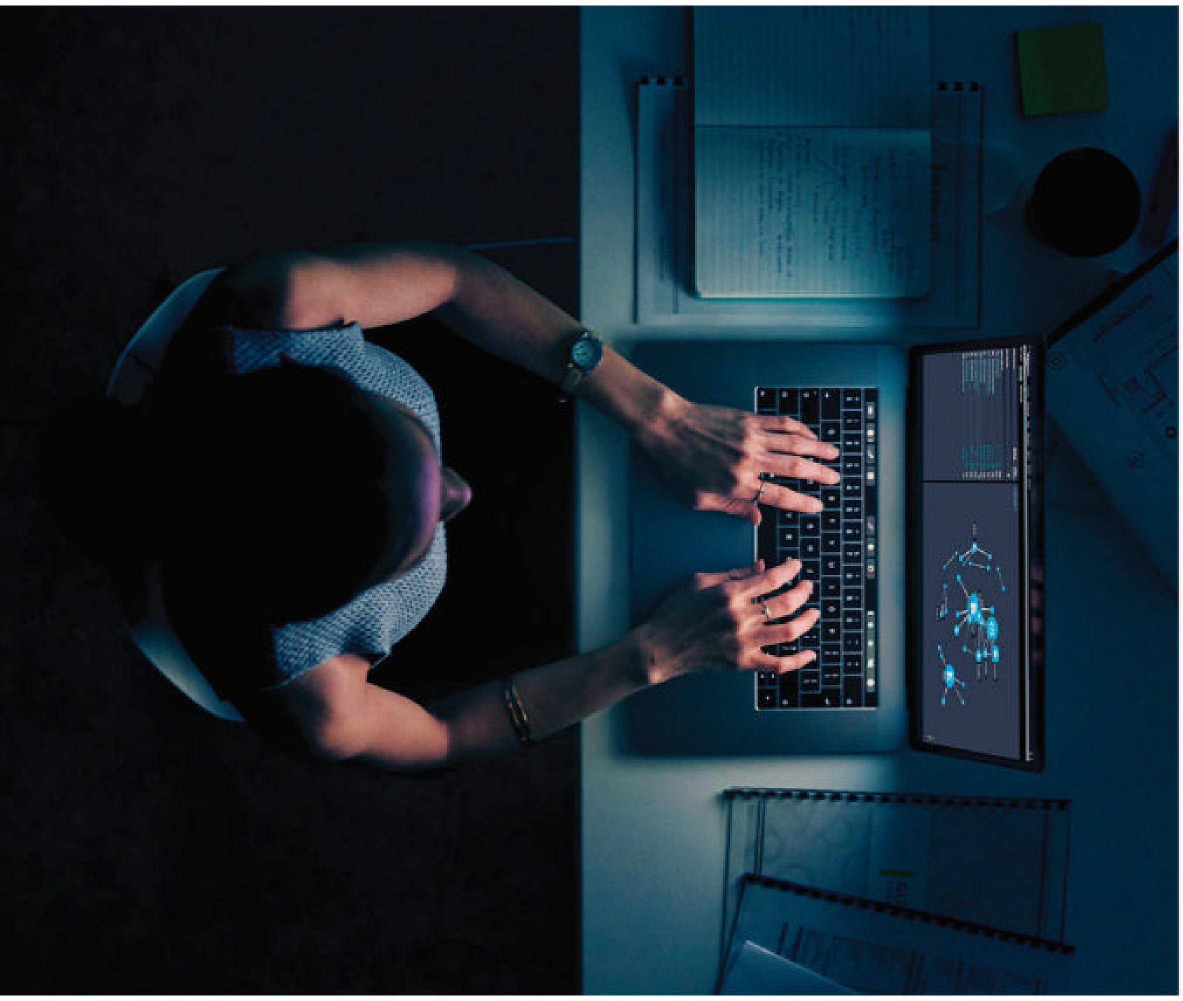
Shares of Ant-affiliate Alibaba in New York have more than quadrupled since their debut and reached a new high on Sept. 1. Many U.S. investors see Ant as having similar growth potential, since Ant's huge user base, high valuation, and rapid growth are reminiscent of Alibaba in 2014. "If these types of companies keep going home [to China], U.S. investors will not have a direct opportunity to invest in them," Lu said.

The size of that missed opportunity is enormous. The U.S.-traded Chinese firms that could be delisted by the Senate bill have a combined market capitalization of around $1 trillion, roughly 3% of the U.S.'s total equity market cap, according to a June China Renaissance report.

At the same time, there isn't "a wholesale abandonment" of the U.S., Lu says. Beike, China's largest online property platform, raised $2.5 billion on the NYSE in August. Electric-vehicle maker Xpeng raised $1.5 billion in an August NYSE debut. Another Chinese EV firm, Li Auto, raised $1.1 billion in a Nasdaq IPO in July.

Chinese firms are still listing in the U.S., Lu says, "but if you consider all of their funds raised in the past few months, it's a much smaller amount compared to the companies considering [listing] at home or [going] private." (See graphic.)

Chinese companies outside the high-tech realm like Haier and Midea—both consumer appliance makers—will likely keep pursuing U.S. listings, says Alicia Garcia-Herrero, chief economist for Asia-Pacific at investment bank Natixis. But "big, iconic companies," especially those in technology, will be part of the "universe" that shies away. ■



SECURING THE ENTERPRISE WITHOUT BOUNDARIES

USING **A.I.** TO SAFEGUARD THE TRANSITION TO THE CLOUD AND REMOTE USERS.

THE COVID-19 PANDEMIC HAS RADICALLY CHANGED the shape of business, from the shift to a new remote workforce to the surge in cloud adoption. Enterprises are no longer defined by walls and perimeters, putting increased pressure on security teams to understand and manage risk.

"When firms make the digital leap, they are greatly expanding the amount of ground that they're tasked to defend," explains Raja Mukerji, chief customer officer and cofounder of leading cybersecurity provider ExtraHop. Attacks on remote desktops grew by 50% in the first quarter of 2020 alone, he notes, and brute force attacks on remote desktops now exceed 1.4 million attacks per day.

"Suddenly, once-hidden assets are now available 24/7 to employees working at home—any one of whose devices can be compromised in myriad ways," Mukerji explains. "Attackers only need to breach your defenses once to present serious and ongoing challenges."

What's more, we've seen a sudden surge in cloud adoption. While remote access due to COVID-19 might have sparked the flame, the bigger story behind the cloud surge is the acceleration of digital transformation projects. As companies seize the opportunity to push the envelope with innovation, security teams are forced to understand the risks associated with this expanded digital footprint. The onus is on security providers to help teams build secure programs without friction. From there, the opportunities for innovation in the cloud are boundless.

To address the growing scope of threats involving remote users and cloud usage, enterprises are increasingly turning to A.I.-driven cybersecurity solutions like ExtraHop's Reveal(x) 360 platform, which continuously analyzes network traffic and uses sophisticated machine learning models to detect suspicious behavior. By monitoring the data traversing cloud environments, data centers, and remote devices, the software is able to provide security teams with complete visibility, detect threats that others miss, and stop data breaches 84% faster.

"By applying A.I. and automation, we help our customers programmatically scale security measures to meet the demands of the enterprise without borders," says Mukerji. "This approach allows for greater agility, so companies can dynamically apply proportionate threat detection and response efforts to match any challenge they face."

"You can't secure what you can't see," notes Mukerji. "As organizations embrace the cloud and remote users, obtaining full visibility into the shape of every digital interaction only becomes more crucial. Attackers have innovated to evade many legacy security tactics, but the one data source that can never be turned off is the network." ■

40 UNDER 40

Strength in Numbers

A world facing unprecedented challenges needs all the young leaders it can find. Why *Fortune* picked far more than 40 this year.

IT'S BEEN A YEAR of monumental change. The coronavirus pandemic fundamentally altered how we work and socialize. People around the world have taken to the streets and social media to push for justice and racial equality. Executives have hastened to support employees while grappling with massive challenges to the way their businesses operate.

To reflect this transformation, *Fortune* embraced change in this year's 40 Under 40. Just one list wouldn't be enough to enumerate all the emerging leaders who are guiding business and society through daunting difficulty. Our new roster highlights 40 influential people in each of *five* categories: finance, tech, health care, government and politics, and media and entertainment. You'll find C-suite executives, startup founders, and legislators sharing space with people whose work became crucial in 2020—like a science communicator and an athlete standing up for racial equality. Visit Fortune.com to see the full 200 Under 40.
—Rachel Schallom

FINANCE

CÉLINE DUFÉTEL, 39

CFO **T. ROWE PRICE**

While studying applied mathematics, economics, and finance at École Polytechnique in Palaiseau, France, Dufétel served in the French navy and was the only woman stationed on a 200-person oil tanker. Since then, she has traded in her uniform to become CFO at T. Rowe Price, a firm that manages $1.2 trillion in assets. As one of the few female CFOs among the largest U.S. financial institutions, Dufétel heads up strategy, investor relations, M&A, and, lately, global investment operations and pandemic response, leading a team of over 700 worldwide. *—Anne Sraders*

HEALTH

HELEN ADEOSUN, 35

FOUNDER & CEO **CAREACADEMY**

An aging population needs more caregivers—and better ways to train them. Enter Adeosun. The daughter of Nigerian immigrants and former Teach for America volunteer got a master's in education policy at Harvard before launching her digital training platform in 2013. Today, health care organizations use CareAcademy's online video coursework to help employees stay up to date on certifications and other training. More than 110,000 caregivers have completed 400,000 classes, and CareAcademy aims to reskill more than 1 million new home-care workers by 2023. *—Maria Aspan*

TECH

TONY XU, 36

COFOUNDER & CEO **DOORDASH**

As a child, Xu would help wash dishes in the restaurant where his mother worked. Today Xu—an immigrant from Nanjing, China, and an alumnus of McKinsey, eBay, and Square—runs America's leading food delivery business. DoorDash claims 46% of market share in the U.S., beating even a newly combined Uber Eats and Postmates (which has roughly a third), and has seen business soar amid pandemic lockdowns. When Xu takes the company to an IPO, likely this year, he will test whether the investing public is as hungry for the company's shares as it is for its fare. *—Robert Hackett*

MEDIA & ENTERTAINMENT

EMILY RAMSHAW, 39

COFOUNDER & CEO **THE 19TH**

Emily Ramshaw cofounded The 19th (as in "Amendment"), a nonprofit, nonpartisan news organization, with a goal "to empower women—particularly those underserved by and underrepresented in American media—with the information, community, and tools to be equal participants in our democracy." Ramshaw said she got the idea for the site four years ago while on maternity leave, and the 2016 presidential election, the Women's March, and the #MeToo movement only catalyzed its creation. As of August, The 19th had raised $8.5 million for its mission. *—Daniel Bentley*

POLITICS

RON STESLOW, 37

COFOUNDER **THE LINCOLN PROJECT**

By age 33, Steslow had run $50 million Senate races for GOP candidates and started his own political consulting firm. But he had also begun struggling with the identity of the party he grew up in. In 2019 he joined two other conservative strategists to found what became the Lincoln Project, a political action committee that has launched a series of multimillion-dollar ad blitzes against President Trump. Steslow, who now identifies as an Independent, says his work is necessary in part "because of the lessons that the Republican Party would learn if President Donald Trump were reelected." *—Nicole Goodkind*

DUFÉTEL: COURTESY OF T. ROWE PRICE; ADEOSUN: COURTESY OF CAREACADEMY; XU: COURTESY OF DOORDASH; RAMSHAW: KEITH TRIGACI; STESLOW:COURTESY OF THE LINCOLN PROJECT

IVECO AND NIKOLA TO LEAD TRUCK RACE TO HYDROGEN ERA

IVECO and NIKOLA are in pole position for the green trucking revolution.

When two of the most influential men in global trucking sat down to talk in Phoenix, Arizona last spring, they discovered they shared the same passion for full industry transformations, and for outpacing and outthinking sluggish incumbent players. They quickly decided to combine their expertise.

Gerrit Marx, president of commercial and specialty vehicles at CNH Industrial, IVECO's parent company and Europe's fifth-largest heavy truck manufacturer, was looking for fast-lane access to the technologies that would give it a head start in the race to the zero-emission future.

Trevor Milton, founder of American electric truck pioneer NIKOLA Motor Company, wanted to break into the European market with the support of a local truck maker with a reputation for innovation and disruption in a traditionally conservative industry, and with a genuinely conflict-free interest in making NIKOLA successful in the US.

A year later, their heavy truck joint venture looks set to transform the face of European road haulage and logistics. "If our competitors knew what we had in our pipeline across the transport ecosystem, they would be blown away,"

Marx says. "The other players in our industry are generally more conservative." In 2021, the first zero-emission trucks manufactured by the partnership will roll off the production lines at IVECO's manufacturing facility in Ulm, Germany.

Based on IVECO's new S-Way truck and incorporating cutting-edge technology from NIKOLA, the first version of the NIKOLA TRE to reach the market will be powered by an advanced battery pack. In 2023, customers will be able to buy a revolutionary model that uses a hydrogen fuel cell to generate electric power. This version of the TRE, and its modular platform, combining the latest breakthroughs in fuel cell management, will make IVECO's competitors stand up and take notice, says Marx.

"Hydrogen fuel cells are the ultimate solution for long-haul haulage," he says. "Refueling with hydrogen is much faster than recharging a battery pack, and the trucks will have at least double the range—around 1,000 km."

In the transition to the hydrogen era, IVECO has an invaluable ace up its sleeve. It may not be the largest truck brand in Europe, but the company is the undisputed market leader in the production of vehicles powered by gas. IVECO vehicles can already run carbon-neutral on bio-methane produced from agricultural and urban waste. IVECO's long experience in manufacturing trucks, its expertise in gas-powered commercial vehicles, and its role in helping to establish the European refueling infrastructure for liquefied natural gas (LNG) and compressed natural gas (CNG) makes it the perfect partner for NIKOLA.

"In the story of reducing emissions from trucks, LNG is the first page in achieving carbon neutrality with bio sources," Marx says. "Hydrogen produced from renewable energy will be the next chapter." Demand for gas vehicles is already soaring across the European logistics

> "IVECO IS THE MOST DISRUPTIVE TRUCK MANUFACTURER IN EUROPE. WITH NIKOLA, WE ARE TAKING THE FIRST STEPS IN THE JOURNEY TO ZERO EMISSIONS."
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> **GERRIT MARX,** PRESIDENT, COMMERCIAL AND SPECIALTY VEHICLES, CNH INDUSTRIAL

landscape despite the impact of COVID-19, as businesses across all industries try to reduce their carbon footprints in response to pressure from customers, governments, and other stakeholders.

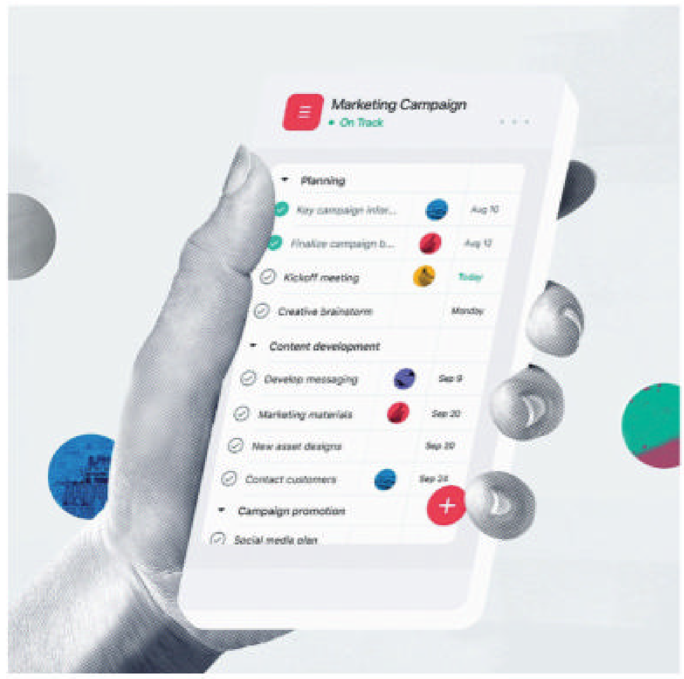
Meanwhile, to encourage use of alternative fuels and increase European energy independence, the EU is requiring truck makers to explore clean power options in order to cut emissions from their fleets by 15% by 2025 and by 30% by 2030. IVECO's partnership with NIKOLA will enable it to meet those targets and to serve growing demand from a truck market that is crying out for innovation.

"Suddenly, we are seeing a new understanding in the market of the importance of sustainability and the role of hydrogen," Marx says. "There is going to be a fundamental change in the way we think about the future of trucking. IVECO and NIKOLA will be at the forefront of that industry transformation."

AVOIDING BURNOUT WHEN YOUR OFFICE IS YOUR HOME

How companies can help remote employees maintain work-life balance.

COVID-19 HAS DRASTICALLY ALTERED work culture: For millions of Americans, their homes are now their workplaces. There are benefits to this change—including more flexibility and less time spent commuting—as well as downsides, notably the melding of people's professional and personal lives.



In the past, the office created a natural separation between the two. "Work was pretty well understood and defined," says Alex Hood, head of product at Asana, a work management platform that helps teams organize, track, and manage their work.

In a remote setting, employees are more likely to continue working well into the evening. Work can quickly pile up in new ways: Spontaneous in-person interactions have been replaced with video calls that have to be scheduled—and even more emails that have to be monitored and managed.

That's where shared platforms like Asana can help. The software makes it easy for team members to organize projects, set priorities, and complete tasks. For example, Asana's board feature lets teams visualize their work, move projects through multiple stages, and create timelines. The platform also allows teams to automate manual tasks, and its collaborative, intuitive design creates clarity among teams as they track each other's progress toward shared goals. Clarity is an important, if sometimes overlooked, antidote to burnout.

"When people know how the pieces they rely on to do their work are coming together in real time, you can set boundaries because you aren't constantly relitigating accountability," Hood says. "Accountability exists from the outset. It's enormously freeing." ■

INVEST

A Swiss Surprise

CEO Sergio Ermotti turned UBS from a scandal-ridden bank into a leader—which now counts half the world's billionaires as clients.

BY BERNHARD WARNER

VICTORY LAP
On the eve of his departure, Ermotti talks about the bank's turnaround.

WEI LENG TAY—GETTY IMAGES

IN FEBRUARY 2012, Sergio Ermotti called his first town hall meeting as UBS Group's chief executive. The stock was finally recovering in those early days, but staff morale wasn't. As one veteran of the Swiss banking giant tells *Fortune*, "If you had worked for UBS in those days, the mailman would grumble at you."

The woes of UBS, which turned 150 years old that year, had taken on the urgency of a national crisis. UBS became the foreign bank most exposed to America's subprime mortgage debacle, decimating clients' portfolios. In 2008 the Swiss government stepped in with a historic bailout package after UBS booked a mountain of losses. The last straw came in September 2011. A UBS trader in London executed a series of fictitious trades to cover his losing positions, moves that ultimately cost the bank $2.3 billion.

"I remember exactly where I was when I heard the news," says Lukas Hässig, a longtime chronicler of the Swiss banking world based in Zurich. "I just thought, 'No fucking way. UBS? Again?! Another scandal?'"

Oswald J. Grübel saw the writing on the wall. He resigned as UBS's CEO days later, opening the door to Ermotti.

At that first staff meeting, the new boss addressed the tension in the room straightaway. How many of you, he asked, are proud to work for this bank? If you're not, he instructed, raise your hands. "You would not believe how many people raised their hands," he recalls, shaking his head in lingering disbelief.

As his first task, the Swiss-born Ermotti presented a radical restructuring plan to clean up the scandal-ridden bank. The safe and dependable wealth management business would be the new focus. The investment banking business, the biggest drag during the global financial crisis, would get the chop. It was a reinvention plan a CFO would love, but it rumpled the rank and file. Yes, it would boost the bank's capital reserves (per regulators' requirements) while cleaning up the dodgy loans on its books. But it wasn't without risk. To work, the bank would need to rebuild ties with many of the same ultrawealthy clients it had burned during the mortgage crisis.

ERMOTTI, 60, will step down from his post at UBS on Nov. 1, replaced by ING Group's former boss, Ralph Hamers. Ermotti spoke to *Fortune* in late August about his decade-long run in a lengthy Skype call from his home office in Lugano, on the Italian-Swiss border.

A former trader and investment banker who spent much of his career outside his homeland, Ermotti isn't your typical Swiss banker. In past generations, UBS would recruit heavily from the Swiss military. For years, the bank's culture remained regimented, secretive. "Only if you made it to the rank of general would you be considered for the highest executive ranks at UBS," Hässig explains.

Ermotti was 50 in 2011 when he joined UBS from Italy's UniCredit to run the bank's EMEA divisions. Extraordinarily, he seized the top post months later. Job one for the former investment banker: Cut that same business at UBS down to size. None of that made him a credible champion for wealth management at first.

But Ermotti immediately saw its appeal.

Wealth management is a $135 billion business with huge upside. "One striking feature of wealth growth over the past two decades has been its extraordinary resilience," BCG wrote in its annual wealth management report in June. "Despite multiple crises, wealth growth has proved to be stubbornly robust, springing back from even the most severe tests."

EUROPE SHAKES OFF ITS SLOW-GROWTH REPUTATION

SOME INVESTORS ARE PULLING MONEY OUT OF U.S. EQUITIES AND BETTING ON EUROPE. WHY IT'S TIME TO FOLLOW THEIR LEAD.

André Kostolany had a knack for beating the biggest crises of the 20th century, pocketing huge profits during the Great Depression and later during Europe's post–World War II reconstruction. The Hungarian-born economist and stock picker famously observed that the relationship between the stock market and the economy is akin to a dog out for a walk with its owner.

The master, holding the leash, and usually behind the dog, is like the economy, he explained. The dog, darting ahead, is the stock market. Kostolany's point: We should give the stock market credit for anticipating the future.

"We are now in a period where it makes sense for the markets to move ahead," says Holger Schmieding, chief economist at Berenberg Bank in London, who's still fond of Kostolany's metaphor. Schmieding says the markets are scampering forward in the belief we've begun to beat back COVID-19—even if the economic data has yet to bear that out. And if we're listening to the stock markets, they're increasingly chanting: *Europe, Europe, Europe.* Even during the epic August equities rally, as the Nasdaq and S&P 500 were climbing to new heights, investors were trading out of U.S. stocks and into European stocks. According to Goldman Sachs,

OVER THE PAST 20 YEARS, PERSONAL FINANCIAL WEALTH HAS NEARLY TRIPLED, RISING FROM $80 TRILLION TO $226 TRILLION.

in the four weeks leading up to Sept. 9, investors pulled a combined $17.7 billion out of U.S. equities. Over the same period, they put $1.5 billion into non-U.K. European stocks. To wit, Germany's blue-chip DAX has outperformed all three major U.S. indexes over the past month.

There are a number of reasons investors are risk-on European stocks. For starters, investors got spooked by sky-high U.S. tech-stock valuations. Emerging from the August rally, the Nasdaq 100 was trading 41% above its 200-day moving average. Compare that to the DAX, which was trading 1.4% over its 200-day moving average on Sept. 10.

But there's also a case of Kostolany's dog principle at play here. The markets believe Europe has done a relatively better job managing the pandemic than the U.S., therefore setting the eurozone recovery up as a real growth play. There's sound data to back this up: The eurozone fell further in Q1 and Q2, and as such, like a growth play, presumably has more ground to pick up as the recovery accelerates (see chart). U.S. recovery, meanwhile, is already baked into most U.S. equities high-fliers.

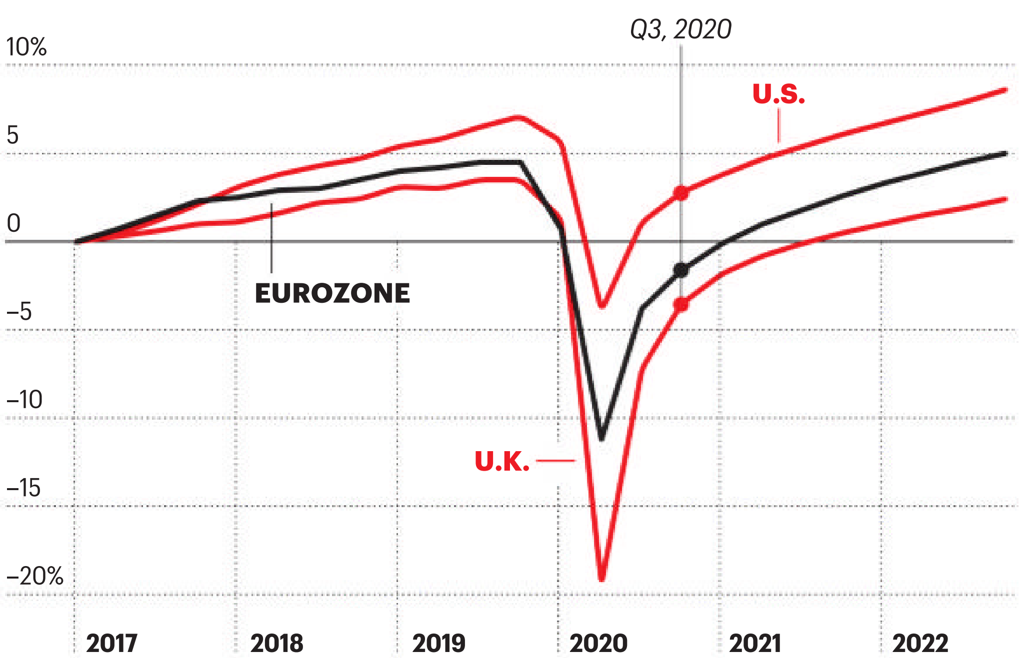
Does that mean Europe will emerge from COVID in better shape than America? Berenberg's Schmieding thinks so. The U.S. economy will reach pre-pandemic GDP in Q2 2022, around the same time as the eurozone's biggest economies, Germany and France. But, he adds, "the eurozone clearly is emerging in better shape."

By Berenberg's forecast, the U.S. will run a fiscal deficit in 2020 of 18% of GDP, compared with 11.5% for the eurozone. "Even starker," he adds, "we expect the U.S. to maintain a very elevated fiscal deficit: 12% next year, compared to the eurozone's 6.2%." For 2022, he expects a eurozone deficit of around 3.5% of GDP, and closer to 11% for the U.S.

And, Schmieding warns, that "debt is not free forever." Those heady U.S. deficits must be reined in eventually, which could prove painful for U.S. companies and investors.

All of which means that slow-growth Europe, which investors ignored for years, may be ready to run with the big dogs. *—B.W.*

PROJECTED CHANGE IN GDP



SOURCE: BERENBERG BANK

The rich are getting fabulously richer at the fastest pace in modern history. Over the past 20 years, personal financial wealth has nearly tripled, rising from $80 trillion in 1999 to $226 trillion by the end of 2019. Catering to the needs of the top tier has caused a steady flow of commissions and fees to rain upon the world's top private bankers and wealth management gurus.

Ermotti calls these "the tremendous secular trends, such as wealth creation and demographic change, that are driving today's wealth management industry. This is as true in emerging markets as it is in Western economies—pandemic or no pandemic."

So far, wealth management is one of the few parts of Big Finance that have yet to be severely disrupted by fintech upstarts. Ultrahigh-net-worth clients (those with a personal fortune of at least $30 million) are not so dazzled by no-fee investing apps. They're demanding diversified investment options to make their money grow. They're often looking beyond stocks and bonds, to business opportunities. Wealth managers get a range of questions: Should I invest in a manufacturer in Vietnam? What about a vineyard in Tuscany? How do I get in on that IPO-track tech startup?

UBS had been beefing up its wealth management team well before the global financial crisis. It was one of first big European banks to spot the huge opportunity in Asia's wealth boom. Under Ermotti, it ramped up the business abroad while rebuilding ties with affluent Europeans. At the same time, it shrank the investment bank to boost growth elsewhere. "The capital allocated to the investment bank as a percentage of risk-weighted assets was around 75% when I joined UBS. It's a third today, and a better reflection of our business model and expected business returns," Ermotti explains. Investors watch a bank's risk-weighted ratio like a hawk. The lower the number, the more flexibility a bank has to reinvest profits into things that actually grow the business: technology, recruiting talent, acquisitions, or loaning out money to more affluent clients. But a bank that's required to put aside billions every quarter to backstop ever riskier assets is a bank with less ammunition to invest and grow.

In Ermotti's first year as CEO, the bank was in cleanup mode. In 2011–12, UBS bundled up roughly 170 billion Swiss francs ($185 billion) in risk-weighted assets on its books and sold them off to the highest bidder. A big tranche—$38.7 billion—was repackaged into a single-purpose vehicle and sold off under the management of the Swiss National Bank.

The restructuring paid off. "It took a few quarters to convince the markets that we were moving in the right direction. And when we got them convinced, we decided to accelerate the strategy," he says.

By 2013, UBS had become the globe's biggest wealth manager, eventually calling half the world's billionaires, clients. Today, UBS has grown its global wealth management assets under management to $2.6 trillion, and competitors, including crosstown rival Credit Suisse, are quickly trying to catch up.

During Ermotti's tenure, the wealth management unit has pulled in $362 billion in "net new money," a much-watched metric among private bankers that serves as a proxy for customer acquisition. Making wealthy people wealthier has been exceedingly good strategy for UBS and its shareholders. The steady fees from wealth management helped grow its capital base by $11 billion in the past decade. Plus it helped produce a string of profitable years, and return more than $20 billion in dividends.

Ermotti says that COVID has fundamentally changed the wealth management business—especially when it comes to technology. "For example, we regularly run conferences for our clients where we cover big themes. Usually, we'd get, let's say, 100 clients attending an in-person event. But because we've been forced to do it online, we've been getting three times, four times more people attending our conferences," he says.

UBS PARADOXICALLY MAY BE IN BETTER SHAPE TODAY DURING A PANDEMIC THAN IT WAS A DECADE AGO.

NO BANK IS pandemic-proof, but UBS with its mix of wealth management and low bad-loan exposure has come close, observes Pauline Lambert, executive director of financial institutions ratings at Berlin-based Scope Ratings. "That's a business mix and a business model that's well suited to the COVID environment."

Lambert points to a string of metrics that show UBS has one of the healthiest loan books and most diversified revenue streams in the banking sector, crucial in this era of low interest rates. According to Scope, fees and commissions—a highly stable inflow, even during an economic crisis—represents nearly 60% of UBS's revenues, well above its European rivals. Meanwhile, its loan and credit provisions are minuscule. It's had to put aside just 32¢, on average, for every $100 it's loaned out, suggesting not only that the prospect of UBS clients defaulting on their loan obligations is relatively remote, but also that investors need not fear a replay of the 2008 financial crisis.

Lambert says investors again today would be wise to assess banks by the strength of their loan books, which could become huge liabilities in the age of COVID.

In the second quarter, Ermotti and his team delivered where so many rivals could not. UBS reported a $1.2 billion quarterly net profit that amounted to a monster $250 million bottom-line "beat." More important, Ermotti declared that the bank's outlook already was looking up—a far cry from his biggest competitors. In the same quarter, JPMorgan Chase, Wells Fargo, and Citigroup had to set aside nearly a combined $28 billion to cover bad loans vs. just $272 million for UBS.

Investors, so far, are eyeing UBS stock cautiously: Though shares are flat year to date, that compares with a negative 28.4% performance of the Refinitiv Datastream world banks index.

Like all banks, UBS faces enormous challenges. Global economic growth will be unsteady for years. Interest rates will barely budge above zero in the world's biggest economies. And the markets will continue to be volatile. These are not favorable conditions for a value stock, let alone a bank value stock.

But in clawing back from employees, clients, and the markets much of the respect the bank had once lost, UBS paradoxically may be in better shape today during a pandemic than it was a decade ago. That's in no small part due to Ermotti but also to those employees who spoke up during that first meeting a decade ago and have continued to deliver since. "All those raised hands told me they really care about the future of the bank," he says. "If you're not committed to the bank, you know what? You're probably not going to raise your hand." ■

A Positive Workplace Culture Where Pride Goes Both Ways

CooperCompanies' mission—to improve the lives of people each and every day—resonates with current employees and potential new hires.

AL WHITE, CEO AND PRESIDENT OF COOPERCOMPANIES, a global medical device company, recalls encountering a job candidate at corporate headquarters in San Ramon, Calif., several months ago. When he asked her what had brought her to Cooper, she told him, "Frankly, there's a lot of great companies out there. But when I read about your culture, I wanted to be part of it."

White remembers smiling and thinking to himself: "This is good. Our reputation as a great place to work is out there."

Cooper's culture, White believes, is compelling because the company's products address health and well-being, making its 12,000-plus employees feel good about going to work. CooperCompanies consists of two business units: CooperVision, the second-largest global manufacturer of contact lenses, with approximately 25% of the industry's market share, and CooperSurgical, which includes the largest fertility company in the world.

Since White took the helm in 2018, the goal has been to create a positive workplace culture that permeates both sides of the business. Referred to as "One Cooper," it has inspired numerous initiatives, including commensurate fertility assistance benefits with reimbursement for genetic testing as well as a stock purchase plan that allows employees to buy stock at a 15% discount.

As part of its corporate responsibility initiative, CooperCompanies has adopted the United Nations' Sustainable Development Goals, including the Good Health and Well-Being objective. This can be seen in action at the firm's manufacturing facilities, where operations that were interrupted due to COVID-19 restrictions have now resumed. Classes and physical training sessions are offered at on-site gyms, and discounted healthful lunches are available in the cafeterias.

During the height of the pandemic, CooperCompanies experienced major slowdowns at its plants. Yet the company kept all of its employees, even those whose work was paused, on the payroll. What's more, the sales force received 100% of its commissions, and all scheduled raises remained in effect.

Despite business disruptions caused by the virus, a newer product at CooperVision, Biofinity Energys® contact lenses, which address digital eyestrain, saw an uptick in growth last quarter. Additionally, MiSight®, the first and only FDA-approved soft contact lens that slows the progression of myopia in children ages 8 to 12, recently launched in the U.S. and is poised for success.

"Employees take pride in working here because they're helping others," says White. "Their passion and work will continue to shape our future." ■

During the height of the pandemic, CooperCompanies kept all of its employees, even those whose work was paused, on the payroll.

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"Be brave and conspire together": senior writer Ellen McGirt at the 2019 MPW Summit.

FORTUNE CONNECT

BUILDING A COMMUNITY OF LEADERS

FOR 90 YEARS, FORTUNE HAS COVERED THE ENTIRE GALAXY OF BUSINESS. NOW WE'RE TAKING WHAT WE'VE LEARNED TO HELP TODAY'S RISING STARS SOAR EVER HIGHER.

By Ellen McGirt

I RECENTLY HAD the chance to talk with Alicia Garza, principal at the Black Futures Lab and cofounder of the Black Lives Matter Global Network. She shared updates on her organizing work and her new book, *The Purpose of Power: How We Come Together When We Fall Apart*, which comes out in October. Our conversation turned to the urgent moment we're in as a society—changed by pandemic, struggling with climate, and reckoning with racial inequity—and the growing mandate for business to include a wider group of stakeholders.

Garza had excellent advice for anyone struggling to figure out how to make an impact in their jobs and in the world. "Take time to cultivate a clear vision of what it is you're moving toward," she says. Focus on the negative, and you'll become cynical and exhausted. Instead, give your energy to something beautiful. "It's about unleashing the bold and radical imagination of people who are sick and tired of being sick and tired," says Garza. Be brave and conspire together. "If there was ever a time to do something that will help people meet this moment, it's now."

When it comes to business, *Fortune* knows some things about bold imaginations. Our Most Powerful Women community has owned the conversation on gender diversity in executive ranks for two decades; this year, it is advancing a new and decidedly intersectional lens. For six years our Change the World list has been a chronicle of the creative ways business is tethering profit to purpose. And the CEO Initiative, conceived at a historic meeting in Vatican City four years ago, is a community of big-company CEOs who are boldly conspiring to generate global opportunity, while addressing society's most pressing unmet needs.

Fortune is building on this history with a clear vision of what we think the business world is moving toward: a bold—and yes, radical at times—reimagining of shareholder capitalism. Inclusive. Compassionate. Accountable. Prepared not just to dismantle inequitable systems but to rebuild them.

That's why we're launching Fortune Connect—a community for professionals who want to become more fluent in this language. We are designing it for inspiration, to help members find the ideas, energy, and allies they'll need to grow their careers while making business better. It's our bold, beautiful innovation for this urgent moment. If Connect is right for the moment you're in, we hope you bring your energy our way.

Fortune Connect is a membership community and online platform for mid-career professionals on a path to top leadership who understand they're working in a purpose-driven world. Learn more at fortune.com/connect.

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ELECTIONS

Why Online Voting Will Have to Wait

Everyone agrees that election technology is behind the times. But a major upgrade is unlikely anytime soon. BY JEFF JOHN ROBERTS

AS THE U.S. frets about counting mail-in ballots in November, some say there's an easier way to hold an election: voting by smartphone app. After all, Americans already use their phones to order lunch, do their banking, and crown reality-show winners from the comfort of their couches. Why not extend this convenience to real elections?

The idea is not a new one. In Estonia, voters have been casting ballots online for more than a decade while West Virginia has let overseas military personnel vote with an app. But despite such innovations, most Americans still vote much like their great-grandparents did—marking ballots and then stuffing them into a box. Many people believe it's time for the U.S. elections to enter the 21st century.

"The U.S. is living with a voting system designed 200 years ago," says Aggelos Kiayias, a cybersecurity professor at the University of Edinburgh.

A number of tech companies are eager to help bring U.S. elections into the smartphone era. Voatz and Democracy Live, for instance, have built app-based voting tools they claim can thwart hackers and make sure voters are who they say they are.

Brad Brooks, CEO of OneLogin, a startup that helps the likes of Uber and Airbnb verify the identity of employees, is among those who say the time for online voting is now. The first step, he says, would be for states to create voter IDs using biometric technology like fingerprints and face scans—tech that OneLogin uses in its own operations. He notes the federal government has already adopted such a system for its Global Entry program, which lets travelers pass through airport security more quickly. "If companies and governments are already using this technology to verify identities and give access to information, it's a no-brainer to use it in the voting process," Brooks says.

But election and security experts agree that Americans won't be voting Estonia-style anytime soon. Any tech upgrade will instead be incremental, they say, and online elections, if they ever happen, are decades away.

One reason is that, unlike a tiny Baltic country,

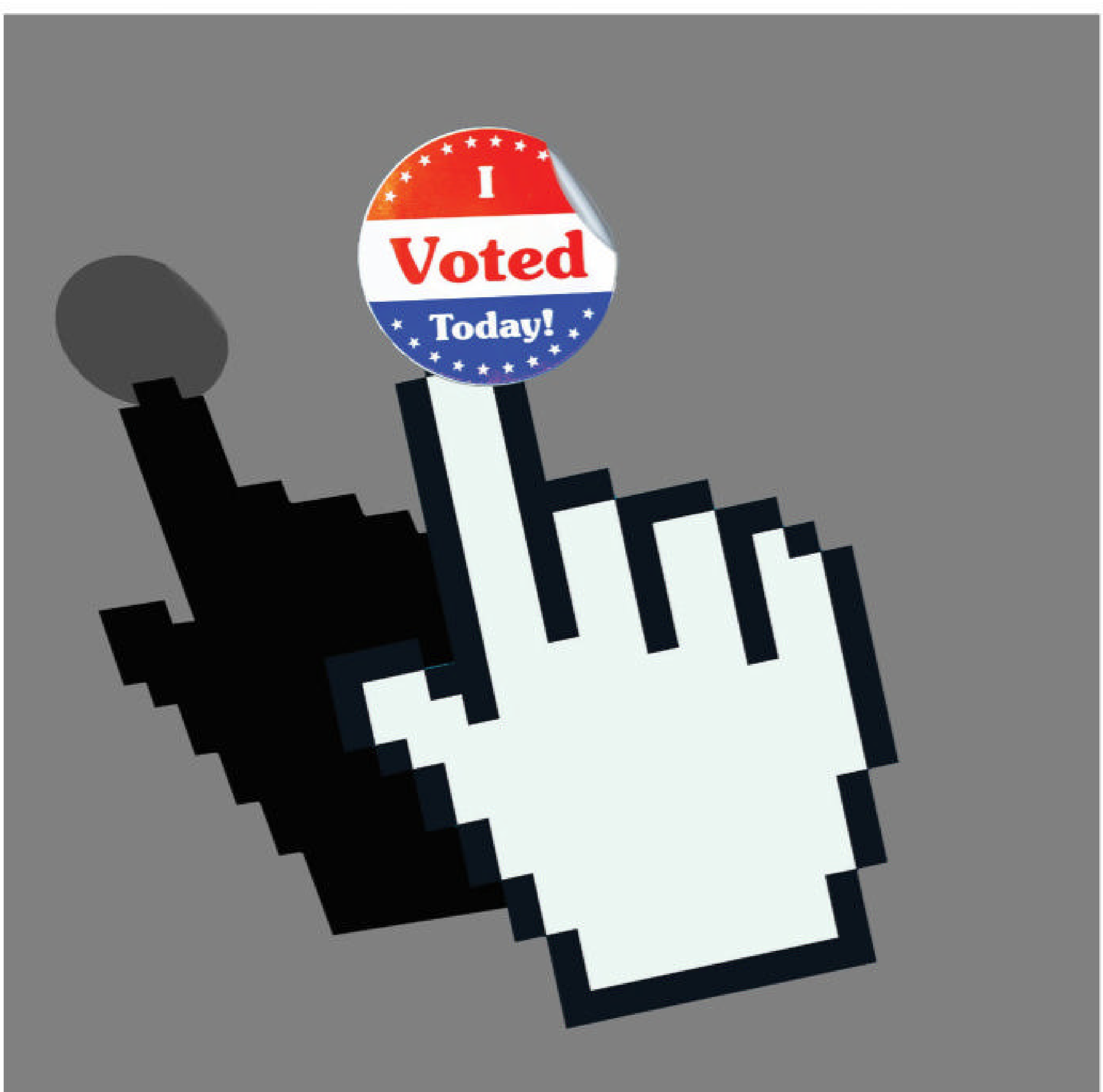

PHOTO ILLUSTRATION BY TRES COMMAS

ORIGINAL PHOTOS, HAND: SEAN GLADWELL—GETTY IMAGES; STICKER: JBYARD—GETTY IMAGES the U.S. is enormous, and its elections are controlled by a patchwork of state and local governments. This would make implementing a national Internet voting system a daunting legal and logistical challenge. Even a basic national voting ID card, used by many countries to ensure the identity of voters, is, for many politicians, a nonstarter.

Furthermore, some voting-tech vendors have spotty track records, making election officials wary of moving too quickly. Who can forget the Iowa caucus in February, when a little-known firm called Shadow built an app for Iowa's Democratic Party to report vote counts? The app failed spectacularly, resulting in an election-night fiasco and a weeks-long delay before the vote count was certified.

Liz Howard, an attorney with the nonpartisan Brennan Center for Justice who worked as a senior election official in Virginia, has her own horror story to tell. Amid an equipment failure during one election, she tried to get help by calling the vendor responsible—only to have the company hang up on her.

But of all the stumbling blocks to app-based voting, perhaps none is bigger than security. Online ballots would be an irresistible target for state-sponsored hackers, especially those from Russia, which has repeatedly tried to infiltrate U.S. election systems, and in some cases has succeeded. Invariably,

"THE U.S. IS LIVING WITH A VOTING SYSTEM DESIGNED 200 YEARS AGO."

AGGELOS KIAYIAS, CYBERSECURITY PROFESSOR, THE UNIVERSITY OF EDINBURGH

DIGITAL DEMOCRACY

A handful of places have tried online voting. Here's how it turned out.

ESTONIA

The Baltic country debuted online elections starting in 2005. Today around 30% of the country's 1.3 million citizens use the Internet to vote.

WEST VIRGINIA

In 2018 the state's overseas military members were able to use phones and tablets to vote in the midterm election; 144 troops in 31 countries actually cast ballots online.

SWITZERLAND

After testing online voting at the local level, the country proposed taking it nationwide. But after researchers discovered a vulnerability that could alter ballot results, officials canceled those plans in 2019.

voting-tech companies claim their systems are secure. But U.S. election officials have so far balked at putting those promises to the test on a large scale.

Instead, many states have been slowly upgrading their voting technology, without much fanfare. Poll workers in a number of places now use iPads and laptops rather than paper records to check voters against registration lists—speeding up the time required to cast a ballot. Likewise, Travis County, Texas, and Washington, D.C., are creating online dashboards that voters can check from home to see wait times at polling locations, so they can avoid long lines.

Of all the companies creating technology specifically for elections, Microsoft is likely the biggest. Earlier this year during local elections in Wisconsin, it tested software that encrypts ballots after voters mark them electronically or when poll workers scan paper versions. The process prevents tampering while also providing poll workers with a backup vote tally. "Humans are horrible at counting things," says Tom Burt, the vice president who leads Microsoft's nascent initiative to supply free election tools.

Microsoft's technology also provides voters with a code on a piece of paper that they can later use online to verify whether their ballot has been counted and not altered. It's a step further than elsewhere, such as in San Francisco, where voters can merely check whether their ballots have been received.

As with most things, the adoption of election tech ultimately hinges on funding. Recently, the federal government provided grants to cities and states to upgrade their systems. The awards, however, were insufficient to pay for major projects. One reason for the lack of money is that political will to invest in voting infrastructure typically evaporates after voters go to the polls.

Meanwhile, election-tech makers face their own financial constraints. To make the big improvements necessary for online voting to become feasible, they need cash for research and development. But because the market for their products is relatively small and purchases are sporadic, those vendors generally spend little on innovation.

The upshot is that much like flying cars, a vote-for-President app is likely to be something Americans talk about for decades but may never see. ■

A SHOE WITH NO FOOTPRINT

FOR ALLBIRDS, AN ECO-FRIENDLY APPROACH DOUBLES AS GOOD MARKETING AND EARNEST SCIENCE THE ATHLEISURE STARTUP'S CUSTOMERS LOVE. NOW THE COMPANY IS DOUBLING DOWN ON A PERFORMANCE RUNNING SHOE THAT'S MADE WITH NATURAL MATERIALS.

BY SHEILA MARIKAR

THE ALLBIRDS DASHER

COURTESY OF ALLBIRDS

THEY CAME IN SEARCH of nematodes, tiny worms that cycle nutrients through soil. They dug their hands into thatches of reedy grass on a sunny hillside on the South Island of New Zealand, turning over the earth, peering at what lived below. To an outsider, it looked like dirt: brown, crumbly, messy earth. To four employees of Allbirds, the six-year-old San Francisco footwear startup famous for its fuzzy woolen sneaker, it looked like an opportunity: life-affirming, environmentally pleasing proof that the materials that go into Allbirds shoes don't hurt the planet in the process.

More than 6,000 pink-nosed merino sheep roam the 2,500 rolling acres that constitute Glenaan Station, a century-old farm two hours north of Christchurch. Through the normal course of being sheep, these animals spew methane into the atmosphere, trapping heat. Yet thanks to those small worms, the soil on this antipodean ranch sucks up carbon dioxide while growing grass to feed the sheep that produce the wool that adorn the feet of hipsters a world away.

This means everything to Allbirds, whose very identity is wrapped up in the eco-friendly compact it makes with its consumers. "Farmers get a bad rap for contributing carbon and other greenhouse gases to the atmosphere," says Hana Kajimura, the sneaker company's head of sustainability, who was visiting to check one of Allbirds' sources of wool. "But this farm is doing so much to draw down carbon at the same time," she adds. "We want to make sure that we're looking at the whole picture. Not just what's being emitted but also what's being stored."

From its start, Allbirds tapped into the then-emerging trend of environmental sustainability as a commercial and marketing attribute. Instead of planet-killing plastic, it made shoes with natural materials. Climate crusader Leonardo DiCaprio liked his Allbirds so much he invested in the company, which has raised more than $77 million to date. (Institutional investors include heavyweight funds T. Rowe Price, Fidelity, and Tiger Global, and the company, which is privately held, is actively raising more money.) The signature Allbirds hybrid slipper-shoe, an out-of-nowhere addition to the "athleisure" fashion movement, quickly caught on with casually clad professionals, particularly in Silicon Valley.

With 21 retail stores and 2019 sales estimated at $200 million, Allbirds is a full-fledged member of the purpose-driven corporate set. It has spawned a legion of copycat shoes, and rather than litigating, Allbirds makes life easy for imitators. Last year cofounder Joseph Zwillinger wrote an open letter urging rivals to "please steal our approach to sustainability" and offered to send the recipe for Allbirds' plant-based soles to anyone who asked. As of January, 20 brands intended to release products made according to the Allbirds not-secret sauce, the company says.

Allbirds is a full-fledged member of the purpose-driven corporate set.

Indeed, kindness to the planet is one of Allbirds' biggest selling points. In April it slapped a carbon footprint label on everything it sells. It claims to use 7.1 kilograms of carbon to manufacture a wool sneaker, compared with an industry average of 12.5 kilograms. Around the same time, Allbirds jumped into the field for "performance" running shoes with the Dasher. It is made from merino wool and other materials that could double as the recipe for some kind of health tonic: eucalyptus, sugarcane, and castor bean oil.

It's a tall order to go up against Nike and other athletic-apparel incumbents, especially with a nearly all-natural shoe. Allbirds figures that sticking with its best advantage—its good-for-the-planet sheen—represents its best chance of not getting left in the mud.

REGENERATIVE agriculture dates back at least to biblical times, when the ancients practiced rudimentary crop rotation by letting their fields lie fallow in order to keep the soil rich with nutrients. The term, however, has more recent roots in media and marketing: Magazine publisher Bob Rodale talked in 1989 about the virtues of "regeneration" as

COURTESY OF ALLBIRDS

REAL MONEY

7.1 KILOGRAMS
THE AMOUNT OF CARBON THAT GOES INTO MAKING AN ALLBIRDS SNEAKER, COMPARED WITH AN INDUSTRY AVERAGE OF 12.5 KILOGRAMS

$200 MILLION
ALLBIRDS 2019 REVENUE, UP FROM $150 MILLION THE YEAR BEFORE

$77 MILLION
THE AMOUNT OF VENTURE CAPITAL THE SIX-YEAR-OLD COMPANY HAS RAISED, FROM INVESTORS INCLUDING T. ROWE PRICE AND FIDELITY. IT IS SAID TO BE SEEKING MORE

FIELD OF DREAMS The comfy wool for Allbirds' sneaker-slippers comes from merino sheep, like these beasts on the South Island of New Zealand.

opposed to mere sustainability.

As climate change concerns have surged, regenerative agriculture has been touted as a way to sequester carbon from the atmosphere. "Soil is a huge carbon sink," says John Brakenridge, CEO of New Zealand Merino, the agency that sources wool for Allbirds. This means that soil absorbs carbon, mitigating its impact. "Done right, this can be a big part of the solution to what we're facing in global warming."

One morning in March, I meet Brakenridge and the Allbirds team in downtown Christchurch, before heading up north. In between farm visits, Allbirds has spent the past week participating in a conference with other clothing brands, such as North Face and the activewear label Icebreaker, about regenerative agriculture. Collaboration is the order of the day. Says Jad Finck, Allbirds' vice president of innovation and sustainability: "Nothing's going to happen if we're all siloed." On a whiteboard, someone has written prompts ("How might we reward growers?" "How might we start a movement?") and maxims ("The market can act faster than policy"). A poster titled "Carbon & Environmental Claims: How to Tell the Story" includes a cartoon of a buzzing smartphone and various words in speech bubbles: "social responsibility," "wellness," "traceability," "ethical." There's a merino wool surfboard in the lobby, a merino wool bed in a mock bedroom, and a merino wool yoga mat on the merino wool carpeted floor.

This combination of earnest environmentalism and aggressive marketing is as much the Allbirds recipe as the makeup of its shoes. "You've seen the world coalesce around a global problem," says Tim Brown, the other Allbirds founder, when we speak over Zoom later in the year. "It's a problem that doesn't know borders. It's not too hard to draw a bow to the next crisis looming around the climate and the environment."

But do people care enough about the environment to buy running shoes made of wool rather than a standard pair of Nikes? Or to spend $95 on a pair of classic Allbirds when Amazon sells a nearly identical-looking version for $29.99? In fact, a certain segment of people do. "Millennials tell us that they are very concerned about how products are made, where they're made, whether they're made ethically, and that they're willing to pay more money for those that are," says Matt Powell, a senior sports industry adviser at NPD Group, a market research firm. "Pre-COVID-19, the consumer

LEADING THE WAY Allbirds cofounders Joseph Zwillinger (far left) and Tim Brown, photographed in San Francisco.

wanted to align with brands that expressed their values. And I think that's even more true now."

The pandemic and subsequent stay-at-home orders did force Allbirds to adapt. It closed its headquarters and most of its retail stores. "We've always had a profitable business, but we amassed a rainy-day fund," says Zwillinger. Nearly all the stores have since reopened; the company managed to avoid laying off any of its 450 employees; and Allbirds even returned a Paycheck Protection Program loan it had received. "Frankly, we were very eligible for it," says Zwillinger, but notes the company nevertheless felt a moral obligation to free up funds for businesses less flush with venture money than Allbirds.

None of which is to say Allbirds is above capitalizing on a perilous moment in the marketplace. It is now focused on its running shoe, the Dasher. Skeptics doubt the company can successfully muscle into a market dominated by the likes of Nike and established specialty brands including Asics, New Balance, and Brooks. "I don't know why anybody would get into the running shoe space in 2020," says Jeff Dengate, senior test editor of *Runner's World* magazine. "It's a very competitive market."

Then again, so was the everyday sneaker market before Allbirds came around. The company says the Dasher's launch produced its third-best single-day sales ever, with the two better days having come in the holiday season. "It feels weird to say you're lucky in a time like this," says Zwillinger, a former biotech engineer who hosted a dinner for Brown, a former professional soccer player, and then became his cofounder. "But we kind of got lucky: Running's not canceled." Allbirds started by selling strictly online, but now about half its stores are outside the U.S., including in Chengdu, Amsterdam, Berlin, and Tokyo. Says Brown, "It felt like the world needed this particular product, more than ever, in this moment."

BACK AT Glenaan Station in New Zealand, Allbirds' place in the market relative to more well known brands takes a back seat to the fact that its patronage allows the shepherd who supplies its wool to make impressive capital improvements to his farm. Paul Ensor, a fourth-generation rancher, recently spent more than $100,000 to fence off from grazing cattle a "wee stream" of the glacial river that runs along his acreage. I ask how the stream benefits his wool production. Ensor blinks at me, confused. "It just runs out to sea," he says. "For the ecosystem. We look at it as an asset for biodiversity, for water health."

But even in these fairy-tale rolling hills, there are realists. Not far from Glenaan Station is Castle Hill Station, a farm owned by Jos and Catherine Van de Klundert, who emigrated from the Netherlands to New Zealand in 1984. ("More space," explains Catherine.) The wool from their 3,000 merino sheep also gets spun into Allbirds, though Catherine's never put on a pair herself. "Are they comfortable?" she asks. "I could have ordered them online, but I'm from a generation that doesn't really like to do that."

"The thing about merino," Jos says, looking out over the couple's 8,000 acres, "is that it's more or less marketing. There's a certain part of the public that can afford it, and those sort of people want to know where the product is coming from. The story behind the wool has nearly the same value as the product itself."

For Allbirds to win in the marketplace, it will need consumers to take that story and run with it.

JASON HENRY

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CARING FOR VULNERABLE POPULATIONS DURING THE COVID-19 PANDEMIC

Centene Corporation's steadfast commitment to the communities it serves remains strong.

SOCIAL DETERMINANTS OF HEALTH ARE OFTEN at the core of disparities among the underserved. For individuals, families, and communities around the world that are already having difficulty finding nutritious food and other necessities, the COVID-19 pandemic has caused additional hardship. While the full effects of the pandemic are still emerging, data collected by the CDC suggests racial and ethnic minority groups are disproportionately impacted. People of color are nearly three times more likely to be infected by COVID-19, and about five times more likely to be hospitalized with the disease. Some of the many inequities that put racial and ethnic minority groups at increased risk include socioeconomic status, access to healthcare, and increased exposure to the virus due to occupation, such as being an essential or critical infrastructure worker.

Centene's COVID-19 relief efforts share a common goal: to reduce the hardships of the pandemic on underserved communities while increasing access to healthcare. Its provider network, community partners, and workforce ensure that millions of individuals can stay healthy under challenging circumstances.

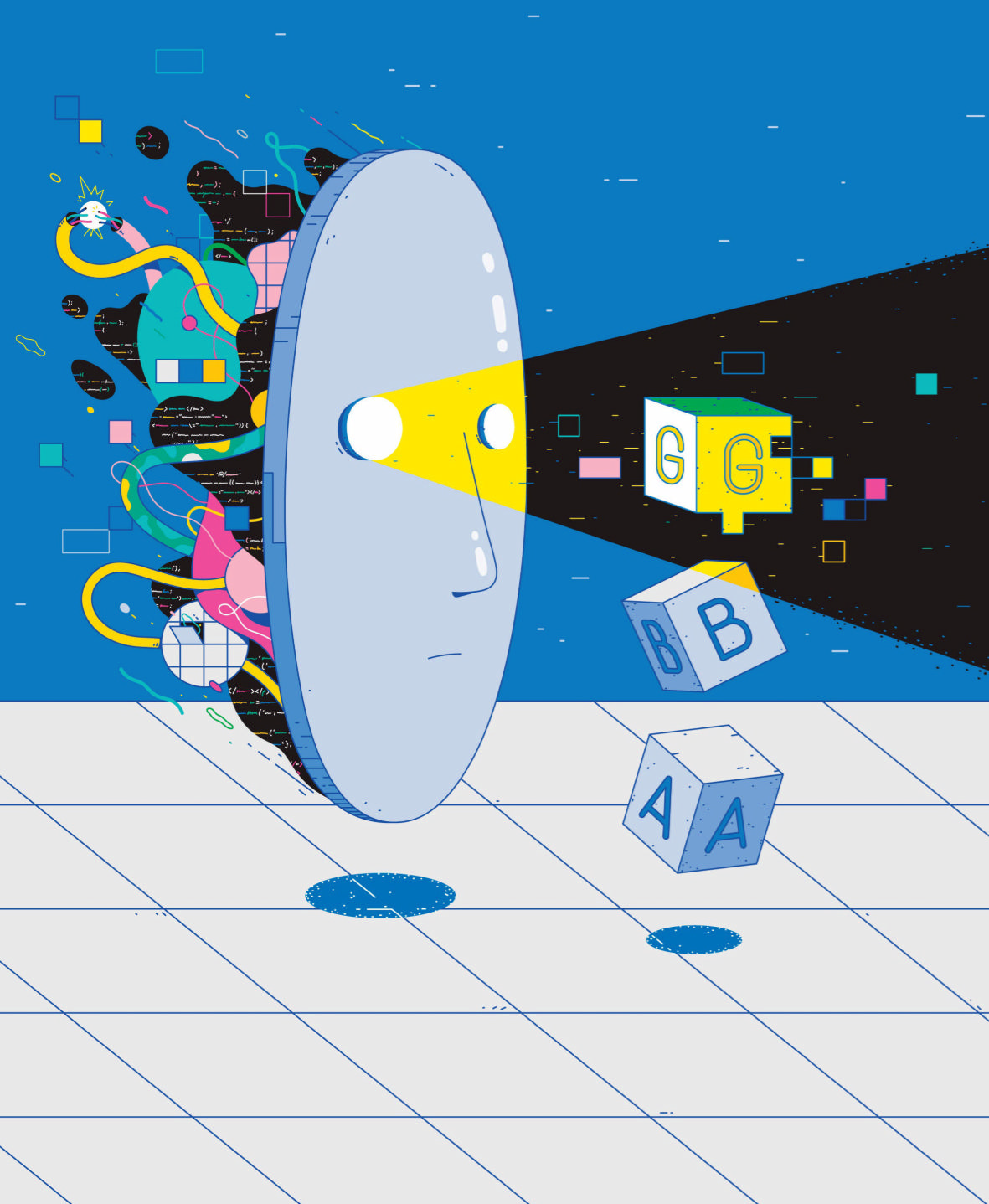
"We acknowledge the deep-rooted racial and social justice issues at hand," says Michael F. Neidorff, chairman, president, and CEO of Centene. "We stand united in our resolve to help drive systemic change."

As one facet of the organization's response, Centene launched a Health Disparities Task Force to advise the company on how it can provide lifesaving testing and treatment to those who need it most. Centene has also partnered with the National Minority Quality Forum, an independent research organization dedicated to ensuring high-risk populations receive optimal healthcare, to conduct a Minority and Rural Health Coronavirus Study. These initiatives are the next chapter in Centene's history of removing barriers to health for society's most vulnerable members.

Centene's Communities Together in Health initiative engages key stakeholders to address healthcare disparities while recommending evidence-based solutions and policies. The Centene Center for Health Transformation™ leverages academic research and industry resources to create and implement innovations to improve health outcomes. Social Health Bridge™ makes it easier for healthcare and community organizations to tackle nonmedical barriers to health.

"During this year of uncertainty, we have experienced a world upended by a global pandemic and a country faced with civil unrest," Neidorff says. "As a company providing health coverage to one in 15 individuals across the nation, we remain committed to taking action and playing a vital role in protecting the health of our members and local communities."

Despite the many challenges Americans face, Centene remains committed to delivering on its purpose of transforming the health of the communities it serves. ■



WHAT MAKES ARTIFICIAL INTELLIGENCE LOOK DUMB

NEURAL NETWORKS EXCEL AT DISCERNING IMAGES. WORDS ARE ANOTHER STORY, MEANING SUPERSMART SOFTWARE STUMBLES ON A BASIC BUSINESS TOOL: SPREADSHEETS. TEACHING COMPUTERS TO READ COULD UNLOCK LUCRATIVE OPPORTUNITIES.

By JONATHAN VANIAN

ILLUSTRATION BY **LENA VARGAS**

THE ELECTRONIC SPREADSHEET has been around for about 50 years. An ingenious invention originally meant to digitize bookkeeping, the software has enabled researchers and businesspeople to input infinite rows and columns of disparate data and then analyze the information with the aid of a computer. It is such standard fare today that schoolchildren are as likely to use free spreadsheet programs as financial analysts are to manage budgets.

What spreadsheets cannot do is think. That's the preserve of newer, more powerful types of software called neural networks, complex artificial intelligence programs designed to mimic the computational processes of the human brain. And for reasons unique to the development of neural networks in recent years, images—rather than so-called structured data, columns and rows of text and numbers, for example—have been the preoccupation of top A.I. researchers. In other words, powerful computers can sift through millions of photos of cats to understand minute feline characteristics. But the same software struggles to intuit fields in a humble spreadsheet.

This has been deeply frustrating to data scientists in fields like medical research, finance, and operations, where structured data is the coin of the realm. The problem, researchers say, is one of emphasis as well as capabilities. "Most of data we deal with is structured, or we have imposed some kind of structure on it," says Bayan Bruss, an applied machine learning researcher at the financial firm Capital One. "There's this big gap between the advances in deep learning and the data that we have. A lot of what we do is try to close that gap."

Fledgling projects at a handful of companies are trying to bridge the divide. At biotech powerhouse Genentech, for example, data scientists recently spent months building a spreadsheet with the health records and genomic data of 55,000 cancer patients. The fields contain nuggets such as age, cholesterol levels, and heart rates, as well as more sophisticated attributes like molecular profiles and genetic abnormalities. Genentech's plan is to feed this information into a neural network that can map a patient's health attributes. The hoped-for outcome is a breakthrough drug that is potentially unique to each patient.

The problem is that researchers are just now beginning to teach neural networks how to consume structured data like the spreadsheets Genentech is building. "The majority of our data is structured data, whether it's from clinical trials or electronic health records," says Ryan Copping, global head of analytics for personalized health care data science at Genentech. If computer networks can analyze and make their own realizations about similarities among patient profiles, he says, "then you could start looking at outcomes and thinking about which patients we can target with which therapies. That's the unmet need."

The opportunities extend far beyond health care. Research firm IDC estimates the commercial sector will generate 5.8 zettabytes of productivity data—sales forecasts, customer data, and the like—this year. A zettabyte of information corresponds roughly to the number of grains of sand on all the world's beaches. A lot, in other words, says John Rydning, head of IDC's Global DataSphere program, which measures the amount of data created each year.

This means that businesses of all types, if they can corral the data into a form neural networks can learn from, have a lucrative opportunity. Even slight improvements in predictive capabilities can lead to enormous financial gains, says Athina Kanioura, chief strategy and transformation officer for food giant PepsiCo. "The additional level of accuracy translates to millions of dollars," she says.

The challenge, then, is getting researchers to work with the kind of data that can be most helpful to business. "The deep networks that are so cool can really do amazing things for our cars and for understanding sentiment from tweets online," says Peter Bailis, a Stanford professor and

5.8 ZETTABYTES

That's the amount of productivity data that research firm IDC predicts will be created this year, presenting an opportunity for A.I. to crunch that information. A zettabyte is roughly equivalent to the number of grains of sand on all the world's beaches.

also CEO of a Silicon Valley startup called Sisu Data that builds analytical tools for businesses. "But they don't help us with understanding things like risk or customer satisfaction if our data is stored in tables." In terms any businessperson can relate to, the question remains: Can A.I. conquer its Excel problem?

P **ROGRESS IN PROMOTING** business applications for neural networks rests on getting the programs to understand words as well as they have been able to analyze images. For that, researchers have turned to a technique called word2vec. (The "vec" stands for vector, the type of analytical unit best understood by a neural network.) Word2vec, invented in 2013 by a team of Google researchers and published as an open-source software project, helps computers map the relationships among certain words. It has led to more powerful language systems that recognize, for example, that the word "car" is more closely related to automakers like BMW or Nissan than a food company like Kraft Heinz.

The computational magic of word2vec is its ability to discover those correlations by converting words into a string of numbers that neural networks can understand. Over time, as a neural network is trained on additional text, it groups words according to numerical scores measuring how frequently the words appear near each other. Compared with older so-called natural language processing technologies, these newer systems improve on the pattern recognition attributes typically associated with human thought.

From this computer-assisted word-association game comes an ability to make sense of what is stored in the rows and columns, for instance, of a spreadsheet. This process creates a type of Morse code for a neural network: If the program comes across

Rachel Thomas | Cofounder, Fast.ai

"IT'S THE CORE IDEA: NEURAL NETWORKS ARE PROVIDING THIS INFINITELY FLEXIBLE ARCHITECTURE FOR LEARNING BY MODELING A PARTICULAR SHAPE OF PATTERNS."

REAL INTELLIGENCE Former Uber engineer Rachel Thomas cofounded the educational nonprofit Fast.ai and an ethics-focused think tank in San Francisco. She explains A.I. to businesspeople and scientists alike.

PHOTOGRAPH BY **GABRIELA HASBUN**

a sales spreadsheet with a column indicating "days," it can learn with enough data that certain holidays could impact sales during a particular season without being explicitly told to do so. "It's kind of the core idea," says Rachel Thomas, director of the University of San Francisco's Center for Applied Data Ethics and cofounder of an educational nonprofit called Fast.ai. "Neural networks are providing this infinitely flexible architecture for learning by modeling a particular shape of patterns."

The investment world alone is rife with opportunities for analyzing words. At Goldman Sachs, a team of researchers trained a neural network to look for words associated with intra-family home transfers. Such noncommercial transactions likely won't describe the true value of a house, and teaching a software program to factor them out can improve the bank's analysis. "So we trained a neural network so it learns to pay less attention to a transaction that has that label," says Charles Elkan, a longtime professor of computer science at the University of California at San Diego who until recently led machine learning projects for Goldman.

Sophisticated word association is also invaluable for logistics operators. The San Francisco grocery-delivery startup Instacart uses a variant of word2vec to teach its algorithms to anticipate customer preferences, particularly when requested items are unavailable. The program converts the words for supermarket inventory items into numerical data so neural networks can process them. The network then groups items together so it can understand, for example, that trail mix has more in common with dried fruit or nuts than it does with coffee. The result is a time and money saver, says Sharath Rao, a machine learning director for Instacart. "Otherwise you would have to think of all the possible pairs and keep a [manual] table," he says.

A HANDFUL OF CORPORATIONS ARE TEACHING NEURAL NETWORKS TO WORK WITH THE KIND OF STRUCTURED DATA THAT ALREADY EXISTS WITHIN THEIR WALLS. A FEW EXAMPLES:

GENENTECH

The biotech pioneer has built a spreadsheet with complex health data—from routine records to genomic profiles—from tens of thousands of patients. The stakes are high: If artificial intelligence can properly analyze the data, the result could be medical treatments targeting the disease of individual patients.

GOLDMAN SACHS

A.I. presents untold opportunities for investors. The bank hired a machine learning professor to build a tool to teach networks to ignore phrases that could complicate a financial analysis. Example: "Intra-family transfers" likely don't reflect the accurate value of a home. Teaching a network to find them can improve the model.

INSTACART

The grocery-delivery startup has an understandable data set in the inventory of supermarket items its workers pick for customers. The company is teaching its algorithms to do sophisticated word association—like matching trail mix with nuts and dried fruit—in order to offer customers alternatives when their choices are out of stock.

FOR ALL THE MOMENTUM behind using deep learning on structured data, hurdles remain. For one, the idea is so new that there's no tried-and-true way to evaluate how good these techniques are compared with more conventional statistical methods. "It's a bit of an open question right now," says Even Oldridge, a data scientist for Nvidia, which makes chips that power A.I. software.

Indeed, given the expense of training neural networks, older data analytics methods may be sufficient for companies that don't have the right A.I. expertise in-house. "I'm a firm believer that for every company, there isn't a magic solution that can solve every problem," says A.I. expert Kanioura, the PepsiCo executive. This is in fact behind the pitch that cloud-services giants Amazon, Microsoft, and Google make: Buy A.I. services from us rather than making large expenditures on talent for potentially incremental returns.

And as with any project where humans aim to teach computers how to "think," the biases of the living organisms threaten the project. Deep learning systems are only as good as the data they are trained on, and too much or too little of a certain data point can skew the software's predictions. Genentech's data set, for instance, has clinical data on cancer patients dating back 15 years. However, the genomic testing data it uses in its spreadsheet is eight years old, meaning that patient data from before then isn't as comparable as researchers might like. "If we don't understand these data sets, we could build models that are totally unreliable," says Genentech's Copping.

Still, the potential value of supercharging the analysis of all those spreadsheet fields is nothing less than being able to "predict how long a patient can survive" with a certain treatment, says Copping. Not bad for a bunch of rows and columns.

The Sweet Taste of Success Begins with Staff

At **FONA International**, investing in employees is the foundation for growth.

UPON BEGINNING THEIR EMPLOYMENT AT FONA International, each staff member is given a two-by-four-inch block of wood with a plaque that says their name, their start date, and "2x4"—a company mantra, shorthand for FONA's growth strategy of doubling its business every four years. The blocks serve not only as a physical reminder of that goal but also as a symbol that every employee is part of the equation.

Based in Geneva, Ill., FONA International creates and manufactures flavors for the largest food, beverage, and nutrition companies in the world. Family-owned and -operated, FONA was founded more than 30 years ago by chairman and CEO Joe Slawek, who believes that company growth and employee development are inextricably linked. This, he says, is evidenced by the "FONA triangle"—the company's model for innovation and success. The three sides represent employees, stakeholders, and customers.

"The first thing we want to do is invest in our employees, so they, in turn, are able to help our customers grow," Slawek says. "Our customers will, in turn, let FONA grow. In turn, FONA will reinvest in employees, and we complete the cycle."

Growth is a recurring theme at FONA, and it's baked into the company's core values—in ways that go beyond mere profit. FONA is committed to assisting its employees with advancement and learning opportunities. The company offers tuition reimbursements for graduate-level study, and all employees are required to complete 40 hours of continuing education each year. It's all a part of a best-in-class benefits package that includes free premium health insurance for the entire family, a 401(k) with safe harbor contributions, flexible work schedules, and college scholarships for all employees' children. FONA's robust employee recognition program also facilitates a happy workplace culture. Whether it's quarterly peer recognitions, spot bonuses for special projects and achievements, or the annual "Academy Awards" (at which employees receive accolades at a company dinner), professional and personal growth are acknowledged and generously rewarded.

"At the end of the day, our people are the reason we will grow," Slawek says, before correcting himself. "Not at the end of the day. At the beginning of the day, at lunchtime, at dinner at the end of the day—it's our people."

FONA FLAVORIST REBECCA GENOVISE WORKS ON A FLAVOR SOLUTION IN ONE OF THE COMPANY'S LABORATORIES.

AFTER THE OIL RUSH

For two decades, the Canadian province of Alberta grew flush from its vast petroleum reserves. But after years of falling crude prices—punctuated by the pandemic—the economy is struggling. And the region's citizens are wondering: What now?

By KATHERINE DUNN

PHOTOGRAPHS BY **TODD KOROL**

ENERGY HUB
A dog runs in a park near downtown Calgary, Alberta, the oil and gas capital of Canada.

THE MAYOR OF CALGARY is driving north. Naheed Nenshi is making the three-hour trip to a meeting of the provincial legislature in Edmonton, and I'm along for the ride via speakerphone. As he heads down a flat stretch of highway, the GPS bleating instructions in the background, Nenshi begins laying out the challenges that his city is facing. A prolonged slump in oil prices, made worse by the pandemic, has severely strained Calgary's finances. And the dramatic downturn has put a new spotlight on a problem that Nenshi has been talking about for years: the region's unhealthy overdependence on the oil and gas industry.

A onetime McKinsey consultant, Nenshi, 48, is famously cheerful and friendly; he is, after all, Canadian. So he comes across as pretty upbeat. But it's possible to detect just a touch of frustration in his voice as he offers a blunt assessment of his city's economic situation: "Uh, *not great*."

Suddenly, Nenshi interrupts himself to read a billboard he's driving past with a message from the government of Alberta: "Diversify Our Economy." "That's it," he says drily. Then he adds, chuckling: "That's all it says."

The language is striking for more than its simplicity. Nenshi points out that it represents a sudden shift in messaging from the government of the Canadian province. "I would not have seen that billboard six months ago," he says. The trauma of the COVID-19 crisis, however, has quickly reshaped a long-running debate in one of the world's biggest strongholds for the oil and gas business.

Calgary, a city of 1.3 million people, is the corporate and financial headquarters of Canada's energy industry. When Nenshi was elected in 2010, he became the first Muslim mayor of a major North American city. He rode to victory on a "purple wave" coalition of red and blue centrist voters and took office near the end of a two-decade boom. Nenshi touted plans to build on Calgary's economic strength by investing in industries outside of oil and gas. But as oil prices have tumbled from above $100 per barrel over the past decade to the current level below $40—falling even lower along the way—the instinct of many of his fellow Albertans has been to hunker down and wait for the slide to reverse. And a loud and growing chorus of criticism from environmentalists has caused some of Nenshi's constituents to grow even more defiant.

Alberta's energy wealth is derived primarily from the so-called oil sands located in the region's north. The area's vast unconventional petroleum deposits add up to proven reserves of 165.4 billion barrels—the third-largest total in the world after Venezuela and Saudi Arabia. The sands are the source of more than 60% of Canada's oil production. They have also made Alberta a global target for activists.

Crude from the oil sands must be extracted and processed from a sandy sludge, in a costly and emissions-intensive process that often more closely resembles open-pit mining than conventional drilling. Aerial photos of the vast ponds of tailings—a thick, oily by-product of the extraction process—have long sparked pushback by environmentalists. Blocking the Keystone XL pipeline, which would bring additional oil-sands crude to the U.S., has been a major priority of environmental campaigners in recent years. A legal effort has successfully

SHIFTING SANDS

Alberta's vast proven supply of oil trails only that of Venezuela and Saudi Arabia globally and powered a long-term boom. But with oil prices low, the relatively high cost of extracting crude in the oil sands has lessened the region's appeal.

CRUDE APPROACH
Extracting petroleum from the oil sands is an emissions-intensive process.

stopped construction in the U.S. for the time being, despite the Trump administration's efforts to push the pipeline ahead.

For years, tax revenues from the oil sands helped fund robust and balanced budgets in Alberta. And the province still makes a net contribution to the federal government that is redistributed across the country.

Today, however, the province's accountants are looking at a gaping hole. In August, the Alberta government released a revised budget forecast for the current year with a deficit that was $12.8 billion larger than projected back in February. Resource revenues, mainly from the oil and gas sector, are expected to be $3 billion below the original projection. The unemployment rate in Alberta, meanwhile, stood at nearly 12% in August, the second-highest of any province in the country. And the province's economy is expected to contract 8.8% this year. Last year, oil and gas, along with mining, accounted for 26% of Alberta's GDP, and its indirect impact was even bigger. So the slowdown stings.

WHAT I'VE BEEN SAYING FOR SOME TIME IS, 'WE CAN'T PISS AWAY THE DOWNTURN.'"

Naheed Nenshi | Mayor of Calgary

In many ways, Alberta is emblematic of the struggle going on in oil-rich areas around the world, from West Texas to the Middle East. The pandemic has merely laid bare and made even starker the economic challenges Alberta was already facing—the essential conundrums of boom and bust at the heart of any oil region. When times are good, there's little motivation to shift attention away from a lucrative sector. When times are bad, there's no money. But while breaking the "resource curse" is always hard,

BEN NELMS—BLOOMBERG/GETTY IMAGES

the problem is especially vexing in Alberta, which is landlocked and dependent on its trading partner to the south—the U.S. is the destination for 96% of its exports. Meanwhile, green-energy advocates—increasingly with the heft of governments and institutional investors behind them—are gaining new traction globally in the push to accelerate the transition away from fossil fuels. Alberta must adapt, or it could be left behind in the new energy economy.

That's why Nenshi believes that the region has no choice but to change how it sees its future, and quickly. Calgary must embrace a nascent movement to develop clean-energy jobs, and up the pace of its investment in other areas.

"There is a very famous bumper sticker. And it says, 'God, grant me another boom, I promise not to piss it away this time,'" says Nenshi as his car rolls through the prairie.

He continues: "What I've been saying for some time is, 'We can't piss away the downturn, either.' We're exceptionally good at pissing away booms. We're world-class at it. But we cannot actually afford to piss away a downturn."

If Calgary can't change now, can it ever?

MY ARRIVAL in this world coincided with an oil bust. I was born in Calgary in November 1989, on the same day that Saudi Arabia announced the discovery of a major new oilfield. The world was seemingly awash in crude. And it was trading at just $20 a barrel. All of which meant that the industry that had drawn my parents—who met at a Calgary bar called the Silver Slipper Saloon—to the city earlier that decade was in decline. (Both of my parents have spent their careers in the energy sector.)

By the time I was starting school, a new boom had begun, driven by the expansion of the oil sands. It would be the longest, biggest boom of all.

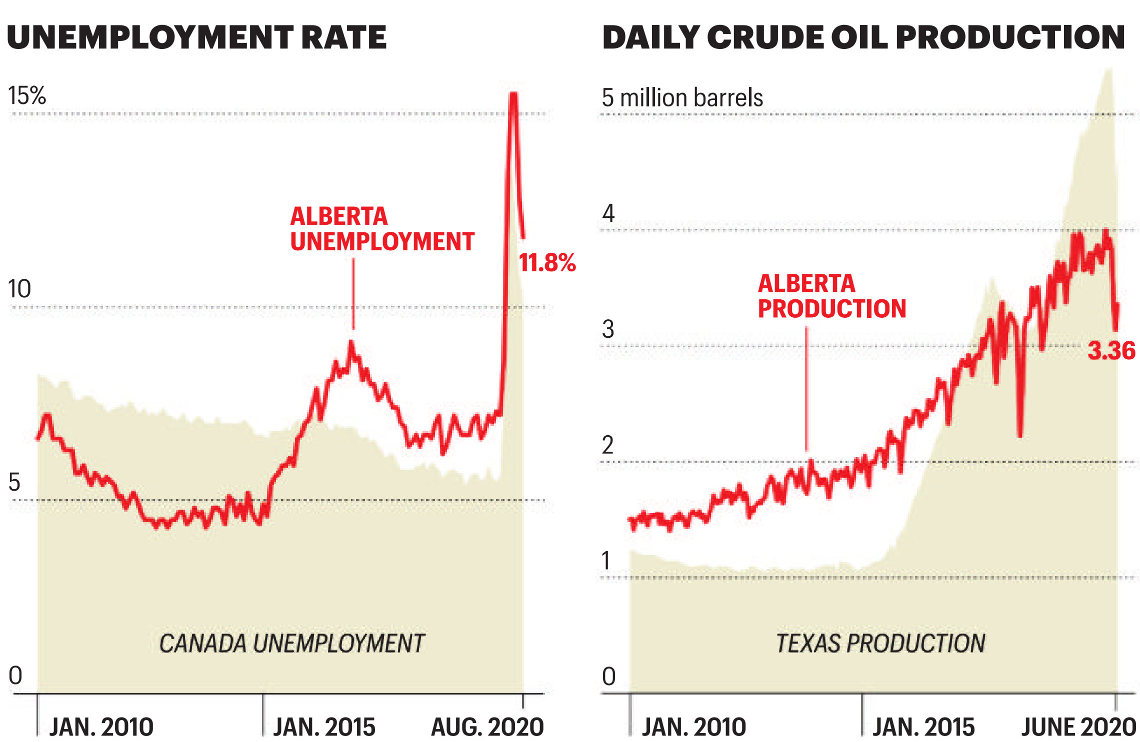
Before long, coffee chains were struggling to find staff; the suburbs were blooming in every direction;, and teenage boys knew they could get big money, fast, by dropping out to work on the rigs.

The current reckoning really began in 2014, when oil prices dropped by more than 50% in a matter of months. Despite periodic rallies, oil has remained persistently lower since then. The biggest reason has been the astonishing, fracking-enabled surge in U.S. oil production. In 2010, the U.S. produced some 5.5 million barrels per day of oil. Last year, the average was over 12.2 million barrels per day. Now the coronavirus-driven economic slowdown has only increased the downward pressure on prices. The most recent estimate from the International Energy Agency is that global oil demand is expected to average 91.9 million barrels per day this year—that's 8.1 million barrels per day less than in 2019.

While it's possible oil prices could climb again post-pandemic, there are signs that another boom like the last one may never come back. Automation threatens 50% of upstream energy jobs in the province, according to an August report by EY. And Calgary Economic Development, an economic council, says that retraining for jobs in a more digital energy sector—largely for the kinds of jobs that can repurpose Calgary's surplus of petroleum engineers and geophysicists—must happen on a massive scale. The city of Calgary, led by Nenshi, has been trying to stoke new economic development. In 2018, the city created a $100 million fund to give grants to tech startups and other local businesses outside the oil and gas industry that pledge to create jobs. But the pairing of the pandemic and the oil slump has also hit some alternative sources of job creation—like what was an exploding restaurant and brewery scene, and tourism around the Rockies.

STEEP CHALLENGES

Driven by fracking, oil production in Texas soared past Alberta's over the past decade. And this year, job losses from the pandemic have caused unemployment in the region to spike.



SOURCES: EIA; ALBERTA ENERGY REGULATOR

MAN OF THE LAND
Rancher John Cross on his historic A7 Ranche near Nanton, Alberta.

Unlike some oil-rich economies—notably Norway, which socked away its petroleum riches over the years to amass what is now a $1 trillion sovereign wealth fund—Alberta hasn't saved much for a rainy day. The province's own Alberta Heritage Savings Trust Fund, with some $13 billion in assets, is simply not large enough to plug the gap. While government revenue has soared since 1976, when the fund was created, its value has essentially remained flat: Alberta's riches, instead, went to its world-class public health care and education—and toward the lowest taxes in the country.

Of course, the oil and gas sector is not expected to disappear any time soon, even if prices don't rise dramatically. Even under aggressive forecasts for transitioning to a green economy, some oil production is still expected to be in place by 2050—it's simply a matter of where it will come from. The Norwegian energy consultancy Rystad Energy still expects oil production across western Canada to grow by close to 2% annually for the next decade, with demand for Alberta's heavier-style crude bolstered by declining output from Mexico and crisis-wracked Venezuela. But new investment in the oil sands in particular is nonexistent right now, according to a range of analysts. Some international oil companies, such as French giant Total, have pulled out of the region completely.

"WE MIGHT NOT HAVE A JOB TOMORROW. WHAT ARE WE GOING TO DO ABOUT THAT?"

Lliam Hildebrand | Cofounder of Iron & Earth

The industry's pullback from Alberta can be chalked up in part to political uncertainty over whether or not Keystone and other pipelines to bring more oil out of the region will be approved. But the biggest issue is the cost of producing crude in the oil sands. Both Rystad Energy and Wood Mackenzie, the Edinburgh-based energy consultancy, put the break-even price for existing oil-sands production at around $45 per barrel, with some projects able to keep the lights on in the $20 to $30 range. For some projects, though, the price is much higher.

MIDDLE GROUND
As an oil and gas veteran and an Indigenous woman, Deanna Burgart strives to meld the perspectives of both industry critics and boosters.

IN A RECENT POLL OF ALBERTANS, 29% OF RESPONDENTS WANTED TO "DOUBLE DOWN ON OIL."

Oil-sands projects are vast pieces of infrastructure and typically require 40- to 50-year commitments to get off the ground. And even the most efficient developments are hugely capital intensive. The Alberta government estimated in 2019 that the most expensive mining-style projects' initial break-even price is as steep as $75 or $85 per barrel. That's a very high bar to meet, especially when banks and other investment groups are under pressure to tighten financing for fossil-fuel projects.

Another reality that Nenshi and his peers in government must accept is that economic prosperity on the scale of an oil boom is basically impossible to manufacture through policy. In fact, other parts of Canada—particularly the Atlantic provinces, which already lived through their own epic busts in the cod fishing and logging industries—arguably need help even more than Alberta, says Andrew Leach, an energy economist at the University of Alberta. And yet there have been few blockbuster solutions. One of the great ironies of the Alberta boom was that it employed so many of the people whose economic futures had been displaced by the busts in Atlantic Canada that came before. "There's nothing that a government policy can do that's automatically going to bring in millions of dollars of foreign direct

AN OIL REGION BY THE NUMBERS

26%
Portion of Alberta's GDP last year connected to the oil and gas industry, including mining. The sector's indirect impact on the province's economy is even larger

$3 BILLION
Projected shortfall in resource revenues in Alberta's revised budget this year, largely because of lower oil prices

67,000
Estimated number of jobs that could be created in Alberta by 2030 in a green-energy transition according to the nonprofit Pembina Institute

96%
Portion of Alberta's oil exports that go to the U.S.

$45 PER BARREL
Price of crude at which most oil-sands production breaks even, according to industry consultants. For some projects, the break-even price can be as high as $85

investment every year," Leach says.

The average oil and gas worker in Alberta is highly educated, specialized, and well-paid. Despite the sparkle of the tech economy, there is no guarantee that the new jobs that might arrive will match that standard. But there are Albertans who are determined to do their best to make it so.

LIAM HILDEBRAND wanted to use his skills as a welder in the oil patch to assist the green-energy transition—he just couldn't get a job. There's an assumption that oil and gas workers don't want to work in renewable energy, he says. But that's not the case. The truth is that you can't expect people to jump on a green future without a job.

Hildebrand took his first job in the oil business at age 20. In 2010, he went back to university to get a degree in geography with an eye toward a career in green energy—but no job offers materialized. So he returned to the oil sands to work as a welder for another six years. "I was nicknamed Greenpeace, like day one," he says with a laugh. But while many of his colleagues were legitimately skeptical, others admitted that worries over climate change, or the stress of boom and bust, were wearing on them.

By 2015, with oil prices crashing, the conversations over lunch in the work camps gained new urgency. "We weren't discussing a hypothetical situation," he says. "We might not have a job tomorrow. What are we going to do about that?"

That year Hildebrand, now 35, and a group of his fellow oil-sector workers, formed a nonprofit called Iron & Earth to advocate for sustainable energy investment. They argue that a full energy transition will produce a vast infrastructure building boom, across not just wind and solar, but biomass, geothermal, and hydrogen plants.

It's an ambitious vision—and far from the current reality. But there are signs of progress. This year a new wind farm funded by Berkshire Hathaway Energy's Canadian subsidiary will power the equivalent of 79,000 homes in southeast Alberta. Renewables made up less than 10% of the province's electricity generation in 2019. But Alberta is now the country's third-largest wind market, with 1,685 megawatts of installed capacity, according to the Canadian Wind Energy association. In 2017, Clean Energy Canada estimated that the province was home to 26,358 jobs in clean energy, with the sector representing about 1% of the province's GDP. In June, the Pembina Institute, an Alberta-based environmental NGO, said it estimated 67,000 jobs—the equivalent of 67% of the current employees of the resources sector in the province—could be created by 2030 as part of a green-energy transition.

Hildebrand, who left his oil job to run Iron & Earth full-time, believes that Albertans are ready to embrace big changes. There is a "whole awakening among workers," he says.

NOT EVERYONE in the province is so open to the concept of green energy. In recent years, Alberta has become more politically polarized, and that has made conversations about sustainability more difficult. A poll by the Canadian broadcaster CBC in March 2020 asked Albertans what the province needed to get its economy back on track. While nearly 40% mentioned the need to control pandemic or government support, some 30% of respondents said "economic diversification," while 29% said "double down on oil." Such markers were closely linked to how respondents vote, the survey noted. And since March 2018, those self-reporting that they are on either the left or the right politically have grown, while those reporting they are in the center shrunk by 9%.

Many Albertans are dubious about the arguments against fossil fuels. A 2018 effort by the Pembina Institute to gauge attitudes about sustainability, called The Alberta Narratives Project, found that about half of the people who participated either rejected the concept of climate change outright or doubted that it is caused by human behavior.

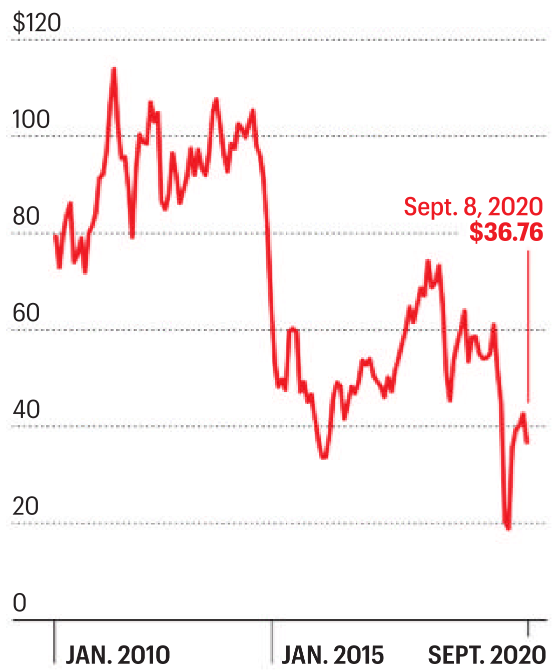
Within the corporate community, views are mixed. Multiple energy economists and experts I spoke with said climate-change doubt is unheard-of among executives at the largest oil and gas companies in the region, and support for an existing carbon tax is widespread. Both Suncor and Cenovus, Calgary-based oil and gas companies, have said they would reduce their per-barrel emissions intensity by 30% by 2030.

There have been plenty of exam-

A HALF-DECADE NOT TO REMEMBER

After trading at or above $100 per barrel for a few years, crude prices plunged in 2014 and never fully recovered.

PRICE OF A BARREL OF OIL (WTI)



SOURCE: BLOOMBERG

ples in recent years of the damaging natural disasters that scientists are increasingly connecting to climate change. In 2013, flooding engulfed downtown Calgary, rising up the stands at the city's hockey stadium. And in 2016, a fire so massive it was nicknamed "The Beast" eviscerated swaths of suburban homes in Fort McMurray, the company town that serves the oil sands.

Despite these visceral examples, broaching the urgency of addressing climate change and how it intersects with Alberta's oil sector tends to come up against stout resistance. One argument the industry likes to make is that Alberta's oil sands have dramatically reduced their emissions per barrel, which have historically been among the highest in the world. The Canadian Association of Petroleum Producers says that oil-sands emissions per barrel have fallen by 32% since 1990. And energy economists say it's true that research and development has reduced per-barrel emissions across many of the projects, in some cases dramatically. But the intense extraction process in the oil sands means that, on average, Alberta's product is still more energy-intensive than most other barrels. Plus, higher production volumes today mean that absolute emissions from the sector have increased over that same period.

Navigating these debates can be tricky. Deanna Burgart, 45, offers herself as an example of how to bridge the gap between loyalty to the industry and concern about the climate. She has learned from her own hard-won experience. Burgart was 35 and working as an engineer in the oil sands when she developed a relationship with her birth mother—an Indigenous woman and regular protester against the oil sands. It wasn't easy. "I learned how to have these difficult, polarized conversations from a place of love and respect," she says.

Burgart embraced her dual identities. She had found early success in the oil business. And now she learned that she was a Dene and Cree woman on her mother's side. She sought a way to combine these perspectives. Today, Burgart is a teaching chair focused on integrating Indigenous knowledge into the engineering curriculum at the University of Calgary, working to bring First Nations perspective into projects at the earliest stages. She is also the founder of Indigenous Engineering Inclusion, a consulting company, where she works with oil companies and First Nations groups to address everything from environmental impact to the prospects for job creation. She describes the choice to quit her job in the sector and start her own business as a choice to "converge" her identities. These days she does her best, she says, to listen to everyone, and just keep talking—a strategy she learned in those early conversations with her mom.

A BERKSHIRE HATHAWAY-FUNDED WIND FARM WILL SOON BE POWERING HOMES IN ALBERTA.

ALFRED ERNEST CROSS first arrived in Alberta from Montréal in 1886, founding the historic A7 Ranche just west of Calgary one year later. He would go on to become Albertan royalty: a ranchman, a proponent of the oil and gas industry, a politician, and one of the "Big Four"—the four ranchers that financed the first Calgary Stampede, the city's famous 10-day festival and rodeo.

Roughly 100 years after Cross founded his ranch, it passed into the hands of his grandson John. And John Cross decided to buck convention. He decided to adopt a holistic method of managing his ranch, working with the ecosystem of the natural grasslands to increase yields without fertilizer. It was a decision that, in the 1980s, was "really uncommon and quite controversial," he admits. It wasn't his only quirky decision. In the 1990s, he built an entirely "off-the-grid" house, powering it largely with wind and solar. (Twenty years later, he gave in and ran electric power. Relying completely on renewables "was a pain in the ass," he admits, especially in winter.)

Today John Cross believes the land has a place to play in a new energy transition. He advocates using offsets to reinvest in Alberta's ecosystem, and understanding nature's role as a carbon sink. "I think that's where oil and gas and land ownership in Alberta can benefit each other," he says.

BACK ON THE HIGHWAY, the mayor says he is buoyed by new ideas emerging, and he's hopeful that Albertans are ready at last to find the common ground necessary to deliver on the urgent billboard directive.

"I think you've seen government shift just very recently from 'all in' on oil and gas to a more balanced view," says Nenshi, as he rolls along through the prairie on the road to Edmonton. "Everyone wants jobs. Everyone wants a sustainable economy. And these are the sorts of things that should transcend partisanship." It's time to back up the billboard with action.

FOCUS ON MENTAL HEALTH

Helping employees deal with increased levels of stress leads to a happier and more productive workforce.

PRIOR TO THE PANDEMIC, VIRTUAL VISITS REPRESENTED APPROXIMATELY 2% OF THE BEHAVIORAL HEALTH CLAIMS OPTUM RECEIVED. SINCE MARCH, THAT NUMBER HAS GROWN TO NEARLY 50% AND HAS REMAINED STEADY.

PEOPLE KNOW THAT PREVENTIVE CARE HELPS THEM stay in good physical condition. Annual checkups and routine screenings, as well as participation in company-sponsored wellness programs, are common ways that people take care of their health. But they may not realize that preventive care is just as important for their mental health.

That may be changing, in part because of COVID-19.

The pandemic has exacted a heavy toll on individuals' sense of well-being, triggering worries about health, finances, and the future. In a survey conducted by the Centers for Disease Control and Prevention (CDC) in late June, U.S. adults reported "considerably elevated adverse mental health conditions associated with COVID-19," with 40% disclosing struggles—including suicidal thoughts—or substance use. CDC data also shows that symptoms of anxiety and depression increased sharply in April, May, and June.

Mental health challenges impact people's ability to perform at work. According to a recent survey by Optum, a leading information and technology-enabled health services business, more than 40% of full-time employees felt like they were less productive due to the effects of the crisis.

That's the bad news. The good news is that the pandemic has also prompted people to reach out for help in greater numbers, and they're finding it more readily available.

"The past couple of years there's been heightened awareness that mental health is closely linked to physical health and directly impacts workforce happiness and productivity. Since March, that's accelerated," says Steve Lafferty, senior vice president of behavioral health product at Optum. "In physical health care, you'd do risk assessments and connect the person to the right program up front, rather than waiting until it escalates. That principle is now being applied in the mental health world."

Optum's Employee Assistance Program, which provides emotional, financial, and work-life resources online or by phone to more than 15 million members globally, is experiencing greater demand amid the pandemic. The program also offers its clients access to training that helps managers recognize signs of stress in employees and formulate strategies to help them get the assistance they need.

As COVID-19 changes our daily lives, telehealth has been crucial in ensuring access to care while people have been advised to stay at home. Prior to the pandemic, virtual visits represented approximately 2% of the behavioral health claims Optum received. Since March, that number has grown to nearly 50% and has remained steady as many states ended lockdowns and lifted restrictions. Digital tools like Sanvello, a cognitive behavioral therapy self-help app that can also connect individuals to coaching, offer an additional path to early intervention.

"We want to remove the barriers to seeking care," says Lafferty. "It's all about understanding the people we're serving—and designing the right solutions." ■

Fortune's **Change the World** list is built on the premise that the profit motive can inspire companies to tackle society's unmet needs. The 2020 list, our sixth, stresses a crucial corollary: No business succeeds alone. Collaboration among companies, even among rivals, is a common thread in many of the stories that follow—in the effort to make "green" steel (see entry No. 52), in the campaign to close America's racial wealth gap (No. 18), and above all in the race for a COVID-19 vaccine (No. 1). As we face unprecedented collective challenges—a global pandemic, climate change, profound income inequality—cooperation has become a business superpower. Speaking of cooperation: As always, we've selected our list in collaboration with our expert partners at Shared Value Initiative, a consultancy that helps companies apply business skills to social problems. For more on our methodology, see page 84.

ILLUSTRATIONS BY **ANDREW FOOTIT**

NO. 1

The Vaccine Makers

GLOBAL

'The Whole World Is Coming Together'

Drugmakers are teaming up like never before to fight COVID-19. The benefits could last well beyond the pandemic.

BY CLIFTON LEAF

"Nearly 200 in development. Thirty-nine in human clinical trials. Nine in Phase III trials. I mean, yes, that is something." There is marvel in Seth Berkley's voice as he relates the progress made so far in producing a possible vaccine against COVID-19. But then, he's quick to point out that these numbers are more mile markers than milestones. "We don't know whether any of those are going to make it through," he says. There remains much testing to be done before we'll know if any of these valiant efforts produces a safe and truly effective countermeasure to this pandemic.

There are few people on earth who better understand the power of vaccines—or who know more about the challenge of developing, vetting, and distributing them around the world—than Berkley. The physician and epidemiologist presides over GAVI, the Vaccine Alliance, which over the past 20 years has immunized nearly 800 million children against a host of deadly pathogens, saving millions of lives.

Before becoming GAVI's CEO in 2011, Berkley founded and led the International AIDS Vaccine Initiative—which itself was a long lesson in both perseverance and keeping one's expectations in check. There is, after all, no vaccine yet for HIV, the virus that causes AIDS, despite nearly four decades of global endeavor. Nor is there one for SARS or MERS, those two other deadly coronaviruses that have emerged in recent years—nor for Lyme disease, West Nile virus, Zika, or the common cold.

Yet in one striking way, the swarm of initiatives to develop vaccines against COVID is unique, says Berkley. That is in the readiness of pharmaceutical companies to stand together in one very important common cause: ensuring that when vaccines are ready, they are available to the whole world at the same time.

The way this is manifesting is through what is itself a first-of-its-kind enterprise. GAVI, along with CEPI (the Coalition for Epidemic Preparedness Innovations) and the World Health Organization, have formed what they have called the "COVAX Facility"—a plan that pools together the purchasing power of wealthier nations to secure a portfolio of viable vaccines and simultaneously coordinates worldwide efforts to manufacture, stockpile, distribute, and deliver them safely and speedily to billions of people.

So far, more than 170 countries have signed on to the compact—and virtually every pharma company working on a COVID vaccine is

Head Writers
Erika Fry
Matt Heimer

Contributors
Danielle Abril
Maria Aspan
Eamon Barrett
Katherine Dunn
Robert Hackett
Jeremy Kahn
Beth Kowitt
Michal Lev-Ram
Rey Mashayekhi
David Z. Morris
Sy Mukherjee
Aaron Pressman
Jen Wieczner
Claire Zillman

participating in the planning, Berkley says. The goal is to invest in a portfolio of 12 to 15 candidate vaccines, as the most promising ones evolve, and then help those companies scale up manufacturing.

"We're trying to do 2 billion doses by end of 2021," Berkley says. "Nothing like this has ever been done before. Yes, we'll have some rough patches—I'm sure we'll have lots of critics—but the idea that, in a pandemic, the whole world is coming together, that industry is leading as part of this... that's a really big deal." And it's a big deal that could have positive repercussions long after this catastrophic virus is corralled.

FOR A SECTOR that has long been at or near the bottom of public opinion ratings—the pharmaceutical industry is currently the second-most disliked business group in America, according to Gallup's polling, up from its dead-last ranking last year—the COVID crisis has provided an opportunity for redemption. And many knowledgeable observers say the industry has grabbed it. "Their response to the pandemic and this great work that pharma people are doing has reminded many of their capacities and how they can be helpful to the world—as opposed to the industry being viewed as kind of selfish and uncooperative," Bill Gates tells me in an interview (please see "The Conversation," on page 8 in this issue).

Perhaps the most unexpected aspect to that response has been the sector's wholehearted embrace of collaboration. We've seen traditional pharma giant AstraZeneca, which in years past has not been a major player in vaccines, partner with a venerable academic institution (University of Oxford) to swiftly bring a vaccine candidate from lab to human trial. We've seen rivals snuggle up in pairs (Sanofi and GSK) and international collaborations galore: Germany's BioNTech, for instance, is testing one novel messenger RNA vaccine with giant Pfizer, in New York, and a second with Fosun Pharma, in Shanghai.

Philanthropist Gates, whose Bill & Melinda Gates Foundation is working with a large number of biopharma companies to develop vaccines as well as medicines to treat patients with COVID, says he's now witnessing a form of cooperation that seems never to have happened before, at least at scale—and that's having a company that did not invent a vaccine provide its factories so that production can be rapidly increased.

Alethia Young, a top biotech analyst and head of health care research at Cantor Fitzgerald, in New York, also sees traditional rivals coming together to help in manufacturing COVID therapeutics. She points to Regeneron, a company she covers as an analyst: "They did a collaboration recently with Roche, so that Roche could help them get more supply of their antibody—and that's unprecedented," she says. "Normally, when you look in the area of oncology or in other spaces, Regeneron and Roche are competitors.

"A big issue with vaccines and all of these medicines is the rate at which you can produce and how much you can make of them," Young explains. That's because, in the math of the pandemic, "the task is not to make a medicine that's available for a hundred thousand people or even a million people. You're making a medicine that, over time, needs to be available to probably hundreds of millions of people." And all this without disrupting the rest of your business, she adds: "These companies are pharmaceutical companies, so they have a whole other set of medicines they're trying to supply for other stuff."

IN THE CASE of a COVID vaccine, we don't know yet which, if any, of the shots on goal will score—or when there will be enough supply of vaccine and medicine to protect the planet. We have seen enough of this brave new approach among pharma companies, however, to think their collective action over the past three-quarters of a year might actually change the world, or save part of it. The question is: Can they not only keep it up through the end of this pandemic, but also extend their sense of shared purpose to other unmet needs in global health?

Giovanni Caforio, CEO of Bristol Myers Squibb, said it well at *Fortune*'s virtual Brainstorm Health conference this summer: "I have

CHANGE THE WORLD

Collaborating Against COVID

These Change the World companies are finding strength in numbers.

WALMART (Nº. 9)

When the pandemic ravaged the U.S., the restaurant industry shed tens of thousands of jobs—but Walmart's labor needs spiked. The retailer teamed with trade group the National Restaurant Association to find and hire workers.

MEDTRONIC (Nº. 13)

After global travel disruptions broke medical supply chains, Medtronic shared the design specs for its ventilators with thousands of other suppliers, enabling them to build the vital equipment they couldn't buy.

HENRY SCHEIN (Nº. 19) AND **UPS** (Nº. 49)

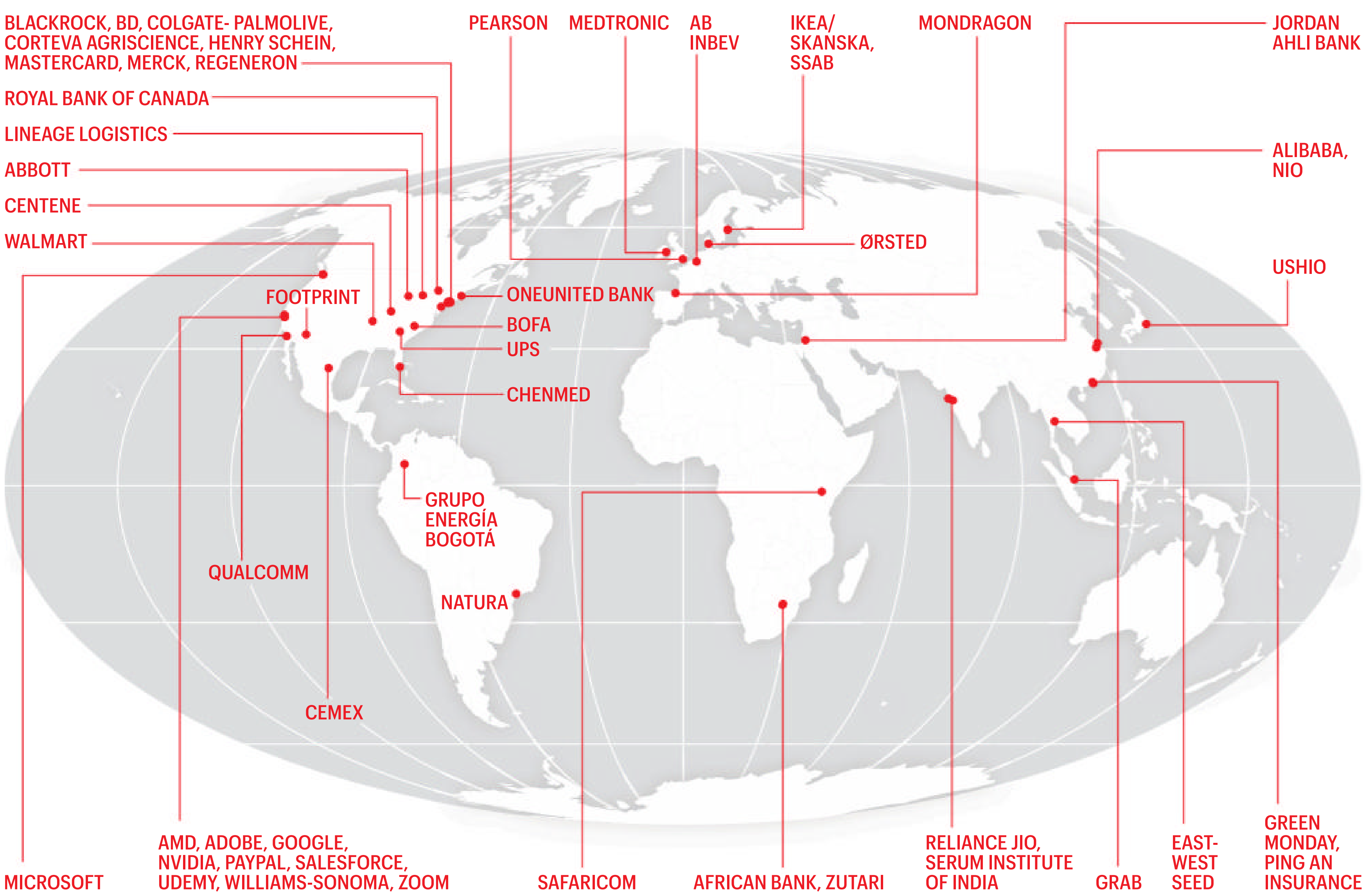
Five years ago—pre-COVID—dental and medical supplier Henry Schein cofounded the Pandemic Supply Chain Network, a public-private partnership to help distribute essential equipment in an emergency. In the current crisis, with help from partner UPS, the network has sourced more than $200 million worth of key gear.

CHANGE THE WORLD

never seen the level of collaboration that's going on today ... so how do we take what we've learned in the last six months and apply it to cancer?" Or, for that matter, to dengue, diabetes, and myriad other plagues?

GAVI's Seth Berkley believes part of the answer to such questions is creating mechanisms that facilitate and foster such collaboration across companies, industries, nonprofit sectors, and governments. And an international model such as the COVAX Facility, for example, might even offer a template for tackling climate change, he says—allowing far-flung parties to break through inertial, political, and financial barriers.

"How, as a world, do we come together to make stuff happen?" he asks. In our age of pandemic, that challenge belongs to every government and business leader.



HOW WE CHOOSE THE COMPANIES

The Change the World list recognizes companies that have had a positive social impact through activities that are part of their core business strategy. As we assess nominees, among the factors that matter most are:

1. MEASURABLE SOCIAL IMPACT
We consider the reach, nature, and durability of the company's impact on one or more specific societal problems.

2. BUSINESS RESULTS
We consider the benefit the socially impactful work brings to the company. Profitability and contribution to shareholder value outweigh benefits to the company's reputation.

3. DEGREE OF INNOVATION
We consider how innovative the company's effort is relative to that of others in its industry and whether other companies have followed its example or partnered with it.

The Red Sea in Saudi Arabia where travel is enhancing the local eco-system

LUXURY TOURISM REDEFINED

When veteran real estate developer John Pagano received a phone call from one of the world's largest sovereign wealth funds three years ago, he sensed that change was in the air.

At that time, the coastal towns of the Mediterranean, the beaches of the Caribbean, and the holiday islands of Southeast Asia were bursting at the seams with visitors—and blighted by traffic, pollution, and plastic.

"Overtourism" was the buzzword of the day, and the destinations long favored by luxury travelers were fast losing their charm. So when Saudi Arabia's Public Investment Fund offered Pagano the opportunity to develop a series of exclusive resorts along the shores of the Red Sea, he leapt at the chance to put the world of luxury tourism on a more sustainable footing. "Our ambition is to set new standards in sustainable development and show that tourism and the environment can coexist in harmony," says Pagano, CEO of The Red Sea Development Company.

"Luxury tourism used to be about opulence, consumption, and gold taps. Now it is about meaningful, personalized experiences that speak to individuals differently. This is the tourism that the post-COVID world will want." The extraordinary destination on the shores of the Red Sea now emerging under Pagano's direction covers a vast expanse of land and water. The area contains more than 90 untouched islands rich in coral reefs and endangered species, as well as desert mountains, volcanoes, and canyons crisscrossed by ancient trading routes. The first guests to experience this spectacular setting will arrive in 2022. The destination will be completed by 2030.

Environmental preservation has been baked into every detail of the project. Developers worked alongside environmental scientists on the masterplan, using marine spatial planning to design a destination that will protect local natural diversity and increase conservation by 30%. Fish stocks are being replenished, coral reefs will expand, and precious habitats such as swamps of mangrove and seagrass will be enhanced, sequestering carbon and protecting unique species of seabirds and turtles. In total, 75% of the islands will be left untouched, with nine designated as special conservation zones.

Single-use plastics are banned, and the entire project will be completely powered by renewable energy. A large energy storage system allows the resorts to use power at night that was generated by solar panels during the day. "Going off-grid has never been done at this scale before," Pagano says.

Pagano is also keen to ensure that local communities benefit from the development of this new sustainable sector in the Saudi economy. The Red Sea Development Company will create more than 70,000 jobs, most of which will be filled by local people trained in programs funded by the developers. Saudi residents already comprise over 50% of its workforce. With strong support from the Public Investment Fund, the project is making tremendous progress, despite the COVID-19 pandemic. "We've already committed SAR 5.3 billion [$1.41 billion] of signed contracts that we are executing on site," Pagano says.

Work underway includes construction of the marine infrastructure required to transport people and materials around the site, including the initial causeway between the mainland and the hub island, Shurayrah, plus the development of 77 km of roads, highways, and junctions to connect the destination. The schematic design prepared by Foster + Partners for the new Red Sea International Airport was approved by GACA this year, and much of the land preparation work at Airport Hill has been completed. In July 2020, the company awarded its largest-value contract to date to an all-Saudi JV partnership between Nesma & Partners Contracting Co. Ltd. and Almabani General Contractors for the airside infrastructure works.

> "PEOPLE ARE LOOKING FOR AUTHENTICITY, SUSTAINABILITY, AND EXTRAORDINARY EXPERIENCES. THEY WILL FIND ALL OF THOSE BY THE RED SEA IN SAUDI ARABIA.
>
> —
>
> **JOHN PAGANO,** CEO, THE RED SEA DEVELOPMENT COMPANY"

A 1 million-square-meter nursery, built on-site to cultivate the 15 million plants and trees needed to landscape the destination, was completed earlier this year and is fully operational. "Our ambition is to challenge convention, change the way the tourism industry operates, and leave a lasting legacy for generations to come," Pagano says.

REDEFINING SCREEN TIME

Remote work has become the new normal. For companies looking to keep employees connected and engaged, this presents challenges—and opportunities.

FOR MILLIONS OF AMERICANS, COVID-19 HAS meant an abrupt transition from working at an office to working remotely. As we enter our seventh month of the pandemic, what seemed at first like a temporary change has solidified into a more long-lasting shift.

Employers and employees alike are finding that this new reality is not without its benefits: People report that being able to work from home has increased their flexibility, creating more space for time with family, leisure, and hobbies. It can also improve business outcomes; according to a number of studies, remote workers are more productive than their on-site counterparts.

And yet, it's also clear that something is lost when in-person work disappears completely. Physical proximity can be a boon for creativity, and it allows for the informal exchange of information. Just as important, there's the social element: Sharing a space with coworkers breeds friendships and makes people feel like they're part of an integrated whole. Without this communal sense of belonging, engagement can wither as isolation blooms.

Many workers say that in an ideal world, they would gravitate toward a combination of remote and in-person work. In a recent poll conducted by Morning Consult, 47% of respondents said that their preferred work arrangement would be a hybrid model in which they came into the office between one and four days a week.

For the moment, however, COVID-19 makes any office interaction a health risk. So the question becomes: How do you keep your workers engaged without the help of in-person interactions?

Practical Tools

In the first weeks and months of life under lockdown, companies rushed to re-create various facets of the office—from meetings to happy hours—online, primarily through videoconference platforms. But as remote work has dragged on, employees have reported feeling mentally drained by the constant video calls and instant messages. What's more, video- and chat-based communication platforms, while good for collaboration, don't help with the actual nitty-gritty of finishing tasks. "No one gets work done there," says Greg Gilmore, CEO of Planview, a provider of portfolio and work management solutions.

Planview's solutions go well beyond collaboration, offering visibility into work, connecting strategy to execution, and enabling companies to strategically plan and deliver—no matter where employees sit. "People want to know that their efforts are driving toward a greater outcome," Gilmore says.

Facilitating the seamless flow of information is indeed a key aspect to preserving employee engagement. In a physical office, this often happens naturally—if an employee has a question, she can raise her hand in a meeting or physically walk over to a coworker and get an answer. This isn't possible when everyone is remote, of course, but there are digital tools—such as SAP Jam—that re-create in-person connections in an online environment. "Leaders can share companywide communications on SAP Jam, where employees can then comment and discuss," says Jill Popelka,

president at SAP SuccessFactors. "This allows for a two-way conversation that can improve employee engagement."

Using digital tools that don't just re-create meetings but actually allow employees to feel connected and engaged while working remotely is integral to a company's success—not just during the pandemic but for the foreseeable future. As more people grow accustomed to remote work, some of the world's largest organizations have announced they will continue to allow employees to telecommute even after it is safe to return to the office.

Empathetic Engagement

On a more immediate basis, employee engagement means understanding the pandemic's impact and the scale of the upheaval it has wrought on employees—many of whom are caring for loved ones or helping kids learn remotely. "Empathy is key," Popelka says. "Managers and leaders need to listen to how employees are feeling regularly, understand what situations they may have both at work and home, and act with care."

Building a remote culture that encourages employees to be honest about their experiences creates meaning and value. Especially in times of change, these tenets "make people happier and more productive," says Popelka. It can't simply be lip service, however. "Companies need to be flexible and adapt based on what their employees and customers are telling them," Popelka adds.

Investing in your employees—through digital tools as well as by actively listening and responding to their needs—is paramount when fostering an engaged workforce. It's also a matter of survival. Long-term, organizations that are able to create a strong culture with engaged employees both inside and outside of the office will thrive—while those that don't will have a hard time simply staying in the game. ■

CHANGE THE WORLD

NO. 2

Alibaba

Leveraging e-commerce in an emergency.

HANGZHOU, CHINA

As the pandemic took hold, China's e-commerce titan showed how flexible its global infrastructure could be in a crisis. Early on, Alibaba turned its Electronic World Trade Platform—an entity designed for public-private cooperation—into a hub for sourcing personal protective equipment in Asia, Africa, and Europe. Its Alibaba .com B2B platform has helped distribute more than 26 million pieces of PPE to health care providers. Researchers, meanwhile, have relied on its cloud-computing resources to collaborate on COVID-19 vaccine development.

Outside the medical realm, Alibaba extended lifelines to the small sellers who represent much of its customer base. Its Taobao Live e-commerce platform helped farmers reach new customers after their supply lines were broken. And Alibaba helped provide some $20 billion in low-interest loans and cash advances to cushion small-business owners in the downturn—an act that showed the prowess of its soon-to-be independent financial unit, Ant Group.

NO. 3

PayPal

A digital safety net for workers and customers.

SAN JOSE

Last fall, the digital payment company spent tens of millions of dollars to raise its workers' wages and lower the costs of their benefits. This spring, as the pandemic led to tens of millions of layoffs, CEO Dan Schulman pledged that all PayPal jobs would be safe from COVID-related cuts. The company also played a major role in bolstering other people's security: It helped some customers get faster access to their coronavirus stimulus payments, by waiving the 1% fees it usually charges to rapidly cash payroll and government checks.

In a crisis, "if you put your employees first and you put your customers first, then nobody forgets that, and you come out of this in a really strong position," Schulman told *Fortune* in April. PayPal's subsequent performance has borne out his argument. The company in July reported its strongest quarter ever as an independent company: Second-quarter revenue jumped 22% from a year earlier, to $5.3 billion, with profit nearly doubled, to $1.5 billion.

Nvidia

Shortcuts to Cures

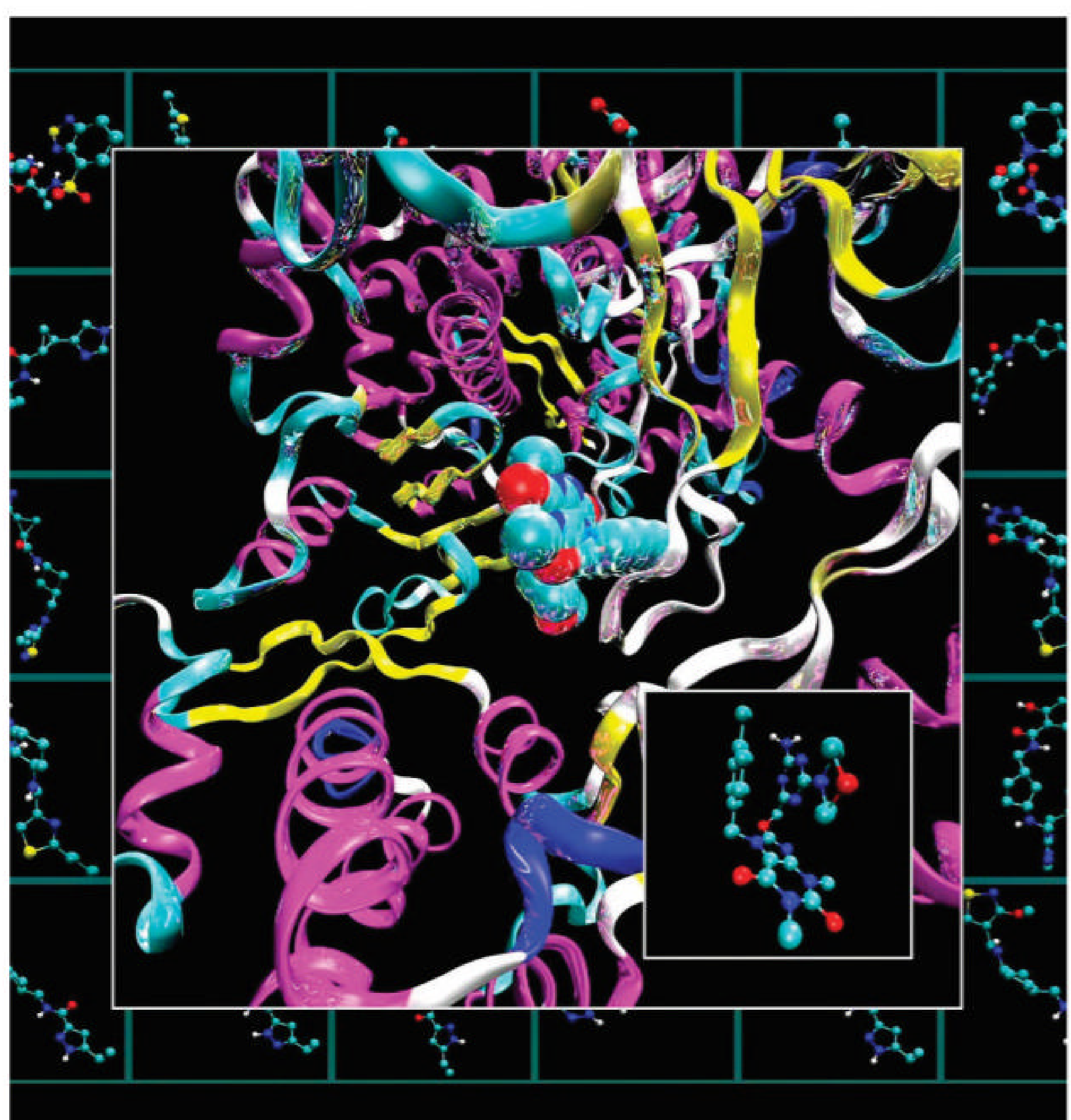
A chipmaker powers the interactive graphics that help researchers tackle dire medical threats more quickly.

SANTA CLARA, CALIF.

NO. 4

The graphics processing units (GPUs) that have made Nvidia one of Silicon Valley's fastest-growing companies have also become the engines powering a host of medical advances. In 2017, Nvidia chips helped scientists win a Nobel Prize for their work creating 3D views of viruses, a critical tool for producing new vaccines. Its GPUs also enable scientists to use images like the one below to virtually screen more than a billion drug-candidate compounds and molecules in 24 hours—a process that would take five to 10 years of "wet lab" work. Its software expertise is fighting today's pandemic as well: Nvidia and the National Institutes of Health recently codeveloped algorithms that can quickly identify COVID-19 in CT scans.

PUZZLE PIECES Visualizations like these, powered by Nvidia GPUs, help researchers determine how well a drug-candidate molecule can target a given disease.



COURTESY OF NVIDIA

CHANGE THE WORLD

NO. 5

BlackRock

Wall Street clout for the climate.

NEW YORK, N.Y.

Few events moved the needle on corporate climate policy like CEO Larry Fink's warning, in January, that BlackRock considers climate change an investment risk. The world's largest asset manager, with $7.3 trillion under management, has since begun pressuring companies to be transparent about their exposure to climate risks, and used its shareholder clout to oppose policies that are climate-unfriendly.

NO. 6

Zoom

A crucial tool, a new verb.

SAN JOSE

Much of the world now relies on Zoom to work around the pandemic. In March, the now-ubiquitous provider of videoconferencing tools lifted a time limit on free calls for K–12 educators. Since then, Zoom has been used by more than 100,000 schools in 25 countries. Its paid customer base has also ballooned: In its second quarter, Zoom added more big-revenue enterprise accounts than ever before.

NO. 7

Safaricom

Health care access in Africa.

NAIROBI

Safaricom's M-Pesa service lets its users, more than half of whom lack bank accounts, send and receive money digitally via feature phones. Now it's aiming for a similar inclusion revolution in health care. In 2015, Safaricom and startup CarePay launched M-Tiba, which offers phone-based billing, payments, and insurance claims and helps users save for expenses. It now reaches 4.7 million people in Africa.

NO. 8

Regeneron

Striking a blow against Ebola.

TARRYTOWN, N.Y.

The world has battled Ebola since 1976, but only late last year did it get therapies that should meaningfully reduce the virus's death toll. In a randomized clinical trial conducted during an outbreak in Africa, one such drug—Regeneron's antibody cocktail, EB3—proved so clearly effective in reducing mortality that the trial was ended early. Regeneron is now racing to develop a comparable cocktail for COVID-19.

20x

INCREASE IN DAILY USERS OF ZOOM (NO. 6) FROM DECEMBER 2019 TO MARCH 2020

$530 MILLION

AMOUNT THAT PAYPAL (NO. 3) HAS PLEDGED TO SUPPORT BLACK- AND MINORITY-OWNED BUSINESSES

191

NUMBER OF COMPANIES BLACKROCK (NO. 5) HAS PUT "ON WATCH" FOR THEIR FINANCIAL EXPOSURE TO CLIMATE CHANGE, WARNING THAT BLACKROCK COULD VOTE AGAINST THEIR MANAGEMENT ON CLIMATE ISSUES NEXT YEAR

80%

SHARE OF THE U.S. POPULATION THAT LIVES A SHORT DISTANCE FROM A WALMART (NO. 9) ONLINE PICKUP LOCATION

NO. 9

Walmart

Turning parking-lot pickup into a lifeline.

BENTONVILLE, ARK.

The world's largest company became an irreplaceable community resource as the COVID crisis engulfed the U.S. The retail giant offers drive-by pickup of online orders, an arena that Walmart pioneered, at about 3,300 of its 4,750 U.S. stores. The number of such orders more than quadrupled from mid-March through July, as consumers—particularly those over 50—scrambled for contactless shopping options. The surge sparked a need for new staff to fill curbside orders, and Walmart hired nearly 500,000 additional workers at the peak of the spring's lockdowns—in part by partnering with the National Restaurant Association to recruit workers displaced from that battered industry.

A strong pickup business can also have environmental benefits: A recent study by Bain estimates that pickup purchases generate 75% fewer CO_2 emissions per item than purchases ordered online and delivered by mail.

Walmart also acted fast to help customers access relief payments quickly and cheaply. People processed $434 million worth of stimulus checks via direct deposit to its MoneyCard prepaid debit cards; the company waived maintenance fees on the cards and began for the first time to pay interest on unspent balances. Walmart's pandemic response went hand in hand with powerful financial performance: It has tallied two quarters of comparable-store sales growth near 10% and a near-doubling of e-commerce. It's also earning rising scores on reputation surveys—and is making its sixth consecutive appearance on this list.

THIS MACHINE KILLS PANDEMICS A technician runs a high-speed vaccine assembly line at the Serum Institute of India.

ATUL LOKE—THE NEW YORK TIMES/REDUX

Serum Institute of India

Saving Lives, Globally

A low-cost producer helps ensure the low-income world gets vaccines.

PUNE, INDIA

NO. 10

Though hardly a household name, the world's largest vaccine manufacturer is much in the news these days for its role in accelerating the COVID-19 vaccine race. With its enormous capacity, the Serum Institute of India has made deals to manufacture 1 billion doses of both AstraZeneca's and Novavax's candidates for low- and middle-income countries.

That's big, but what really makes SII stand out is its long history of providing critical, low-cost vaccines to underserved populations. From tetanus to measles to pneumococcal shots, SII makes 1.5 billion doses of vaccine annually, the vast majority of which also go to low- and middle-income countries—and reach 65% of the planet's children—through programs administered by organizations like Unicef and GAVI, the Vaccine Alliance, which focuses on providing access in the poorest countries.

"They really have done an amazing job at providing high quality at very low prices," says Seth Berkley, CEO of GAVI, which named SII founder Cyrus Poonawalla its first-ever "Vaccine Hero" in 2018. "That has been really important to what we've done."

Founded in 1966, SII was a somewhat unlikely endeavor for Poonawalla, an aspiring automaker whose family was in the business of stud farms. After he learned the family's retired horses were being donated to a government institute that used their serum to make vaccines, a scarce good in India at the time, he decided to get into the business himself. Many credit Poonawalla's strong moral compass—as well as his decision to keep the company private—for building SII into the company it is today. (His son, Adar, who took the reins as CEO in 2011, has pursued aggressive growth—annual revenues have more than tripled since 2012, to $800 million today—while remaining loyal to his father's mission to put purpose ahead of extreme profit.)

Berkley recalls that when other vaccine manufacturers failed to deliver product, SII would step up production to meet the need. "They never turned around and tried to increase the price to take advantage of the fact that they were needed," says Berkley.

In the early 2000s, SII played a key role in one of global health's great success stories: MenAfriVac, a vaccine against meningitis A that has virtually eliminated the disease in 22 countries in Africa's "meningitis belt." The global health organization PATH led the vaccine's development, but it needed a manufacturer partner who could produce the vaccine at a cost of 50¢ or less per dose. "They proved to be a very, very capable organization," says Steve Davis, the former CEO of PATH. "They're also very, very sharp business guys."

Indeed, MenAfriVac was good for SII too. Similar projects and partnerships with PATH followed—among others, the company has since produced a much needed, low-cost pneumococcal vaccine that gained approval last year. In the process, SII picked up some of the expertise that it's now using to develop its own vaccines internally. That includes three possible shots against COVID-19 that the company will continue to work on while pitching in to manufacture the vaccines of others. Says Adar Poonawalla: "My own candidates, I want to take my time."

NO. 11

Mondragon

Growing As Equals

A conglomerate keeps leaders' and workers' pay aligned.

MONDRAGÓN, SPAIN

Founded by a Basque Catholic priest in 1956, Mondragon is a conglomerate of 260 companies spanning construction, finance, manufacturing, and agricultural and food production. With 12.2 billion euros ($14.5 billion) in revenue last year and more than 81,000 employees, it's one of Spain's largest employers—and as the world's largest federation of worker-owned cooperatives, it has grown in part because it doesn't disproportionately enrich top brass. No top executive makes more than six times the salary of the lowest-paid worker in his or her cooperative (and all earn far less than $1 million annually). "They know they have to be profitable or

11. ANTHONY WELLER—VIEW PICTURES/UNIVERSAL IMAGES GROUP VIA GETTY IMAGES

THEY DO CEILINGS Mondragon, which limits executive pay, built part of the roof of the Guggenheim Bilbao.

they won't exist. This is not a hippie group of co-ops," says Georgia Kelly, founder of the nonprofit Praxis Peace Institute, who leads seminars at Mondragon. "But their ethic is people before profit."

12: COURTESY OF GRUPO ENERGIA BOGATÁ

CHANGE THE WORLD

NO. 12

Grupo Energía Bogotá

Clearing safe paths.

BOGOTÁ

For this energy company, which had $1.3 billion in revenue last year, expanding its business means making war-torn areas safer. As it lays electrical transmission lines in remote regions, GEB is clearing antipersonnel mines, a legacy of Colombia's civil war, from thousands of hectares of land. Thanks to efforts like GEB's "Energy for Peace," Colombia should be clear of mines by the end of 2025.

NO. 13

Medtronic

Sharing a lifesaving design in a crisis.

DUBLIN

In March COVID-19 blocked medical supply chains even as the need for ventilators soared. Medtronic responded by sharing the design specifications for its Puritan Bennett 560 ventilator so anyone could build one. Since then, the company says, 200,000 entities have downloaded the specs, while Medtronic quintupled its own production to 1,000 units a week, keeping shortages at bay.

As recently as eight years ago, only Afghanistan had more antipersonnel-mine casualties annually than Colombia. By year-end 2025, with the help of **Grupo Energía Bogotá** and humanitarian organizations, Colombia's mines should be eradicated.

CONTESTED GROUND Workers search for explosives as part of Grupo Energía Bogotá's "Energy for Peace" initiative.

NO. 14

Mastercard

Helping the unbanked sell their crops and pay for their education.

PURCHASE, N.Y.

In a matter of months, the coronavirus pandemic has accelerated the digitization of the global economy, boosting tech-enabled trends like e-commerce and digital payments to an unprecedented extent. Mastercard has been a huge stakeholder in this ongoing transformation—and has played a major role in making sure its benefits reach people in the developing world.

Five years ago, Mastercard set a goal of bringing 500 million unbanked people around the world into the "formal" economy, by promoting access to financial products, services, and technology. In the first quarter of 2020, Mastercard declared that it had achieved its goal—and set a new target of 1 billion people by 2025. Included in that figure: financial tools for 50 million small businesses, plus support for 25 million women entrepreneurs globally.

The company's many current financial levers include programs like the Mastercard Farmer Network, a digital marketplace providing access to buyers and pricing transparency for nearly 500,000 small farmers across Africa and India. In Uganda, Mastercard recently launched Kupaa, a mobile payment platform that helps lower-income people overcome financial obstacles to education. Kupaa lets families pay for education-related expenses in installments. As of last year, it had reached more than 300,000 students and 130,000 parents and guardians across Uganda. Next up: expanding the Kupaa program across East Africa.

THE LIST
15-17

CHANGE
THE
WORLD

NO. 15

Bank of America

Lending with smart partners.

CHARLOTTE

Bank of America has loaned $26 billion to pandemic-struck businesses through the Paycheck Protection Program. But some of its most valuable PPP loans were the ones it made through community development financial institutions (CDFIs). CDFIs are nonprofits that combine philanthropic money and private capital to support small businesses whose cash flow or credit histories scare off traditional lenders. This spring, a $250 million infusion of CDFI credit from BofA helped rescue a childcare center in Georgia and a housing and job-training service in Philadelphia, among many other operations.

BofA has been building ties with CDFIs for 25 years: It now has a $1.6 billion credit portfolio with 255 CDFI partners across the U.S. It has also stepped up to support minority-owned banks, which often work closely with CDFIs. In early September, BofA announced it would make $50 million in equity investments in such banks—capital to help them close the racial wealth gap. (See the story in this issue.)

NO. 16

Microsoft

A tech giant invests in a future workforce.

REDMOND, WASH.

Microsoft started off 2020 with a startling announcement: By 2030, the software titan aims to be not just carbon neutral, but carbon negative. By 2050, Microsoft says, it will have negated all of its carbon emissions since its 1975 founding.

The company is tackling nearer-term crises too. When the world's focus shifted to the coronavirus, Microsoft responded by offering 25 million people free online training in digital skills such as data analytics, IT, and cybersecurity. It represented a vital lifeline to those whose jobs may never come back—and in particular for women and minorities, who have been hit hardest financially by the pandemic.

That short-term offering is part of a much broader Microsoft upskilling effort. In Africa, for instance, Microsoft's 4Afrika initiative has established training programs to address the continent's digital skills gap. It's a good deed, but it isn't charity: Microsoft sees Africa as a growth market, and 4Afrika is busy signing up customers and spotting new business ideas.

Skanska and Ikea

Sustainable Shelter

Two European companies build green housing that avoids red ink for tenants.

STOCKHOLM AND DELFT, THE NETHERLANDS

NO. 17

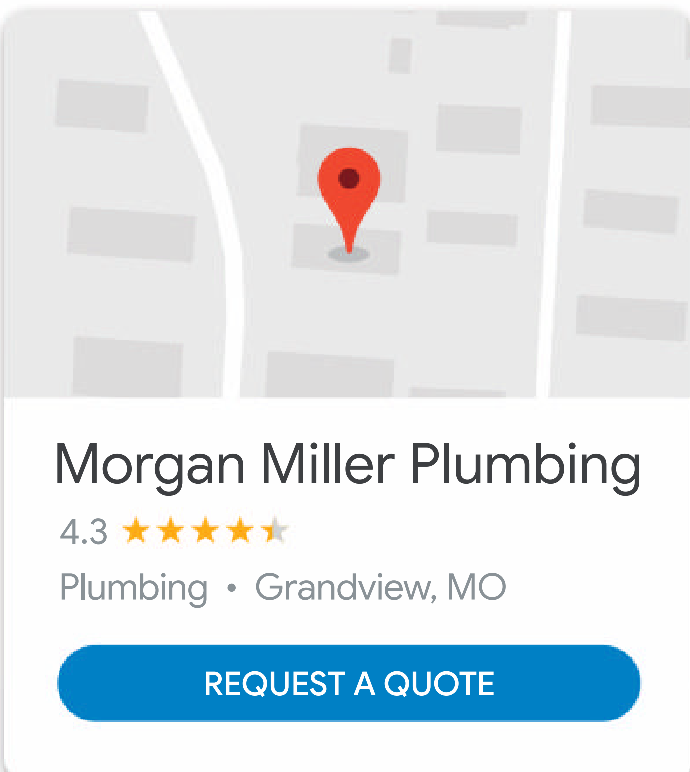
Affordable housing can be hard to find in prosperous Northern Europe. Back in 1996, construction firm Skanska teamed with home furnishings giant Ikea to form BoKlok—a unique partnership that has since built some 12,000 sustainably designed modular homes across Scandinavia. Last year, the companies expanded BoKlok into the U.K., with the goal of providing quality housing in working-class and lower-income communities across that country.

The sustainability focus is par for the course for Skanska. The construction industry accounts for roughly 39% of energy-related carbon-dioxide emissions, according to the World Green Building Council. Recognizing that, Skanska has set an ambitious target of achieving net-zero carbon emissions by 2045; in the past five years, it's already reduced its emissions by 28%.

BUILDING BLOCKS Thanks to their modular designs, BoKlok homes from Skanska and Ikea can go up quickly and cheaply.

MATHIAS CARLSSON—SKANSKA

Helping local businesses adapt to a new way of working




MORGAN MILLER Plumbing
MORGAN MILLER Plumbing
The employees of Morgan Miller Plumbing pride themselves on being a small, tight-knit family, and they treat their customers the same way.
With a free Business Profile on Google, Morgan Miller Plumbing has been able to reach more customers. And while COVID-19 has presented new challenges, they've been able to adapt. More people are contacting them every week, and they're actively looking to hire additional technicians to help meet demand.
Find free resources for your small business at **google.com/grow**

NO. 18

Minority-Owned Banks

Making Black Banks Matter

Institutions like OneUnited Bank and Liberty Bank and Trust are amplifying the call for racial justice by drawing more private capital into Black communities. Could the "Bank Black" campaign help close America's wealth gap?

BY JEN WIECZNER

CHANGE THE WORLD

KEVIN COHEE has a vivid memory—one of his earliest—from when he was about 4 years old, hanging out in the basement of his house in Kansas City, Mo. It was the early 1960s, and his uncles were there with some friends; some of them entrepreneurs (one uncle owned a pharmacy), all active in the civil rights protests of the era. As they plotted the future, one man pulled Cohee aside—he was the only kid present—and gave him a mandate: "That we didn't need more Black men to fight on the streets; that we needed Black men to control institutions—like a bank," recounts Cohee.

Cohee, who calls himself "a child of the Black Panther party," ended up owning not just one bank, but several. After graduating from Harvard Law, his career took him from investment banking at Salomon Brothers to a successful leveraged buyout and turnaround of a financial services firm in the late '80s. He and his wife, Teri Williams, a former exec at American Express, used their newfound riches to acquire the struggling Boston Bank of Commerce in 1995. Over the next seven years, they purchased three more banks in African-American communities in Florida and California, creating a chain that they rechristened OneUnited Bank in 2002. Today OneUnited is the largest Black-owned bank in the U.S. by number

PHOTOGRAPH BY **RYAN YOUNG**

"THE BANK IS AN INSTRUMENT OF SOCIAL CHANGE": CEO Kevin Cohee in OneUnited Bank's Los Angeles offices.

THE LIST 18

CHANGE THE WORLD

of customers. And with Kevin serving as CEO and Teri as president and COO, the Cohees are something akin to the industry's first couple—at a pivotal time in its evolution.

Black community leaders have been advocating for Black-owned banking ever since Emancipation, even more so since the civil rights reforms of the 1960s. The thesis: Banks operated by Black people would help communities that left slavery with scratch build wealth, unimpeded by the prejudice and suspicion of white bankers. Black ownership would further ensure that profits made off of Black money would stay in the fold. And Black banks would extend credit to borrowers that the big national banks perceived as too risky owing to their modest means. In his very last speech before he was assassinated, Martin Luther King Jr. enjoined his followers to pull their money "out of the banks downtown" and deposit it in a Black-owned bank. "We want a 'bank-in' movement," he said.

Black banks proliferated in the 1970s with encouragement from lawmakers and regulators. (The Federal Deposit Insurance Corp.'s definition of a minority depository institution includes Black-owned banks—51% or more of whose stock is held by Black individuals—as well as Black-led banks, which serve a minority demographic and have boards on which more than half the directors are Black.) But the money didn't follow. The same systemic barriers that kept Black communities from accumulating assets before civil rights—real estate "redlining," unequal access to education and jobs—kept the national wealth gap wide. And that created a vicious circle: Depressed income levels constrained deposits, limiting Black banks' local impact. Black business owners and homebuyers might depend on a community bank for a lifeline, but the banks had only so much to loan; they also failed at a higher rate than their peers. Today, America's 20 Black banks combined have fewer than $5.5 billion in assets—an infinitesimal fraction of the banking universe. (At the end of June, JPMorgan Chase alone had $3.2 *trillion* in assets.)

But the arrows may finally be pointing upward. Amid protests against systemic racism following the police killing of George Floyd, the "Bank Black" movement has gone mainstream, transforming Black financial institutions as it prompts individuals and even *Fortune* 500 companies to reconsider how they manage their money. At least a half-dozen companies have committed roughly half a billion dollars to Black banks, seeing them as an efficient, fiscally sustainable way to boost Black communities with relatively little risk. "We're not asking you for contributions. We're just asking you to put your money into a bank," says Williams. "We lend it to the community in ways that build wealth. And we also use the platform to send a message to ourselves, and to the world."

While the sum is small relative to corporations' balance sheets, it's a needle-moving amount for Black-owned banks. As online banking and racial-justice activism route deposits their way at an unprecedented rate, the Cohees and their peers envision reaching a critical mass of resources, anchoring the Black economy with more plentiful and affordable mortgages and small-business loans. "It's an instrument of social change on a wide-scale basis," Kevin says of his bank, adding emphatically: "And as a result, OneUnited Bank *will* solve the racial wealth gap."

OWNING A BANK and joining the economic elite have not exempted the Cohees from the repercussions of the American racial minefield.

$21.1 TRILLION
TOTAL ASSETS IN U.S.BANKS AS OF 6/30/20

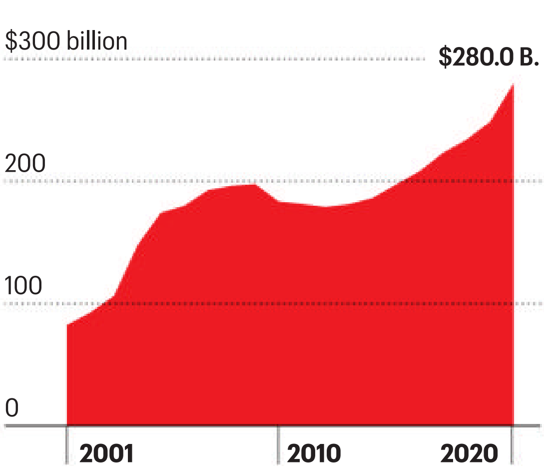
$5.5 BILLION
TOTAL ASSETS IN BLACK U.S. BANKS AS OF 6/30/20

-20.2%
DECLINE IN ASSETS IN BLACK BANKS SINCE 2008

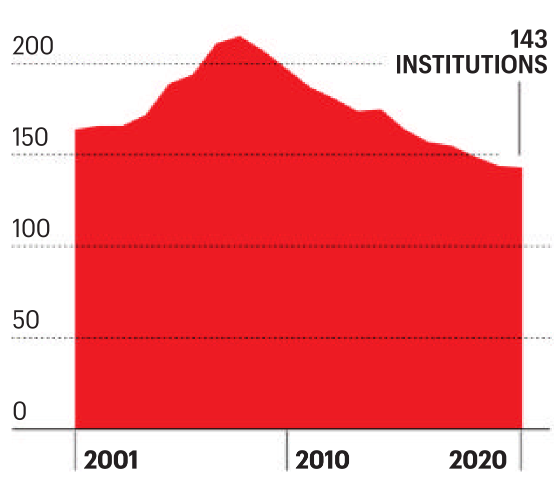
(SOURCE: FDIC)

More Money, Fewer Banks

ASSETS IN MINORITY BANKS



U.S. MINORITY BANKS



SOURCE: FDIC

2008 after its Fannie Mae and Freddie Mac shares soured. Regulators reprimanded the bank for lavish perks it provided the Cohees, including a Porsche and a beachfront house allowance. OneUnited was then caught up in a barrage of bad publicity related to its ties to Rep. Maxine Waters, a controversy that brought to light Kevin's past scrapes with the law. He had been arrested twice in a month in 2007, on suspicion of sexual assault and drug possession. No assault charges were ever filed, and the narcotics charge was dropped after he agreed to attend counseling. (Cohee has denied both accusations. "As most Black men in America, I have had interactions with law enforcement and have no convictions," he told *Fortune* in a statement. "That said, I continue to strive to make better personal and professional decisions.")

Burdened by these setbacks, it was only a few years ago that OneUnited perhaps began to hit its stride. It started with a wall, outside OneUnited's Miami branch. Teri commissioned the artist Addonis Parker to paint something there to "reflect the authentic urban experience." She didn't see it until a couple of days before the unveiling, in July 2015; when she did, she was shocked. The mural featured portraits and names of Black men and boys who'd been killed by police or vigilantes—Trayvon Martin, Michael Brown, Tamir Rice—along with provocative symbolic images, such as a Black woman handwashing blood out of a Confederate flag in front of the Charleston, S.C., church where nine African-Americans had been massacred weeks earlier.

UNAPOLOGETIC OneUnited has made the struggle for racial equity central to its brand identity. The message, says president Teri Williams: "Black money matters, Black lives matter, we matter."

Police once pointed a gun at Teri as she parked her car in Miami. In June, Kevin was pulled over in his Range Rover by the LAPD on his way to speak at a virtual *Fortune* event—a panel on the inherent dangers of "Banking While Black." "Pretty much every aspect of the Black American experience, I've lived and experienced the negative outgrowth," says Kevin, whose Los Angeles office is decorated with wall-size paintings of Dr. King and Malcolm X. "And that's as a person who had lots of things."

Nor has a social mission always been enough to keep OneUnited afloat, or to shield it from criticism. The bank received bailout funds in

In Teri's head were warnings from other Black businesspeople: "If you say you're Black, Black people aren't going to want to bank with you, and white people aren't going to want to bank with you." But she let the mural go up, and it brought mostly positive attention to OneUnited. With a new brand identity, its business began accelerating. "It was a bank saying, 'Hey, this is what's happening to us. We are being shot in the street,'" Teri says. Soon, OneUnited adopted a new tagline: "Unapologetically Black."

OneUnited's revival coincided with a broader cultural movement. In July 2016, in a televised "town hall" hosted

PHOTOGRAPH BY **JEFFERY SALTER**

CHANGE THE WORLD

by MTV and BET, rapper Killer Mike appealed to Black viewers to "take our warfare to financial institutions," kicking off a viral text-message chain urging Black consumers to move their money to Black-owned banks. OneUnited pounced: Eleven days later, it trademarked the phrase "BANKBLACK." The message, according to Teri: "Black money matters, Black lives matter, we matter."

The events of 2020 have ignited that movement into a small-scale revolution. Since Floyd's death in May, OneUnited's account base has more than doubled, to an estimated 120,000 customers, with an additional $50 million in deposits. Other banks have fared even better. In the second quarter of this year, Liberty Bank and Trust, based in New Orleans, overtook OneUnited as the largest Black-owned bank by assets (with $737 million to OneUnited's $685 million). Liberty's deposits grew by a staggering 19% in those three months, or more than $101 million—five times the increase it normally tallies in a year. "It's exciting for me to see this change, and to see this growth that has happened almost overnight," says Alden McDonald Jr., Liberty's CEO since its founding in 1972.

Part of this surge has come from grass roots. A church group on the West Coast, for example, approached Liberty, then invited its 1,000 affiliated churches to bank there too. But just as crucial is a corporate endorsement of #BankBlack.

In late June, Netflix made waves by saying it would put $100 million—2% of its cash deposits—into Black financial institutions, starting with a new Black Economic Development Fund it founded with the Local Initiatives Support Corp. (LISC), a community-development nonprofit. In August, Costco matched Netflix's $25 million infusion. By the time it officially launches in October, LISC expects the fund to have at least $100 million, eventually growing to as much as $250 million, with much of it earmarked for deposit in Black-owned banks. PayPal, which in the spring said it would devote more than $500 million to Black communities and businesses, now says most of that will involve shifting deposits to banks that are Black-owned or focused on minority communities. (For other examples, see sidebar.)

Deposit-shifting appeals to companies as a way to deploy more cash to the social-justice cause than they could simply give away as grants or donations. "The way we were thinking about it is, how can we do something without really doing anything?" says Netflix treasurer Shannon Alwyn. Alwyn attributes some of the inspiration to Mehrsa Baradaran's 2017 book *The Color of Money: Black Banks and the Racial Wealth Gap*. Netflix's free cash flow is negative, but it did have $5 billion in cash on hand. Says Alwyn: "Could we take that excess cash and just put it somewhere else? And then it's doing something."

It's a philanthropic-minded approach, but it's not charity. Deposits may change banks, but they don't change owners, and companies can expect to get them back—generally with interest. In early September, Biogen, the Boston-based biotechnology firm, switched $10 million of its deposits to OneUnited, intending the dollars to strengthen hometown com-

Big Partners for a Growing Movement

Fortune 500 companies have stepped up this summer to infuse capital into Black-owned banks—often in inventive ways that expand their impact.

Netflix

IN JUNE, the video streaming company set a trend by diverting 2% of its deposits to Black banks. Of the $100 million in cash, $25 million will go to a newly created Black Economic Development Fund that Costco has since joined. The fund is expected to multiply further by its October launch as other companies sign on.

Bank of America

IN SEPTEMBER the banking giant made $50 million worth of equity investments in three Black-owned banks (taking a 5% stake in each): Liberty Bank and Trust (in New Orleans), First Independence Bank (Detroit), and Optus Bank (Columbia, S.C.). That was on top of $100 million in deposits it had already moved to minority-led banks.

PayPal

THE PAYMENTS firm has committed more than $500 million to Black communities and businesses. That may ultimately include shifting more than $300 million of its deposits to Black-led institutions. In August, it wired a $50 million installment to Optus, structuring it so the bank can invest some of the money to generate extra income.

Microsoft

A PIONEER IN this category, Microsoft moved deposits to Black-owned Liberty Bank back in 2005, to inject capital into New Orleans after Hurricane Katrina. Microsoft now plans to double the percentage of the volume of transactions—including buying and selling fixed-income securities—it does at Black-owned banks.

Alphabet

FOR ITS record $5.75 billion sustainability bond offering in August, Google's parent company chose half the underwriters from Black- and minority-owned institutions, and paid them a disproportionate cut of the fees. The $4 million bounty is believed to be the largest-ever haul for diversely owned firms in a corporate bond deal.

munities from which Biogen draws talent. "This is not going to cost us, quite the opposite," says Chirfi Guindo, Biogen's executive vice president of global product strategy and commercialization, adding that the company hopes to move more. "We believe that your good old capitalist approach is also important," adds Guindo, an immigrant from Mali who identifies as Black, calling the switch a "win-win."

Some reform advocates question how much of an impact moving money to Black-owned banks will have. They point to ongoing actions by big banks whose effects are discriminatory and widespread—including closing branches in low-income areas, a rising concern as the impact of the coronavirus pandemic blights more neighborhoods. "It is actually ironic that my book has inspired companies to invest capital in Black-owned banks, because that's actually not the point," Baradaran tells *Fortune*. She puts greater emphasis on shunning practices that perpetuate oppression and poverty, like imposing higher interest rates on borrowers with subprime credit: "That was Martin Luther King's aim—it wasn't just to invest in Black-owned banks; it was also to boycott."

And deposits themselves can be as much a curse as a blessing. Deposits show up as liabilities on bank balance sheets: Banks owe interest to depositors, so the money is a drag on an institution's financial metrics until the bank can loan it out and collect interest revenue. Smaller banks with limited resources may not be able to lend capital as fast as it is deposited. For that reason, some Black-owned banks have actually had to turn down deposits from companies. "What you need to do to grow a bank is to grow all sides of the bank," says George Ashton III, managing director of strategic investments for LISC.

To address this quandary, LISC is using its Netflix-founded fund to provide loan capital to banks, as well as deposits. Other #BankBlack backers are considering equity investments, such as the $50 million Bank of America recently announced it would put in three banks (taking a 5% stake in each). The extra assets shore up a bank's balance sheet, allowing it to expand its workforce, upgrade its technology, and, importantly, take more risk in the neediest communities. "You can take on more deposits, and you can get more money out the door," Ashton says.

> Alden McDonald Jr., CEO of Liberty Bank and Trust, estimates that for his bank, every $50 million of new equity translates into 500 new homeowners. "It has a multiplier that's better than any government program, when you think about it," he says.

Black bank beneficiaries are already evaluating where their money can make the greatest impact. Via its bank partners, LISC is looking at backing a tennis center in a low-income area of Detroit that needs to refinance costly debt at a lower rate. It's also considering "bridge financing" for Black-led contractors working on construction projects at New York's JFK airport; such financing is crucial to contractors because they don't get paid until the work is done. "It's the difference between getting a project across the finish line and not," says Maurice Jones, LISC's CEO.

FUELED BY NEW DEPOSITS, some individual Black-owned banks will soon reach a milestone that has long eluded them: $1 billion in deposits. A merger announced in August between Broadway Federal in Los Angeles and City First Bank of Washington, D.C., would make the combined Black-led bank the first to cross that threshold. "That's exactly the kind of audacious metric that we want to see moved," says Jones. "If we can sustain it, we can make some serious, serious progress."

McDonald, of Liberty, says his bank is preparing infrastructure to handle the inflows that would put it over that hump. He makes quick work of the back-of-envelope math regarding how that would affect his customers. With Liberty's average mortgage size a little over $100,000, every $50 million in incremental equity is enough to mint 500 new homeowners, with additional tax revenue flowing into those communities. "It has a multiplier that is better than any government program, when you think about it," he says.

As for OneUnited, Kevin Cohee proclaims without a hint of uncertainty, "We will definitely be a billion-dollar bank." The irony is that size can compromise trust between banks and Black communities. As Black banks have gained popularity, they've had to work harder to distinguish themselves from Wall Street and its whiffs of the white establishment. OneUnited learned that the hard way in February, when it released a debit card emblazoned with the likeness of Harriet Tubman. The bank immediately faced a backlash, with people accusing it of appropriating the Underground Railroad heroine's legacy for gain.

"There was a thought that this card was being introduced, like, by Wells Fargo or somebody," says Teri. "Yeah, no, there's no white man behind the curtain." The injection of new money could help make sure it stays that way. ■

GREEN BEER: AB InBev's SmartBarley program helps farmers like these in India keep their environmental impact to a minimum.

NO. 19

Henry Schein

Taking the lead to respond to a plague.

MELVILLE, N.Y.

Five years ago, well before COVID-19 entered the lexicon, Henry Schein CEO Stan Bergman called on his peers at the World Economic Forum to think collectively about pandemic preparedness. It worried him that there was no organized emergency product list, and no directory of where to get such products when emergency struck. Soon after, Bergman's dental and medical supply company became a founder and the private-sector lead of the Pandemic Supply Chain Network, a public-private partnership whose members include the World Health Organization, the World Bank, UPS, and more than five dozen health care manufacturers.

The group created a platform to convene responders and exchange information. Says Bergman: "You can't do it in the middle of a pandemic. You've got to exchange business cards well before." The network functioned well in recent Ebola outbreaks, and in response to COVID-19, it has sourced more than $200 million worth of critical supplies, like masks, gowns, and swabs, so far.

NO. 20

Ping An Insurance

A "doctor" seen by millions.

SHENZHEN, CHINA

Even in lockdown, millions of Chinese consumers had fast access to medical advice through Good Doctor, this insurance giant's health care consultation and referral app. Good Doctor reported a stunning 1.1 billion consultation requests during one two-week period this winter. The app offers COVID-related help for free, but Good Doctor also tallied a 32% increase in paid users in the first half of 2020.

NO. 21

Jio Platforms

India's biggest carrier expands its wireless net.

MUMBAI

Now the leader in India's vast wireless market, Jio Platforms has offered far lower data prices than other carriers, bringing connectivity to hundreds of millions of people who couldn't otherwise afford it. Recently, Jio has raised about $20 billion in new funding, in part to fuel expansion into e-commerce and online services—extending those profitable amenities to millions for the first time.

AB InBev

Smarter Waves of Grain

The world's largest beermaker deploys digital know-how to protect an essential crop.

LEUVEN, BELGIUM

NO. 22

Barley is a niche crop—unless you're a beermaker. To make sure it has consistent supply of the ingredient that keeps its revenue growing, AB InBev has developed a digital platform called SmartBarley. It uses weather data, in-field sensors, and satellite and drone images to help 18,000 farmers (in 11 countries, including the U.S. and India) avoid threats to their barley crops as well as reduce their environmental footprint. AB InBev is also partnering with farmers in Brazil's northeast to battle that region's extreme poverty. There, it brews beer with local cassava, injecting vitally needed revenue into the local economy.

COURTESY OF AB INBEV

POWERING A CLEAN ENERGY FUTURE

Why hydrogen fuel cells are essential to the urgent drive toward carbon-free power.

IN 2020 OUR PLANET WAS JOLTED BY AN unexpected convergence of crises—the coronavirus pandemic, its devastating economic impact, and outrage over social injustice. While recovery efforts on all three fronts are top priorities, government, business leaders, and citizens are also increasing their commitment to confronting the existential threat from climate change.

There are a growing number of countries, states, and corporations instituting policies to achieve carbon neutrality as soon as 2024, with some goals already having been achieved through restrictions or bans on combustion engines. But the larger goal can only be accomplished by replacing polluting energy sources with clean, renewable, sustainable alternatives, such as hydrogen.

Utilities have made giant leaps by harnessing solar and wind technology, but they're still grappling with power disruptions when the sun isn't shining or the wind isn't blowing and are now turning toward large-scale electrolysis to feed hydrogen into turbines and fuel cells to achieve zero-emission power.

ALTERGY'S HYDROGEN FUEL CELL SYSTEM PROVIDES CLEAN, QUIET BACKUP POWER TO RAILROAD SIGNALING, SWITCHING, AND GATE-CROSSING SITES.

These cells use the energy of hydrogen to cleanly and efficiently produce electricity, not by conventional combustion but by a catalytic reaction between hydrogen and the air. Hydrogen contains no carbon, and its use in fuel cells produces zero GHGs. Fuel cells can generate uninterrupted power for various applications.

Many energy producers are investing in fuel cell companies, including Altergy Systems, based in Folsom, Calif. Altergy has differentiated itself by designing a patented technology called Freedom Power. Its fuel cells eliminate the use of fragile, expensive components with durable, low-cost parts. Instead of assembling them by hand, Altergy has opened the world's first automated fuel cell factory.

"Altergy's fuel cells are robust, reliable, and suitable for harsh environments," says president and CEO Eric Mettler. "Customers use them instead of batteries and generators to provide backup power."

Mettler is confident that fuel cells will play an important part in Earth's carbon-free future. "Eventually, we will put one in every home," he says. ■

THE LIST 23-29

CHANGE THE WORLD

NO. 23

Google
Deploying artificial intelligence to defend people from very real threats.
MOUNTAIN VIEW, CALIF.

When a company's name becomes a verb, it's hard to argue it hasn't had a big impact. Google, the flagship of the Alphabet holding company, has changed how we find information, navigate the world, and communicate. Underlying most of its products and services is artificial intelligence—it makes Google's searches better (and thus more valuable to advertisers), Google Translate more accurate, and Google Assistant smarter. The company has made many of the breakthrough A.I. techniques behind these products freely available for others to use.

But Google is also deploying A.I. to directly save lives. Its Flood Forecasting Initiative uses A.I. to generate hyper-local forecasts of rising water levels, giving more than 200 million people at risk from potentially lethal floods across India up to 48 hours' advance warning of dangerous water levels. Since launching in cooperation with India's government in 2017, the project has issued 27 million alerts. Research Google is conducting with Yale indicates that 65% of those who get an alert take action to protect themselves. Google has extended the system to Bangladesh, where flooding kills some 5,000 people a year. And it hopes to extend it worldwide: Globally, flooding affects up to 250 million people and causes $33 billion in damage annually.

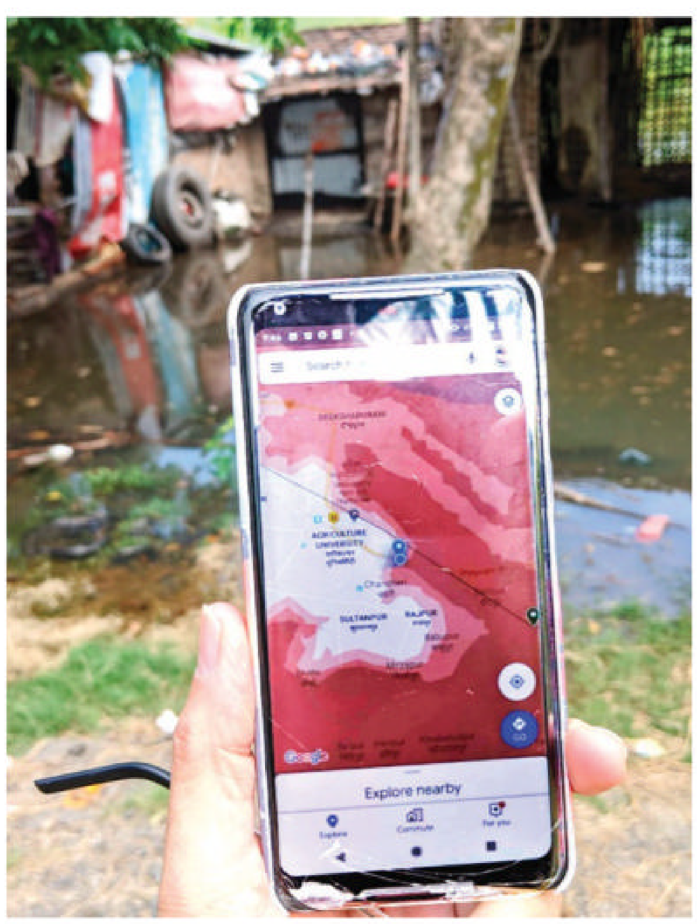
NO. 24

Abbott Laboratories
Designing faster tests to cope with trying circumstances.
ABBOTT PARK, ILL.

Health care access is a challenge in Rwanda, which makes one diagnostic innovation by Abbott Labs particularly valuable. Abbott's prenatal panel tests simultaneously for syphilis, malaria, HIV, and hepatitis B, using only one fingerstick of blood. For expectant mothers, that means fewer clinic visits and better care; the test has also enabled a tripling of malaria case detections.

At press time, health care providers were eagerly awaiting another Abbott diagnostic product: An "antigen" test for COVID-19, expected to debut in October, that yields results in 15 minutes and costs $5.

Worldwide, flooding affects up to 250 million people and causes $33 billion in damage annually. **Google's** A.I.-driven flood-warning technology, now being used in India and Bangladesh, could help society mitigate its impact.



WATER WARNING Google's Flood Forecasting Initiative uses A.I. to predict potentially lethal water levels.

NO. 25

Williams-Sonoma
Keeping the team intact.
SAN FRANCISCO

This kitchen- and housewares chain closed all 600-plus stores as the pandemic surged this spring. But unlike most of its retail peers, Williams-Sonoma paid staff for the duration of the store closures, and eschewed furloughs. The decision didn't blunt its momentum: Williams-Sonoma recorded near-record profits in its most recent quarter, helped in part by store veterans who pivoted to e-commerce roles.

NO. 26

Qualcomm
A faster Internet for a safer planet.
SAN DIEGO

Qualcomm's chips are central to the infrastructure of the ultrafast wireless networks dubbed 5G. While carriers are only in early stages of deployment, some potential benefits of these 5G networks are already appearing in trial projects. Among them: fatality-reducing "smart" traffic control with sensors embedded in roads and signals, and targeted agriculture that uses far less water and fertilizer.

NO. 27

Colgate-Palmolive
Recyclables to smile about.
NEW YORK, N.Y.

Toothpaste tubes have long frustrated green-minded consumers. The hybrid composition that makes such tubes squeezable—a mixture of laminated plastic and aluminum—also makes it impracticable to recycle most of the 20 billion tubes that consumers discard each year.

Colgate-Palmolive, which claims 41% of the global toothpaste market, poured five years of research into this puzzle, and in 2019, the effort paid off. Colgate's new recyclable tube is made from high-density polyethylene (HDPE), the recyclable plastic found in shampoo containers and milk jugs. (A key phase of the research: grinding down the tube prototypes and recycling them as new bottles.) This year, Colgate introduced the tubes in multiple brands and it will soon use them for Optic White, which alone accounts for 8.5% of U.S. toothpaste sales. The company aims to make 100% of its packaging recyclable by 2025. In the meantime, it's sharing the HDPE design on an open-source basis, so others can adopt it too.

COURTESY OF GOOGLE

BEARING FRUIT East-West Seed has helped millions of farms become more productive.

COURTESY OF EAST-WEST SEED

East-West Seed

Giving 'Smallholders' a Helping Hand

A little-known Thai company helps the world get big agricultural results out of tiny packages.

NONTHABURI, THAILAND

NO. 28

IN THE FACE OF CLIMATE CHANGE and a growing global population, the world's smallholder farmers—the estimated 2 billion people whose livelihoods depend on farming two hectares or less—are vital to future food security. Thailand-based East-West Seed has served those farmers since 1982, reaching nearly 20 million to date, and according to the Bill & Melinda Gates Foundation–backed Access to Seed Index, it serves them best. The company, which has operations in Asia, Africa, and Latin America, earns high marks for its local seed breeding efforts and the training it provides its customers. The company has been instrumental in developing a seed sector in Myanmar, where farmers were long underserved because of political strife and international sanctions.

NO. 29

Pearson

Portals for those without diplomas.

LONDON

Education and testing company Pearson, founded in 1844, is playing a growing role in connecting under-resourced people to education and the job market. Since 2011, it has provided the GED high school equivalency exam—which it offers in more than 85 countries—among other tests designed to confirm the skills of job seekers lacking traditional diplomas. In June, Pearson issued a "social bond," raising proceeds of 350 million British pounds (about $450 million)—to be used to finance more learning services for people in need, including those with low income or disabilities as well as the unemployed. That includes GED testing as well as Pearson's virtual schooling program, Connections Academy. The bond is also financing training for the BTEC (Business and Technology Education Council) vocational qualification certificate. Pearson has focused on extending access to BTEC certification for thousands of young women in Zimbabwe, Tanzania, and other African countries.

CHANGE THE WORLD

NO. 30

Zutari

Local inspiration solving local problems.

PRETORIA, SOUTH AFRICA

This firm recently split from engineering giant Aurecon to focus on sustainable, Afrocentric infrastructure innovations. Its projects include helping local authorities develop mining communities and designing a road project aimed at supporting regional food security. In its projects, Zutari seeks community input to guide its design decisions and hires and trains jobless locals as builders.

NO. 31

Lineage Logistics

Making energy efficiency cool, literally.

NOVI, MICH.

This firm moves and stores more than 30% of all cooled-down food in the U.S., supplying customers such as Amazon, McDonald's, and Walmart. Its "blast freeze" technology cuts food-freezing time by up to 60%, reducing the energy needed by a third. Lineage has also begun using predictive analytics software to dynamically adjust storage temperatures, further slashing electricity use and costs.

NO. 33

AMD

Building faster chips that need less juice.

SANTA CLARA, CALIF.

AMD set an ambitious goal six years ago: It would make its processors 25 times more energy efficient by 2020. This year, AMD's Ryzen 4000 7 chip for laptops more than cleared that bar: It's almost 32 times as efficient as its 2014 precursor. For a client with 50,000 laptops, the chip would save 1.4 million kilowatt-hours of electricity over three years, enough to power 44 homes over that span.

NO. 34

Udemy

Democratizing education, just in time.

SAN FRANCISCO

Not all great teachers have classrooms. That's the premise behind Udemy, the world's largest marketplace for online classes. Since its 2009 launch, some 35 million users have enrolled in 130,000 different courses there. In the pandemic, Udemy has served as an affordable bridge to new job skills. Technical drawing and coding are particularly popular classes; so is stress management (go figure).

$2 B.

PRIVATE MARKET VALUATION FOR ONLINE CLASSROOM GIANT UDEMY (NO. 34) AS OF FEBRUARY

2 M.

CANADIANS AGES 15 TO 29—20% OF THAT DEMOGRAPHIC—WHO HAVE TAKEN PART IN RBC'S "FUTURE LAUNCH" PROGRAM (NO. 37)

NO. 35

Grab

Keeping a culinary culture alive.

SINGAPORE

The coronavirus poses a stark threat to the food economy in Southeast Asia. The food stalls and open-air markets where millions dine and shop in Malaysia, Indonesia, and elsewhere in the region lost patrons as lockdowns began—and few had an online presence to court customers for delivery.

Grab, the Singapore-based tech company best known for its ride-hailing app, has stepped into the gap. The company already had relationships with many regional merchants through its food-delivery business. As the pandemic unfolded, it expanded its GrabMart grocery service to connect more than 3,000 food providers with online shoppers. Grab also signed on more merchants to its QR-code-based contactless payment service, helping them serve customers who feared infection risk from credit cards or cash. Pre-COVID, these services seemed "nice to have," CEO and cofounder Anthony Tan recently told *Fortune*. Today they're "the primary source of business for many of these guys."

NO. **32**

Green Monday Group

Cutting carbon emissions with the help of a meatless pork substitute.

HONG KONG

Green Monday is on a mission to make China's diet greener. Founded by David Yeung as an advocacy platform for plant-based lifestyles, it has expanded into catering, distribution, and production. In 2018 the group created a meatless pork alternative, OmniPork—a green breakthrough in a nation that consumes over 50% of the world's pork. OmniPork debuted in mainland China via Alibaba in 2019, and Green Monday has partnered with the likes of Taco Bell and White Castle as well as local restaurants to expand its footprint.

THESE LITTLE PIGGIES HAVE NONE Green Monday's OmniPork is a pork substitute that's entirely plant-based.

COURTESY OF GREEN MONDAY

THE INSTANT HOSPITAL Cemex's prefabricated "hospital modules," designed in response to COVID-19, can be built in 15 days or less.

NO. 36

BD

A wide-ranging medical response to a global pandemic.

FRANKLIN LAKES, N.J.

As a major manufacturer of medical supplies, from injection devices to the medication delivery systems used in ICUs, BD has been in overdrive lately—in some cases making more of a product in a single week that it had during the whole previous year, to meet COVID-19 demand. But BD has gone beyond merely ramping up. It has installed medical equipment at emergency field hospitals; it has provided infection surveillance data to the CDC; and it has worked with governments and NGOs worldwide to get immunization supplies ready for the eventual arrival of a vaccine.

NO. 37

Royal Bank of Canada

Preparing young people for careers, and reaping returns.

TORONTO

The Royal Bank of Canada has helped young people land jobs—and turned them into customers to boot. In 2017, amid high youth unemployment, RBC devised a workforce prep program and invested about $380 million in the effort. "Future Launch" has since reached more than 2 million young Canadians with training courses, mentorships, networking, and internships. Canada's youth jobless rate dropped to an all-time low of 10% in 2019. And at RBC, which had struggled to attract young customers, those ages 24 and under now account for a third of new retail clients.

NO. 38

Footprint

Inventing durable replacements for plastic food packaging.

GILBERT, ARIZ.

Footprint has snared some huge clients for its big idea: plant-based food packaging that's biodegradable, yet durable enough to perform like plastic. Its bowls, trays, straws, six-pack rings, and other packaging are being used or tested by giants like McDonald's, Tyson Foods, and Molson Coors. The compostable materials can withstand extremes of hot and cold, and Footprint estimates its products have diverted 60 million pounds of plastic from the environment. While it doesn't report revenue figures, the company says it expects 70% year-over-year sales growth in 2020.

NO. 39

Cemex

Building quickly to fight a fast-moving health crisis.

MONTERREY, MEXICO

When COVID-19 struck Mexico, Cemex's response was concrete: The cement giant speedily created prefab facilities to tend the sick. Its "turnkey hospital modules" each contain up to 45 beds and can be built within 15 days, at a cost the company says is 70% lower than traditional construction. The mini-hospitals, in place in 12 cities so far, are outfitted with antibacterial concrete and ultraviolet-light-based air filtration systems to curb the spread of infection. Cemex expects to build far more of them, as Mexico plans to install nearly 300,000 new hospital beds by 2030.

COURTESY OF CEMEX

A RETURN TO "NORMAL" AFTER THE PANDEMIC? AIM HIGHER.

As global business leaders respond to multiple concurrent crises, returning to normal is not an option.

"SUSTAINABILITY" CAN BE AN AMORPHOUS TERM in the business world, encompassing issues ranging from environmental preservation to supply chain alignment. But sustainability has taken on new meaning in the midst of the coronavirus pandemic, a depressed global economy, regular climate-related catastrophes, and worsening systemic inequality, especially related to race and gender.

These disruptions have exposed fundamental flaws across systems and society at large. The general public may long for a return to normalcy, but what was once normal is no longer adequate. Business, government, and civic leaders have an opportunity to rebuild societal structures that are smarter, more resilient, and more equitable and inclusive for all—in other words, a more sustainable normal.

"While 2020 has brought a level of global disruption we haven't seen in the recent past, it also presents an opportunity for leaders to reset and realign their values and commitments," says Punit Renjen, CEO of Deloitte Global. "Now is the time for us to come together to create a better, more sustainable world—one in which business focuses on both profit and purpose; people bring out the best in each other; we begin to heal our planet; and organizations become more resilient. If we simply return to 'business as normal,' we, as a society, will have failed."

Deloitte recently conducted global surveys of business leaders, millennials, and Gen Zers on a range of topics. The respondents indicated a need to improve sustainability related to climate change and the environment. Ninety percent of executives agree that climate change will negatively affect their organizations, and nearly half say addressing it is a top priority.

"CEOs are expressing a greater need to adopt actionable policies," says Alexa Yiğit, head of sustainable finance at CEO Investor Forum, a part of Chief Executives for Corporate Purpose (CECP), a CEO-led coalition comprising more than 200 companies. "We see sustainability as a key macro force in shaping business decision-making and innovation."

Organizations can move from talk to action by "operating green"—for example, committing to reducing greenhouse gas emissions to achieve net-zero levels before 2050, the time frame set by the Paris Agreement. They can also educate employees about their impact—including their choices around what they consume, use, and buy—to encourage them to lessen their output at home and at work. And organizations can also engage clients and customers, suppliers, and business partners to tackle climate change at a systems and operations level.

"The world has reached a tipping point on societal issues. People around the world are demanding action—and this time feels different," says Renjen. "Leaders must seize this opportunity to protect our planet and build stronger, more equitable communities."

CECP

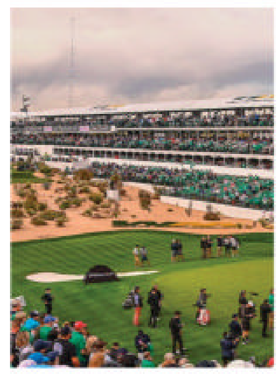
A GOOD WALK UNSPOILED

Environmental sustainability is an ongoing focus for the **PGA TOUR.**

PEOPLE COULD BE FORGIVEN FOR THINKING THE game of golf is a resource drain: the watering, the mowers, the bottles and cans. But that's largely a dated viewpoint, and the PGA TOUR in particular has made the sustainability of its organization mission critical. While many people think of the TOUR strictly as an entity that oversees tournaments, it has a diverse portfolio, and so its environmental efforts are similarly multifaceted.

Consider the recent inroads the TOUR, working with various companies across its Tournament Players Club (TPC) Network, has made to reduce water usage, saving one of our most precious (and costly) natural resources for other uses. Today's course architects are focusing on shrinking the irrigated acreage needed for the playing surface. Turf-maintenance companies are devising new ways to use technology to deliver water more efficiently, from high-tech nozzles to state-of-the-art irrigation systems. Turfgrass developers are creating cultivars that require less water. To create a shift in perception, the game's governing bodies have created messaging to reframe notions about course presentation—specifically, the color of vegetation. "Brown is the new green" means that courses don't have to look perfect to provide great performance, thus decreasing watering needs, costs, and environmental impact. And according to the United States Golf Association, golf's water usage is down 20% in the past decade.

Another way the PGA TOUR contributes to sustainability is by embracing our planet's natural habitats. For example, in one of the TPC's most innovative sustainability efforts, the AT&T Canyons Course at TPC San Antonio hosts and maintains 12 beehives on the property. Additionally, 16 of the TOUR's owned-and-operated TPC facilities are certified Audubon Cooperative Sanctuaries—with a 17th certification in progress. Audubon requires standard environmental management practices that enhance a course's natural areas and wildlife habitats, increasing efficiency and minimizing negative impacts from operations. As a result, dozens of TPC superintendents have received the coveted Golf Course Superintendents Association of America (GCSAA)/Golf Digest "Environmental Leaders in Golf Award." This award pays tribute to the people and places most committed to environmental stewardship—in natural resource conservation, healthy land stewardship, communications and outreach, and innovative conservation.



"BROWN IS THE NEW GREEN" MEANS THAT COURSES DON'T HAVE TO LOOK PERFECT TO PROVIDE GREAT PERFORMANCE, THUS DECREASING WATERING NEEDS, COSTS, AND ENVIRONMENTAL IMPACT.

SUSTAINABLE CHARITY

Charity is at the core of the PGA TOUR's mission—to the tune of more than $3 billion since 1938. And millions of dollars generated by tournaments annually go toward charities with a sustainability focus. A couple of examples: The Arnold Palmer Invitational presented by Mastercard, run by the Arnold & Winnie Palmer Foundation, supports the environment via the Winnie Palmer Nature Reserve in Latrobe, Pa., the late Palmers' hometown. And the 3M Open in Minneapolis had the National Park Foundation as one of its primary beneficiaries last year.

Likewise, the environment is a charitable pillar for the Wyndham Championship in Greensboro, N.C., whose host site, Sedgefield Country Club, not only has Audubon certification but also partners with OnLink to incorporate metrics and benchmarks that help evaluate its sustainability. Sedgefield CC gets spruced up with additional landscaping before the TOUR's arrival; and post-tournament, plants, trees, and flowers are moved to new locations to help sustain (and beautify) the environment. The tournament works with Unifi, Inc.—one of its two official recycling partners, along with Republic Services—to encourage the use of recycling receptacles all around the golf course and in a specific Recycle Zone.

Elsewhere, and appropriately, the Waste Management Phoenix Open has been ranked as the world's largest zero-waste event since 2013. The RBC Canadian Open provided multiuse containers to fans to reduce single-use plastics. The AT&T Pebble Beach Pro-Am works with Blue Strike Environmental to divert a significant percentage of waste from landfills. While each tournament's efforts are unique, they all point toward sustainability.

At the TOUR's flagship TPC Sawgrass, TOUR partner Waste Management suggested increasing the size of its garbage compactor to reduce the number of trips garbage trucks make to

the property. It is a win-win: Supersizing the compactor and other related changes deliver less environmental impact and the TOUR anticipates saving approximately $20,000 in trash collection in the first year alone.

BUILDING SMART

Good habits start at home, and the PGA TOUR has updated many policies at its various Ponte Vedra Beach, Fla., headquarters' facilities in recent years. Plastic straws and utensils are out, and plastic water bottles are following in their wake as the organization transitions to canned water and chilled, filtered water spouts for reusable cups. Office supplies have been reduced and donated to schools wherever possible, and updated best practices like reducing, recycling, or repurposing are in place for handling cardboard, paper, toner cartridges, batteries, light bulbs, wooden pallets, and end-of-life technology hardware.

The PGA TOUR is always taking the next step toward its sustainability goals, including at its new headquarters. Beginning in early 2021, 17 offices around Ponte Vedra Beach will consolidate under one new roof. Called Global Home, the new LEED-certified building will preserve, create, and restore wetlands to more than offset its impact on forested wetlands; use 100% nonpotable water for irrigation purposes; and feature solar roof panels, accounting for nearly 25% of the building's energy cost savings—which are considerable owing to highly efficient mechanical equipment, LED lights, low-flow fixtures, high-efficiency windows, and smart use of natural light. For the TOUR and TOUR pro, the more tools in their toolbox, the better the chance at sustainability. —*EVAN ROTHMAN*

TOP LEFT: THE RENOWNED 16TH HOLE AT THE WASTE MANAGEMENT PHOENIX OPEN, RANKED AS THE WORLD'S LARGEST ZERO-WASTE EVENT SINCE 2013. **TOP RIGHT (RENDERING):** SUSTAINABILITY HAS BEEN A TOP PRIORITY FOR THE PGA TOUR'S NEW GLOBAL HOME, SCHEDULED TO OPEN IN JANUARY 2021 IN PONTE VEDRA BEACH, FLA. **LOWER LEFT**: 12 BEEHIVES ARE MAINTAINED ON PROPERTY AT TPC SAN ANTONIO'S AT&T CANYONS COURSE. **LOWER RIGHT:** THE WASTE MANAGEMENT PHOENIX OPEN, THE HIGHEST-ATTENDED TOURNAMENT ON THE PGA TOUR, PROMOTES ITS SUSTAINABILITY EFFORTS AT TPC SCOTTSDALE.

CHANGE THE WORLD

NO. 40

Ushio

Let There Be (Disinfectant) Light

Harnessing ultraviolet frequencies to fight microbes.

TOKYO

If there is an unsung hero in the global fight against COVID-19—and deadly pathogens, generally—it may be ultraviolet light. For decades, owing to its microbe-killing powers, it has been deployed (when humans aren't directly exposed) to sterilize operating rooms and public spaces, including, since earlier this year, the New York City subway system. In some countries, it has been used to control tuberculosis and measles outbreaks.

Ushio, with $1.5 billion in annual revenues, is a manufacturer of the germicidal UV lamps used in such efforts. But for the past seven years, Ushio has also been advancing the science around a promising, more practical type of UV light—at a wavelength of 222 nanometers—which still kills microbes, but (as a growing number of studies suggest) does not penetrate the eye or skin and so can safely be used around humans. Ushio, in partnership with Japan's Kobe University and Columbia University in the U.S., a few years ago hypothesized that such light could be used to prevent the transmission of airborne infectious diseases like influenza; it introduced a 222nm lamp in the U.S. in 2018. Now, COVID-19 has made the technology—which could be used in indoor spaces where the virus is thought to linger in the air—especially relevant. Ushio begins mass production this fall.

3M
HECTARES OF AMAZON RAIN FOREST THAT NATURA (NO. 45) HAS COMMITTED TO PRESERVING

3.2%
ELECTRIC VEHICLES' SHARE (PROJECTED) OF THE OVERALL CAR MARKET IN 2020 (SOURCE: INTERNATIONAL ENERGY AGENCY)

1.9
TONS OF CARBON DIOXIDE (CO_2) EMITTED FOR EVERY TON OF STEEL PRODUCED. SSAB (NO. 52) AIMS TO REDUCE STEEL'S CARBON FOOTPRINT (SOURCE: WORLD STEEL ASSOCIATION)

15M
ESTIMATED NUMBER OF CUSTOMERS POWERED BY RENEWABLE ENERGY FROM ØRSTED (NO. 42)

NO. 41

Adobe

Bridging an accessibility gap in tech.

SAN JOSE

Many of the conveniences of the tech era aren't accessible to the visually impaired. Adobe has tweaked its ubiquitous PDF (portable document format) to address this in a small but meaningful way. The Liquid Mode feature—now live in Adobe's app—uses A.I. and machine learning to automatically reformat PDFs for mobile devices, adjusting text spacing and size to readers' needs.

NO. 43

Corteva Agriscience

Big Ag goes global for good.

WILMINGTON, DEL.

The agricultural giant spun off from DowDuPont in 2019 works closely with development agency USAID in Africa and Asia. By improving yields and sustainability practices for small farmers there, including through its drought-resistant and heat-tolerant seeds, Corteva has helped boost incomes and food security. Its latest goal: helping half a billion small farmers worldwide increase productivity by up to 300% by 2030.

NO. 45

Natura

Raising the bar on climate and diversity.

SÃO PAULO

B Corp companies formally commit to high levels of social and environmental performance. And Natura, the first public company to get certified as a B Corp, raised its own bar with a "Commitment to Life" in June. The beauty company pledged to bring CO_2 emissions to net zero by 2030, to preserve more of the Amazon rain forest—and to install women in 50% of leadership positions by 2023.

NO. 42

Ørsted

Powering more of the world with the wind.

FREDERICIA, DENMARK

Originally created to tap North Sea oil, Ørsted has evolved into the world's largest offshore wind energy company, responsible for nearly a third of current or under-construction capacity; it brought in $10.8 billion in revenue in 2019. Ørsted has expanded its reach to the U.S., developing wind farms in South Dakota, Virginia, and Nebraska. And it aims to eliminate its own CO_2 emissions by 2025.

NO. 44

Salesforce

Crunching data to keep workplaces safe.

SAN FRANCISCO

The cloud-based software giant has rolled out two vital toolkits for navigating the pandemic. Work.com, which debuted in May, has helped thousands of companies and schools manage scheduling, employee wellness assessments, and emergency responses as they reopen. And data visualization tech from Salesforce's Tableau subsidiary powers much of the contact-tracing that's essential to curbing outbreaks.

NO. 46

African Bank

Adopting a "no customer too small" rule.

JOHANNESBURG, SOUTH AFRICA

This bank reorganized in 2016 with a bold new strategy: It would lure lower-income customers. The lender offers savings, debit card, and investment accounts with very low minimum deposits (from 500 South African rand, or $30, down to just one rand). And each type of interest-bearing account pays the same rate regardless of balance size, rather than paying more to bigger fish.

SWAP MEET China's Nio is giving electric-vehicle owners the option to have their batteries quickly swapped out at stations like this, rather than waiting for recharges.

COURTESY OF NIO

NO. 47

Nio

Rethinking the 'Electric' in an Electric Car

To attract more drivers to low-emissions vehicles, a carmaker is leaving out the battery.

SHANGHAI

An electric vehicle without a battery. It sounds like a prank, but the new business model of Chinese EV maker Nio could revolutionize an industry held back by sticker shock, range anxiety, and lack of charging infrastructure. Nio's battery as a service, or BaaS, announced this summer, lets customers purchase a battery-less Nio and separately subscribe to chargeable, swappable, and upgradable batteries. The model relies on a network of battery-swapping stations; there are 143 in China so far. Nio sees the strategy as a way to lower costs—its EVs cost between $52,000 and $68,000 but sell for $10,000 less without the battery—and appeal to drivers who prefer not to be tethered to public charging stations. The approach aims more broadly to tear down barriers to EV ownership and, ultimately, to promote the decarbonization of transport.

THE LIST 48-53

CHANGE THE WORLD

NO. 48

Jordan Ahli Bank

Fintech for altruistic ends.

AMMAN, JORDAN

More than 660,000 Syrian refugees live in Jordan, according to Unicef, and 78% live below the poverty line. For many, this bank provides a vital safety net: Some 106,000 families get their food-aid payments in the form of prepaid Jordan Ahli debit cards. The company is also helping unbanked Jordanians find firmer footing, using a blockchain-based identity platform to help them open accounts.

NO. 50

Centene

Shielding the high-risk from COVID-19.

ST. LOUIS

This insurer's 24 million members, the vast majority of whom belong to Medicaid and Medicare plans, are disproportionately vulnerable to harm from the pandemic. Centene has leaned into the challenge of keeping them healthy by plowing money into infrastructure that helps Medicaid members access telehealth, and by removing barriers (like prior authorizations) to COVID-19 testing and care.

NO. 51

ChenMed

Treating the elderly before a hospital does.

MIAMI

ChenMed focuses on helping seniors avoid expensive hospital says. Each of its doctors cares for fewer than 450 patients—a fraction of the average in primary care—whom they check on regularly with "love calls." The fast-growing provider earns a fixed amount per patient rather than earning fees for each service: It says its patients spend 30% to 50% less time in the hospital than their peers.

Many think **ChenMed's** model is the cure for America's ailing, high-cost health care system. The primary-care provider has focused on helping seniors avoid expensive hospital stays—by preventing problems from getting bad in the first place.

NO. 52

SSAB

Making steel without CO_2 emissions.

STOCKHOLM

The steelmaker has joined miner LKAB and power company Vattenfall in HYBRIT—an ambitious Swedish venture to make fossil-fuel-free steel. Rather than burning coal in the CO_2-intensive iron production process, HYBRIT uses hydrogen and electricity from emissions-free sources. The product won't be commercially available until 2026, but HYBRIT's first plant started operations in August.

NO. 53

Merck

Investing to broaden its health impact.

KENILWORTH, N.J.

Merck has doubled down on "impact" investing—taking stakes in smaller companies that aim to generate a measurable social good. Its portfolio currently commits about $39 million to entities working on projects including diagnostics, drug and vaccine R&D, and health infrastructure. It's a future play with present benefits: Merck estimates more than 9 million people benefited from its impact portfolio in 2019.

NO. 49

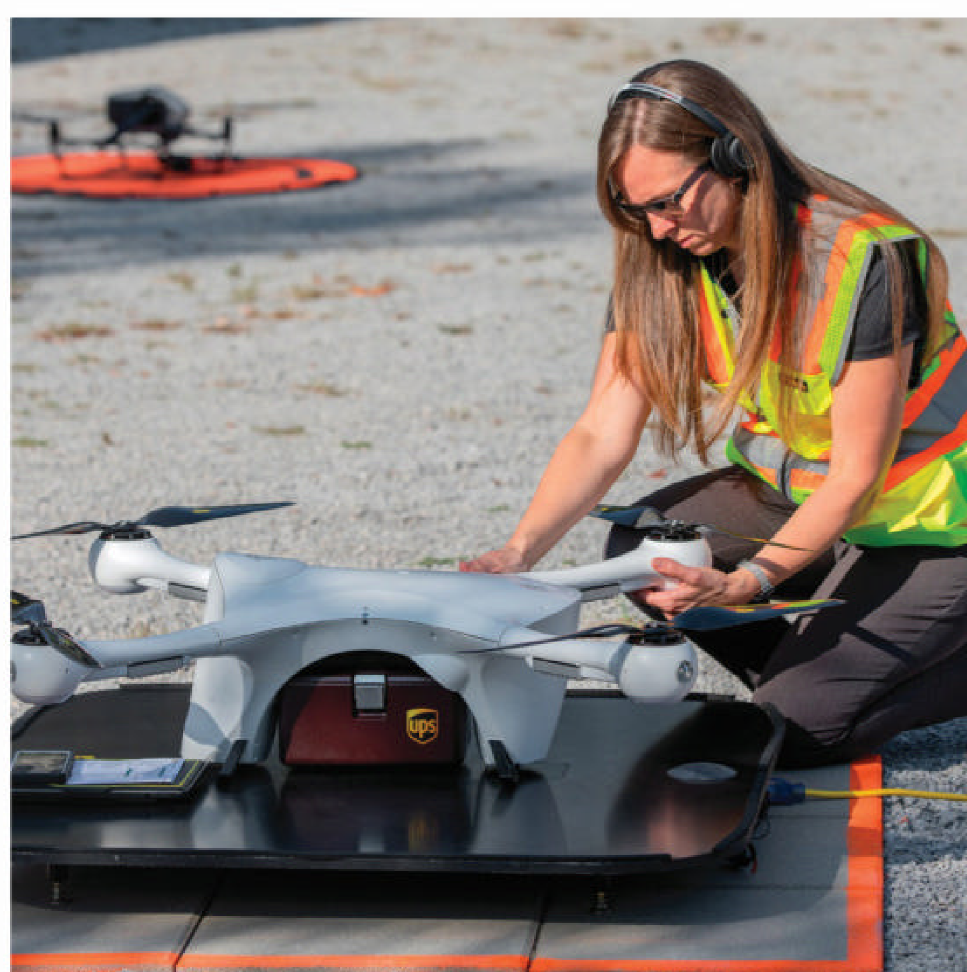
UPS

Flying Over Obstacles

Drone deliveries address a health care bottleneck.

ATLANTA

The world's package delivery leader is also a leader in the emerging, potentially high-margin delivery-drone field. UPS's Flight Forward unit is partnering with health care systems and others in North Carolina, Virginia, and Utah to deliver patient samples to labs, prescriptions to patients, and supplies to hospitals. Delivery by drone is up to 10 times as fast as by van, as the unmanned aerial craft fly past traffic jams. And since they don't choke roadways, drones help reduce CO_2 emissions.



CLEARED FOR TAKEOFF UPS's drone delivery unit was the first to win U.S. government flight approval.

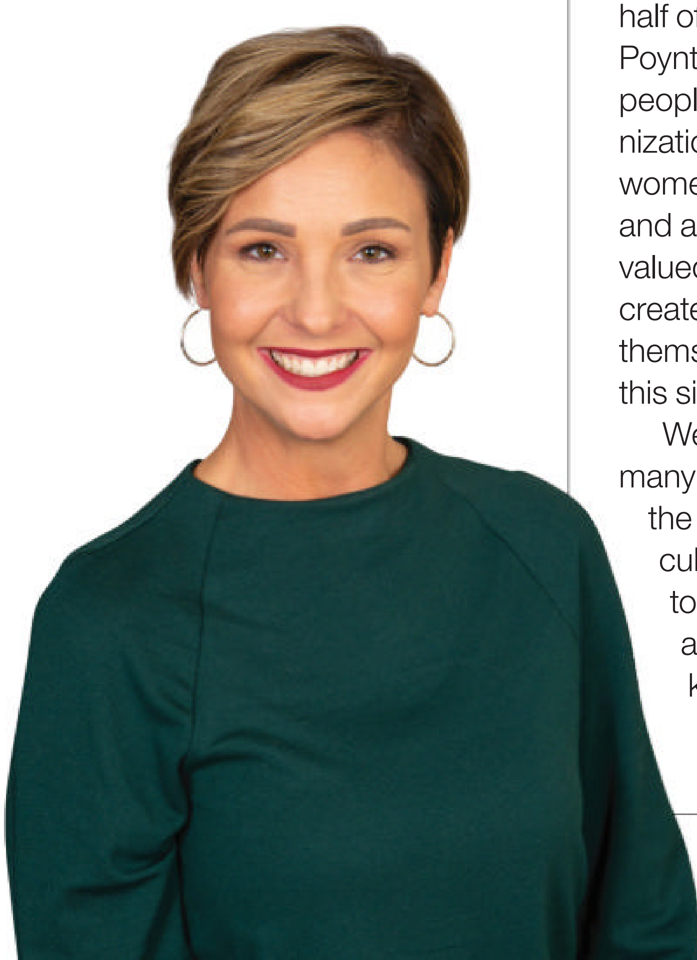
COURTESY OF UPS

Living Your Truth in the Workplace

How this financial services company gives women a seat—and a voice—at the table.

"We've created a safe place for people to be themselves, and we know for women this signals opportunity."

APRIL POYNTER
CHIEF PEOPLE OFFICER
WESLEY FINANCIAL GROUP



FOR WESLEY FINANCIAL GROUP, LLC, 2020 has been a big year. As a firm founded with a clear mission—to absolve debt, unlock financial freedom, and educate consumers about the deceitful underbelly of the timeshare world—it has successfully eliminated more than $160 million in timeshare mortgage debt since 2017 and has helped free more than 15,000 families of their timeshare obligations since 2011. The company's "do all the good you can" ethos is the heart and soul of the organization, and it hasn't gone unnoticed. This year the firm swept up a number of accolades, including being named to *Inc.*'s 5000 Fastest Growing Companies in America and now *Fortune*'s Best Workplaces for Women.

Women comprise 60% of the company's workforce and fill more than half of its leadership positions. April Poynter, Wesley Financial Group's chief people officer, explains that the organization's inclusive culture encourages women to have a seat at the table—and a voice, as they know that they are valued for their perspectives. "We've created a safe place for people to be themselves, and we know for women this signals opportunity," Poynter says.

Wesley Financial Group employs many mothers, which strengthens the development of a family-first culture where women don't need to feel torn between their careers and their family lives. "We make it known companywide that work doesn't mean forsaking family. You can schedule work around your family, instead of the other way around," says Poynter. This year, the company introduced an additional 40 hours of paid time off, in addition to federally regulated hours, for mothers to take care of their newborns. Poynter herself has felt the impact of such initiatives. "Even as I've gone up the ladder, I've never once felt I had to trade [career for family]. It's almost as if the company found me—instead of me trying to push my way to the top."

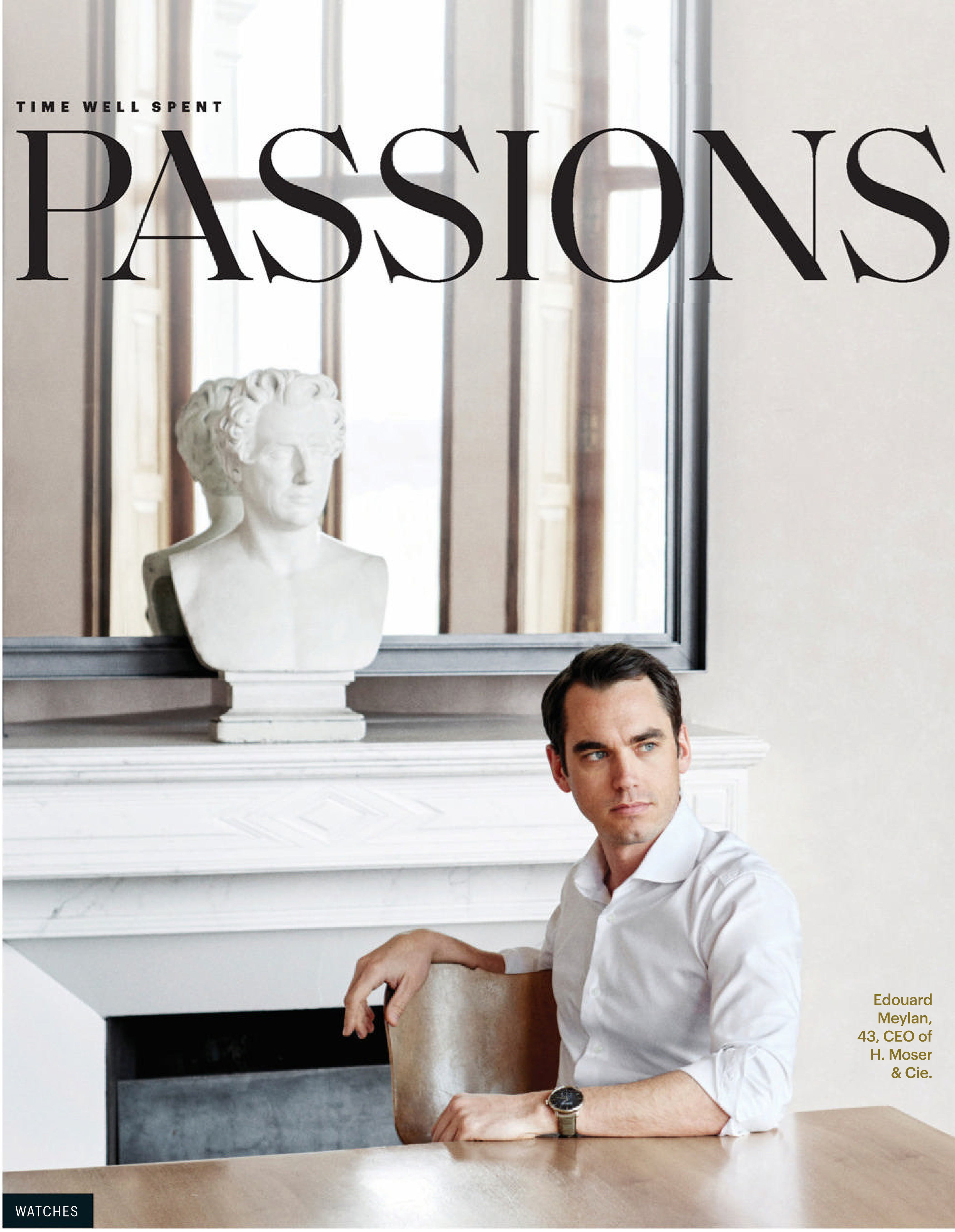
The firm has grown from 20 employees to 395 during the past four years, due to a restructuring of its resolution department, which has been split into three divisions where several women were promoted into leadership positions—unlocking better career and training opportunities for all. "At the end of the day, we hire great people," says company president Robin McVey. "I trust fully in our employees and leadership, and that trust empowers them to do even more." ■

"I trust fully in our employees and leadership, and that trust empowers them to do even more."

ROBIN McVEY
PRESIDENT
WESLEY FINANCIAL GROUP

TIME WELL SPENT

PASSIONS



Edouard Meylan, 43, CEO of H. Moser & Cie.

WATCHES

The Provocateur

In an industry of staid old birds, this Swiss watch executive is not afraid to ruffle feathers. **BY DANIEL BENTLEY**

MEYLAN: PHILIP SINDEN—CAMERA PRESS/REDUX. WATCHES: COURTESY OF H. MOSER & CIE.

WATCHMAKING is an industry steeped in history and tradition, with names like Vacheron Constantin, Breguet, and Blancpain all predating the American Revolution, yet still producing fine timepieces today. (The market leader, Rolex, is a relative baby at just 115 years old.)

Flying under the radar—if a company can do such a thing for 192 years—is H. Moser & Cie., founded by Swiss watchmaker Heinrich Moser in St. Petersburg, Russia, in 1828. Moser produced pocket watches for the Russian aristocracy at the same time Gustav Fabergé was dressing them in jewelry; even Vladimir Lenin owned a Moser pocket watch. But the fame of the brand faded with the fortunes of the Imperial Court and barely survived the 20th century.

In 2012 the brand was acquired by the Meylan family, whose history in the watch industry goes back several generations. Patriarch Georges-Henri Meylan, who was CEO of Audemars Piguet for 21 years, entrusted the running of Moser to his then 35-year-old son Edouard Meylan, an engineer and Wharton MBA who was lured back to his ancestral industry. The Meylan family had identified a distressed asset but one with clear potential, a talented team of watchmakers, and a genuine history; now that asset is paying dividends. *Fortune* spoke with Edouard about what it takes to run an independent watch brand, how to stand out in the marketplace, and how the company is navigating a global pandemic. *This interview has been edited for clarity and length.*

> “I’m trying to make an emotional link with customers. We do that through transparency and honesty, but also by being provocative.”

***Fortune:* Is the Moser that exists today 192 years old or eight years old?**

EM: Like everything, it’s an evolution, right? This brand, except for a period of 15 years during the quartz crisis [in the 1970s and ’80s], has always been in production. There has always been a continuation of philosophy and approach from the founder and the people that followed him. When I look at our products today I see many links [to the past]. But we are not stuck in history. It’s important to be inspired but not get stuck.

What were the things that attracted you to the brand?

What made me fully fall in love with Moser was its approach to engineering. It’s probably the most Germanic brand in Switzerland. And I studied engineering in Germany, my wife is German, and I have always been attracted to the philosophy of German engineers and designers like the Bauhaus. My predecessor [former Moser CEO] Jürgen Lange was East German, and I think he brought a lot of that, and I wanted to keep that. Also I fell in love with our perpetual calendar movement. I think it’s still one of the most amazing movements out there. A watch is there to give you the time and date, so it’s one of the most practical movements there is. And fumé dials, Moser was doing them in limited editions, and we thought, “Wow, this is so cool, nobody is doing that.” And now I think everybody is!

So where was the brand going wrong?

There were many things. Some quality issues. But the main thing was efficiency. When you develop products like these, if you have a pure engineering approach then you create your dream watch, which is great but also very dangerous because you’re not considering the cost of production and how much you can sell it for. So we really worked on efficiency in production. We reduced the time it took to assemble a perpetual calendar from 90 hours—that’s two weeks—to 30 hours. It

1

2

3

HIGH CONCEPTS
[**1**] Swiss Alp Minute Repeater Tourbillon, $350,000.
[**2**] Swiss Mad Watch, made from real Swiss cheese, 1,081,291 francs.
[**3**] Nature watch, actually grows plants, not for sale.

took time and investment, but it's one thing that transformed the brand from bleeding money to becoming profitable.

Another thing was brand identity. Even though the watches were costing a lot to produce, they were being sold rather cheap, and people were saying, "Oh, Moser is great value for money." And for me that's shocking, because value for money has nothing to do with luxury. It's the opposite of that. So I'm trying to make an emotional link with the brand and customers. We do that through transparency and honesty, but also by being provocative and making sure nobody is indifferent about Moser—whether that opinion is good or bad.

Speaking of being provocative, Moser makes these very elegant classical-looking watches, but you've also stirred up plenty of controversy with some of your concept designs. How are these products part of the same brand?
I mean, if you look at an artist, we say in French that you cannot look at one specific painting: You need to look at a body of work to understand them. The commonality with all the concept watches is really the message behind them, rather than the product itself. It's really that they were symbols of an idea or philosophy or values that we wanted to fight for. For example, people were asking us, "Are you going to make a connected watch? Is the connected watch going to destroy the watch industry?" And then boom, we launched the Swiss Alp watch [which bears an uncanny resemblance to the Apple Watch]. It was very classic and elegant but a modern watch. And it answered those questions.

Your latest release, the Streamliner, is a stainless steel sport watch that hits on a wider trend started by the Audemars Piguet Royal Oak. How do you stand out in what is now a very crowded segment?
I said, "Okay, how do I grow my brand? I want part of this cake." You know it's very opportunistic how I'm saying it, but all these brands saw the same thing and came to the same conclusion. But when you're a smaller brand you need to be able to have your product on a tray next to something from a bigger brand, and it has to stand out. So our interpretation, the Streamliner, has a very singular case that stands out and adds something to this industry, rather than being a copycat of something that has been done for 45 years. And already it has been a huge success.

As a whole, Swiss watch exports were down 35% in the first half of 2020 as a result of the pandemic. How has it affected you?
I was listening to an interview with [industry veteran] Jean-Claude Biver, who said, "Crises are opportunities for independents." And he's right. I have to be honest, we've had an amazing year. We launched the Streamliner Chronograph in January, just before the lockdown, and we had orders before we even launched it. We launched a collaboration with [fellow watch brand] MB&F, which got a lot of attention. We implemented an online platform within two weeks of Switzerland going into lockdown, and that's now anywhere between 20% and 25% of our revenue each month, and we sell directly around the world. So if you're a brand like ours and you have the right products and you can react, then you can still have a very successful year. ■

A WATCHMAKER'S GLOSSARY

PERPETUAL CALENDAR
Most watches need their date adjusted five times a year to account for leap years and months with fewer than 31 days. A perpetual calendar is a complex mechanism that will show the right date every day from now until March 1, 2100, without needing adjustment.

FUMÉ DIAL
From the French word for "smoke," fumé refers to dials that gradate from a single color in the center to a dark outer ring, as shown on the H. Moser Streamliner Centre Seconds (above).

TOURBILLON
Designed to counteract the effect of gravity on a pocket watch's accuracy, the tourbillon mounts the watch's critical timekeeping components in a rotating cage.

COURTESY OF H. MOSER & CIE.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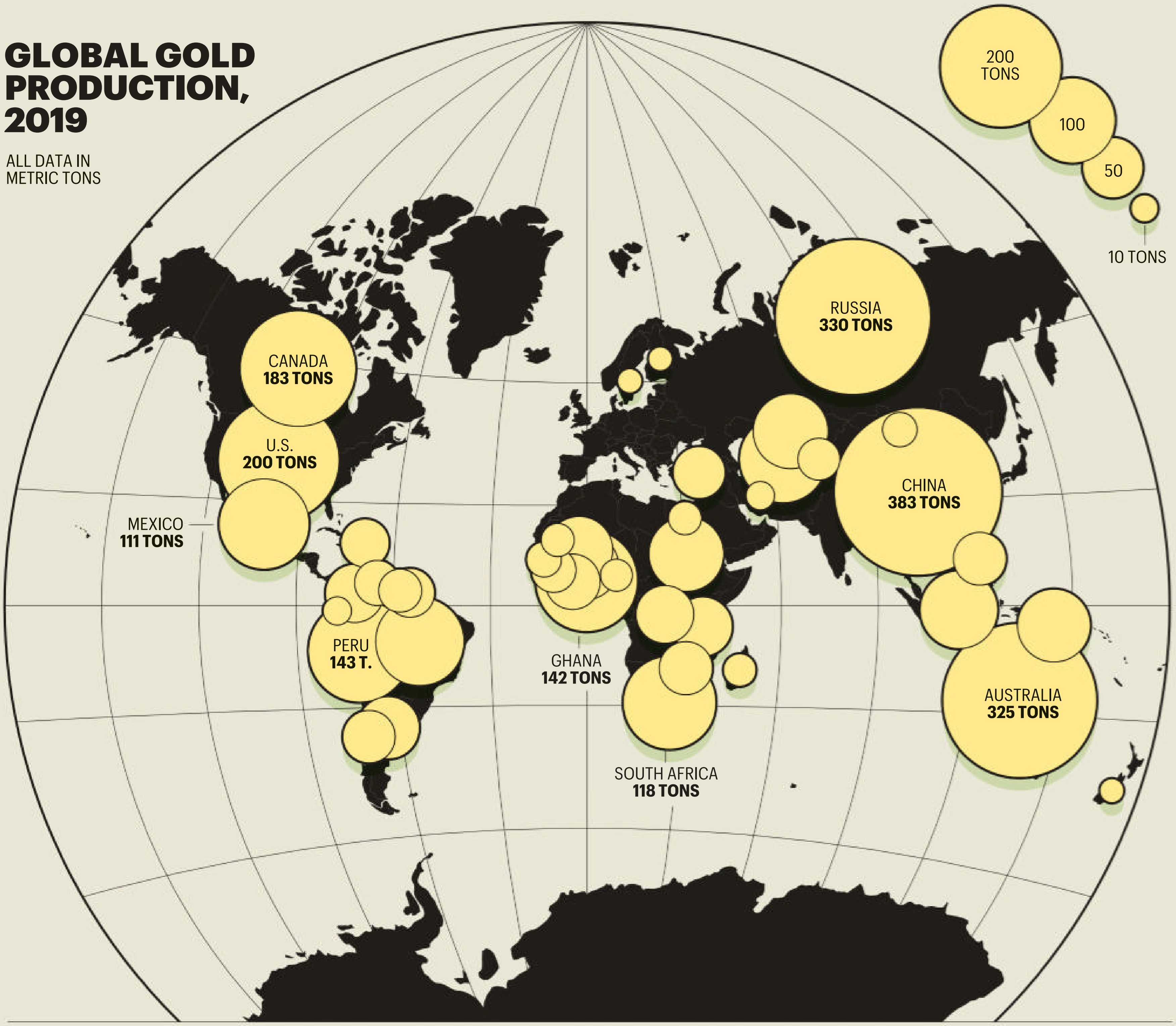
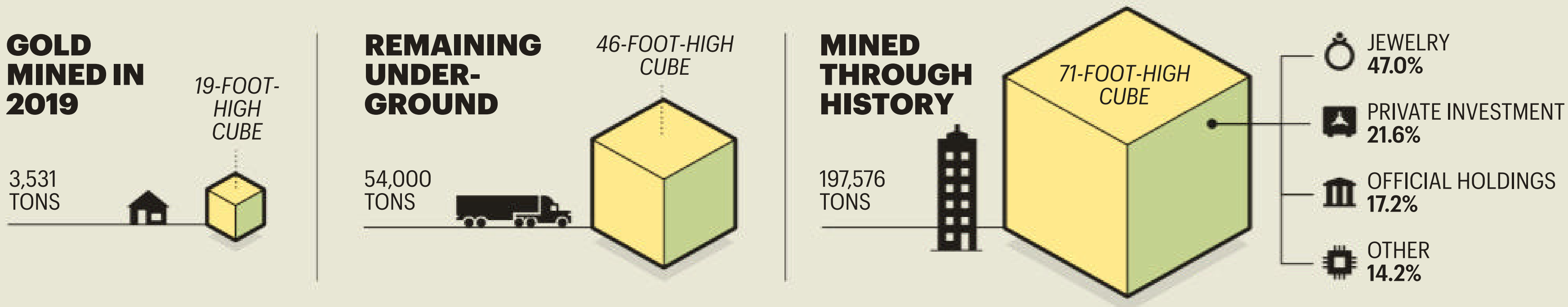
GLOBAL GOLD PRODUCTION, 2019

ALL DATA IN METRIC TONS





INVESTORS SPARK A NEW GOLD RUSH

TECH STOCKS AREN'T THE ONLY INVESTMENTS HAVING A BIG YEAR. On Aug. 6 the price of gold hit a new record high of $2,067 per ounce. Even after sliding back under $2,000, gold was still up 28% as of early September. And over the past five years, the price of the precious metal has soared 75%. The recent surge has been driven by investors seeking a safe haven amid the economic chaos of the pandemic. While cash-strapped consumers have purchased less gold jewelry in 2020, the shortfall has been offset by institutional demand. Through August, the holdings of gold-backed exchange-traded funds grew by 938 metric tons, or some $51 billion. Meanwhile, global mining production—slowed by COVID-19 lockdowns—fell by 5% in the first half of 2020 versus 2019. —**BRIAN O'KEEFE**

INFOGRAPHIC BY **NICOLAS RAPP**

SOURCE: WORLD GOLD COUNCIL