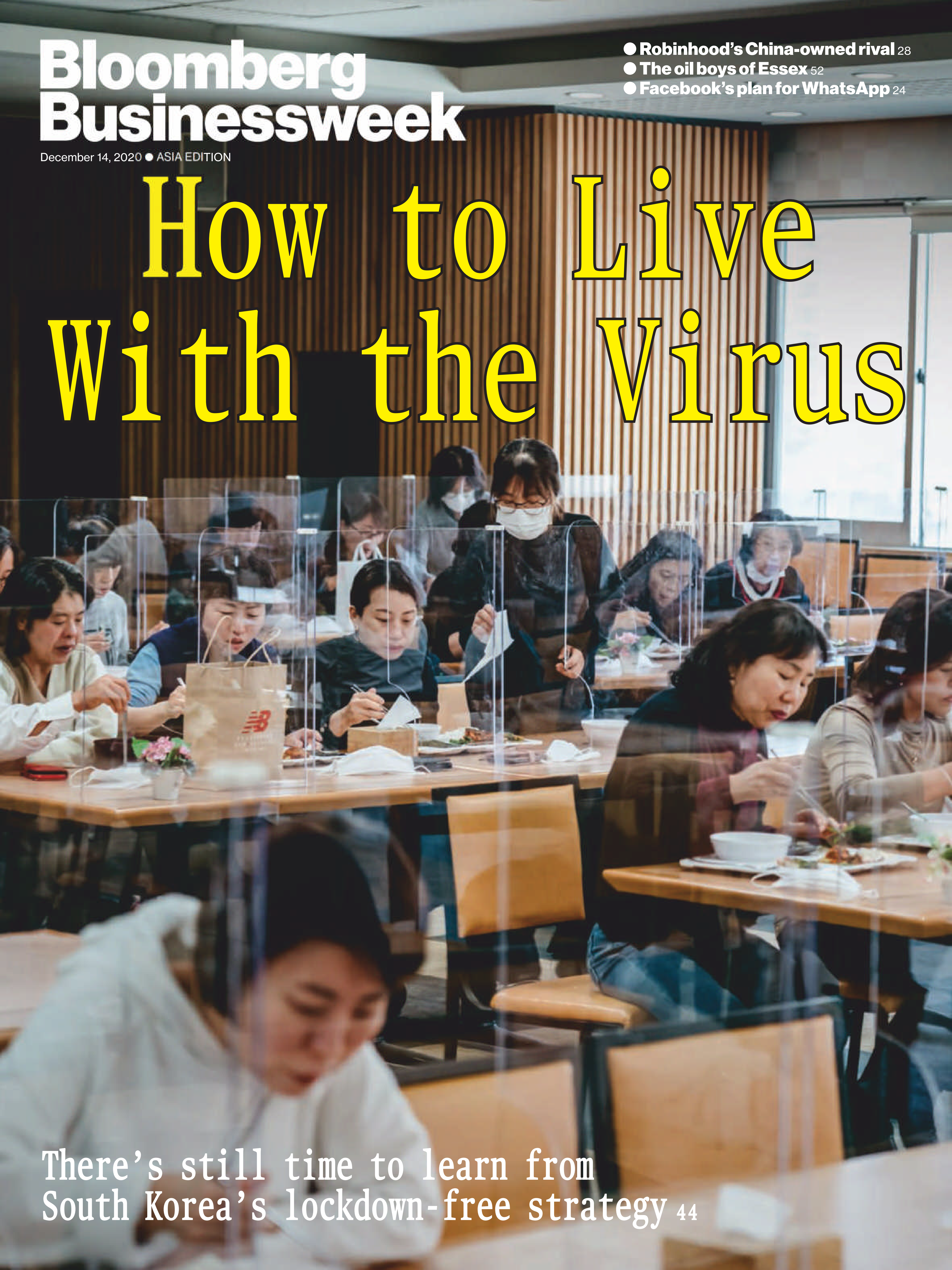
Bloomberg Businessweek
December 14, 2020 ● ASIA EDITION

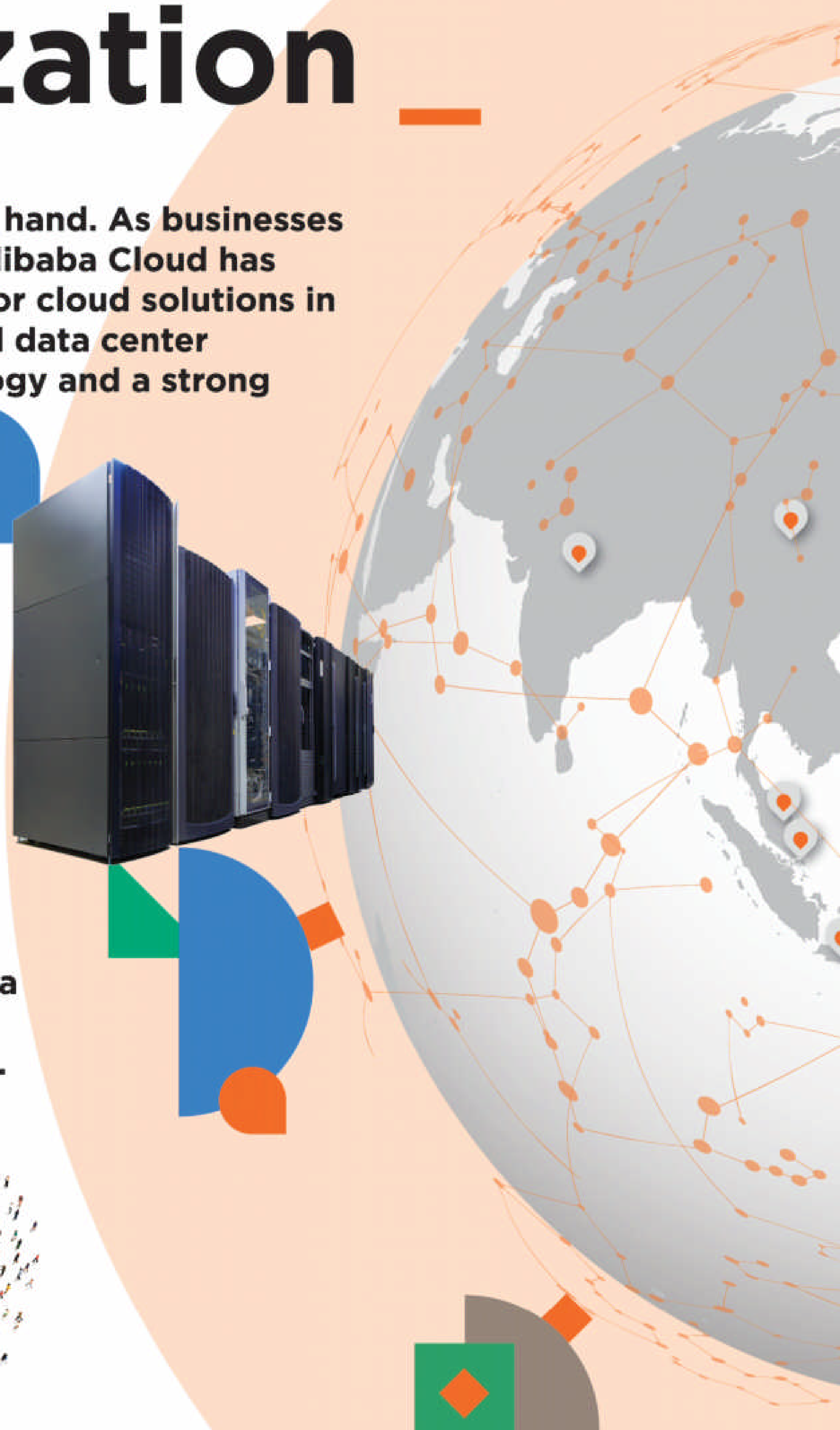
How to Live With the Virus



There's still time to learn from South Korea's lockdown-free strategy 44

The Pulse of Digitalization _

The era of digitalization is at hand. As businesses digitalize their operations, Alibaba Cloud has become the go-to provider for cloud solutions in Asia Pacific, with widespread data center coverage, advanced technology and a strong ecosystem.

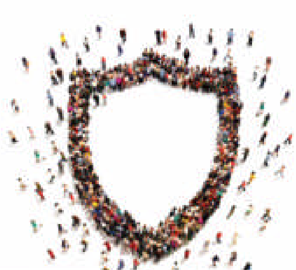


WIDESPREAD COVERAGE

Ranked

First in Asia Pacific

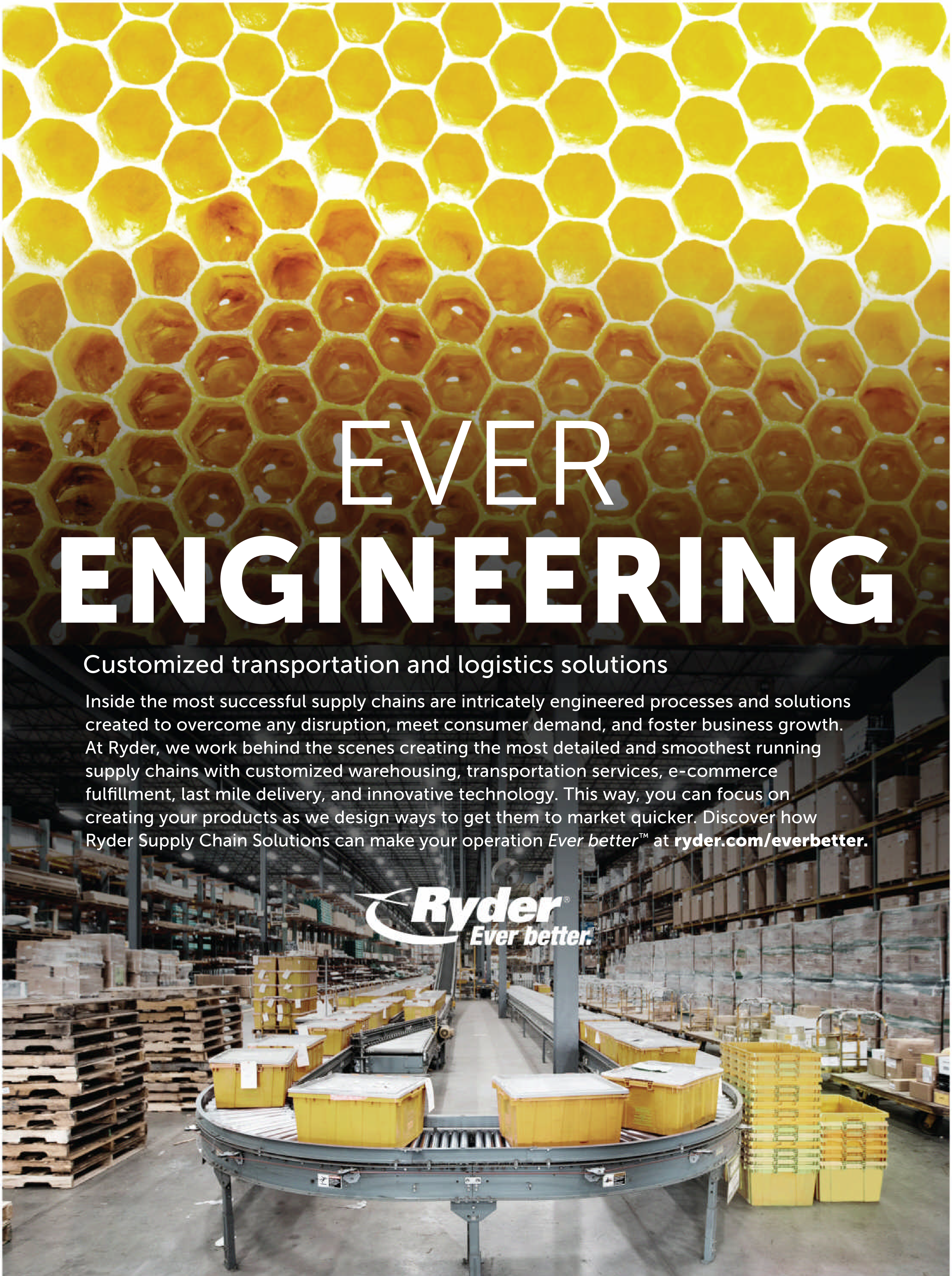
Gartner named Alibaba Cloud the Third Biggest Global Provider for Infrastructure as a Service (IaaS) and First in Asia Pacific[*1]. Most data centers and CDN nodes in APAC (17 Regions, 58 Availability Zones).



COMPREHENSIVE SECURITY & COMPLIANCE

Received more than 70 security and compliance accreditations worldwide.

*1 Source: Gartner, Inc., Market Share: IT Services, Worldwide 2019, Dean Blackmore et al., 13 April 2020.


EVER
ENGINEERING
Customized transportation and logistics solutions
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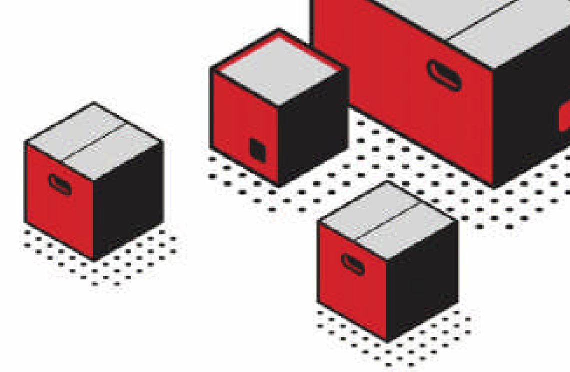


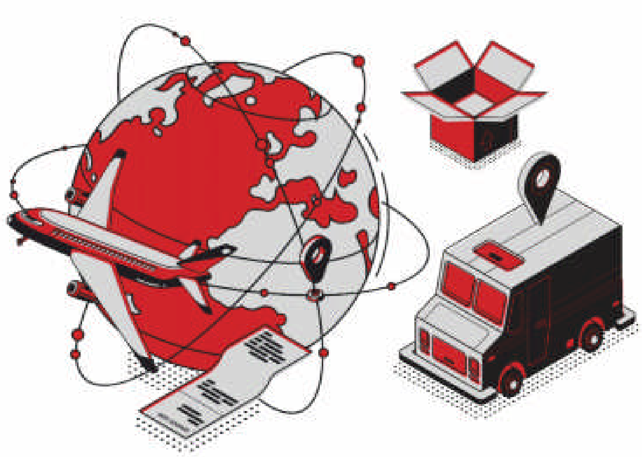
Driving Business Forward: Three Trends Impacting Supply Chains During Covid-19

Virtually no business has escaped the supply chain disruptions wrought by the coronavirus pandemic.

In March, 95% of companies said that their supply chains had been or would be disrupted by Covid-19. But in the eight months since the pandemic's emergence, forward-thinking businesses have been able to strengthen their supply chains and seize the opportunity to prove their dependability to their customers.

Covid taught companies that they need to be flexible and quickly adapt to changing conditions across both their supply chains and transportation networks. Those that have managed to do so are poised to thrive, not only for the duration of the pandemic, but also in the "new normal" that lies on the other side of it.

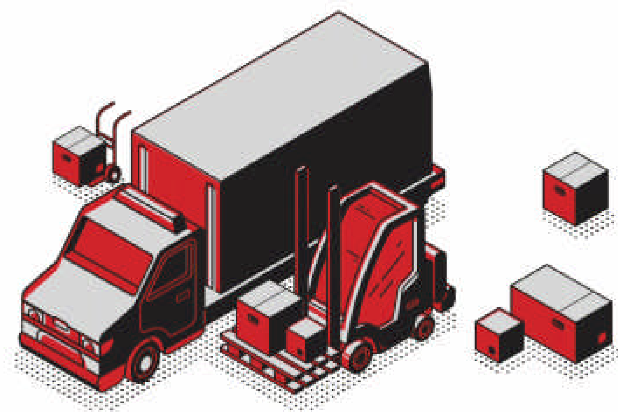
Here's a look at three trends shaping supply chains now:



1 Diverse, regional supplier networks have never been more important.

At the height of disruption last spring, companies that fared the best were those not dependent on a single supplier, and those in geographic proximity to their suppliers.

"Step one to a resilient supply chain is not having all of your eggs in one basket, and step two is being in the region with your suppliers, as much as you can be," says Steve Sensing, President, Global Supply Chain Solutions, Ryder System. "When the pandemic came, those companies that were positioned locally were in a much better position.



2 An outsourced transportation network can be a competitive advantage.

As business needs to shift instantaneously during these uncertain times, companies must be able to rely on their fleets to meet quickly changing demands. Ryder proved its reliability last spring when shipments to its consumer packaged goods (CPG) customers skyrocketed 150% as they stocked up on everything from toilet paper to thermometers.

At the same time, as many of Ryder's automotive clients shuttered temporarily due to shelter-in-place orders, Ryder was able to redirect its thousands of trucks, tractors, trailers and drivers from automotive routes to CPG runs.

"That flexibility allowed us to support those food-and-beverage customers and keep those trucks running to their warehouses and to their retail storefronts," Sensing says.

3 The shift to e-commerce has accelerated, along with customer expectations.

Customers nervous about visiting stores during the pandemic have shifted more of their shopping to e-commerce, with sales expected to reach nearly $800 billion this year—a 32% increase over last year and a figure analysts didn't expect to see until 2022.

More than a thousand new retail customers have turned to Ryder since the pandemic hit to help them meet increased demand, particularly because consumers still expect total transparency in the status of deliveries. This is provided by Ryder's RyderShare™ platform, which allows retailers to give their consumers real-time insight into the location and expected timing of each delivery.

"Having that real-time visibility—to know exactly where the product is and when it will arrive—is critical to our customers and our operations team," says Sensing.

Ryder Last Mile delivery service also benefits retailers shifting into e-commerce, providing delivery of bulk items at whichever level a retail customer prefers—from simply dropping them inside the consumer's front door to a full-service setup.

Reactive data and technology evolve to become more predictive.

In addition to providing transparency around delivery, the RyderShare™ platform also generates valuable data, which Ryder uses to automate its warehouses and find other cost savings for customers.

"It's helping us drive more waste out of the system and be more effective in moving out customers' product on the right transportation mode and carrier," Sensing says.

While challenges remain as businesses rebound from the effects of the pandemic, ample opportunities exist for agile enterprises. Companies with operational flexibility, reliable partners and a focus on efficiency will adjust—and flourish—as the new normal takes shape.

Learn more at **www.ryder.com**

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Shared by All, Accessible to All

By Yuan Yuan

Four nucleic acid tests, 14 days of quarantine with daily reports on body temperature and another 14 days of isolation in future. This is part of what Roy van den Hurk had to go through to attend the Third China International Import Expo (CIIE) in Shanghai in November.

Van den Hurk is Product General Manager of Milk New Zealand, one of the largest dairy farm groups in New Zealand, and an "old friend" of the CIIE. "All I went through for the CIIE is worthwhile," he told the media after signing a contract. "The market of dairy products has been struggling worldwide due to the pandemic, but China's market has picked up for months. We have laid great importance on the Chinese market and the CIIE is a great platform for us. We can't miss it."

While many large international events have been postponed or scrapped due to coronavirus (COVID-19), the CIIE was not only held as scheduled but had a larger exhibition area than last year. It demonstrated, as President Xi Jinping said in his keynote address delivered by video, China's commitment to sharing its market opportunities with the rest of the world and contributing to global economic recovery.

"China will stay committed to openness, cooperation and unity for win-win results," Xi said. "Our aim is to turn the China market into a market for the world, a market shared by all, and a market accessible to all."

It was a heartening message for businesses. According to official data, China's GDP grew 4.9% in the third quarter of this year, when most other major economies contracted. Viewing China's market pick-up amid the sharply declining world economy, over 80% of the Fortune Global 500 companies and industry leaders that had participated in the previous CIIEs returned to Shanghai this year.

The deals made at this CIIE reflected global confidence in China. The value of intended deals signed reached $72.62 billion, an increase of 2.1% from 2019, as figures released by the CIIE Bureau on November 10, the last day of the six-day event, showed.

(Source: *China International Import Expo Bureau; designed by Pamela Tobey*)

Safety First

To ensure the safety of all participants, Shanghai took every detail into consideration. Everybody at the event was required to wear masks. Exhibitors and visitors coming from abroad had to go through 14 days of quarantine after arriving in China and two nucleic acid tests, one before and one after the quarantine.

Volunteers, journalists and all domestic visitors were also required to get nucleic acid tests. Medical workers manned dozens of medical stations and temporary observation and treatment sites in the exhibition areas, which were regularly disinfected. Hand sanitizers were placed everywhere, including in elevators. Strict measures were also adopted to disinfect the raw food displayed at the expo.

A New Area

The exhibition area was full of creative and stunning items, like the world's first all-carbon fiber sports car, and the Korloff Noir, the 88-carat black diamond from Korloff Jewelers of France.

However, what really stood out was the new display area showcasing new technologies and products for pandemic prevention and treatment.

The initial planned area for this section was 2,000 square meters. However, due to high exhibitor demand, it had to be expanded multiple times, before finally reaching 12,000 square meters.

Fosun Pharma, a Shanghai-based biotech company, released the update on its experimental COVID-19 vaccine, the mRNA vaccine that it has jointly developed with Germany's BioNTech. In July, the vaccine candidate was

XINHUA

Chinese and Swiss partners celebrate after signing an agreement on hydrogen fuel cell vehicles at the Third China International Import Expo in Shanghai, November 6

approved in China for phase-one clinical trial.

Japanese biopharmaceutical company Takeda said it has collaborated with leading plasma companies to set up the COVID-19 Plasma Alliance to accelerate the treatment of the disease. Now an experimental therapy is in phase-three clinical trial. If successful, it may become one of the earliest treatment solutions for hospitalized adult COVID-19 patients.

Roche Diagnostics from Switzerland brought a three-in-one reagent capable of simultaneously detecting influenza A, influenza B and COVID-19. Fujifilm from Japan exhibited a genetic test kit that can shorten the detection time for the virus to two hours from four to six hours.

Pharma firms had a fruitful CIIE. Leading U.S. biopharmaceutical company Pfizer signed a collaboration agreement with Alibaba Health at the CIIE to build a complete and full-chain vaccination service online.

"Pfizer has great confidence in China's economy in the long-term. Our proactive participation in the CIIE reiterates our commitment to continuously developing in China, to fulfill our purpose of bringing breakthroughs that change patients' lives," Wu Kun, Chief Operating Officer of Pfizer Biopharma Group in China, told the media.

Players from the U.S.

Despite China-U.S. tensions, exhibitors from the U.S. took up the largest area.

U.S.-based commercial real estate services company CBRE joined the CIIE as an exhibitor for the first time this year. "Although it is the first time for us to be here as an exhibitor, we are not fresh here at all," Ben Duncan, CBRE President of North Asia and CEO of Greater China, told *Beijing Review*.

CBRE had visited the First CIIE and taken part in some activities in 2019. This year, it set up its own booth.

"Shanghai is the commercial heartbeat of China and the CIIE enables us to make connections and know more about our partners," Duncan said.

Despite the rising uncertainties in China-U.S. relations, he said his company has never thought of moving out of China. A survey by the American Chamber of Commerce in Shanghai and Beijing and business consultancy firm PricewaterhouseCoopers said in April that 70% of the American companies surveyed have no short-term plan to relocate any part of their operations out of China. About 40% said they would not revise their long-term supply-chain plan in China.

Duncan said Xi's remarks at the opening ceremony made him more confident about China's market.

He also said it is no surprise to see China's market has seen a pick-up, given the government's effective COVID-19 control measures: "Countries who control the spread of the virus are going to be the winners that come out of the situation."

Maria Sferruzza, Senior Vice President for Asia Pacific at Baker Hughes, one of the world's largest energy technology companies headquartered in the U.S., said China is one of the few countries in the world that can hold large events like the CIIE. "It is also a sign that China is further opening to international players including our company. This event has provided a great platform for us to socialize with our potential partners," she said.

Baker Hughes has over 2,000 employees and seven manufacturing sites in China. At the CIIE, the company showcased a wide range of innovative technologies across the oil and gas value chain.

For U.S. medical device and consumer goods maker Johnson & Johnson, it was their third consecutive year at the expo. "Johnson & Johnson is confident in the new chapter of our growth in China," Song Weiqun, the company's chairman in China and Global Senior Vice President, told the media. The company expanded their exhibition space this year as a mark of that confidence. ■

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December 14, 2020

◀ Engineers monitor the production of rapid testing kits for Covid-19 at a South Korean facility in November

PHOTOGRAPH BY JUN MICHAEL PARK FOR BLOOMBERG BUSINESSWEEK

FEATURES

CORRECTIONS

"A Global Reckoning for Big Tech" (Remarks, Dec. 7) gave an incorrect title for Jack Ma. He is founder of Ant, not chairman. The story also mischaracterized Ant's financing. It should have said that 98% of its loans are securitized or underwritten by banking partners. ● *The Bloomberg 50* (Dec. 7) misidentified Strive Masiyiwa's title. He's founder and executive chairman of Econet Group. "Ones to Watch" should have set the show *PEN15* in the 2000s.

How to Contact *Bloomberg Businessweek*
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■ COVER TRAIL

How the cover gets made

❶

"Have you seen these images we shot for our South Korea feature? They're so great."

"Wait. Is that a sporting event with fans?! *And there's hugging?!*"

"Yep, South Korea has been able to keep their Covid numbers controlled—get this—without lockdowns!"

"Sigh. I haven't hugged a person who wasn't my cat since March 16. How are they doing it?"

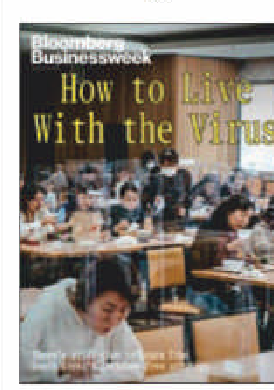
"Well, first, cats aren't people—"

"Say dog owners."

"—but Korea is employing a practical strategy of masks, testing, and contact tracing."

"Are you implying I should stop with the bleach injections?"

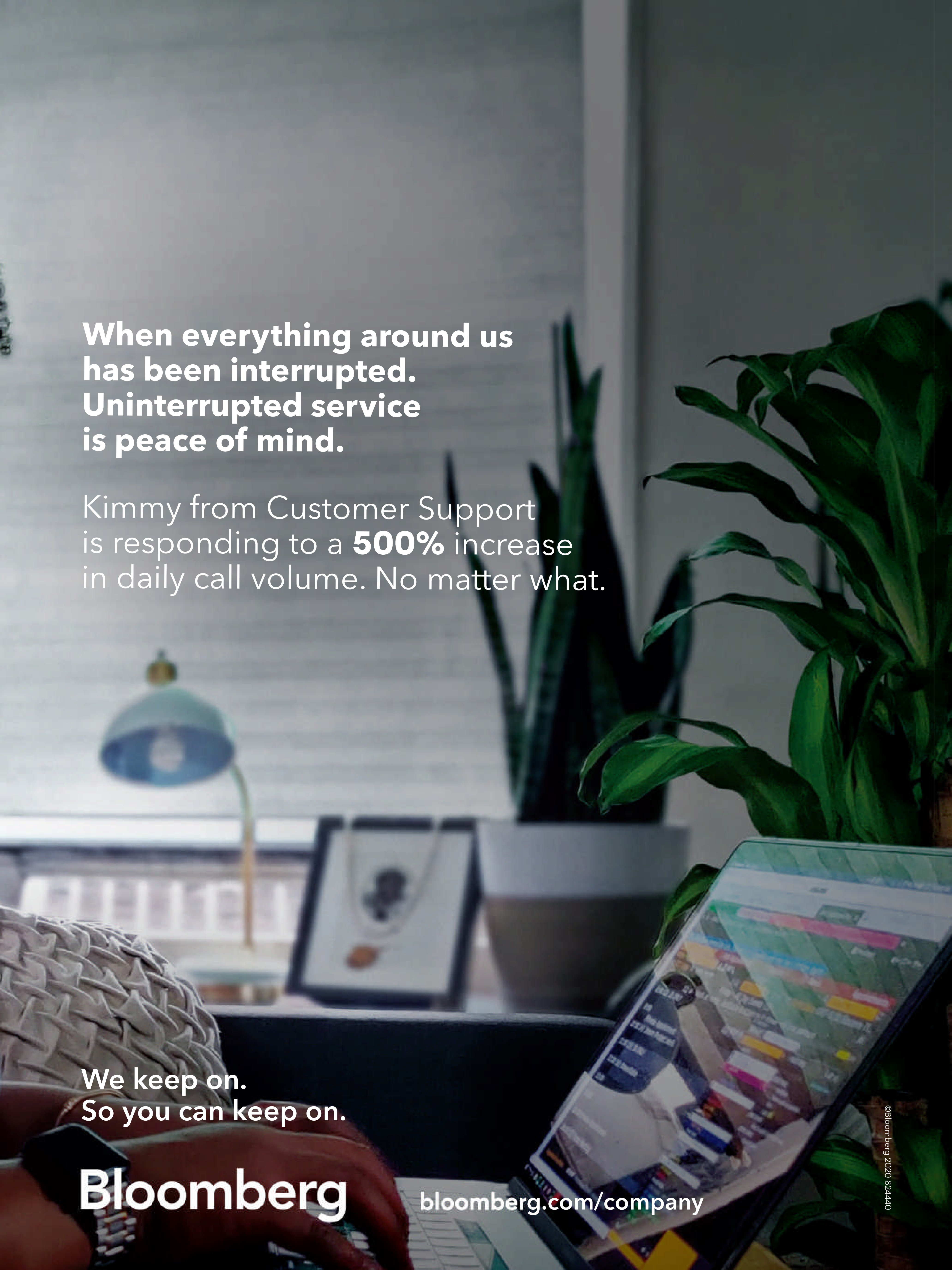
"I truly, truly worry about you."



Cover: Photograph by Jun Michael Park for *Bloomberg Businessweek*

TECHNOLOGY: PHOTOGRAPH BY ELIZABETH WEINBERG FOR BLOOMBERG BUSINESSWEEK

Photographed responsibly by Kimmy with a tripod


When everything around us has been interrupted. Uninterrupted service is peace of mind.
Kimmy from Customer Support is responding to a 500% increase in daily call volume. No matter what.
We keep on. So you can keep on.
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● Global coronavirus cases exceeded 68.6 million, and almost

1.6m

people have died. On Dec. 8, the U.K. began giving the Pfizer-BioNTech vaccine to vulnerable citizens, the first Western country to do so. Other countries are struggling to contain the virus, with Germany admitting its light lockdown hasn't worked. ▷ 20

● The U.S. Federal Trade Commission and state attorneys general filed antitrust complaints against Facebook on Dec. 9, alleging conduct that thwarted competition to protect its monopoly. The FTC lawsuit seeks a court order unwinding Facebook's acquisitions of Instagram and WhatsApp. ▷ 24

● Bob Dylan agreed to sell his entire song catalog—six decades of work, including such classics as *Blowin' in the Wind* and *The Times They Are a-Changin'*—to Universal Music Group. Universal didn't disclose a price, but people familiar with the terms say the songs are worth more than $200 million.

● Ikea will stop printing its catalog after a 70-year run.

At the catalog's peak, Ikea put out 200 million copies in more than 30 languages—making it one of the most widely circulated print documents.

● Uber is selling its self-driving unit to Aurora Innovation. The move represents a retreat from the company's vision of a fleet of autonomous taxis. The Dec. 7 transaction valued the business at about

$4b

Just last year, the division was estimated to be worth $7.25 billion.

● A record amount of listing activity in the U.S. is expected between the Thanksgiving and Christmas holidays.

DOORDASH

Shares of food delivery platform DoorDash almost doubled from their IPO price in their trading debut on Dec. 9, a huge pop for an unprofitable company that's gotten a boost from pandemic-era eating habits.

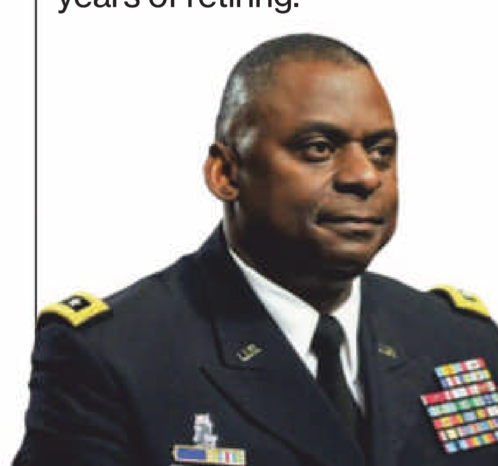
airbnb

On Dec. 7, Airbnb raised the price range of its IPO, pushing the company's potential valuation to as much as $42 billion. Airbnb intends to sell stock before the end of the year.

● "We've demonstrated the power of science, ingenuity, and ambition. That's not to say we're not going to run into problems. Of course we will."

Rajeev Venkayya, president of Takeda Pharmaceutical's vaccine business, commented on the first widely available coronavirus vaccine.

● Joe Biden has nominated retired Army General Lloyd Austin as defense secretary. He'd be the first Black man to lead the Pentagon, but would need a congressional waiver of a law barring military officers from holding that position within seven years of retiring.



● Romanian Prime Minister Ludovic Orban resigned on Dec. 7, a day after his National Liberal Party lost a parliamentary election.

Orban had been in power for only about a year. His centrist party is still likely to lead the next government, at the head of a ruling coalition.

ALBUMS: COLUMBIA RECORDS. IKEA: BEATA ZAWRZEL/GETTY IMAGES. AUSTIN: ROD LAMKEY/GETTY IMAGES

Physical Distancing helps stop the spread of COVID-19. When someone coughs or sneezes, they can spray small liquid droplets from their nose or mouth which may contain the virus. So please remember to maintain a physical distance of at least 6 feet or 2 metres between yourself and others. Avoid all unnecessary physical contact. And please stay home when you can.

Find out more by visiting who.int

COVID-19 RESPONSE

Friends of the U.S. Ought to Help Biden Succeed

For the U.S.'s friends around the world, the election of Joe Biden comes as a relief. It should also be a call to action.

Washington's once and future partners are right to celebrate. Biden's national security team is competent and anchored by committed multilateralists. The president-elect has promised to revitalize alliances and lead coalitions to confront challenges such as climate change and the rise of China. After Trump's unremitting barrage of slights, insults, blackmail, and threats, U.S. allies can expect a friendlier reception and steadier leadership from a Biden White House.

At the same time, the U.S. stands weakened by the pandemic and political divisions. Biden will be harried by Republican opposition in the Senate and distracted by the coronavirus and other pressing domestic issues. The past four years have emboldened illiberal regimes around the world, and the institutions that might once have reined them in—including NATO and the World Trade Organization—are reeling from Trump's assaults. Restoring an international system that supports democratic values will take more than enlightened American leadership. U.S. allies will also need to do their part.

First and foremost, European and Asian democracies should be doing more to defend themselves. Two-thirds of NATO's 30 members aren't spending 2% of gross domestic product on defense, a benchmark they adopted in 2006. Japan and South Korea should agree to reasonable increases in what they pay to base U.S. troops in their countries. (They also need to resolve their damaging trade spat.) U.S. partners should strengthen their joint military capabilities, much as Japan is doing with Australia, India, and key Southeast Asian nations.

Next, governments given to praising multilateralism at every opportunity need to do more to sustain it. If they want a Biden administration to rejoin free-trade pacts such as the successor to the Trans-Pacific Partnership—as they certainly should—they would be wise to avoid making difficult new demands of U.S. negotiators. They ought to lend their energy and ideas to reforming the World Health Organization, International Monetary Fund, and WTO, rather than ignoring problems or expecting the U.S. to do it all.

Friendly nations should remember, too, that it's in their interests to help Biden notch a few successes. Every win will give the new administration leeway to compromise elsewhere. Some governments might not take the threat posed by China as seriously as most U.S. analysts do, but they're battling a strong bipartisan consensus in Washington. They should work with U.S. leadership to secure critical supply chains and communication networks from Chinese influence, refine export controls, preserve freedom of navigation, defend human rights, and more.

The European Union seems to recognize the opportunity. It's debating a plan to ease tensions over the taxation of U.S. technology companies and build a new partnership. Eager to revive the Iran nuclear deal, Europe should work with Biden to strengthen it, using the leverage generated by Trump-imposed sanctions rather than insisting on an unconditional return. Gulf nations that have established relations with Israel—and want to buy advanced U.S. weaponry—should join with Washington to revive a real peace process. India could give a boost to Biden's climate efforts by joining China and Japan in setting a firm date to be carbon neutral.

Many countries will be tempted to hedge their support. They're aware that Trump's departure might not be the end of Trumpism. Betting heavily on Biden therefore involves some risk—but it's nothing compared to the danger of letting Biden fail. *For more commentary, go to bloomberg.com/opinion*

AGENDA

ILLUSTRATION BY JACKSON GIBBS

▶ A Hot Mess

The Bank of England meets once more, on Dec. 17, before the U.K. leaves the EU at the end of the year. The bank has kept interest rates near zero while it assesses the impact of Brexit and the pandemic.

▶ The Federal Reserve sets interest rates on Dec. 16. After this month's soft jobs report, calls have grown louder for more monetary relief, perhaps through the Fed's bond-buying plan.

▶ Steve Bannon and three others appear in a New York federal court on Dec. 17 on charges they took money from a private effort to build the Mexico border wall. He's pleaded not guilty.

▶ The U.S. Food and Drug Administration's vaccine advisory group meets on Dec. 17 to review Moderna's coronavirus shot. Approval may follow within a few days.

▶ On Dec. 15 the International Energy Agency publishes its monthly *Oil Market Report*, a closely watched analysis of global demand for crude.

▶ Amazon.com plans a Dec. 14 reveal of the self-driving delivery vehicle it's developed with Zoox, a business the online retailer bought for $1.2 billion earlier this year.

▶ This year's odd, almost entirely streamed Oscar season cranks into high gear on Dec. 18 on Netflix, with the release of *Ma Rainey's Black Bottom.*

Untangling Child Care In America

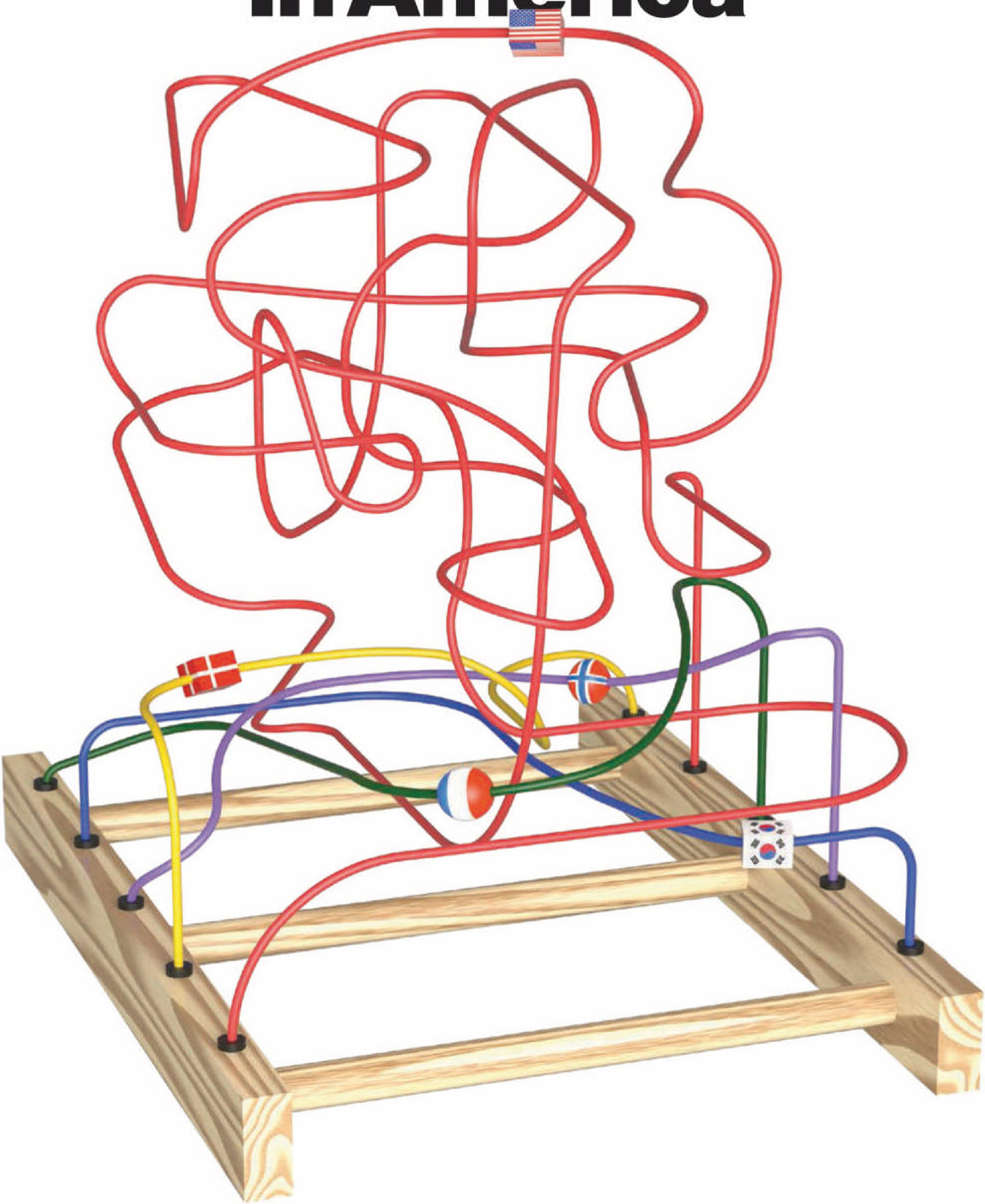


ILLUSTRATION BY TED GUERRERO

● Expanding availability and lowering costs could deliver a $1.6 trillion boost to the U.S. economy

● By Cynthia Koons

It didn't seem possible that the U.S. child-care crisis could get much worse. Then came the pandemic, and parents were thrust into full-time caregiving roles for months on end. Beyond being stressful and exhausting, that reality has forced millions of parents, mostly mothers, to make tough decisions about how much to work, if at all.

Even C. Nicole Mason, who's spent decades researching economic policies that benefit women, gained a new appreciation for the value of having some help watching her kids. Mason is president and chief executive officer of the Institute for Women's Policy Research in Washington and a single mom with twin sixth graders. When the school year started in the fall, Mason and her children began their days by logging onto their laptops. It was a reassuring routine, and her son and daughter seemed to be adjusting well to all-remote learning, or at least that's what they told her. Then, a few weeks in, a teacher reached out to tell Mason that her children were falling seriously behind. "I'm working, I can't keep an eye on them," she says. "I felt like a failure."

Her solution: hire someone to monitor her kids' online schooling. But that's not an option for most American households, where women are disproportionately feeling the pain of shuttered day-care centers and schools. Mothers are more likely than fathers to deal with "unexpected caregiving shocks," says Kate Bahn, an economist and the director of labor market policy at the Washington Center for Equitable Growth.

Government statistics confirm that. From February to November, 2.2 million women left the labor force, compared with 1.8 million men. The gender divergence was especially visible in September, when more than half of U.S. children started the school year remotely. That month, 865,000 women disappeared from the workforce.

Of course, men haven't been immune to the Covid-19 recession, but they're not hurting nearly as badly. A survey this summer by Lean In and McKinsey & Co. found almost a quarter of women with children under the age of 10 were considering taking a leave of absence from their jobs, or quitting altogether—nearly twice the proportion of fathers with kids in the same age cohort.

The pandemic has shined a harsh light on what has been a long-festering problem. The world's largest economy notoriously lags other industrialized countries in investing in child care and early education: The U.S. spends less than 1% of gross domestic product, putting it ahead of only Turkey and Ireland among the member nations of the Organization for Economic Cooperation and Development. "Almost all developed countries have things like subsidized child care, paid family leave, universal health care," says Sandra Black, an economist at Columbia University. "The economics make sense."

The lack of family-focused policies isn't just inconvenient for working parents, it's become increasingly clear it's holding women—and by extension the country—back. According to a report from S&P Global Inc., the U.S. could add $1.6 trillion to GDP if women entered and stayed in the workforce at a rate similar to Norway's, which has government-subsidized day care.

One estimate found that if American mothers continued to cut back on work at the same rate as during the first wave of Covid in April, the accumulated loss in wages would amount to $64.5 billion annually. This reality may finally be sinking in for policymakers. "We're in the mainstream discussion of economics," says Khara Jabola-Carolus, executive director of the Hawaii State Commission on the Status of Women. "We were fully excluded before."

In April, Jabola-Carolus convened a group of experts and drafted a Feminist Economic Recovery Plan for Covid-19. Among its chief recommendations was creating infrastructure for affordable and accessible child care. The plan has received global attention, and Jabola-Carolus says she's been contacted by representatives from the Group of 20, Canada, Northern Ireland, and several United Nations agencies and has spoken at 50 events. "Certain top government officials had never considered caregiving as part of economics," she says. "Now they are asking the commission for formal tools and training for entire departments to evaluate whether their coronavirus recovery programs are truly equitable."

America's child-care revolution has had some false starts. It's fallen largely to states and cities to implement programs since the federal government decided it wasn't going to. In December 1971, President Nixon vetoed a law designed to establish a framework for nationally funded, locally run day-care centers. Nixon called it a "long leap into the dark," arguing it was fiscally irresponsible and would weaken families. Instead, it was women who were forced to take that long leap, as they joined the work world in ever-larger numbers without policies to support them. At the close of 1971, women's labor force participation rate was 43.8%; by the end of 2019 it had shot up to 57.7%, helping to drive a more than threefold increase in U.S. economic output over that span of time.

In a glaring instance of market failure, the supply of child care simply has not kept up with the demand. More than half of Americans live in a so-called child-care desert, with little or no access to quality care, according to the Center for American Progress. That means what's available is rarely affordable. It's not uncommon for parents of infants or toddlers to pay more than $1,000 a month in child care—equal to more than 17% of median household income. There have been efforts to lighten the burden on families, such as the federal Child Care and Development Block Grant ▶

◀ Act of 1990, but they've been focused on low-income households. There's been no relief for middle-income wage earners, aside from a federal tax credit that tops out at $6,600 for two or more dependents.

The U.S. is an outlier among wealthy countries because of the way politics and culture have shaped policy on child care. Americans have no problem paying for other people's roads, even if they'll never drive on them. But subsidizing other people's child care is a different story. "When it comes to dealing with people, particularly people who seem vulnerable, that sort of exchange stops," says Dominic Richardson, chief of social and economic policy at UNICEF's Office of Research-Innocenti. "And it creates a barrier to the cumulative investment that would benefit everybody."

Covid got the federal government to acknowledge that families need the kind of help that hadn't been available previously. Lawmakers added $3.5 billion in funding to the coronavirus stimulus package Congress approved in March to help essential workers secure child care. In addition, the Families First Coronavirus Response Act requires some companies to provide paid sick time and family leave. Yet it exempts the biggest employers and is scheduled to expire at the end of the year. Congress's latest stimulus proposal includes $10 billion for child care. Previous measures have stalled, including a $50 billion bill to shore up what is now a crumbling industry. In a survey conducted by the National Association for the Education of Young Children, two in five of the country's licensed providers said they would have to close permanently without government assistance. That means that when work-from-home ends, parents will have even fewer options.

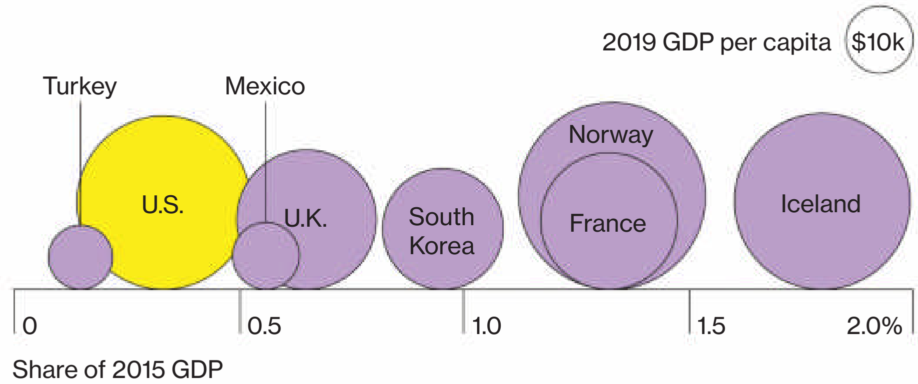
Almost half of employers surveyed by the U.S. Chamber of Commerce this fall said they'd likely provide more assistance to employees if the government gave them an incentive to do so. There's a sliver of hope with the new administration. President-elect Joe Biden named Heather Boushey, a longtime advocate of affordable child care who runs the Washington Center for Equitable Growth, to the White House Council of Economic Advisers. And Biden and Vice President-elect Kamala Harris have proposed a $775 billion, 10-year plan to fund universal preschool, the building of new child-care facilities, paid family leave, and higher salaries for child-care workers. But the likelihood of any of that passing relies on Democrats securing a Senate majority.

Republicans tend to favor expanding tax credits over subsidizing child-care centers, so as not to penalize stay-at-home parents. Critics say such policies largely benefit the wealthy.

Mason, of the Institute for Women's Policy Research, is hoping to bypass gridlock and apathy at the federal level by winning in smaller jurisdictions first. She sees it as similar to the battle to legalize same-sex marriage, which was waged city by city, state by state, before the Supreme Court weighed in.

It's starting already. In Massachusetts, Lauren Birchfield Kennedy, co-founder of Neighborhood Villages Inc., is part of a group working on a statewide child-care-for-all law. Her

Public Spending on Early Childhood Education and Care



DATA: OECD, WORLD BANK

hope is that it will cover infants to kids as old as 13 and that no family will pay more than 7% of its income. Drafters are still working out arguably the trickiest part of the puzzle: how it will be funded. "Whatever that upfront sticker price is, economic research demonstrates that this program will pay for [itself]," Kennedy says. The group aims to introduce the policy in 2021.

Voters in left-leaning cities have demonstrated an appetite for government-funded child care. Democrat Bill de Blasio was elected New York City mayor in 2013 after pledging to create a system of universal pre-K. (A promise he made good on.) And this November, voters in the Oregon county that includes Portland overwhelmingly supported a ballot initiative for free preschool for 3- and 4-year-olds. The program, funded with a tax on high-wage earners, also mandates better pay for child-care workers, putting them on par with teachers—a bold attempt to strike at one of the child-care deficit's root causes.

Even in a city as liberal as Portland, wrangling sufficient votes for the measure took work, says Lydia Kiesling, a local freelance writer who volunteered with a group called Universal Preschool Now. While collecting signatures to get the initiative on the ballot, she ran into some conservative attitudes about the role of women. "There were people who just disagree with the principle of universal preschool," she says. "They think kids shouldn't go to preschool; they should be with their parents. I don't know how much you can convince people like that."

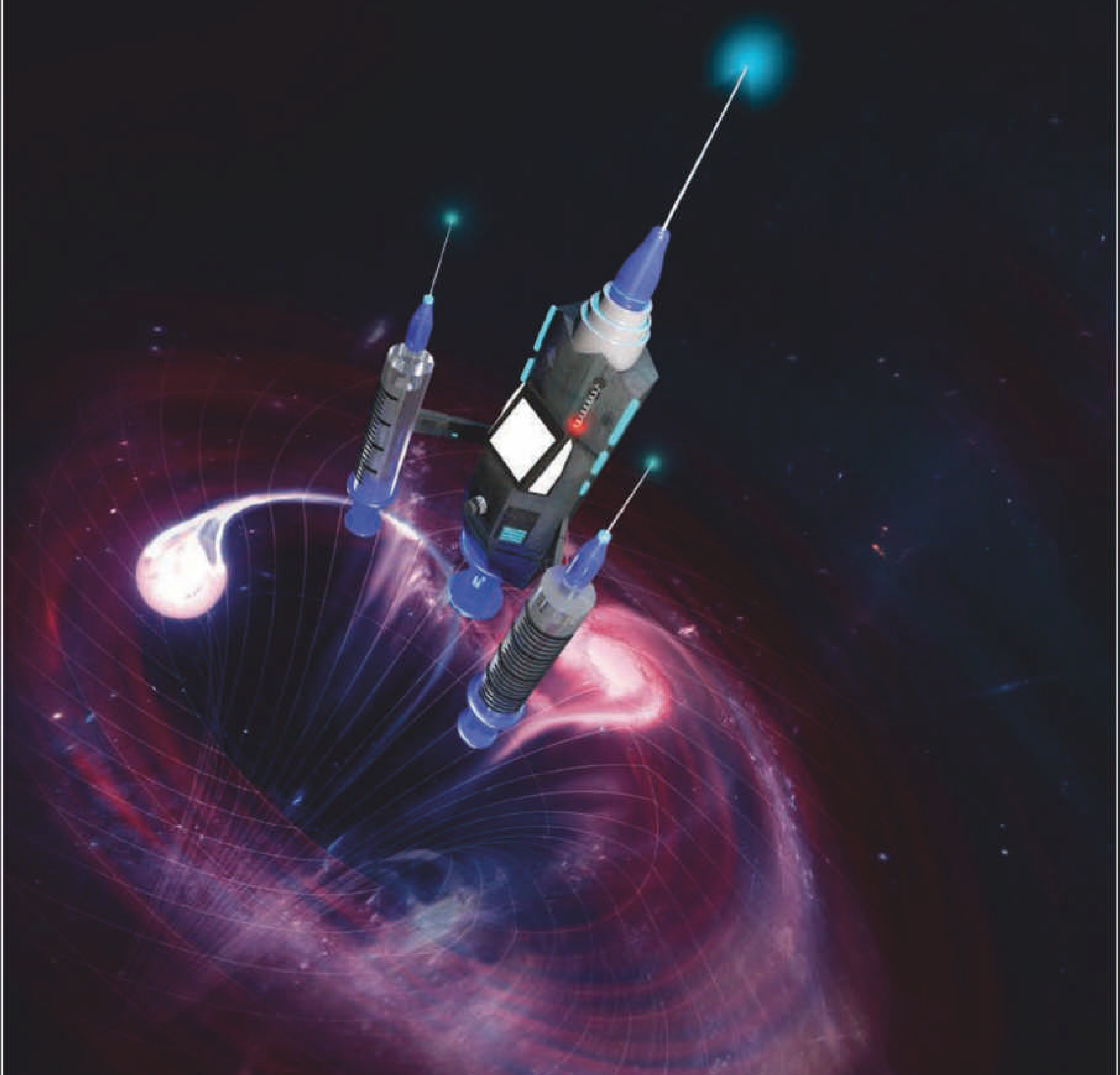
Portland's most prominent newspaper, the *Oregonian*, came out against the plan, saying it was too costly on a per-student basis and that the county lacked the expertise to put it into effect.

The people felt differently: It passed with 64.5% of the vote. Kiesling, whose own children are 3 and 6, won't benefit from the program because by the time it's rolled out they'll be too old. A few months back she found herself navigating a maze many American parents have found themselves stuck in this year: Her kids' preschool, which had been around since the 1970s, shut its doors in August because not enough children came back when it reopened the month prior. Its website says the closure is temporary, but Kiesling isn't holding out much hope: "The longer they are out of commission, the less likely it is they can reopen." Ⓑ —*With Peter Coy*

1

BUSINESS

The Window Is Closing On Vaccine Makers



● With early leaders so effective, it may be tougher for laggards to conduct trials

As the world fell victim to the coronavirus pandemic early this year, the field seemed wide open for the scores of pharmaceutical companies and universities that rushed to develop vaccines to curb Covid-19. But now that Pfizer Inc. and its partner BioNTech SE are rolling out a coronavirus shot, with rival Moderna Inc. not far behind, dozens of drugmakers further back in the development pack are suddenly facing a sobering possibility: The window to develop a successful vaccine before the field becomes crowded could be closing. That may leave some laggards unable to easily enroll enough volunteers in the trials needed to win regulatory authorization. In fact, drugmakers that are too many months behind might find themselves locked out of the vast U.S. market, which also is usually the most lucrative.

The problem is the stunning success of the early leaders' inoculations. Pfizer and Moderna last month announced their vaccines achieved efficacy levels of around 95% in trial results, stoking optimism that the world will soon have potent weapons to stop a contagion that's killed more than 1.5 million people. And, despite confusion surrounding its findings, AstraZeneca Plc appears to have another promising contender.

While that's good from a public-health

Edited by James E. Ellis

standpoint—multiple products will undoubtedly be needed to immunize the world's almost 8 billion people—the exceptional effectiveness of the early leaders' vaccines is raising the bar and shrinking the pool of candidates for challengers such as Merck, Novavax, and Sanofi and its partner, GlaxoSmithKline, along with more than 200 other research teams.

One problem is that getting volunteers to sign up for or remain in clinical studies where as many as half are given placebos could become difficult if they think they can simply wait and gain access to a guaranteed, effective vaccine such as Pfizer's. The challenge will become more acute in late winter and early spring, as significant swaths of the population likely become eligible for vaccines that have been cleared by U.S. or other global regulators.

"If you've enrolled in a study, or your plan is to enroll in a study, and you've suddenly got an email saying, 'Hey, you are eligible for the Pfizer vaccine next week,' my guess is you'd probably take the latter," says Daniel Mahony, a health-care fund manager with Polar Capital in London. That could prolong the time it takes to conduct a robust trial, pushing latecomers even further back in the pack.

After initial difficulties assembling enough trial enrollees, Johnson & Johnson said it should be able to get results in January. Sanofi and Glaxo plan to launch the last phase of their trials this month, while Novavax Inc. expects to begin large tests in the U.S. and Mexico soon. Many others hope to get into late-stage trials sometime next year.

There's a need for multiple approaches for many reasons, beyond the overwhelming challenge of vaccinating the entire world in the shortest time possible—a feat never before attempted. It's uncertain how long the shots will confer protection and whether they'll need to be given repeatedly. Evidence has emerged that immunity may wane even in people who were previously infected.

While the mRNA vaccines from Pfizer and Moderna, which turn cells into tiny vaccine-making factories, produced superlative short-term protection, it's unclear if the benefit may ebb. They also can cause side effects such as headaches and fatigue, especially after the second dose. That could give second-generation vaccines an opening to deliver a better tolerated or longer-lasting entry.

That prospect of a robust and persistent market is likely to compel some vaccine stragglers to take different approaches to testing than those used by Pfizer and Moderna, which conducted traditional large-scale trials of their vaccines compared to placebo in areas where outbreaks were raging.

One approach to the problem of the crowded U.S. market is to avoid it altogether. That's what German vaccine maker CureVac NV is doing. The late-stage trial of its Covid-19 mRNA vaccine will take place in Europe and Latin America. "We are not planning to run the clinical trial in the U.S., because the U.S. is well covered with vaccines for the pandemic," Chief Executive Officer Franz-Werner Haas said on a Nov. 30 investor call.

Likewise, avoiding the U.S. may be the best strategy for smaller biotechs. Arcturus Therapeutics Holdings Inc., for example, signed supply deals with the governments of Israel and Singapore but has no funding from the U.S. government. "We don't need a billion-dose transaction to move the needle," CEO Joseph Payne said in October.

Novavax believes it will be able get enough people for its U.S. and Mexican trial since only high-risk health-care workers and the elderly initially will be eligible for the Pfizer and Moderna vaccines in the U.S. "The availability of any authorized vaccines will still be very limited when we initiate our trial," Gregory Glenn, the company's president of research and development, said in an email. Since most virus cases are still occurring among groups that aren't on high-priority lists for the vaccine rollout, "we believe that we will be able to fully enroll the trial." Novavax already has a big trial underway in the U.K.

There are also other options, including granting trial participants placed in a placebo group priority access to a vaccine, according to Moncef Slaoui, chief scientific adviser to Operation Warp Speed, the U.S. program to combat coronavirus. That incentive would ease volunteers' fears that they wouldn't be protected from the virus in a timely fashion.

That's J&J's approach. At a Dec. 8 media briefing, Paul Stoffels, chief scientific officer, said the company is working on a plan to alert people in the trial if they fall into a high-priority category that would allow them early access to the Pfizer or Moderna vaccines. The goal is to "find a way to inform them and do everything necessary so they can participate" in the rollout of other vaccines, he said.

Another possibility is to conduct studies comparing the vaccines that have been authorized to those that are still experimental in what's called a head-to-head trial, ensuring that everyone will be inoculated in some form, though such studies are expensive and time-consuming, Slaoui says.

The U.K. is planning a way that might get around the issue, using so-called challenge studies that deliberately expose people to the coronavirus. The results could allow scientists to ▶

"We are not planning to run the clinical trial in the U.S., because the U.S. is well covered with vaccines"

ILLUSTRATION BY NICK SHEERAN

◀ compare the efficacy of competing vaccines and speed research, and the first such trials could occur next year.

There's still plenty of room for innovation, and second-generation vaccines could have an edge. Merck & Co. and J&J plan to provide protection with one shot instead of two, making the vaccine simpler to distribute, administer, and generate full protection, while others may be cheaper to produce or easier to deploy in developing nations. Pfizer and BioNTech's vaccine has to be kept at about -70C (-94F), colder than winter in Antarctica.

None of the vaccine companies wanted to talk in detail about their plans to get second-generation inoculations to the market. Some are still waiting for initial results that will determine how they proceed, and others don't want to divulge what could become key tactical strategies. With more than 200 different vaccines in development, and just 52 now in human studies, according to the World Health Organization, it's a challenge that many will face.

"We will continue to work with regulatory agencies on the design and implementation of our larger studies," Merck said in an emailed statement.

Glaxo has said its adjuvants—substances that enhance the body's immune response—could play an important role in protecting the elderly. And rather than delivering a vaccine through an injection, other scientists are hoping to generate superior immune responses with inhaled vaccines that directly target the airway cells the virus invades.

The world would benefit from having a number of options, says Gregory Poland, director of the vaccine research group at the Mayo Clinic. Moderna and Pfizer can't produce enough doses to meet demand in a short enough period of time, and it's likely the coronavirus will continue to persist and circulate throughout the population, requiring vaccination for years to come, he says.

There's ample precedent for delivering improvements in almost all vaccine-preventable diseases, he says, as companies work to make their products faster to produce and easier to take. "There is zero possibility of the field closing down around two vaccines," Poland says. "There will always be a next generation of vaccines."

The trailing companies are counting on there being a need for different methods to fight the virus. It's unclear if a seasonal vaccine will be needed at the end of the pandemic, Glaxo, which has partnerships with companies in addition to Sanofi, said in a statement. "Our strategy is to have multiple shots on goal." —*James Paton, Michelle Cortez, and Robert Langreth, with Cristin Flanagan, Riley Griffin, Suzi Ring, and Tim Loh*

THE BOTTOM LINE More than 200 drug companies and university teams are working on coronavirus vaccines. As the early leaders start inoculations, the market gets tighter for latecomers.

Can Nike's Anti-Racism Ads Just Do It in Japan?

● Its social justice playbook worked in the U.S. but may not translate to a less diverse nation

Two years ago, Nike Inc. put politics at the center of its U.S. marketing strategy, embracing Black activist and former NFL quarterback Colin Kaepernick as the face of its 30th anniversary "Just Do It" campaign. Now it's testing a new market for its anti-racism message: Japan.

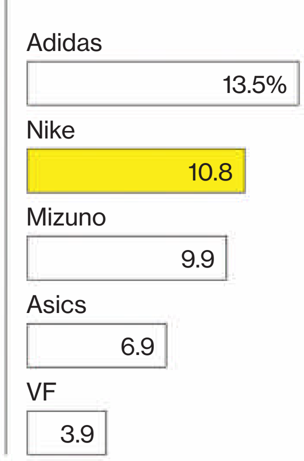
Nike Japan's latest ad, released in late November, features three young women, including one who's biracial and one who's ethnically Korean, who grapple with racism and bullying but find refuge and joy in their excellence on the soccer field. The company said the ad was inspired by accounts from real athletes in Japan.

The spot—using the hashtag #YouCantStopUs—caught fire online in the country, where racism and discrimination aren't common topics of public discourse. The government census doesn't collect data on race or ethnicity, though there are small but distinct minority groups in the country, including indigenous people and citizens of Brazilian, Chinese, and Korean descent. The official count looks only at nationality, categorizing 97.7% of the population as Japanese. "Foreigners," which can include people born in Japan, comprise the rest.

"There is no cultural space to have a hyphenated identity in Japan," says Allen Kim, associate professor of sociology at International Christian University in Tokyo. "If people can say I'm Brazilian-Japanese, Korean-Japanese, or Chinese-Japanese, that shift would be powerful for this country."

In recent years some minority Japanese people have started speaking out about their experiences.

▼ Largest activewear brands in Japan in 2019 by market share



◀ Scenes from Nike's new anti-racism ad in Japan

SoftBank Group Corp. Founder and Chairman Masayoshi Son has talked about the harassment and bigotry he's faced as a *zainichi*, as ethnic Koreans are known. In a 2017 survey of non-Japanese foreigners, 40% said they'd faced discrimination in housing, 25% in employment.

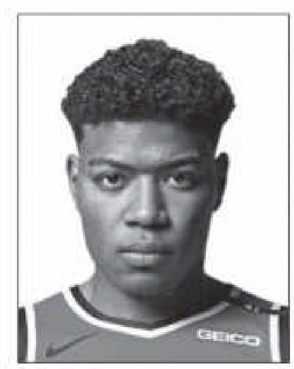
The Nike ad has sparked controversy. "Thumbs-down" accounted for 40% of the ratings on YouTube, where it has 11 million views. On Twitter (16.8 million views), some users said the spot was moving and empowering; others blasted the company for being anti-Japan or exaggerating the extent of racism in the country.

Nike's social justice campaigns back home have generated plenty of buzz for the brand without turning off its customers, most of whom said their opinion of the company was neutral or unchanged a year after the Kaepernick ad first appeared. But compared with the general American public, Nike's U.S. customers are younger, more diverse, and more politically liberal—an audience predisposed to the message.

In Japan, companies typically steer clear of social issues. Japanese tennis player Naomi Osaka, whose father is Haitian, supported the Black Lives Matter movement during her championship run at the U.S. Open in September, wearing masks that memorialized Black Americans who'd been killed by police. Plenty of Japanese companies celebrated her win, but almost none—including her sponsors—mentioned her activism. In what many took to be a swipe at the seriousness of Osaka's protest, one sponsor, Nissin Foods Holdings Co., promoted her lighthearted declaration that she was headed for a shopping spree under the caption "Here's something cute."

Nike is still one of the most popular sportswear brands in Japan, behind Adidas and ahead of homegrown Mizuno, according to Euromonitor International, and its products are especially hot with younger customers. But they may not be as liberal as their U.S. counterparts: Outgoing U.S. President Donald Trump, a Kaepernick critic, is more popular with younger Japanese than with their parents, according to the Social Survey Research Center in Japan.

Japanese sneakerheads and Nike fans may not be too shocked by Nike's anti-racism push. In addition to Osaka, the company sponsors Washington Wizards player and Japanese national basketball team member Rui Hachimura, who's been outspoken about the challenges of being biracial in Japan. "I grew up in a small town six hours away from Tokyo," Hachimura told reporters in October at the release of his new sneaker, the XXXV. "My family was the only Black family in the city. When I grew up and started playing basketball, I started to gain more respect, but it was hard, especially for my brother and sisters."



● Hachimura

● Osaka

Overcoming adversity through sports has long been a hallmark of Nike's marketing image, so tying itself to social justice causes beyond its home market hasn't been a stretch for the brand. "Racism is a problem that exists around the world," Nike Japan said in a statement. "True anecdotes of athletes gave us an opportunity to candidly state our opinion on discrimination and bullying."

The Nike ad also takes aim at anti-Korean sentiment, an enduring legacy of Japan's early 20th century colonization of the Korean peninsula that pushed many zainichi to adopt Japanese surnames and hide their heritage. One of the players is shown wearing *chima jeogori*, a traditional Korean outfit, to the stares of passersby. At the end of the spot she's walking through a school corridor in her soccer jersey with "Kim," a Korean surname, written on the back over a Japanese name. In the background, students are still staring, but this time they're smiling—and she's enjoying the attention. In Nike-world, that's the whole point. —*Shiho Takezawa, with Marika Katanuma*

THE BOTTOM LINE Almost 98% of people living in Japan are Japanese nationals, obscuring the country's small but distinct minority groups. A Nike ad highlights the bias many say they face.

AD: NIKE JAPAN/YOUTUBE. OSAKA: AL BELLO/GETTY IMAGES. HACHIMURA: NED SIDHMAN/GETTY IMAGES. DATA: EUROMONITOR INTERNATIONAL

And Now, for My Next Trick...

● WhatsApp makes practically no money now, but Facebook has plans to change that

On the final day of November, Facebook Inc. announced it had bought a customer service software startup most people had never heard of, in a deal valuing the company at more than $1 billion. Although it was the third-largest acquisition in Facebook's history, slightly more than it paid for Instagram in 2012, the deal drew very little notice. In Washington, where regulators are actively pursuing antitrust lawsuits against Facebook and politicians condemn almost every move the company makes, the purchase of Kustomer Inc. was met with crickets.

But if the deal's significance isn't clear now, it could be soon. Acquiring Kustomer is the latest in a series of expensive bets related to Facebook's $19 billion purchase of WhatsApp in 2014. Earlier this year it invested in Jio Platforms, an Indian internet giant that WhatsApp plans to partner with on commerce. While not an acquisition, the $5.7 billion Jio investment was Facebook's second-largest financial deal ever. Taken together, the moves add up to an investment in private messaging of about $26 billion.

Facebook has been under the microscope for its impact on U.S. politics and its outsize role in the economy. On Dec. 9, state and federal officials filed a sweeping antitrust lawsuit against Facebook, saying it has acquired smaller companies to head off competitive threats. The suit made specific mention

Edited by Joshua Brustein

of the deal with WhatsApp—the world's largest messaging service, with more than 2 billion monthly users. While the app makes relatively little money now, Facebook sees private messaging as the foundation for its next big business, presenting it with one of its biggest challenges, even if the antitrust scrutiny doesn't complicate matters.

WhatsApp doesn't loom especially large in Facebook's home market, but it's huge almost everywhere else—especially in India, where it says it has more than 400 million unique users a month. Chief Executive Officer Mark Zuckerberg sees potential to transform that user base into a profit center by enticing retailers to sell goods and services inside WhatsApp, or use the app to handle customer service issues that might otherwise require an email or phone call.

For Facebook, a company that makes 99% of its revenue from advertising, WhatsApp presents a chance to diversify its business and protect itself from erosion in enthusiasm for its core social networking apps. Eventually, Facebook believes, it can control the entire exchange between a brand and its customer, starting with an ad on Facebook or Instagram and leading to an interaction or product sale on WhatsApp or Messenger. "Instagram and Facebook are the storefront," says WhatsApp Chief Operating Officer Matt Idema. "WhatsApp is the cash register."

Early in 2019, Zuckerberg wrote a 3,200-word blog post outlining a strategy to make all of Facebook's other products look more like WhatsApp. "I believe the future of communication will increasingly shift to private, encrypted services," he wrote at the time. "This is the future I hope we will help bring about."

The two companies were an odd couple from the start. WhatsApp's founders, Jan Koum and Brian Acton, launched it in 2009 as a free alternative to SMS text messages. Koum, who'd grown up in Soviet-controlled Ukraine before attending San Jose State University, was uniquely sensitive to concerns about privacy. "The walls had ears," he once said of his childhood. By the time of the Facebook acquisition, WhatsApp was working on end-to-end encryption, a technology that makes it impossible for the company to read user messages, even if a judge asks it to.

WhatsApp's mantra before the acquisition was "No Ads! No Games! No Gimmicks!" Facebook had built an advertising empire based on persuading users to make as much of their lives public as possible. The company not only had access to their posts and conversations, it also relied on that data to train its algorithms and determine what things people should see—and to allow advertisers to target their messages to specific audiences, a business model at the center of much of the political controversy surrounding Facebook.

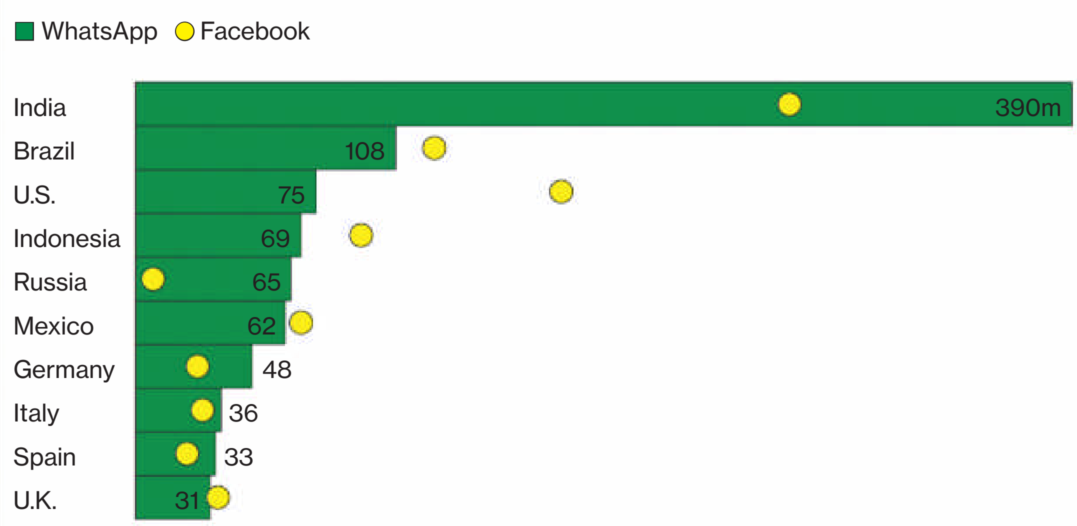
Koum was obsessed with reliability and would later say he'd deliberately tried to slow WhatsApp's growth to avoid technical challenges. The approach was the exact opposite of the one favored by his new boss, who'd given Facebook the unofficial motto "Move Fast and Break Things."

When Koum sold the company to Facebook, WhatsApp had 450 million users and just 55 employees. Its only source of revenue was a $1 annual subscription fee. As part of the deal, Koum got a seat on Facebook's board and a pledge from Zuckerberg that the company could continue to operate independently, free from ads.

Zuckerberg's promise stuck, at least for the first few years. When WhatsApp employees moved to the main Facebook campus, a few years after the deal closed, they were able to keep the bigger desks they'd enjoyed when they were independent. The parent company even installed larger doors on the restroom stalls in the WhatsApp area, giving them a little additional privacy. It became a symbol of the clashing cultures: Even WhatsApp's bathrooms had to be end-to-end encrypted, some Facebook employees joked.

But by mid-2016, Zuckerberg wanted the app to make money. Koum and Acton suggested charging businesses a small fee to send messages to their customers on the app, but top Facebook executives said that business wouldn't be big enough and pushed WhatsApp to sell advertising instead, according to people familiar with the company. Facebook also ordered WhatsApp to change its terms of service to allow Facebook to use people's phone numbers to link their accounts on the two services. The stated purpose was to offer ▶

Number of Users



DATA: EMARKETER

PHOTO ILLUSTRATION BY 731; PHOTOS: ALAMY (1); GETTY IMAGES (2)

◀ Facebook users better friend suggestions, but the move also opened up the possibility of using a person's Facebook details to show them targeted ads on WhatsApp.

Koum and Acton fought back. At one point, when Zuckerberg asked them to replicate Snapchat's Stories feature inside WhatsApp, they used the assignment as an excuse to delay working on other ideas to generate revenue, former employees say. Not long after, they resigned. Acton, who left in 2017, invested $50 million to help start the Signal Foundation, a nonprofit that runs a competing encrypted messaging app. He also posted a message on Twitter that left little doubt about his feelings. "It is time," he wrote, and then added a hashtag: "#deleteFacebook."

Ironically, Facebook eventually came around to a plan resembling Koum and Acton's. WhatsApp is now run by Will Cathcart, a top Zuckerberg product lieutenant, who says his focus is on commerce and business services rather than ads. Facebook's other messaging app, Messenger, has sold ads since 2017, but it's never grown into a big business. Facebook has said it may eventually sell ads in WhatsApp as well. But the only way WhatsApp makes money today is by charging businesses to send messages to customers in lieu of email or phone calls. "You gotta kinda pick, and pick the things that feel like they're working as well as they can within the product already and build on them," Cathcart says.

That means embracing such users as Mehal Kejriwal, an Indian dairy farmer and an enthusiastic WhatsApp user. Based outside Bangalore, Kejriwal's company, Happy Milk, uses a Fitbit-style wearable for cows to track everything from how many steps each one takes to how long they sit.

Kejriwal relies on a business version of WhatsApp that now has 50 million monthly users, including 15 million in India alone, to run most of her business. She guesses that 90% of her communication with customers happens inside the app. Happy Milk uses WhatsApp to send out business announcements, handle customer service issues, and even verify the legitimacy of its fresh, organic products. "They say you need three things to survive: food, shelter, and clothes," she says. "But in India you need four things: food, shelter, clothes, and WhatsApp."

Facebook sees Kejriwal's business as an example of how it can make money from private messaging. It has even featured Happy Milk on its business blog. The model is especially attractive in markets such as Brazil, India, and Indonesia, where WhatsApp is already the standard communication tool for most people, and where advertising is less lucrative than in the U.S. or Europe. WhatsApp plans to allow companies to list products for sale, gather orders through direct messages, and eventually accept payment for those orders. It's possible a customer might first find Happy Milk through an ad on Facebook or Instagram, then make a purchase inside WhatsApp, a chance for Facebook to make money twice.

Right now, Kejriwal takes payments online through Google Pay or Paytm, a local payments competitor. But those methods require users to download a separate app. Putting payments into WhatsApp, which most people already have, will "remove a big roadblock," she says.

Giving businesses and consumers a single place to handle all aspects of a transaction is tantalizing to Facebook, both as a new line of revenue and as a way to keep it relevant. "If I'm Zuckerberg and I'm going to bed every night, what keeps me up? To me it would be that one day people wake up and they don't want to use Facebook anymore," says Mark Shmulik, an analyst with Sanford C. Bernstein & Co. Features such as shopping and customer service can give people a reason to open the app daily, he says. "They've been laying the groundwork here for a while."

That doesn't mean it'll work. WhatsApp is leaning into an existing user behavior—more than 175 million people already message a business on WhatsApp every day, most of them outside the U.S., the company says. But that also means most of WhatsApp's 2 billion users don't yet do this, and Facebook is betting many will eventually adopt behaviors such as using the messaging app for payments.

It would also require regulatory approval in most jurisdictions, which has proven a challenge. Earlier this year in Brazil, WhatsApp's second-largest market after India, regulators ordered the service to pull its new payments offering just a week after it had premiered, demanding that Visa Inc. and Mastercard Inc. stop supporting the feature until it was properly reviewed for security issues and anticompetitive practices. In India, two years after the company started testing the feature, it's still available only to a limited subset of users.

Still, executives say they're encouraged by this progress. China's WeChat, which allows users to buy everything from airline tickets to groceries, has proven that messaging services can successfully double as digital storefronts. WeChat dominates mainland China but has struggled outside the country, providing WhatsApp with an opening. "There's no doubt that India is a huge opportunity,"

● Facebook's purchase price for WhatsApp in 2014

$19b

"Instagram and Facebook are the storefront. WhatsApp is the cash register"

Zuckerberg said in July, adding that he was already looking at other countries. Who knows? The idea may even one day take hold in the U.S.

Cathcart likes to tell a slightly embarrassing story to illustrate how deeply private digital messaging has penetrated people's lives. After the birth of his first daughter, Naomi, he discovered that he and his wife disagreed on how to pronounce her name, which they'd agreed on months earlier. Even today, he calls her "NAY-omi"; his wife, "NY-omi." "It took us a good month to figure out how we'd made that mistake," he recalls. "And the realization was, every conversation about what to call her had been typed."

WhatsApp isn't Facebook's only private messaging service. Many Instagram users rely heavily on its direct messaging function, and Facebook Messenger has 1.3 billion users. Facebook has experimented with some of the same commerce and customer service ideas in these apps as well. Last year, Zuckerberg announced plans to integrate the messaging features inside all three apps, a massive technical challenge that would allow a user on one app to send messages to users on any of the others. While Facebook has discussed the shift in terms of user experience, it may also be harder to break the company up if its services are so intertwined.

Zuckerberg also plans to bring WhatsApp's level of encryption to Instagram and Messenger, a part of his strategy to address concerns about Facebook's previous privacy violations. A shift from social media to private messaging would allow Facebook to trade some of its thorniest problems for new ones. If the company eventually makes a significant amount of revenue from service fees related to e-commerce, it won't rely so much on gathering personal data. If users are communicating privately via encrypted channels, it also reduces the burden on Facebook to moderate content, since it won't even see what people are talking about. But encrypted messaging comes with its own set of controversies, since it makes it more complicated to police its service for criminal or other problematic activities.

WhatsApp has already experienced the dark side of this trade-off. In India and elsewhere, rumors falsely accusing people of crimes or inciting communal violence have spread in private groups, some with hundreds of members. In May 2017 four people were murdered in Jharkhand, India, after warnings about suspected kidnappers circulated on WhatsApp. Two dozen people in the country were lynched in a matter of months in mid-2018 because of similar rumors spreading on social media, according to NPR. WhatsApp has since redesigned the app to make it harder to forward messages to other users, as a way to keep it from spreading panic.

Zuckerberg has said encryption's drawbacks can be addressed. But his embrace of private messaging has been controversial at times within Facebook. Chris Cox, the company's top-ranking product executive and Zuckerberg's best friend, left the company in 2019 after more than a decade, in part because he worried about the negative impacts of encryption, a person familiar with the company said at the time. Cox, who spent a year and a half advising left-leaning political groups, has since returned.

▲ Cathcart

PHOTOGRAPH BY ELIZABETH WEINBERG FOR BLOOMBERG BUSINESSWEEK

Cathcart says encryption is vital to WhatsApp's success. If the messaging service becomes a place where users do everything from debate baby names to buy milk, they need to feel secure doing so. "People have reached a point where they communicate over messaging as if it's face-to-face," Cathcart says. "It would be so bad if someone found a way to read the messages someone sent, because everyone says something that's sensitive." —*Kurt Wagner*

THE BOTTOM LINE Facebook has spent $26 billion preparing a private messaging business that could future-proof it against disruptions in social media. Now it just has to see if the plan will work.

3

FINANCE

Robinhood's Unexpected New Rival

Webull, owned by a Chinese company, is breaking into the crowded zero-fee brokerage business in the U.S.

Even in a year full of surprises on Wall Street, this one stands out: A Chinese-owned brokerage has quietly built one of the fastest-growing retail trading platforms in the U.S.

Webull, founded by Alibaba Group Holding Ltd. alum Wang Anquan, has increased its roster of brokerage clients about tenfold this year, to more than 2 million, by offering free stock trades with a slick online interface. Although that's still a fraction of the more than 13 million at Robinhood Markets Inc., the broker that popularized commission-free trading, Webull says it's been peeling off users from its rival.

Webull's breakneck U.S. expansion is almost unheard of for a Chinese-owned financial company, particularly at a time when relations between the two countries have sunk to their lowest point in decades. The superpower clash that began with trade has recently moved into the financial realm, with the outgoing Trump administration mulling restrictions on Chinese payment platforms and pushing for rules that threaten to kick Chinese companies off U.S. exchanges.

While Webull's ownership has attracted some attention in online forums, the firm goes out of its way to emphasize its U.S. links. It stores user data locally, is subject to the same regulations as any other U.S. brokerage, and has an office right next to 40 Wall Street, a Trump building. It also voluntarily

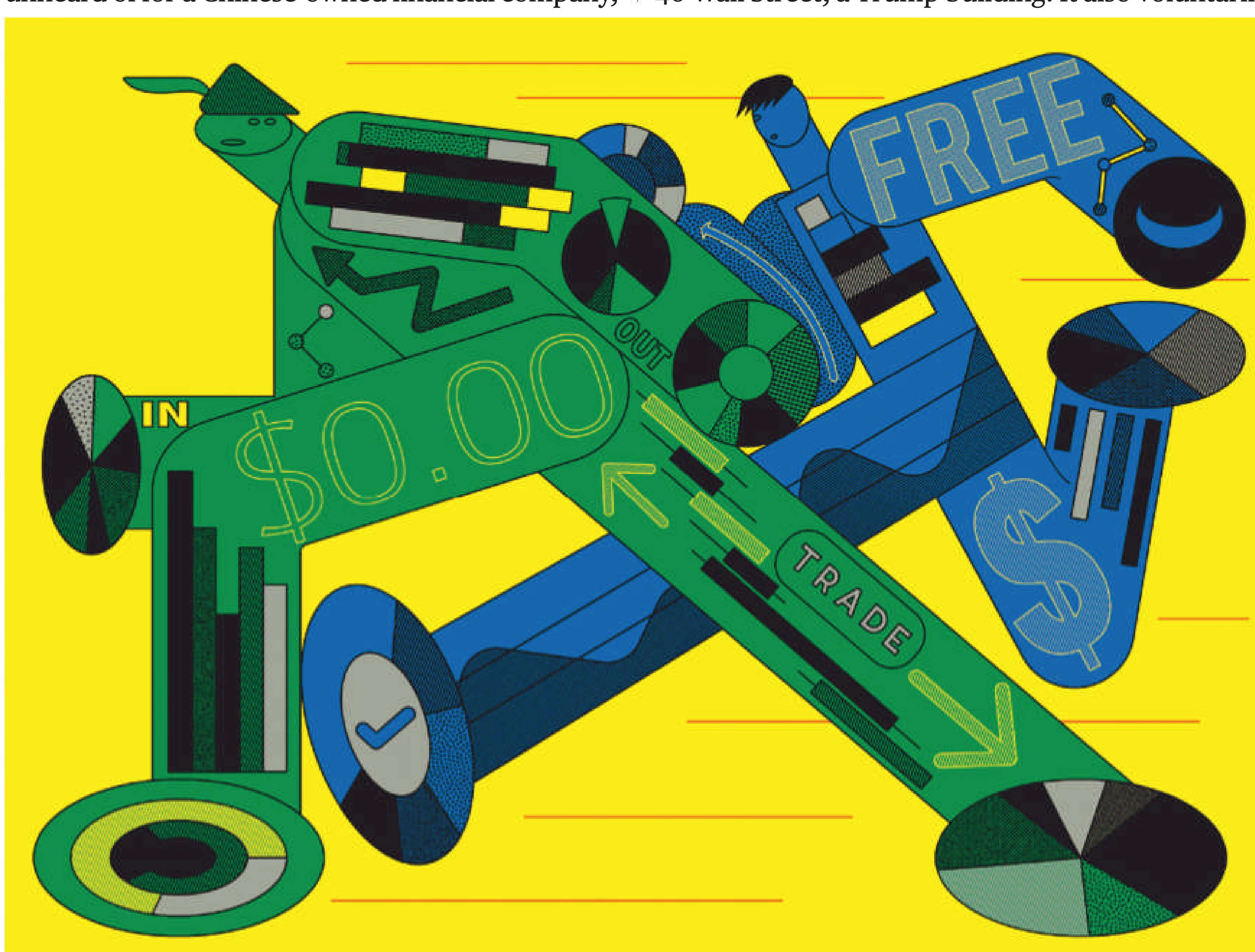


ILLUSTRATION BY INKEE WANG. PHOTOGRAPH BY GABRIELA HERMAN FOR BLOOMBERG BUSINESSWEEK

Edited by Pat Regnier

sought a review of its ownership by the Committee on Foreign Investment in the U.S. (Cfius), a panel that has blocked U.S. expansion plans by some Chinese-owned companies on national security grounds, says Webull Chief Executive Officer Anthony Denier, an American. Cfius gathered information from Webull but decided in December that it wouldn't conduct a review, Denier says. The U.S. Department of the Treasury, whose secretary chairs Cfius, says it doesn't comment on cases before the committee, including whether a company has filed for review.

Wang, who left Alibaba to help run the finance unit at Chinese tech giant Xiaomi Corp. before striking out on his own, founded Webull's parent company in 2016, just as the Trump presidency was ushering in a new era of U.S.-China tensions. In an interview, Wang says that he set out to build a global firm and that to do so he first needed to succeed in the U.S. Armed with early backing from Xiaomi founder Lei Jun, Wang opened the U.S. brokerage and hired Denier as CEO in 2017, with the two mapping out their initial strategy on napkins at a Mexican restaurant in New York. Denier, who's spent more than two decades on Wall Street, says Webull has intentionally kept a low profile. "We're in a really competitive space," Denier says. "Sometimes it's better to not wake up the giants."

For now, Webull's users seem to care less about the firm's China ties than the merits of its trading platform. Its mobile app could be described as somewhere between Robinhood's uncluttered, novice-friendly brokerage app and the more advanced data and analytics offered by the likes of Interactive Brokers Group Inc. Robinhood's interface has been criticized for making trading seem like a game, though the firm says only a small percentage of its users are heavy traders. Webull has a more professional look, with a desktop tool that emphasizes its layers of information—everything from analysts' ratings to short-interest data to technical indicators. But it's open to the same criticism that it's drawing everyday retail investors into chasing stock moves and trading all day long. Denier says Webull has tried to avoid this; the "vision that we've had from the beginning [is] let's not oversimplify and 'gamify' this." Robinhood declined to comment.

Shayla North, a 30-year-old pharmaceutical product-release specialist in Dallas, who started posting YouTube videos about her stock trades after the pandemic began, first heard about Webull from other YouTubers. She's since switched to the platform. "It's more geared for a semi-seasoned stock trader," North says. One of her favorite features on the app allows users to simulate trading strategies before putting real money to work. She also likes its stock charts.

Webull's growth has been fueled in large part by word of mouth and promotions from online influencers, Denier says. Like Robinhood, Webull offers small monetary incentives—including free shares—to lure new users. The typical client is in their late 20s or early 30s and has about $3,200 in their account.

◀ Webull CEO Denier

The firm sees 850 transfers from other U.S. brokerage accounts every day, on average, roughly half of which Denier estimates are coming from Robinhood. "It starts out where they kind of have both accounts. They might even execute on Robinhood and do research on Webull, but eventually we tend to win them over," he says.

Some traders made the switch after platform outages at Robinhood this year. "Retail users focus more on whether their broker's trading systems and data are reliable and user-friendly," says May Zhao, deputy head of research at Zhongtai Financial International Ltd., a Hong Kong-based brokerage. "Political tension is a secondary concern."

"Sometimes it's better to not wake up the giants"

Webull also has a live customer service hotline during trading hours, something Robinhood lacks. Robinhood came under fire this year when hackers broke into some users' accounts and frantic customers had no one to call for assistance. The firm has said that it works with customers in a timely manner to ensure their accounts are running smoothly and that if they lost money as a result of fraudulent activity, Robinhood will return the lost funds. Robinhood co-founder Vlad Tenev ▶

◀ told Bloomberg earlier this year that email has proven "the best way to provide our service at scale and to answer people's questions."

Webull doesn't win over every potential user. Negative reviews in Apple Inc.'s app store often complain about a complicated interface; others say Webull's customer service isn't good enough. The app's overall rating in the store is 4.7 out of 5, compared with 4.8 for Robinhood. It's also easy to overstate Webull's competitive threat. The company may be growing fast, but it's still relatively small. "It's really difficult in a crowded market," says Timothy Welsh, president of Nexus Strategy LLC, a consulting firm specializing in wealth management. "Scale is critical."

Denier says, without providing names, that the firm is poised to raise more than $100 million in a financing round that will "bring in very big, well-known U.S. investors" and give it "unicorn status." (A unicorn is generally defined as a private company with a valuation of $1 billion or more.) He says one of those U.S. investors will get a board seat. Wang, Webull's founder, has a stake of about 35% in the U.S. brokerage unit's parent company, according to Chinese corporate registration records. Funds affiliated with Xiaomi own at least 14%, and a unit of Chinese wealth manager Noah Holdings Ltd. owns about 9%. Other investors include Chinese private equity funds.

Like other no-fee brokerages, including Robinhood, Webull makes money by selling customer orders to sophisticated trading firms known as market makers, which can make money on the tiny "spread" between the price an investor is willing to pay for a stock and the price at which someone will sell it. The practice is legal, and brokers are required to seek the most advantageous trades for their customers. The firm expanded into cryptocurrency and options trading this year and plans to offer fractional share trading "very soon," says Denier, who declined to disclose details of the firm's financial performance. A robo-adviser platform may come online in mid-2021.

Although it's unclear exactly how a Joe Biden presidency will affect the U.S. government's scrutiny of Chinese financial firms, few expect tensions between the countries to ease anytime soon. But Denier says the most pressing concern for Webull is managing the operational challenges that come with its rapid expansion. "In any business that's scaling extremely fast," he says, "it's going to be a lot of growing pains." —*Bloomberg News*

THE BOTTOM LINE Webull has been growing quickly at a time when Chinese-owned financial companies face skepticism from the U.S. government, but it says it's regulated like any American broker.

Never Mind the IPOs—Rent's Falling

● Money is washing through the tech sector, but some of its workers have left San Francisco

Tech stocks are soaring, and high-profile initial public offerings are set to mint millionaires. Yet in San Francisco, the boom times are over. The resurgent coronavirus has thrust the tech hub back into lockdown. Offices sit empty as working from home becomes the norm. While the stock market debuts of hometown companies Airbnb Inc. and DoorDash Inc. would typically have the city girding for a flood of wealth, many workers have already fled for the suburbs, Lake Tahoe, or beyond.

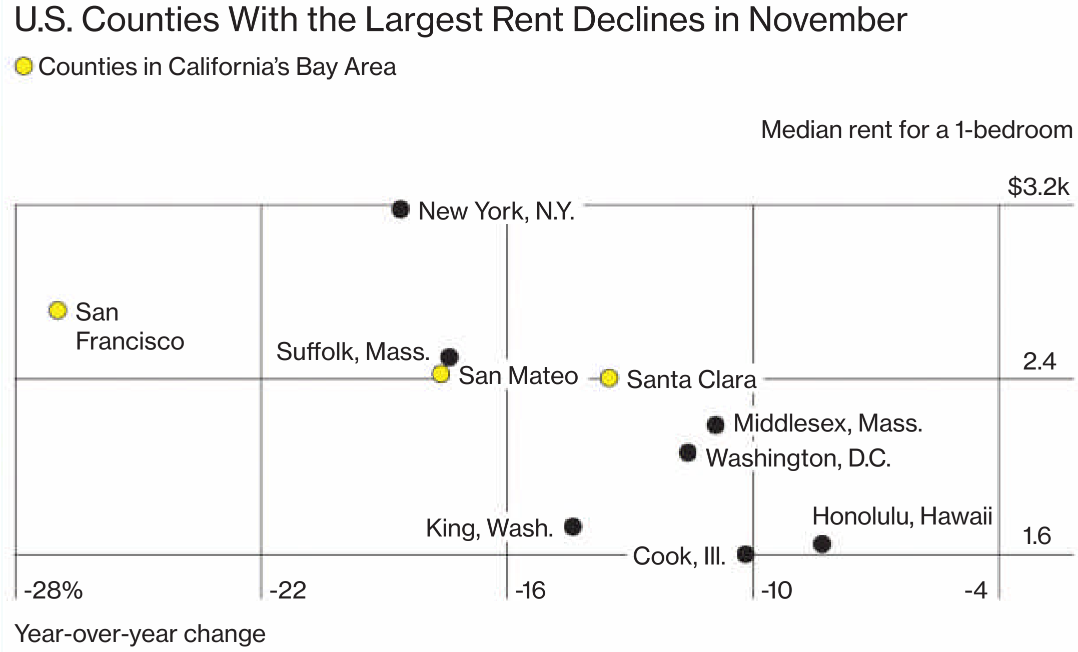
Nowhere are the effects more pronounced than in the real estate market, where apartment rents are plunging further than anywhere else in the country. The median rent for a studio apartment dropped 35% last month from a year before, to $2,100, while the cost of a one-bedroom fell 27%, to $2,716, according to data from Realtor.com. The declines are steepening from earlier in the pandemic—a sign that people with the flexibility to move are leaving an area that's still one of America's priciest for housing.

San Francisco stands to be one of the U.S. cities most affected by the trends brought on by Covid-19, even as much of the industry that drives its wealth thrives. While many New York finance firms are pushing for a return to the office, tech companies are more fully embracing remote work, raising the prospect of a longer-term transformation.

● To end a downtown office lease early, Opendoor paid

$5.2m

U.S. Counties With the Largest Rent Declines in November



DATA: REALTOR.COM

Technology companies "have been among the most flexible with allowing people to work remotely, and a lot of workers are taking advantage of that," says Danielle Hale, Realtor.com's chief economist. She expects San Francisco's apartment rents to recover eventually, depending on how quickly people return to the office.

Some companies are taking steps to scale back office space, a sign the virus upheaval may have lasting effects. San Francisco's office-vacancy rate has roughly doubled this year, to 8.3%, driving asking rents down almost 9%, according to real estate firm CBRE. Earlier this year, Pinterest Inc. shelled out almost $90 million to terminate its lease in a new downtown tower, because it's "rethinking where future employees could be based." Housing startup Opendoor paid $5.2 million to end its downtown lease early, a regulatory filing shows.

Nearby, Silicon Valley giant Hewlett Packard Enterprise Co. said on Dec. 1 that it's moving its headquarters to Texas, joining Palantir Technologies Inc., Charles Schwab Corp., and other companies in relocating their main office to a lower-cost state.

Hans Hansson, president of San Francisco office broker Starboard Commercial Real Estate, says he expects the impact of the pandemic on the city will be similar to that of the 1989 earthquake, which killed more than 60 people and left the area in a yearslong period of uncertainty. "We rely on tech," says Hansson, who gets much of his business from startups with downtown offices. "They're gone."

The city's economy has also been hit hard by lockdowns and business shutdowns, hurting people's ability to make payments. Apartment dwellers are seeking rent reductions; almost 9% didn't pay November's rent in full, according to data collected by the San Francisco Apartment Association, which works on behalf of landlords. Rents for downtown apartments near office buildings have been "decimated," while more residential areas have been comparably stable, says Charley Goss, the group's government and community affairs manager.

That suggests more movement among people who live near where they work. In a survey of tech workers in the city conducted by the anonymous professional networking site Blind, about 20% of the almost 1,200 respondents said they'd moved out of San Francisco. More than 10%, or 124, said their relocation is permanent.

Still, San Francisco has survived many booms and busts, each time emerging more prosperous. The city has a long history of attracting people for reasons other than professional ambitions, including its liberal politics, natural beauty, and prominent LGBTQ community, says Jed Kolko, the San Francisco-based chief economist at Indeed. That's been eclipsed in recent years as tech companies came to dominate the economy and prices soared.

While Kolko says he thinks San Francisco will remain a tech center, remote work and cheaper rents may change the reasons people move to the city. "San Francisco and California had their biggest inflow of population just after the Great Recession, when home prices became relatively affordable," Kolko says. "It could be that there's a sustained drop in real estate prices that draws people in."

▲ Dropping rents could draw in new residents who don't have high-paid tech jobs

DAVID PAUL MORRIS/BLOOMBERG

Audrey Yang, co-owner of Two Birds, a boutique in the Noe Valley neighborhood, says she hopes a potential return of affordability will attract some of the San Francisco types who were more common when she first moved to the city 14 years ago. "What drew me to San Francisco is you could really be whatever you want to be," says Yang, 37. "You could be the naked guy in the Castro, and no one blinks an eye, you know? But honestly I think tech is here to stay."

Falling prices could benefit those workers who hadn't been able to afford the city's housing market. Robert Dumas, 58, drives for Lyft and Uber in the Bay Area but lives two hours away in Los Banos because it's cheaper. The commute is so long, he often spends weeks or even months at a time away from home, sleeping when he can and showering at gyms or hotels when he's not working. Now that rents are falling, he's thought about moving closer. "They haven't come down enough to make a difference for me yet," Dumas says, but he thinks they'll continue to drop. "Every week I take more and more people to the airport. I see more and more moving trucks." —*Sophie Alexander, with Patrick Clark and Noah Buhayar*

THE BOTTOM LINE The pandemic lockdown taught tech companies and their employees that they could work remotely, and that could change the character of San Francisco—again.

Boxing In China With a Little Help From Friends

● A tech entrepreneur in the State Department is using network theory to counter Chinese pressure

In tech, Metcalfe's Law posits that a network becomes more useful in proportion to the number of its users, squared. That means big networks are much more valuable than small ones. A Silicon Valley veteran at the State Department is trying to harness the power of Metcalfe's Law to build a network of nations to counter China—a notable change in tone after years in which the Trump administration pursued a go-it-alone, "America First" strategy.

Keith Krach was named undersecretary of state for economic growth, energy, and the environment in June 2019. He coined the name Clean Network and leads the initiative, which seeks to keep telecom gear made by Huawei Technologies Co. and other Chinese companies out of communications networks in democratic nations. Krach describes the Huawei effort as a "beachhead" in a wider battle to unite against Chinese economic pressure in everything from investment to strategic materials.

Krach (pronounced "crock"), 63, co-founded Ariba, a business-to-business e-commerce company that was sold to Germany's SAP AG in 2012 for $4.3 billion. He was then named chief executive officer of DocuSign, which lets people affix signatures to documents electronically. He was recruited to the State Department by Vice President Mike Pence, whom he knew from a stint as chairman of the board of trustees at Purdue University in Pence's home state of Indiana.

It's hard to pin down how big a change in strategy the Clean Network represents and how much Krach is responsible for it. Certainly it's not a one-man effort, and it began before he joined the administration. His boss, Secretary of State Mike Pompeo, is the key spokesman. Others involved in the campaign include officials in the Treasury Department, the Office of the U.S. Trade Representative, the National Security Council, and the Commerce Department's Bureau of Industry and Security, which has Huawei on its "entity list." American companies are barred from selling or transferring technology to companies on that list without a license.

"Seven or eight months ago, it looked like Huawei was going to run the table," Krach says. "They announced they had 91 contracts, including 47 in Europe." Now, he says, the company has only about a dozen contracts outside China. (Huawei did not immediately respond to requests for comment.)

According to Krach, the Clean Network includes 180 telecom companies and 50 national governments representing two-thirds of the world's gross domestic product. Although that's impressive, all countries aren't equally committed. The State Department lists Japan as a member of the Clean Network, but the Japanese have resisted a blanket ban on Chinese network gear. According to the department's website, Minister for Foreign Affairs Toshimitsu Motegi has said Japan would like to

Edited by Cristina Lindblad

FROM LEFT: PHOTO ILLUSTRATION BY 731; PHOTOS: GETTY IMAGES (4); U.S. DEPARTMENT OF STATE. *DATA FOR VIETNAM FROM 2017. DATA: WORLD BANK, INTERNATIONAL MONETARY FUND deepen cooperation with the U.S. in cybersecurity and keep Chinese gear out of diplomatic communication channels.

Some allies grumble privately that the U.S. drive feels more like arm-twisting than coalition-building. Countries that ban Huawei are stuck for now with a 5G duopoly of Sweden's Ericsson AB and Finland's Nokia Oyj. Samsung Electronics Co. of South Korea also sells some 5G gear.

Nonetheless, Krach is credited with coordinating a variety of national and regional approaches to network security into a more unified international project, relying on trust more than compulsion. His experience with business networks at Ariba and DocuSign "provided the perfect background for leading the Clean Network charge," Joe Kaeser, president and CEO of Germany's Siemens AG, wrote in an email.

"In contrast to a somewhat more confrontational style at the beginning of the administration, the Clean Network bears the hallmarks of 'good old fashioned' diplomacy," Krach wrote in an email.

The task of forming networks to counter China's influence has been made easier by China itself, which has frightened and angered trading partners with its "wolf warrior" diplomacy, an increasingly belligerent pursuit of its national interests. In the country's crosshairs at the moment is Australia, whose government in 2018 banned Huawei from building its 5G network and is calling for an international inquiry into the origins of the novel coronavirus. In retaliation, China has targeted Australian exports of barley and wine with punitive tariffs and told traders to stop buying the country's coal, copper, sugar, timber, and lobsters. Exports to China accounted for 6% of Australia's GDP in 2018.

"They only have one thing, and that's 1.3 billion customers. That's what makes China unique, that's what enables China to threaten and sometimes get its way with other countries," says Jeff Moon, a former assistant U.S. trade representative for China affairs.

China has also flexed its market power in the U.S. Last year it privately demanded that the National Basketball Association fire the general manager of the Houston Rockets for a seven-word tweet supporting pro-democracy protesters in Hong Kong. NBA Commissioner Adam Silver refused and estimated last winter that the league would lose several hundred million dollars from the Chinese broadcaster's halt on airing games.

"I reckon for every one of those there's about 99 we don't hear about," Krach says. The State Department's goal, he says, is to make "a security blanket to stand up to that China bullying. When you confront a bully they back down. But they really, really back down when you have your friends by your side."

The Chinese government rejects the accusation of bullying. In July, after U.S. regulators labeled Huawei and ZTE Corp. as threats to national security, a Foreign Ministry spokesman accused the U.S. of "abusing state power" to hurt Chinese companies "without any evidence." Huawei's U.S. website says, "Everything we develop and deliver to our customers is secure, trustworthy, and this has been consistent over a track record of 30 years." ZTE says it "attaches utmost importance to our customers' security values."

Krach says the lessons he learned at Ariba and DocuSign are "100% transferable" to diplomacy. The four rules of networks, he says, are: maximize the number of nodes, reduce friction between nodes by building trust, make each node more valuable, and build a network of networks. "That," he says, "is the game plan."

Last spring and summer, Pompeo and Krach gave speeches and press briefings about an Economic Prosperity Network in which trusted democracies would be the nodes—essentially an economic alliance. It was conceived to have three components: a Clean Network for communications that's free of suspect components; a Blue Dot Network for global infrastructure investment to counter China's "Belt and Road" initiative; and an Energy Resource Governance Initiative, to secure supplies of rare earth metals and other strategic minerals. Now, Krach says, "The Clean Network is becoming the umbrella brand."

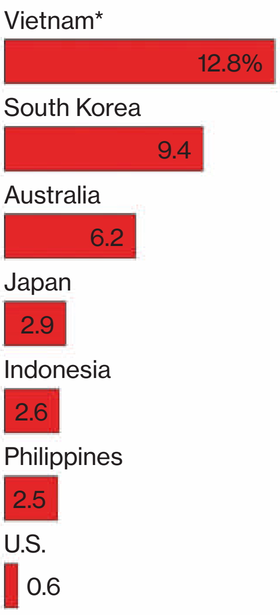
There's a good chance the Biden administration will pick up where Krach leaves off, assuming he isn't asked to stay on, because standing up to Chinese pressure is one of the few issues on which President Trump and Joe Biden agree. Biden "will essentially keep the main thrust of the Indo-Pacific strategy, to compete with and counter China in the Indo-Pacific and globally," says Derek Grossman, a defense analyst at the Rand Corp. think tank.

The debate in Washington is whether the U.S. should knock heads to get allies on board or take a softer approach. Antony Blinken, Biden's pick for secretary of state, and others on the president-elect's team argue that only a coalition of the truly willing will be sustainable. "We need to rally our allies and partners, instead of alienating them, to deal with some of the challenges that China poses," Blinken said in a July interview with the Hudson Institute think tank.

The Clean Network is to China what George Kennan's "long telegram" of 1946 was to the Soviet ▶

● Krach

▼ Exports to China as a share of GDP, 2018



◀ Union, wrote David Fidler, adjunct senior fellow for cybersecurity and global health at the Council on Foreign Relations, in a blog post in October. Kennan, who was then the chargé d'affaires in Moscow, reported back to his bosses in Washington that the Soviet Union had assembled an "elaborate and far flung apparatus for exertion of its influence in other countries, an apparatus of amazing flexibility and versatility managed by people whose experience and skill in underground methods are presumably without parallel in history." Kennan formulated the Cold War strategy of containment, which the Chinese claim is now being used against them.

Krach says the power of networks in diplomacy boils down to a simple idea: "If you retaliate against one country, you've retaliated against all of us." *—Peter Coy, with Rosalind Mathieson*

THE BOTTOM LINE The State Department's Clean Network initiative, led by a Silicon Valley veteran, is part of an effort to create a united economic front to counter Chinese influence.

Powell Joins the Fed Pantheon

● He's being called the most transformative Fed chairman since Paul Volcker

Jerome Powell was a middle-ranking Treasury Department official in the early 1990s when he first encountered legendary central banker Paul Volcker. "I was frightened of even meeting him," the Federal Reserve chair recalled last year. "I was just so intimidated by this global figure. And he couldn't have been nicer."

Now, with just over 13 months remaining in Powell's four-year term, some former central bank officials are saying he'll go down in history as the institution's most transformational chairman since the 6-foot-7-inch, cigar-chomping Volcker, who died a year ago at age 92. That sounds presumptuous for a man whose term isn't even over, to be sure, and is without doubt a claim the modest, 5-foot-10-inch Powell would never make. Yet it's not without merit.

Powell was quick to recognize the economic devastation the coronavirus pandemic could cause and responded in March with the monetary policy equivalent of shock and awe. The Fed cut interest rates to zero and quickly rolled out a suite of emergency lending programs that extended well beyond the banking industry to include borrowers such as Main Street businesses and state and local governments. That went above and beyond what the Fed did during the financial crisis a dozen years ago. "We crossed a lot of red lines that had not been crossed before," Powell said at a webinar organized by Princeton University in May.

He also shunted aside the Fed's long-held concern about risking a loss of its political independence and aligned monetary policy with fiscal policy of tax cuts and spending increases overseen by Congress and the White House. Powell urged lawmakers to go big on relief for hard-hit households and businesses even as the central bank snapped up trillions of dollars in Treasury debt that such largesse would generate.

With the U.S. recovery sputtering as Covid-19 infections hit new highs, Powell and his colleagues could use their last policy meeting of the year, on Dec. 15-16, to tweak that bond-buying program to provide the economy with even more support.

"I've always had Paul Volcker up on a special place, a special pedestal in terms of Federal Reserve chairmen," fabled investor Warren Buffett said in May. "Jay Powell, in my view, and the Fed board belong up there on that pedestal with him."

Powell's claim to a prominent position in the Fed's pantheon rests not only with his unprecedentedly rapid response to the coronavirus crisis. Under his watch, the Fed undertook a 20-month-long strategic review that culminated in August. The result: a radical rewrite of its blueprint for carrying out monetary policy that effectively turns the strategy Volcker is famous for on its head.

To extricate the nation from an inflationary wage-price spiral four decades ago, Volcker dramatically asserted the Fed's political independence by jacking up interest rates to as high as 22%, causing the economy to crater and joblessness to surge. Powell wants to lift too-low inflation by pushing joblessness down as far as possible and spreading the benefits of a tight labor market to Black and Hispanic people, as well as others who are frequently left behind. It's a plan uniquely suited to a time of heightened focus on racial injustice and income inequality, and it fits in with Powell's efforts to rehabilitate the Fed's reputation as protector of Wall Street, not Main Street.

● Volcker

Powell has altered "the longer-term direction of policy in many ways, in as transformative a way as Volcker," says Peter Hooper, a 26-year veteran of the Fed who worked at the central bank when Volcker was chairman and is now Deutsche Bank AG's global head of economic research.

The all-in approach Powell is taking carries risks, of course. Ultraloose monetary policy—interest

FEDERAL RESERVE (2)

rates look to be stuck at zero at least through 2023—could reignite long-dormant inflation or, more likely, create dangerous buildups in corporate debt and perilous bubbles in the stock market and elsewhere. Compounding those dangers, monetary policymakers may find it exceedingly difficult to disappoint politicians—and investors—by pulling back the support they're providing the economy.

Despite being continually heckled by President Trump, Powell entered 2020 thinking the economy was in a good place and on course to extend a record 10½-year expansion well into the future. That changed during a trip he took to Riyadh to attend a Feb. 22-23 weekend meeting of finance ministers and central bankers from the Group of 20 leading nations, where he learned that a deadly new coronavirus was spreading beyond China's borders.

Realizing that the U.S. wouldn't be able to wall itself off, Powell instructed Fed officials to tee up a review of the central bank's options for dealing with an epidemic. When he landed back in Washington on Feb. 24, his cellphone was inundated with texts from central bank staffers. The stock market had opened down big-time that morning as investors grew concerned about the virus.

That set off a high-speed effort to prevent a financial market meltdown and cushion the blow to American households and businesses from the sudden halt in economic activity. Within a month, the Fed used money from the Treasury to backstop nine lending facilities and purchased about $1 trillion worth of U.S. government debt. It was former Fed Chairman Ben Bernanke's financial crisis playbook, on steroids. "He was early, he was aggressive, and by all accounts the Fed stopped a financial crisis single-handedly," says Julia Coronado, founder of research firm MacroPolicy Perspectives LLC.

In fashioning the central bank's new strategic framework, Powell again took the policy prescriptions of a predecessor, Janet Yellen, and went well beyond them. Yellen, whom President-elect Joe Biden has tapped to be his Treasury secretary, was an advocate of pushing unemployment lower, but only so far, because she feared a too-taut labor market would spark unwanted inflation.

In what ex-central banker Nathan Sheets calls a "revolutionary" step, Powell decided that the Fed will no longer preemptively raise interest rates to head off higher inflation as unemployment falls. Instead, the central bank will allow joblessness to drop as far as possible until undesired price pressures materialize. And it won't just be seeking to lift inflation to the 2% target Bernanke adopted in 2012. It wants to push it above that for a stretch of time,

◀ Yellen and Powell were colleagues at the Fed

to make up for past shortfalls. Lawmakers from both parties have praised the strategy.

Confronted by the deepest economic decline since the Great Depression and limited monetary ammunition to combat it, Powell elected to return the Fed to its pre-Volcker days of increased coordination with Treasury and Congress. "You need help from friends, so you have to renew acquaintances," says Vincent Reinhart, a former Fed official who's now Mellon's chief economist.

With more than 15 years experience working at the central bank, Yellen will be perfectly positioned at Treasury to "thread the needle so that cooperation can happen in a way that respects the Fed's independence," says Sheets, who's chief economist at PGIM Fixed Income. And as a former Fed chair, she will presumably play a key role in deciding whether Powell gets another term.

Powell can also draw on the goodwill he's built on Capitol Hill. He's spent far more time than either Bernanke or Yellen schmoozing with lawmakers and listening to their concerns.

The plain-speaking policymaker has worked to make the Fed more of a people's central bank, holding 14 "Fed Listens" events across the country in 2019. Unlike many economists, Powell, a lawyer by training, is interested in what people on the ground are thinking. Speaking on videoconference with small-business owners and community leaders in May, he asked detailed questions about how they were adapting. "You guys are all about hope," he told them. "We've got to help each other through this, and that's what we're going to do. So you'll always have our support." Reinhart calls it "retail monetary policy, something that hasn't been done in a long time, maybe ever."

Speaking to reporters shortly after Volcker's death, Powell praised the former Fed chief for conquering inflation. But he made clear he wanted to be remembered differently, as a jobs crusader. "We can sustain much lower levels of unemployment than had been thought," Powell said. "That's a good thing." —*Rich Miller and Craig Torres*

THE BOTTOM LINE Powell's decisiveness in responding to the Covid-19 recession and his commitment to pursuing maximum employment mark him as a transformative leader at the Fed.

Biden's Sanctions Strategy

● Trump made unprecedented use of economic penalties. The next administration will deploy them differently

The Trump administration has imposed sanctions at a record-shattering pace of about three times a day during the president's time in office: a slew of measures targeting companies, individuals, and even oil tankers tied to Iran, North Korea, China, Venezuela, and Russia. President-elect Joe Biden's team is promising a top-to-bottom review of sanctions operations. But there isn't likely to be much of a slowdown on his watch.

About seven weeks before Biden's inauguration, his picks for top administration slots are making it clear that economic restrictions on countries will remain an essential tool, even if they don't like everything about the way Trump used them.

Sanctions have become central to the way the U.S. conducts foreign policy, using its economic might as much as its military power to get what it wants abroad, even when close allies disagree. In their determination to push through an "America First" approach to geopolitical crises, Trump officials innovated new forms of economic coercion, melding run-of-the-mill sanctions designations with tariffs, export controls, and secondary sanctions to punish friends and enemies alike.

"They've used these tools, tariffs, export controls as a one-two-three punch going after folks like China and others," says Adam Smith, a former senior adviser in the Treasury Department's sanctions unit and now a partner at Gibson, Dunn & Crutcher.

Trump went after NATO ally Turkey over its detention of an American pastor and threatened to punish Germany for the Nord Stream 2, a Russia-to-Germany gas pipeline that the U.S. argues would increase Europe's energy dependence on Russia and be used by Russia as a tool of aggression against Ukraine. Ignoring the

Edited by
Amanda Kolson Hurley

GETTY IMAGES (2)

warning that China's economy was too big and too closely intertwined with America's, Trump repeatedly sanctioned Chinese officials and companies, including 14 top legislators on Dec. 7 over Beijing's continuing crackdown on dissent in Hong Kong. He also blew past warnings that unilateral sanctions against Iran would be ineffective, crippling that country's economy without the help of European partners.

"We had never seen an administration so creatively use these tools in seemingly coordinated ways," Smith says.

Under Trump, the administration unveiled more than 3,900 distinct sanctions actions, according to data collected by Gibson Dunn, with a surge in 2018, when the administration reintroduced many Iran penalties after it pulled out of a 2015 nuclear deal backed by U.S. allies including the U.K., France, and Germany. No previous administration had exceeded 700 sanctions actions in a year.

As much as Biden wants to distance himself from current policies, experts and observers say he's likely to maintain Trump's aggressive approach. Biden's team, leery of any perception that he's trying to govern before he takes office, has been vague about which sanctions it will keep or lift, though the president-elect called for returning to the Iran nuclear deal, which would require lifting sanctions in some form. In a CNN opinion article in September, Biden wrote that his administration would "continue to use targeted sanctions against Iran's human-rights abuses, its support for terrorism and ballistic missile program."

"We must also remain laser-focused on the Treasury Department's critical role protecting our national security," Adewale "Wally" Adeyemo, Biden's pick to be the No. 2 official at Treasury, said when his nomination was announced on Dec. 1. "This includes using our sanctions regime to hold bad actors accountable."

One challenge Biden will face is that U.S. sanctions have now become so sprawling and complicated that they're more difficult to enforce or manage without risking serious impact on the American economy. "What you're seeing is multiple major economies targeted with sanctions," says Justine Walker, head of global sanctions and risk at the Association of Certified Anti-Money Laundering Specialists. "The industry exposure is so much greater, and I think that's where there's a potential concern."

Critics argue that the Trump administration has wielded sanctions too bluntly and indiscriminately, using them as a default response to any and every foreign policy problem. The incoming Biden team says that if it uses sanctions, it will do so in concert with allies. Two countries of focus will be Russia, where the new administration may target oligarchs allied with President Vladimir Putin, and China, where the U.S. under Trump has imposed sanctions independently rather than working with other nations with similar interests.

"What I do expect to see is an overarching strategy that does look more toward multilateral alliances and partnerships," Adam Szubin, a former acting under secretary for terrorism and financial intelligence under Trump, said at a National Security Institute conference on Dec. 1. "Wherever possible, you'll see an effort to stand on a united front and call China on its behavior where that's necessary."

"They've used these tools, tariffs, export controls as a one-two-three punch going after folks like China"

The U.S. approach under Trump was more hostile, resting on the assumption that companies affected by sanctions would fall into line—whether they liked it or not—because access to the U.S. financial system was so precious to them. Complaints that the overuse of financial sanctions would undermine the dollar's primacy were quickly dismissed.

As Biden prepares to take office, there's no bigger sanctions target than Iran. According to Secretary of State Mike Pompeo, the U.S. targeted 1,500 people and entities in Iran in 77 separate rounds of sanctions, accounting for almost half of the administration's overall sanctions actions. "We have deprived the regime, according to their own words, of some $70 billion for terror," Pompeo said at a conference on Dec. 4. "We know our campaign is working, because now the Iranians are desperately signaling their willingness to return to the negotiating table to get sanctions relief."

Experts argue that while the Trump team was often effective, its sanctions seemed at times to be based on public relations goals more than sound economic policy, something they say they don't expect to see from the Biden administration.

"I don't think they will be scaling back on sanctions; they will be scaling back on the misuse of sanctions," says Daniel Fried, a former ambassador, assistant secretary of state, and sanctions coordinator under Democratic and Republican administrations. "Scaling back on use of sanctions as a purely messaging tool or a media-cycle management device—sanctions because you want to look like you're being tough." *—Nick Wadhams and Saleha Mohsin*

THE BOTTOM LINE The Trump administration notched 3,900 sanctions actions. Biden is expected to use sanctions in concert with allies and not as PR—but he'll still rely on them.

Thinking Outside The Stockpile

● U.S. experts say the future of pandemic readiness isn't just boxes on a shelf

This spring, as overwhelmed doctors and nurses struggled to find protective gear while they treated Covid-19 patients, many Americans learned for the first time about a previously obscure government stash divided among secret warehouses across the country: the Strategic National Stockpile.

The stockpile was created in 1998 to hold drugs and vaccines in case of a biological or chemical threat to the U.S. Over time, it's also added personal protective equipment—such as masks and gowns—as well as antibiotics, emergency medicines, and, recently, testing supplies like nasal swabs.

During the initial coronavirus surge, governors requested supplies from the federal stockpile—and later complained they were slow to arrive and insufficient. Trump administration officials countered that the stockpile was never intended to be used for a 50-state pandemic. "The notion of the federal stockpile is it's supposed to be our stockpile. It's not supposed to be states' stockpiles that they then use," White House senior adviser Jared Kushner said at an April 2 briefing. (Some states keep their own, smaller stockpiles.)

Months later, the Strategic National Stockpile doesn't have enough supplies to meet the federal government's own targets. But in the long run, health officials don't want to make it bigger. Their goal before the next Covid-size disaster is to make stockpiling itself less central.

As of Dec. 4 the stockpile contained 164 million N95 masks, 201 million surgical and procedural masks, 84 million gowns and coveralls, 65 million gloves, and 23.5 million goggles and face shields, a spokesperson said in an email. (It also had about 152,000 ventilators ready to send out as of Dec. 7.)

In May the Department of Health and Human Services set a goal to buy 90 days' worth of PPE for the stockpile by the end of 2020. (That was based on the highest Covid-19 usage rate.) The government has reached its goal for goggles and face shields. But as of Dec. 4 the stockpile had only 1% of the target number of gloves, 32% of gowns, 55% of N95s, and 50% of surgical and procedural masks, according to a Bloomberg analysis. (Gloves are the most difficult item to obtain right now, and gowns and surgical masks are made from the same material, which is in short supply.)

Industry and government medical professionals say the Strategic National Stockpile can be a powerful weapon in fighting public-health crises. Not only does it serve as a backstop for critical supplies, it can also help ensure that disadvantaged communities get what they need and can give a boost to domestic manufacturing, according to Megan Ranney, an emergency physician who teaches at Brown University.

But the stockpile must evolve toward embracing the modern-day logistics of supply and demand, says Robert Kadlec, HHS assistant secretary for preparedness and response. We can't predict what the next bug or disaster will be, so the U.S. needs "a set of capabilities that give our country an advantage to be able to respond quickly," he says. "That's not a number of masks or boxes on a shelf. That's

▼ Boxes of medical supplies at a Strategic National Stockpile warehouse in an undisclosed location something that requires a little more science and art put together to develop."

For one thing, traditional stockpiling has logistical limits. If the national stockpile were to hold enough N95 masks for the 1918 influenza pandemic, adjusted for today's population, it would have 3.5 billion, which would "fill up every warehouse in the U.S.," says Greg Burel, who was director of the stockpile from 2007 to January 2020.

The future of the stockpile, Kadlec says, is about having "better visibility into the supply chain to know what's out there and what is available, and how do we respond in a way that is timely and effective." He says the federal government should enter into contracts with key distributors that it would pay to share information on their supply chain, manage some of the national stockpile's supplies, and agree to assist in future emergencies.

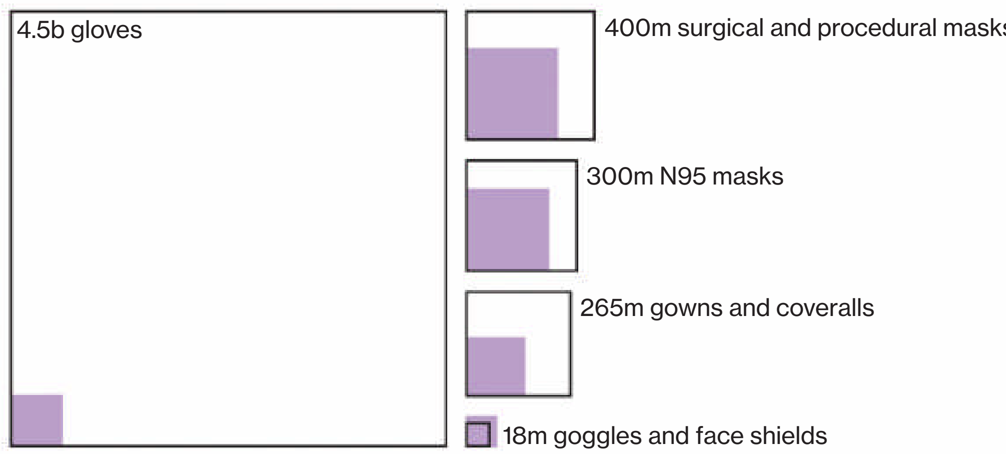
For manufacturers, the government could pay them to build production lines and keep workers employed, and when there's a crisis, it could activate a contract clause to shift production into high gear. This would be a smarter approach than spending billions of dollars to sock away supplies, Kadlec says.

The Biden administration could use a variety of financial incentives to increase domestic production such as requiring the supplies purchased to be U.S.-made, providing tax credits to health organizations

COURTESY STRATEGIC NATIONAL STOCK PILE/CDC

Stock Running Low

☐ Planned Strategic National Stockpile inventory by yearend ■ Inventory as of Dec. 4



DATA: U.S. GOVERNMENT ACCOUNTABILITY OFFICE, U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

that buy their PPE domestically, and speeding up the regulatory approval processes for new manufacturers, says Brown University's Ranney. Chaun Powell, a hospital supply-chain consultant, notes that the government shouldn't necessarily invest in domestic production where there's a safe global supply chain.

Representative Susan Brooks, an Indiana Republican who co-authored a pandemic preparedness law passed by Congress last year, says the U.S. also needs a better system for getting data on how much PPE is required and where to better target stockpile supplies. Because many health-care facilities are overwhelmed by crisis response—and the data they're already required to report—the government could consider incentivizing them to provide ongoing PPE data.

This year through October, HHS and the Department of Defense spent about $1.8 billion on PPE and $129 million on drugs for the stockpile. That came out of $16 billion appropriated by Congress in March. Regular funding for the national stockpile has remained steady at $500 million to $700 million annually since 2004, according to the Congressional Research Service.

But that's as the stockpile has been tasked with preparing for additional threats such as emerging infectious diseases. It's been tapped for "more and more," says Burel, the stockpile's former director. Even if it holds fewer supplies in the future, the manufacturing and data contracts that supplement it will require significant investment by the U.S. government.

More funding is critical, Burel says. "Our national health security is as vital to our national defense as buying tanks and planes." —*Shira Stein is a reporter for Bloomberg Law*

THE BOTTOM LINE The pandemic underscores the importance of the national medical stockpile. But experts want more nimble, on-demand ways to procure supplies rather than a bigger cache.

● HHS and Defense Department PPE spending to replenish the stockpile through October

$1.8b

LEARNING TO APOLOGIZE

● It's surprisingly difficult for most companies to do

It's lockdown redux, so companies are again apologizing to customers for delays, closures, and unavailable services. Most do it terribly. A much-utilized apology fail is "We missed the mark," used by Pepsi, Dove, and Avon in the past few years while retracting ads insensitive to women and minorities. The political version is the exquisitely passive "Mistakes were made," uttered by Presidents Nixon, H.W. Bush, Reagan, and Clinton after various scandals.

Researchers and communications pros say companies and politicians need to raise their game when it comes to apologizing. Far too often they resort to blame, clichés, and platitudes, such as "We're sorry for the inconvenience," while failing to offer adequate compensation for the trouble clients have had. "An apology helps repair the bond between the business and the

Edited by David Rocks

customer," says Amy Ebesu Hubbard, a professor of communications at the University of Hawaii. "If there's no clearly stated apology, that communicates that the company doesn't care about the customer, or that there's no longer even a relationship." Ouch.

A crash course: You need to say you're sorry every time a customer is somehow harmed, and that apology should usually include four components: accepting responsibility, showing that you understand the difficulty caused, stating what you've learned, and explaining what you'll do in the future. These can sometimes be brief—just a few words—and for minor transgressions such as a shipping delay on a nonessential item, you may not need all four components. Use your judgment. But do it right:

● Don't blame Covid-19.

Your customers already know deep in their souls and toes and wallets that there's a virus—and that it's been mucking up everything for almost a year now. If you're still blaming the pandemic for business disruptions, customers may wonder why your company hasn't found another way to meet their needs. "At this point, using Covid-19 as a reason is getting old," says Hubbard.

WRONG: Because of the current Covid-19 situation, we're closing our stores early.

RIGHT: We're keeping our employees safe by instituting split shifts.

● Write as a real human who takes responsibility.

Who's offering the apology? Words written by undefined, godlike speakers result in clumsy messages that fail to explain what's happening and why. "It's impersonal, unspecific, and sounds like they can't make up their mind about how they feel," says Edwin Battistella, author of *Sorry About That: The Language of Public Apology*. You want to verbally hug your clients. Hugs come from people with feelings and points of view.

WRONG: We are sad to announce that the restaurant will be shutting its doors as per the state government's request.

RIGHT: I'm Jane, the store manager. I'm proud to support our governor and keep our employees safe by temporarily closing our doors.

● Apologize for the precise harm to your customer.

This is where many companies go stunningly wrong. Remember: An apology isn't about the devastating, unforeseen circumstances affecting your business. It's not about the business at all. It's about the customer, and any other focus will generate suspicion about your motives, says apology researcher Yohsuke Ohtsubo, a psychologist at Kobe University. Ask yourself about the events that led to a customer seeing your message. If she's reading a "Closed" sign on your door, she wasted her time getting there and can't buy the product she wanted. Directly acknowledge that.

WRONG: Attention, customers: Effective March 15, our temporary hours will be…

RIGHT: I would have called, but I didn't have your number! I'm so sorry you came all the way here and found this sign. I'd like to make it up to you. Please email me what you'd planned to purchase, and George, our heroic warehouse manager, will arrange free shipping.

"An apology helps repair the bond between the business and the customer"

● Consider a sacrificial apology.

Paying up is the corporate version of a cheating spouse proffering a diamond after an affair, because words won't cut it. Ohtsubo has found that saying you're sorry works better when accompanied by a concrete gesture such as compensation, a voucher, or executives lowering their salaries. While a sacrifice is necessary only if the customer has been significantly harmed, it works, because people perceive organizations to have humanlike intentions and feelings. "If they suspect the organization is being exploitative or somehow improperly profiting off of customers or employees, the apology should be costly to show that they value customers and employees more than the costs incurred," Ohtsubo says.

WRONG: Classes canceled until further notice.

RIGHT: We can't wait to see you again. And as a token of our appreciation, we hope you'll enjoy this voucher for two free classes.

● Indicate how the company will next interact with customers.

You're communicating with people who want to do business with you, so be sure to include information on services you've introduced that might meet their needs. Lacking that, at least be specific about when and how they'll next hear from you. "A lot of signs just sort of say 'Go to our website,'" Battistella says. "It's better to offer more specifics."

WRONG: We apologize for any inconvenience our shutdown has caused.

RIGHT: Please send a text message to 94825, and we'll tell you about our new curbside and mail-order options and let you know when we can again serve you in person. —*Arianne Cohen*

ILLUSTRATIONS BY MICHELLE KWON

A NEW LEAD ROLE AFTER 50

● Understanding the psychological formula for success can help create an exceptional third act

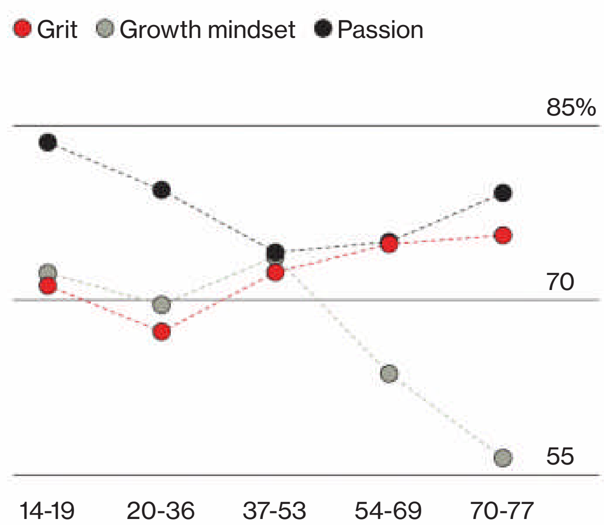
Julia Child launched *The French Chef* on TV at 50. Ray Kroc began franchising McDonald's at 52. Estelle Getty landed her breakout role on Broadway at age 58, then in her 60s racked up seven back-to-back Emmy nominations for *The Golden Girls*. These are all clearly exceptional third acts, but even if you aim a bit lower, you're likelier to get there if you understand how the psychological formula for achievement shifts as you age.

Psychologists have long known that success is fueled by grit, passion, and a growth mindset—a deep-seated conviction that you can excel at a new pursuit. Norwegian psychologist Hermundur Sigmundsson says that passion is by far the most important psychological factor—but it peaks early, which you may have seen in kids' obsessions: the Dinosaur Phase. The Truck Phase. The *Minecraft* Phase. To a lesser extent, the same is true of growth mindset, so by the time most of us reach the Build a Company Phase, two of the three most important ingredients in the recipe for achievement are waning. "You lose the thinking that maybe you can do this," Sigmundsson says.

But grit—a combination of perseverance and determination—rises through middle age and peaks in your 70s, as do a number of other helpful intellectual traits. Harvard and MIT researchers who tracked the cognitive skills of 48,000 people over time found that while mental processing speed is already on the downswing by the time you leave college, your ability to perceive the emotional state of other people and your vocabulary, comprehension, and aptitude for math keep climbing until at least 50. Although short-term memory declines after age 35, the mind's accumulation of facts and knowledge peaks around retirement age. In many ways, that's when your mind is best suited to dominate on the job.

The Formula for Success

Index score of psychological traits, by age group*



*PERCENTAGE OF MAXIMUM POSSIBLE SCORE. DATA: NEW IDEAS IN PSYCHOLOGY. ILLUSTRATIONS BY MICHELLE KWON

You'll still need to overcome your flagging passion and growth mindset. A surplus of grit can help, says Anne Boden, 60, founder and chief executive officer of Starling Bank, a consumer-focused online financial house. When founding a company, "you spend most of your time convincing people to believe in you and give you money," she says. "It's a very weak position, and very humbling."

Boden had never lacked for ambition, holding roles at various financial companies and ultimately serving as chief operating officer of Allied Irish Banks Plc, Ireland's biggest lender. But she often felt banks don't really put customers front and center—so as she passed the five-decade mark, she decided she should do it herself. "The first time I uttered the words 'I'm going to start a bank,' I couldn't believe they came out of my mouth," she says. But by saying it over and over, she grew more comfortable with the idea. Soon, she says, "I felt like a woman who was going to start a bank."

Such an overabundance of determination may be unusual, but gritty, later-life professional success is not. Joy Behar taught English to high schoolers and worked as an ABC receptionist and producer before landing her seat on *The View* in 1997, at age 54. She continues to co-host at 78. Sigmundsson rattles off examples of colleagues such as a retired professor who started speed skating at 67 and is now a masters world champion at age 85. And Mihaly Csikszentmihalyi, 86, the psychologist who discovered the immersed mental state known as "flow," is still publishing. "It's possible," Sigmundsson says, "to keep the fire burning." —*Arianne Cohen*

HOW TO STOKE THE FIRE

❶ Make It Meaningful

Once you pass the half-century mark, avoid work you don't find compelling. The pandemic provides the perfect occasion to ditch—or be fired from—a position that doesn't do much beyond keeping the lights on and the fridge full. "When you lose that just-OK job, you have the opportunity to take a big risk," says Boden. "Take all the good from your past ventures and throw them into the future."

❷ Move Your Body

"Physical activity is very important to keep the gray and white matter in your brain more functional," says Sigmundsson. His studies show that successful older people remain physically active, including everyone mentioned in this article. Anything that gets your heart pumping, such as walking, swimming, yoga, biking, or weights, will do the trick.

❸ Fight Weakness

Which is lowest: your grit, passion, or growth mindset? Help nurture your weakest trait by surrounding yourself with people and deadlines that bolster it. If your entrepreneurial passion is fading, find an enthusiastic business partner and join an incubator program. If you fear you won't be able to write that novel you keep seeing in your dreams, join a writing group and hire a book coach.

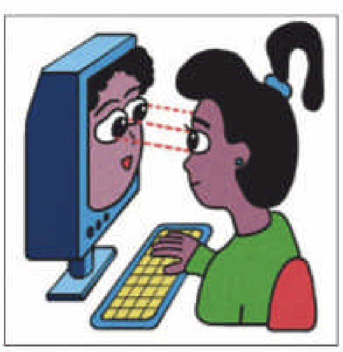
❹ Beyond Work

Bonus points for learning completely new skills, which can improve cognitive function. The more novel and mentally demanding, the better—try, say, learning a new language or musical instrument. After a lifetime of playing percussion, Sigmundsson picked up the bass guitar at age 50. "My band needed a bass player," he says. "Now I'm 55, and I'm quite good."

WHAT I LEARNED IN THE PANDEMIC

● The combination of working at home, juggling child care, and pivoting entire business plans on short notice because of the coronavirus outbreak has forced us all to learn new tricks. Here are skills some productive people have picked up this year.

● READING EYES



We rely so much on body language during in-person interactions. On Zoom, the next best option is to read the eyes. You can discern a lot by observing a person's gaze, eye direction, blinking, dilating pupils, etc.
—*Michael Kipness*, founder, Wizard Race & Sports

● POWER NETWORKING

Thanks to virtual-meeting apps, I've been able to connect with decision-makers and validate sales easier than ever. Sharing and commenting on posts is also a great way to get on the radar of busy people.
—*Faith McKinney*, field sales representative, U.S. Postal Service

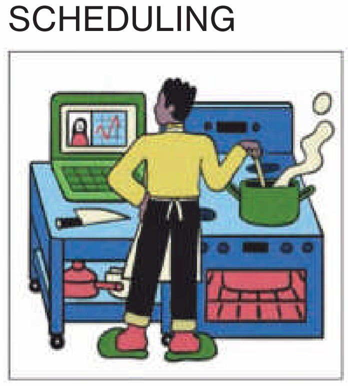
● FOCUSED CONVERSATION

Zoom culture has forced me to hone my question-asking skills. While some nuance is lost in digital-only communication, I like how it forces focus, clarity, and depth.
—*Ara Katz*, co-founder, Seed Health

● POMODORO TECHNIQUE

The Pomodoro method helped me avoid getting distracted by all the tempting chatter, TV, calls, and endless Slack messages. I start a task, set a timer for 25 minutes, and when the alarm goes off, I take a five-minute break. After doing four of these, I break for a half-hour. It's a very specific way to organize your time.
—*Sarah Johnson*, associate director of public relations, Merchant Maverick

● FAMILY SCHEDULING



When I started juggling work and virtual school, I tried to coordinate the routine by myself and it didn't work. So I got the family involved each evening in creating a visual daily plan with our school tasks, meetings, and commitments. It's a one-page layout that I post on the fridge for everyone to see.
—*Megan Sumrell*, organization and productivity coach

● TIME BLOCKING

Working from home, everything just blurred together. Juggling projects all day and working evenings, it was hard to get a break in. Now I look at the next week and block out meetings, "real" work, and a daily walk for my dogs. I try to save the last 30 minutes to wrap things up, with no meetings on the schedule. This has helped me address my top priorities.
—*Kelly Capra*, head of human resources, Joyn Bio

● READING BOOKS!

Since I'm not commuting, I have time to pick up a book while I'm on a break or having lunch. It really enriches my life and inspires me to approach work differently.
—*Mark Hayes*, head of marketing, Kintell

● DIGITAL FLUENCY

I've taken my hands-on digital skills to the next level, learning to host online seminars and making new connections around the world.
—*Sidra Ijaz*, research analyst, InvoZone

● A CALMING FINISH

I set a routine to properly end the day.
1. Wrap up current assignments. Note where to continue.
2. Close all work tabs. There's something therapeutic about shutting things down.
3. Jot down leftover tasks. This is key to offload them from your mind.
4. Fill in a work diary. I like to keep track of my hours, habits, and how the day went.
5. Take 10 deep breaths.
—*Mike Greenberg*, editor, Mythology Source

The Country

● Fans celebrate a home run at Jamsil sports complex in Seoul

To Live Wi

● The cafeteria at test-kit maker Osang Healthcare in Anyang

That Learned

● Contact tracers at city hall in Incheon (names redacted on whiteboard to protect patient privacy)

As other nations locked down or let the coronavirus run rampant, South Korea found a middle way—and a road map for future pandemics

By Matthew Campbell and Heesu Lee
Photographs by Jun Michael Park

th Covid-19

Park Young Joon was worried that South Korea could lose control. As director for epidemiological investigations at the Korea Disease Control and Prevention Agency, he'd been dispatched to Daegu, a city of 2.5 million in the south, to deal with an urgent situation. A rash of novel coronavirus cases had just emerged among members of the Shincheonji Church of Jesus, an obscure and secretive religious group whose services involve close physical contact. The first congregant tested positive on Feb. 17, becoming South Korea's 31st Covid-19 patient. Soon the number of new daily cases was in double digits, then triple—evidence that an exponential outbreak was in progress. "I remember seeing the triple-digit cases," Park says, speaking through a translator, "and thinking to myself that this must be what people mean when they use the word 'surge.'"

In the early days of the outbreak, public-health officials treated each case more or less individually, with contact tracers compiling detailed histories of a patient's recent whereabouts and screening others accordingly. But many of the churchgoers and family members who were testing positive had no obvious link with earlier cases. The virus was spreading along paths Park and his team at the KDCA couldn't see.

The only way to stop it, he thought, was something drastic: quarantining everyone who'd set foot in the nine-story building that housed Shincheonji's Daegu operations. The measure would be mandatory, covering about 9,000 people, regardless of where they'd been in the building or whether they'd interacted with a known carrier. Anyone who subsequently tested positive would have their contacts screened; then those people would have their own contacts screened, and so on until the chain stopped.

It was a sharp, costly escalation in strategy—and, it turned out, a highly effective one. The quarantine effort was under way within four days of the first Shincheonji diagnosis, and by mid-March the Daegu outbreak was under control. The response established the template for one of the world's most impressive efforts to contain Covid. For most of the past 10 months, South Korea has managed to keep infections within a manageable band of several hundred or fewer new cases a day, never quite vanquishing the virus but never allowing it to thrive beyond the authorities' ability to cope.

On at least three occasions, the country has contained dangerously fast-moving outbreaks by deploying aggressive testing, high-tech contact tracing, and mandatory isolation. It's done so without a single day of lockdown, a strategy its government, led by President Moon Jae-in, rejected early on as too costly to citizens' livelihoods and social bonds. Indeed, in September the Organization for Economic Cooperation and Development projected that the Korean economy will contract by only 1% in 2020, compared with an average decline of 4.1% across the Group of 20 nations. Unemployment is about 4%, higher than before the virus but far below the levels in other major economies.

Much of Asia has performed well during the pandemic. Yet it's arguably South Korea that provides the most compelling

● Park Young Joon

example for nations struggling to limit death and disablement in the months before widespread vaccination—a period that U.S. President-elect Joe Biden warned could see more than 250,000 American fatalities. South Korea isn't small: With a population of 52 million, it's about three-fourths the size of the U.K., and Seoul is both larger and denser than London. It isn't authoritarian, featuring arguably the most vibrant democracy in Asia and a diverse political landscape that includes religious groups that resist public-health measures. And unlike China, New Zealand, and other members of the pandemic premier league, it hasn't pursued a strategy of outright viral elimination, a goal that would now be impracticable in most of the world.

South Korea's response hasn't been perfect. The country has lost more than 500 people to Covid, representing a relatively high fatality rate by Asian standards. New outbreaks, even if relatively small, remain a constant threat. The authorities are currently battling a tenacious wave of infections centered in Seoul, the worst flare-up since February. And daily life isn't normal: Social distancing measures of varying intensity are in place throughout the country, and masks are required in virtually every public space. Restaurants, cafes, and even nightclubs and gyms have stayed mostly open, but capacity is often limited, and patrons must scan a QR code linked to a national contact-tracing system before entering. Schools have gone partially digital to give students room to space out, imposing an additional burden on mothers in what's already a deeply unequal society for working women.

It's hard not to be impressed, all the same, by the way Korea's government and people confronted a choice the citizens of Western countries were frequently told was unavoidable—between economy-shattering lockdowns and appalling viral casualties—and resolved to accept neither option. The country decided instead to deploy all the

“I remember seeing the triple-digit cases and thinking to myself that this must be what people mean when they use the word ‘surge’”

resources it could in the service of a simple goal: to keep society functioning. And for the most part, it’s worked.

The strategy has depended upon a degree of vigilance that can seem excessive until you consider the horrific costs of, say, the American approach. For most of this year, Park has been sleeping in a dormitory at the KDCA’s headquarters, some 60 miles south of Seoul. He works about 16 hours a day, six days a week, slipping into the capital to see his family only on the occasional Sunday. His life has been anything but balanced, but he says it’s been worth it. He and his colleagues have helped Korea find an equilibrium, one Park argues it can sustain until the pandemic ends. “We call it long-term suppression—maintaining our society while suppressing the virus,” he says. “The basic concept we are working with is living with Covid-19.”

Five years ago, South Korea learned the hard way that it wasn’t ready for a novel viral outbreak. In May 2015 a 68-year-old Korean man who ran a greenhouse business in Bahrain became ill after returning to Seoul. When his symptoms didn’t improve, he was admitted to a hospital outside the city, where doctors diagnosed pneumonia. Five days later, after he’d been transferred to a more sophisticated medical center, a test confirmed that he was Korea’s first carrier of Middle East respiratory syndrome, an often-fatal viral disease that’s related to both severe acute respiratory syndrome and Covid.

By then the MERS virus, which first emerged in Saudi Arabia in 2012, was on the move. Dozens of people had been exposed at the first hospital where the returning traveler was treated. The pathogen then took hold at the second hospital, after a man exposed in the earlier outbreak visited its emergency room, coughing severely. Eighty-two people were infected as a result. Such nosocomial infections—spread in medical facilities—are one of the worst-case scenarios in public health, not least because hospitals are by definition full of people who are already sick and therefore vulnerable. Testing delays also gave the virus more time to spread, and officials inflamed public anxieties by declining to disclose where MERS patients were being treated. Thirty-eight people ultimately died.

The government, led at the time by conservative President Park Geun-hye, was determined not to repeat the experience, and initiated a series of public-health reforms. The KDCA, historically a health ministry department with little real autonomy, became the coordinating body for outbreak response—a “control tower” for other agencies and local administrations. An emergency process for approving new diagnostic tests was also created, shortening the time required from a year to a week or less. And the country’s main public-health law was amended to allow contact tracers to scrape data from cellphones, credit card and public-transit records, and other sources “if necessary to prevent infectious diseases and block the spread of infection.” The law required that the information be used only for public-health purposes and that it be destroyed when the danger passed.

The earliest phase of the coronavirus pandemic seemed to validate the new policies. Korea reported its first Covid case on Jan. 20, the same day as the U.S. A week later the KDCA interrupted the Lunar New Year holiday to summon executives from a range of health-care companies to Seoul, where the agency shared a testing method it had developed for the new virus and urged them to start producing kits based on the same protocol. The first was approved for use on Feb. 4.

By mid-February, only a handful of Korean cases had been discovered, a number small enough that all could be housed in ultrasecure negative-pressure rooms. Then the surge began in Daegu, where the virus had been quietly spreading through the community. The first Shincheonji member to be diagnosed, a 61-year-old woman, had been admitted to a hospital on Feb. 7, following a car accident, and developed flulike symptoms a couple of days later. It’s not uncommon for hospitalized patients in Korea to come and go during a stay, and no one prevented the woman from leaving on Feb. 9 to go to church. She went again on Feb. 16, right before doctors decided to administer a coronavirus test.

Shincheonji adherents, who revere sect founder Lee Man-hee as a saintlike figure, are encouraged to attend services even when they’re feeling ill, according to former members. Each of the sessions the woman attended saw more than 1,000 people sit elbow to elbow on the floor for as long as two hours, reciting prayers and loudly shouting “amen”—almost-ideal conditions for viral transmission. As public-health officials learned, the church is also so secretive that some members hide their affiliation even from their immediate families. And they were now circulating around the country, potentially infected.

The government was desperate to get the identities of the church’s followers. Officials threatened Lee with criminal investigation before obtaining the list, which included roughly 200,000 names. (In a statement, Shincheonji said that it was concerned its followers could be harmed if their ▶

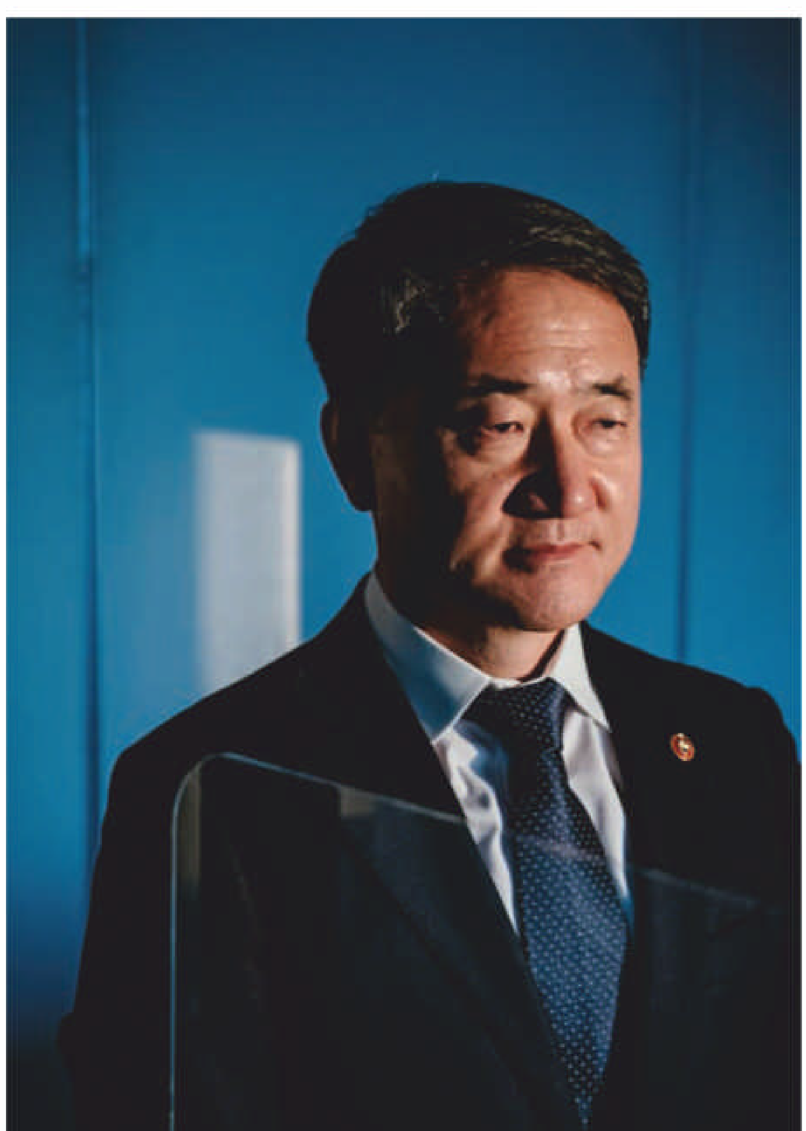
◀ information was disclosed and that those who conceal their membership do so to avoid prejudice. It also called claims it tells members to attend services when sick "groundless.")

As the Daegu quarantine got under way, case counts throughout the country were surging, reaching 500 or more per day in late February and early March. Public panic rose in tandem with the number of infections, and demand for masks—which were already familiar to many Koreans because of worries about air pollution—grew so intense that weekly purchases were limited to two, verified by a national ID card. Governments around the world introduced bans on Korean arrivals.

Policymakers in Seoul, however, were determined to avoid a lockdown, the approach that had arrested the virus in China and would soon be employed in Europe. "The basic principle we have is to keep a balance between preventive measures and economic growth," Minister of Health and Welfare Park Neunghoo said in an interview in November at a government office in central Seoul. "This was the belief we had from very early on." A shutdown would have harmed the economy, at least in the short term, and it also might have provoked a level of frustration that "would make it hard for us to implement and enforce our preventive and quarantine measures." It was late afternoon, and as Park spoke the streets outside retained much of their pre-pandemic vitality. Thick crowds of office workers were streaming toward the subway, while others headed for the bars and barbecue joints that fan out in countless alleys from the city's skyscrapers.

Officials knew that containing a drastic surge in infections without putting society on pause wouldn't be straightforward. "We needed to approach this in a very scientific way," Park said. The most important prerequisite would be an enormous increase in testing. Thanks to the rapid approval of commercial tests, Korea was well ahead of most countries, but front-line medical staff were still overwhelmed.

Among them was Ahn Yeo-hyun, a 40-year-old anesthesiologist at a public-health center in the port city of Busan, not far from Daegu, who'd been assigned to help screen patients. Demand in her area was high, but "we didn't have enough equipment" to conduct tests safely, she recalls. Protective gear was in short supply, and cross-infection from patients to clinicians was a constant concern. Worried she might infect her child or her husband, a doctor who treats the elderly, Ahn started wearing a mask at home and eating dinner alone on the balcony. "No one knew what the coronavirus was, how dangerous it was, or whether it was treatable," she says. "I was extremely frightened."



● Park Neunghoo

Ahn figured there had to be a better way to administer tests. Eventually she had an idea: a sort of modified phone booth in which a health-care worker could stand, using a pair of gloves embedded in one of its glass walls to swab a patient standing opposite. Instead of bulky, scarce full-body protection, the booth's operator would need to wear only a mask. Ahn persuaded her boss to allocate some money for prototypes, and by March she had a working model. Hundreds of booths were soon being set up across the country, along with another local innovation, drive-thru testing sites. By mid-month, Korea had performed more than a quarter-million tests, compared with fewer than 35,000 in the U.S. Around the same time, the daily count of new infections fell below 100, where it largely remained for months.

The second main component of Korea's virus strategy has been a robust approach to contact tracing. It's one of the oldest public-health interventions, in wide use for the better part of a century. It's also one of the most important, particularly for pathogens as infectious as the novel coronavirus. When tracing is inadequate, as it's often been in the U.S. and Europe, small outbreaks become big ones, and big ones become national crises that may require lockdowns to stop.

In Korea much of the day-to-day work of tracing occurs in city halls such as the one in Incheon, an industrial hub of about 3 million people just west of Seoul. All seemed relatively normal on the ground floor of the complex during a recent visit: A photography exhibition was set up in the central atrium, next to a cafe doing energetic business. In Jang Hanaram's windowless office upstairs, however, the pandemic had never let up. A military doctor seconded earlier this year to lead Incheon's contact-tracing operations, Jang has a muscular frame, and he was dressed civilian-casual in a black T-shirt under a blue sweater. His job is to lead a group of six tracers who work full-time to track down everyone a confirmed Covid patient has been in contact with.

● Jang Hanaram

Full-time, for the team, is an expansive concept. There was a cot on the floor next to a battered fridge; in the first weeks of the crisis, Jang slept in the office. "I was the only person handling tracing work for all of Incheon," he said. "I felt like I couldn't go on." Eventually he persuaded his superiors to send more military doctors to help, but the conditions remain punishing: A recent survey of tracers, conducted by a professor at Seoul National University, found that 80% of those interviewed were experiencing "high levels of burnout," with some logging more than 100 hours of overtime each month.

Jang's team gets involved immediately once someone tests positive. Public-health workers interview patients in a hospital or clinic, asking them to list where they've been, when, and with whom. That information is fed back to Jang and his staff, who are given access to GPS and transaction records as well as information from the QR code system in use in restaurants and other high-traffic locations. That information allows tracers to verify a person's movements and find connections between cases.

Opposite the cot in Jang's office were two whiteboards covered in names. Solid arrows between them denoted the likeliest path of transmission; dashed lines indicated suspected movement of the virus. One name, belonging to a possible superspreader, was circled in red, with more arrows pointing outward. The goal is to have all contacts identified within a few hours, or a day at most, and ideally to trace infections back to their source. One outbreak Jang responded to originated in a "casino pub," where investigators found viral particles on chairs and poker chips, and—disconcertingly, given how the virus spreads—in an air conditioner.

Despite the high-tech tools, patients lying about their movements remains an issue. In May a 24-year-old Incheon man who taught at a *hagwon*—an after-school academy where Korean students study late into the night—tested positive. But in his interview he omitted significant details about where he'd been and when, leading tracers to assume he'd been at home when in fact he was out meeting with students, among other engagements. "There's a widespread fear among people in Korea about being stigmatized" for spreading the virus, Jang said. "It's one of the things that make it harder to do our investigations." The teacher "was scared and decided to tell us only the parts that he thought we could find out." It took a detailed reconstruction of GPS data to locate all his contacts, a delay that allowed the virus to spread widely in Incheon.

The contact tracers rely on a legal and cultural framework that's hard to imagine in the West, especially in the U.S., with its government-distrusting, conspiracy-minded citizens. Data on patients' movements are even made public on official websites, a legislative requirement born of criticism that authorities concealed too much information during the MERS outbreak. (Names are left out, though there can be enough detail that identification isn't difficult.) Predictably, private-sector services have emerged to collate the information. One of the most popular, a website called Corona Map, provides the precise location of every Korean shop, restaurant, and even plastic surgery clinic that carriers have recently visited, to the considerable displeasure of some business owners.

Notwithstanding those complaints, Jang said, his compatriots seem more willing to accept such intrusions than people of other nations. He argued that the public interest weighs heavily on them. Although Koreans "are also keen to protect their private information," he said, "they understand that by giving up some of their privacy they can protect their loved ones." Contact tracing also helps avoid lockdowns, which are arguably a greater encroachment on liberty than tracing could ever be. And it bolsters Koreans' confidence as they keep eating in restaurants, working out in gyms, and generally doing the everyday activities that many Americans avoid even where they're permitted.

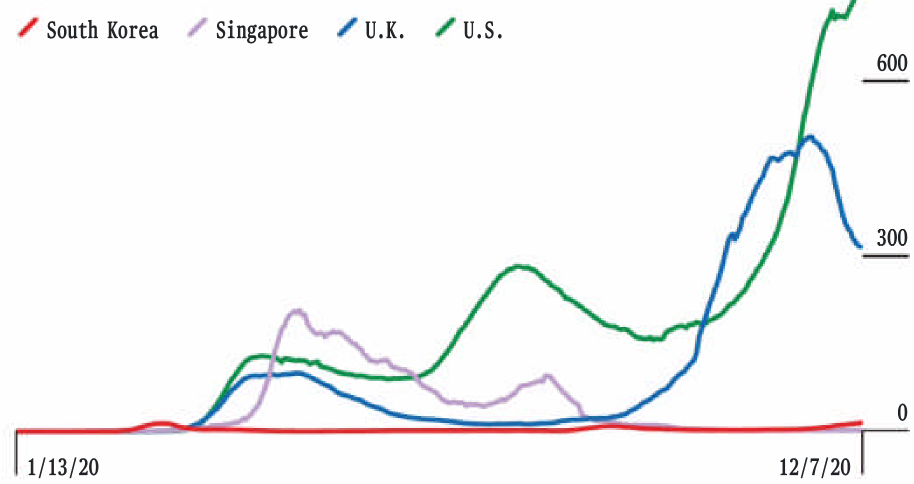
Korea's tracing systems evolved as the pandemic went along. Their first comprehensive trial came in August, well after the Shincheonji drama, when religious and conservative groups defied bans on public gatherings to hold a large protest in Seoul. Demonstrators had arrived from all over the country, and public-health officials feared they could ignite a nationwide outbreak when they returned to their ▶

◀ hometowns. Depending on your priors, the government's response was impressive, draconian, or both. GPS records showed that about 35,000 people had attended or been in the immediate area. All of them were contacted and told to get tested. Municipal governments followed up with those who didn't quickly present themselves and got to work tracing the contacts of the more than 600 people who ultimately tested positive.

The authorities' victory wasn't quite as convincing as in March. The number of daily new cases surged to a high of 441 in late August before reverting closer to 100 a day in September. But disaster had, once again, been averted.

● Covid-19 Cases Per 100,000 People

14-day cumulative total



DATA: EUROPEAN CENTRE FOR DISEASE PREVENTION AND CONTROL

The headquarters of Osang Healthcare Co. occupy a modest office building on the outskirts of Seoul, across the street from a waterside jogging track. To enter, visitors first pass through a futuristic air blower intended to push away stray contaminants, then look into an overhead temperature scanner for an all-clear. In the lobby a guard with a handheld thermometer performs another check before directing new arrivals to fill out a contact-tracing form. Last, a squeeze of hand sanitizer.

There's an element of theater to the protocol. For one thing, indiscriminate temperature reads are of limited use in stopping a disease that often doesn't cause symptoms. But the show also serves as a statement of intent for a company whose facilities are among the country's most critical right now. A medical diagnostics manufacturer founded in 1996, Osang is a major producer of tests for identifying the coronavirus.

The assembly lines are located upstairs, through stainless-steel airlocks that blast another jet of high-pressure air. There, workers in shiny blue jumpsuits, white shoes, white masks, and blue caps oversee the production of rapid antigen tests that detect proteins expressed by the virus that causes Covid. Cheap to produce and delivering results in minutes, such tests are a key component of some proposals for controlling infections until vaccines arrive.

The production process begins with paper. In one room, a machine the length of a pickup truck unrolls a huge white spool of it, dipping the sheet into a bath of reagent chemicals and then feeding it into a drying oven. After being divided into narrow bands, it's spliced with paper from several other reels, treated with different reagent mixtures, into short pieces that drop with a mechanical hiss into a collection tray before being cut into individual test strips. In another space, robotic arms place each test strip into a plastic housing, then seal it in a black-and-white wrapper to be packed for shipment.

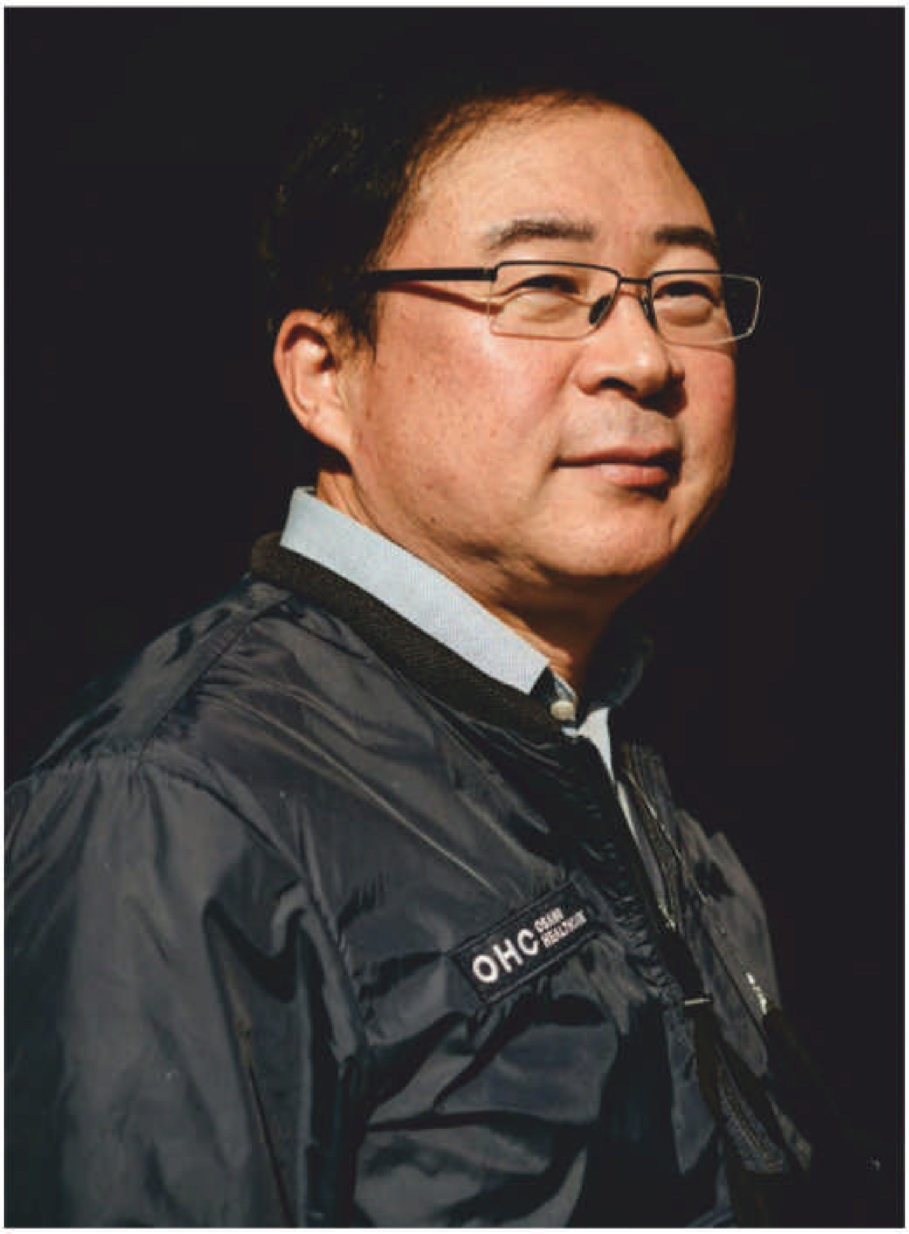
The facility can produce 2.5 million rapid tests per week. They sell for only about $5 each and are destined exclusively for export; with relatively few coronavirus cases and plenty of domestic manufacturing capacity, Korea has more than enough tests for its needs. Getting enough of these kinds of kits into the world, says Osang Chairman Lee Donghyun, should allow "people to quickly get tested at home, or before going to a movie or concert, or even to get a result after spending about an hour in an airport lounge."

Korean regulators approved their first rapid antigen test in November, adding another weapon to the national strategy of holding the middle ground between severe isolation and unchecked virus transmission. Even so, outbreaks remain a risk. A sharp runup of cases in and around Seoul began in mid-November, pushing the total number of new infections for the month to about 8,000, roughly triple the figure in October. The rise was the steepest since March, and a reminder that the country's public-health experts face a difficult winter regardless of past successes.

They still believe that, with the benefit of almost a year of trial and error, Korea has arrived at a set of policies that can be sustained for as long as necessary, dialed up and down as circumstances dictate. The recent outbreak saw the first test of a five-level scale for social distancing measures, with more intense rules triggered as the number of infections rises. On Nov. 24 the capital moved from Level 1.5 to Level 2—two notches below the maximum, Level 3—requiring restaurants and gyms to close at 9 p.m. and shuttering nightclubs, while keeping offices open. Two weeks later the restrictions were raised to Level 2.5, banning gatherings of 50 or more people and imposing curfews on retailers, among other measures. The increase was an example of what Park, the health minister, calls a strategy of "precise prevention." Rather than halting parts of the economy wholesale, the goal is to focus narrowly on the practices and people who pose the most risk.

Inbound travel is another example. Like many countries in Asia, Korea has instituted strict border controls, though it's never barred foreign visitors outright—essentially the current policy in Australia, for example. For most inbound travelers, entry involves a mandatory 14-day quarantine, either in a hotel or under scrupulous monitoring at home. But those who have urgent business and are willing to stick to a preapproved itinerary can apply for an exemption. If it's granted, they're tested immediately on arrival, held in a quarantine facility until the result comes back negative, and then allowed to go about their activities, albeit masked and subject to regular phone calls from the KDCA. Similar principles inform the rules for venues such as museums and

● Lee Donghyun



cinemas. They're largely open, with clear, no-exceptions rules on crowd capacity and masking, enforced by fines.

Korean officials' confidence that they can continue normal life and still contain the virus has pushed policy in some surprising directions. While the U.S., the U.K., and Japan, among others, made huge advance-purchase commitments to ensure they'd receive the earliest shipments of new vaccines, South Korea remained on the sidelines for most of the year. In mid-November, Minister Park told a parliamentary hearing that though the country was in negotiations with several manufacturers, it was in no rush to make a deal.

Korea's achievements containing the virus might have emerged from a unique cultural and political landscape, but that doesn't mean its techniques can't be emulated, both over the next several months and the next time a novel pathogen menaces humanity. It's not impossible to imagine the U.S., at least after Jan. 20, finding the resources for a hard, final push for more effective testing and consistent rules on masks, either of which might make a significant difference in reducing the toll of Covid deaths. So might a serious investment in contact tracing, even of a low-tech kind that doesn't rely on digital surveillance. All of that would require sustained focus, commitments of time and resources, and the active support of the population—the asset that, in some countries, has been most difficult to secure. But the payoff, in terms of a faster return to some version of the normal life we all crave, could be massive.

On a chilly evening in November, thousands of people in warm jackets, scarves, and masks streamed toward the Jamsil sports complex on the edge of Seoul's upmarket Gangnam district. They were headed for a playoff game between two of the most popular teams in Korean baseball, the Doosan Bears and LG Twins. It would be played, like other matchups since July, in front of a live crowd. The game was essentially a home outing for both—the Bears and Twins share the Jamsil stadium—and many fans were wearing club jerseys or carrying their flags, grouping into little knots of friends as they neared the field. It was possible for it all to look, with a bit of a squint, almost prelapsarian, an autumn ritual somehow unchanged by the events of the past year.

That wasn't quite the case. The stadium's capacity had been cut in half, and near the entrances everyone had to wait in snaking lines to scan their QR code and have their temperature taken. Food—fried chicken, pork belly, and dumplings are all Korean game-day favorites—had been banned during the first stage of reopening. Now it was restricted to the concession areas, with masks mandatory everywhere else. In the stands, every second seat had been blocked off with blue tape, and ushers walked back and forth with signs bearing the three cardinal rules for watching the game: Keep your mask on, don't eat in the stands, and stay in your assigned seat.

No significant outbreak had been traced to a Korea Baseball Organization stadium since they reopened to the public—evidence, league Secretary-General Ryu Dae Hwan said in an interview before the game, that its procedures were effective. Yet the best way to keep the virus out of baseball, he noted, is to diminish its circulation in society at large. "What matters the most is the national virus situation," Ryu said. "The more patients we have in the country, the higher the chances."

The government agreed: A little more than a month later, after the baseball season concluded, spectators would again be barred from sporting events in Seoul to contain rising infections. But for the moment, the fans at Jamsil were getting into the spirit as best they could. The high-volume chants typical of Korean baseball games weren't permitted—too many droplets—but when the Bears' designated hitter, José Fernandez, drilled a two-run homer in the bottom of the first, the stadium exploded with something approaching the fanfare of the Before Times. That included a high-kicking dance number from the team's cheerleaders, who were outfitted in blue Bears sweatshirts, matching short shorts, and white masks. A symbolic face covering had even been incorporated into the mascot's bear costume.

Hwang Se-bin, a 22-year-old fan, was seated nearby, wearing a Bears jersey over a puffy winter coat. It was his first game of the year. Despite the continued presence of the virus in Korea, he hadn't hesitated to come. "I'm totally confident and satisfied," he said. "I feel totally safe." B

THE OIL BOYS OF ESSEX

Over a few hours in April, a trader called Cuddles and eight of his pals from outside London made $660 million—and turned global oil markets upside down

By Liam Vaughan, Kit Chellel, and Benjamin Bain

Illustrations by Sophy Hollington

AMONG THE MANY PREVIOUSLY UNTHINKABLE MOMENTS of 2020, one of the strangest occurred on April 20, when the price of crude oil fell below zero. West Texas Intermediate futures, the most popular instrument used to trade the commodity, had started the day at $18 a barrel. That was already low, but prices kept tumbling until, at 2:08 p.m. New York time, they went negative.

Amazingly, that meant anyone selling oil had to pay someone else to take it off their hands. Then the crude market collapsed completely, falling almost $40 in 20 minutes, to close at -$38. It was the lowest price for oil in the 138-year history of the New York Mercantile Exchange—and in all likelihood the lowest price in the millennia since humans first began burning the stuff for heat and light.

Watching this spectacle unfold were traders, energy executives, and freight company employees—whose livelihoods are tied to oil's fluctuations. Regulators with the Commodity Futures Trading Commission in Washington stared at their monitors, stunned. "The screen was just going nuts," Tom Kloza, an analyst at the research firm OPIS Ltd., told *Institutional Investor*. The experience, he said, was like watching a film by surrealist director Federico Fellini: "You're able to appreciate it, but no one really knows what's going on."

Within 24 hours the insanity was over, oil cost money again, and it was tempting to see what happened as a blip. But WTI futures, in which buyers and sellers agree on a price to trade at some upcoming date, sit at the heart of the $3 trillion-a-year oil and gas industry. WTI is one of the main components that determines the global price of oil—whether that oil is being sold by a Middle Eastern kingdom or a fracking conglomerate in Alberta. It affects what airlines pay for jet fuel and what manufacturers pay for petroleum-based chemicals.

Beyond the physical commodity itself, billions of dollars' worth of financial products are also pegged to WTI in a specific and idiosyncratic way. Their value is determined by the WTI price at 2:30 p.m. four working days before the 25th of every month. That crucial "settlement" for the May WTI contract was on April 20.

The sudden price drop that day, which wiped out some investors who'd bet on an oil recovery, was explained as the result of a confluence of macroeconomic factors. The pandemic, and resulting economic shutdowns, had decimated demand for oil, and space to store it was rapidly running out. It seemed to be a simple case of "fundamental supply and demand," said CFTC Chairman Heath Tarbert in an April 21 interview with CNBC. Terry Duffy, chief executive officer of CME Group Inc., which owns the New York exchange, known as Nymex, saw it in similar terms. "The market worked the way the market was supposed to work," he told the network. "To perfection."

Perhaps to industry veterans like Duffy, it all made sense, but to anyone who has ever paid to fill up a car or home oil tank, a negative price was difficult to comprehend. Moreover, there had been a torrent of selling starting two hours or so before the settlement, leading to questions about whether someone had deliberately set out to push prices down. Harold Hamm, chairman of oil producer Continental Resources Inc., published a letter demanding an investigation into what he described as "failed systems" and "possible market manipulation."

After all, the May contract was back at $10 on April 21 and the outlook had barely changed. "Going into April there was chitchat about zero or even negative prices, but nobody was talking about -$40," says Dave Ernsberger, global head of pricing and market insight at S&P Global Platts, which provides benchmarks for buyers and sellers. "So what's the real story here?"

U.S. authorities and investigators from Nymex trawled through trading data for insights into who exactly was driving the action on April 20. According to people familiar with their thinking, they were shocked to discover that the firm that appeared to have had the biggest impact on prices that afternoon wasn't a Wall Street bank or a big oil company, but a tiny outfit called Vega Capital London Ltd. A group of nine independent traders affiliated with Vega and operating out of their homes in Essex, the county just northeast of London, had made $660 million among them in just a few hours. Now the authorities must decide whether anyone at Vega breached market rules by joining forces to push down prices—or if they simply pulled off one of the greatest trades in history. A lawyer for a number of the Vega traders vehemently denies wrongdoing by his clients and says they each traded based on "blaring" market signals.

PAUL COMMINS STARTED HIS TRADING CAREER BUYING and selling oil in the rowdy pits of London's International Petroleum Exchange, where, according to a former colleague, he was affectionately known as "Cuddles." He had the kind of broad cockney accent that wouldn't be out of place in a Guy Ritchie movie and struggled to pronounce his r's. As a result, his three-digit badge, which everyone wore at the IPE, contained the letters "F-W-E"—pronounced "fwee," the sound that would come out of his mouth when he tried to say "three."

Opened in 1980, the IPE was riotous—400 traders and brokers in colorful jackets screaming at one another and using hand signals to strike deals that were then sealed on scraps of paper.

"Going into April there was chitchat about zero

They mostly came from working-class backgrounds, often from Essex, known for its brash culture and ostentatious displays of wealth. (The stereotypical Essex male is a soccer-loving "geezer" with a pint in his hand and an expensive "motor.")

The pits rewarded quick thinking and a tolerance for risk, and Commins—aka Cuddles, aka FWE—thrived there. After a few years filling orders for corporate clients at Trafalgar Commodities, he became a "local"—one of the elite traders in red jackets who wagered their own funds. A former colleague describes him as among the top three in the gas and oil pit where he operated.

The pits were collegial and freewheeling, a place of ethical and regulatory gray areas. If a local overheard news about a big trade that some oil major had in the works, he might try to jump ahead of it, a prohibited but pervasive practice known as front-running. The cavernous trading floor had cameras, but there were blind spots where people went to share information. A former executive struggles to remember a single meeting of the exchange's compliance committee.

One trick involved an instrument called Trade at Settlement, or TAS, an agreement to buy or sell a future at wherever the price ends up at the closing bell. The contract was aimed at investment funds, whose mandate it was to track the price of oil over the long term. But some traders figured out that they could take the other side of these TAS trades, then work together at the end of the day to push the closing price as low as possible so they could pocket a profit. The practice, while officially against the rules, was so common and effective it had a nickname: "Grab a Grand."

"It was blatant, what was going on," according to former IPE Director Chris Cook, who says he learned of the practice after leaving the exchange. There's no evidence Commins or his colleagues were involved in this practice.

In the IPE's heyday, the best traders could make tens or even hundreds of thousands of pounds in a day and still hit the pub by 5:30 p.m. But the rise of electronic trading made them obsolete. The IPE pits closed in 2005, forcing Commins, then 36, and hundreds like him to either learn to trade using a computer or give up and do something else. Many struggled to make the transition and quit. Others joined banks or brokers.

Former locals who wanted to continue working for themselves banded together at so-called arcades or prop shops, trading firms where they were given a desk, some office support, and fast connections to markets in exchange for a monthly fee, a small commission on every trade, and, in some cases, a cut of any profits they made. The biggest prop firms, known as "the five families," were based in London and had dozens of traders on their books, many of whom had come from the pits. But a half-hour's train ride away, in the small Essex town of Loughton, Commins started a collective of his own.

His group was a mix of seasoned traders and novices in their 20s, usually the sons of Commins's pals or his children's

or even negative prices, but nobody was talking about -$40. So what's the real story here?"

peers. Among them were Dog (real name: Chris Roase), a veteran pit trader; Elliot Pickering, a skinny, awkward-looking kid who still lived with his mum and drove a Rolls-Royce convertible; and Aristos Demetriou, who went by "Ari" and was among the group's biggest earners. Ari's quick success had sparked a wild rumor circulated among London's commodity traders that he'd gotten his break while working in a supermarket parking lot, pushing shopping carts, where he spotted Dog driving in and asked how he could afford such a fancy motor.

The traders were all independent, each with his own brokerage accounts and tax returns. But trading records and people who worked alongside them indicate they frequently operated in a similar fashion, buying or selling in the same direction at key moments. Away from the markets, some members of the group did everything together—play golf, watch their soccer team, West Ham United, and take their families to the beachside town of Marbella in Spain (where the catchphrase for the body-conscious was "no carbs before Marbs"). Several bought properties in the same neighborhood, an affluent village called Theydon Bois that combines the bucolic charm of the English countryside with a short tube journey into central London. After work they frequented a bar popular with the cast of *The Only Way Is Essex*, a kind of cockney-inflected, blingier version of *Jersey Shore*.

For a long time, Commins and much of his crew traded as an off-site offshoot of Tower Trading Group, one of the five families. But when two Tower managers, Adrian "Britney" Spires and Tommy Gaunt, left to start their own outfit in 2016, Commins and about 20 other Tower traders joined them. Under the umbrella of the new firm, Vega Capital London, he continued adding to his stable, offering slots to young men with ties to his social group. One was Connor Younger, the son of a building contractor pal, who a few years earlier had been posting on social media about the adolescent pleasures of rap music and chasing girls.

It's not clear what commercial arrangement Commins had with the traders he scouted or with Vega Capital, which has dozens of individuals on its roster who have nothing to do with the Essex crew. But there were financial connections among them. Commins and Demetriou co-owned a firm called PC & AD Developments, while Commins, Demetriou, and Pickering have all been directors of an entity called PAT Developments Ltd. The companies, which don't have websites, are listed as being involved in real estate.

AT THE START OF 2020 THE BIG INDUSTRIAL ECONOMIES were healthy, investors were optimistic, and West Texas Intermediate was trading at about $60 a barrel. Prices began to fall in February after the first reports of the coronavirus. That accelerated as the outbreak turned into a pandemic. By the end of March, WTI futures were at $20, the lowest they'd been since after Sept. 11. Then, after tense negotiations, the big oil producers—led by Russia, Saudi Arabia, and the U.S.—agreed to reduce production by 10% to try to stabilize prices.

The cut wasn't nearly enough. All oil futures were down, including Brent crude, which is based on oil found in Europe's North Sea, but there was a particular problem with WTI. Unlike with Brent, which allows buyers and sellers to settle what they owe one another in cash, anyone holding an expiring WTI contract at the end of a month is obliged to take possession of 1,000 barrels of light, sweet crude in Cushing, Okla. (Despite being tiny and landlocked, Cushing is known as "the Pipeline Crossroads of the World." It became a center for refining and distribution after wildcatters struck oil there a century ago.)

Normally, speculators can get around this by selling out before the expiration date and buying the following month's contract, a process known as "rolling." But low prices in ▶

◀ March and early April had attracted a rush of amateur investors into products tracking oil, including a large Chinese fund called Crude Oil Treasure, which advertised with the tagline "Crude oil is cheaper than water." These funds would all have to roll over contracts worth billions of dollars—and, thanks to the virus, buyers would be hard to find.

Meanwhile, storage tanks in Cushing were filling up fast. With so little space available, the cost of keeping oil threatened to exceed any potential profit from selling it. That combined with an abundance of frantic sellers to cripple an already fearful market. On April 3, Nymex issued an unprecedented warning that prices could go negative.

The crucial settlement day for the May WTI contract, April 20, was a Monday. In Essex, some of the Vega traders logged on before sunrise to take advantage of the big session. Britain was in lockdown, and the lights from their front rooms and studies dotted the still-dark village. Central to their strategy would be the TAS contracts that had once been popular in the pits, according to several people familiar with the matter.

Here's how it works: Imagine a trader sees that WTI is at \$10 and predicts it's going to end the day at \$5. To capitalize, he buys 50,000 barrels in the TAS market, agreeing to purchase oil at wherever the price ends up by 2:30 p.m. At the same time, he starts selling regular WTI futures: 10,000 barrels for \$10 and then, if the market is falling as predicted, 10,000 more at \$9, and again at \$8. As the settlement window approaches, the trader accelerates his selling, offloading a further 10,000 contracts at \$7, then another chunk at \$6, helping push the price lower until, sure enough, it settles at \$5. By now he is "flat," meaning he's sold as many barrels as he's bought and isn't obliged to take delivery of any actual oil.

The trader's bet has come off. His profit is \$150,000, the difference between what he sold oil for (50,000 barrels at prices ranging from \$10 to \$6, for a total of \$400,000) and what he bought it for in TAS contracts (50,000 barrels at \$5 a barrel, or \$250,000). All of this is perfectly legal, providing the trader doesn't deliberately try to push the closing price down to an artificial level to maximize his profits, which constitutes market manipulation under U.S. law. Manipulation can result in civil penalties such as fines or bans, or even criminal charges carrying a potential prison sentence of up to 10 years. It's also illegal in the U.S. to place trades during or before the settlement with "intentional or reckless disregard" for the impact.

Commins's traders had historically been able to make big money in a few hours on settlement days trading in the same direction, according to people who watched them work. But the strategy was risky. If an even bigger player showed up at the end of the session and made the opposite bet, it could push the market in the other direction. There were days they lost millions of dollars among them, recalls one trader who knows them. "They had balls of steel," says another. "It was quite unbelievable to see."

As China's Crude Oil Treasure fund and others sold WTI contracts in the TAS market on April 20, the Essex traders bought them, according to people familiar with their trading, committing to buy large quantities of oil at whatever the settlement price turned out to be. Between 11 p.m. U.K. time on April 19, when the market opened, and 5 p.m. (noon in New York) the following day, the price dropped from around \$18 to \$10 a barrel. As it fell, Commins and his friends sold batches of regular WTI contracts, just like in the example above, as well as calendar spreads, another financial instrument that allows traders to bet on the future price of oil. All they needed was for prices to keep falling, the further the better. As the day wore on, however, they became nervous. In text messages described to *Bloomberg Businessweek*, they exchanged details of their individual trades and questioned whether they were taking on too much risk.

With a little more than two hours to go until the settlement, trading activity across the futures market spiked, driving the price from \$10 to \$5, then all the way to zero. The shift into negative prices occurred at 2:08 p.m., at which point any remaining stragglers still brave enough to be buying oil in the hope of a rebound got out of the market. Over the next 22 minutes, under the weight of ongoing selling by Vega and others, the May contract plummeted. Nymex calculates the settlement price by taking a weighted average of trades occurring from 2:28 p.m. to 2:30 p.m. The final "print," as settlement prices are known, came in at -\$37.63. In the last half-hour the nine Vega Capital traders were, as a group, by far the biggest sellers of both WTI futures and spreads, according to trading data described to *Businessweek*—a remarkable situation in a market normally dominated by the likes of BP, Glencore, and JPMorgan Chase.

In a mockery of the norms of commerce, the Vega crew had ended up being paid both for the futures they'd sold when oil was positive during the day and for those they bought via TAS. That, combined with the profit from the spread trades, resulted in a total take of \$660 million for the nine biggest earners, according to the trading data. Demetriou, who's 31;

Pickering, 25; and Younger, 22, pocketed in excess of $100 million each, while Roase made about $90 million. Commins took home $30 million or so. Even his son, George, who's in his early 20s with little apparent trading experience, made $8 million.

Elsewhere, investors around the world counted their losses. China's Treasure fund informed its customers that everything they'd put in was now gone. "It didn't occur to us" oil could go negative, A'Xiang Chen, a 26-year-old investor from Shenzhen, told Bloomberg News. Syed Shah, a day trader in the Toronto suburbs who'd started buying crude futures when the price fell to $3 a barrel, wound up owing $9 million. Interactive Brokers, America's largest online trading service, lost $104 million because its software wasn't equipped to handle negative prices.

"They had balls of steel. It was quite unbelievable to see"

Rumors of a major score by a group of Essex boys spread quickly among traders on chat groups, though the winners were coy about discussing their profits, according to someone who says he saw the messages. When asked about the size of their haul, one joked that he had to go—the mobile reception was breaking up on his yacht.

IF THE GROUP HAD MADE $7 MILLION THAT DAY INSTEAD of almost $700 million, they'd probably be celebrating. But the size of their winnings, coupled with their backgrounds—and political pressure to understand what happened—means that Vega has the attention of regulators. In August, Sherrod Brown, the Ohio Democrat and ranking member of the Senate banking committee, wrote to regulators saying the incident created "the impression of a market susceptible to manipulation."

The CFTC has been investigating Vega Capital, according to people familiar with the matter. The U.S. Attorney for the Southern District of New York has started its own probe to determine whether a felony was committed, the people say. Both authorities, as well as CME Group, declined to comment on the existence of any ongoing investigation.

Even so, no authorities have accused Vega Capital or any of the traders referenced in this article of doing anything illegal. Buying TAS and offsetting it in the futures market is a common and acceptable practice, and it was no secret that prices on April 20 might fall. Where traders have gotten into trouble in the past is when they've been caught trying to deliberately push the closing price rather than simply benefiting from where it ends up. In 2012, Dutch company Optiver Holding BV was fined $14 million and three of its employees were temporarily banned from trading commodities after the CFTC accused the company of manipulating settlement prices. Email and phone records showed Optiver's traders talking about trying to "hammer" and "bully" the settlement after accumulating TAS. Such clear-cut evidence of intent is rare. Since the CFTC was founded in 1974, it has won just one manipulation case at trial.

"Each of our clients regularly puts his own money at risk to try to make a profit. Sometimes it works sometimes it doesn't," the law firm Simkins, which represents eight of the nine traders, said in statement. "On 20 April blaring market signals—including the exchange's repeated warnings that prices could go negative—led market participants ranging from small proprietary traders to large financial institutions to trade on the assumption that prices would drop. And while no one could have predicted just how far they'd drop, each of our clients, like many others around the world, traded on his own view of the market. They don't intend to comment on speculation about their profits."

Whatever happens with Vega, its wild trading day has laid bare the vulnerabilities of the TAS mechanism, which also exists in markets for gas, cattle, and other commodities. Craig Pirrong, a finance professor at the University of Houston, published a paper last year suggesting that market participants can build a large position through TAS with very little impact on prices, then offset it in the regular market in a way that moves prices—an "asymmetry," he argued, that invites manipulation. Senior officials at the CFTC are now considering whether TAS is in need of reform. Last month the agency published what it described as an interim report on the events of April 20 that focused on macroeconomic conditions but didn't take into account the issue of potential manipulation because of the ongoing investigation. It drew criticism from one of the agency's own commissioners, Dan Berkovitz, a Democrat who is seen as a candidate to take over as chairman in January. He described the interim report as "incomplete and inadequate."

"The commission must undertake and provide a meaningful analysis so that it can take whatever remedial or corrective actions may be appropriate to ensure the integrity of this critically important market," Berkovitz says. "This was one of the most extraordinary events in any commodity market in decades." Michael Short, a CFTC spokesman, says that the agency is limited in what it can share and that criticisms seem to "miss the point that it is an interim report." He also says that the regulator was prepared for April 20 and that "large market swings are not new for CFTC staff."

Back in Theydon Bois, Commins and his crew are keeping a low profile. Some have stopped trading monthly settlements, according to people familiar with their work. Several have registered new companies, and it's not clear what has happened to their winnings. After April 20, Vega Capital parted with G.H. Financials Ltd., the clearinghouse that held its trading accounts and had a degree of responsibility for overseeing its activities. The firm has a new clearinghouse and continues to trade.

News of the win has been met with a mixture of incredulity and pride among London's trading community—and has even led to a new nickname: "the fifth Beatle," for Vega co-founder Gaunt, who left the firm a few months before the big day. "It's funny how if it was BP or Goldman Sachs that made the money, no one would bat an eyelid, but when it's a bunch of working-class lads, people say they're cheating," says one trader who knows them, expressing a widely held sentiment. "I say good luck to them." Ⓑ —*With Alex Longley*

How Medela Lost Moms

By ESMÉ E. DEPREZ

Medela invented the modern breast pump and led the cultural shift that made its use ubiquitous. Today's mothers don't seem impressed

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Just after 4 a.m. on May 15, 2019, in a surgical suite on the eighth floor of NYU Langone's Tisch Hospital, physicians delivered via cesarean section a healthy 5-pound, 17-inch-long package of wrinkly flesh named Nora and placed her on Sara Rademacher's chest. The first-time mom had researched and grown fascinated by the power of a woman's body to provide all the nourishment a newborn needs. So there was never any question that she'd try to breastfeed.

As a member of the Baby-Friendly Hospital Initiative, a project of the World Health Organization and the United Nations Children's Fund, Tisch does whatever it can to encourage breastfeeding. Nurses helped Nora to latch within an hour, and lactation consultants paid visits, were available on call day and night, and distributed information packets. In case of complications, staff would be ready to augment the effort with an arsenal of products dominated by one company: Medela AG.

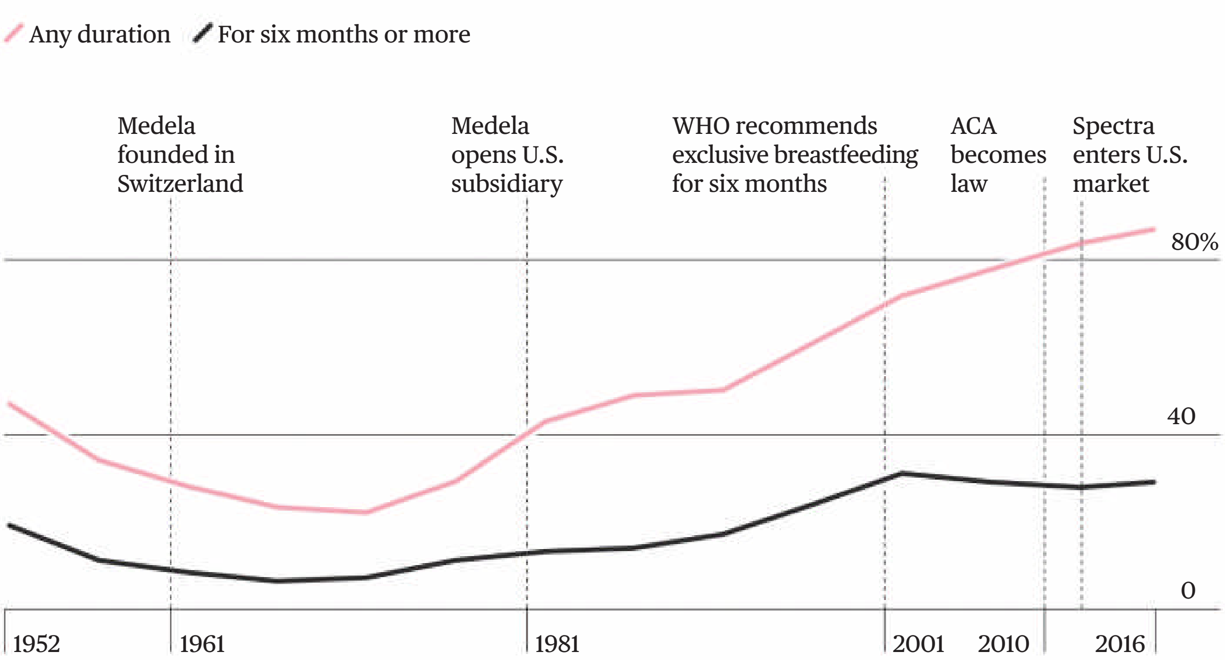
A new mother's relationship with the brand often starts almost as soon as her baby is born, backed by the hospital's seal of approval: A nurse or lactation consultant parks a $2,000 Medela breast pump by her bedside, places a silicone Medela protector over her inverted nipples, and provides relief from chafing with a packet of Medela lanolin. In the neonatal intensive care unit, Medela enteral feeding systems help keep preemies alive.

Medela makes all kinds of other gear for mothers and babies, too: nursing bras, bottles, belly support bands, scales, phototherapy beds for newborns with jaundice. It also has a small division devoted to other medical uses for vacuum pumps, such as wound therapy and treatment for respiratory illnesses, including Covid-19. But the company is best known for its breast pumps, which sit at the premium end of a $2 billion global industry. When designer Rebecca Minkoff wanted to honor working moms during New York Fashion Week last September, she featured a model breastfeeding her daughter while seated next to a Medela pump. When Amy Schumer, Pink, and Khloe Kardashian Instagrammed themselves pumping, the Medela flanges and bottles attached to their nipples were connected via Medela tubing to Medela pumps. When the lead character in the Netflix series *Workin' Moms* returns to the office, there's a scene of her in a bathroom stall hooked up to a Medela pump. The products are instantly recognizable. Some brands are known by their logos, others by slogans, and a select few by color. In jewelry, robin's- egg blue says Tiffany & Co. In babyland, a particular buttery shade of yellow means Medela.

Appreciating the importance of a breast pump requires an understanding of lactation. It's a process based on supply and demand: If milk isn't continuously removed from the breast, production shuts down. This response makes it impractical, not to mention uncomfortable, for nursing mothers to leave their baby for longer than a few hours. Until the 1990s, the hospital was virtually the only setting in which new mothers used a pump, primarily to relieve engorgement or feed babies too small or weak to suckle at the breast. More than any other company, Medela has made breast pumps a staple in millions of homes. It's also helped propel a wave of cultural sentiment and scientific research that's led governments and public health organizations to encourage women to breastfeed, for ever-longer periods. (The WHO recommends that women breastfeed exclusively for six months and continue until the baby is at least 2 years old.) Particularly in the U.S., the only industrialized country not to require paid maternity leave, the result has been revolutionary: Returning to work outside the home no longer spells the end of breastfeeding.

The company says its pumps are in more than 80% of hospitals and that it's still the best-selling brand in the U.S., its largest market. After transforming the lives and expectations of mothers so thoroughly, though, Medela is now in danger of being left behind. The Affordable Care Act's requirement that private insurers provide new moms with free pumps upended what was once a niche industry and opened the door to more

Share of U.S. Mothers Who Breastfeed



DATA: WORKING PAPER, BROWN UNIVERSITY

The 1990s ushered in a shift in the workplace: the normalization of pumping

competition than Medela has faced in its 60-year history. Venture-backed upstarts are generating buzz and revenue as they seek to improve the pumping experience (making it even moderately tolerable and convenient would be a start). Former employees say the company has grown complacent, been blindsided by the competition, and been roiled by turnover at the top. And, of course, there's the pandemic, which has disrupted everything.

Back in New York, Rademacher began using a Medela Symphony pump in the hospital after a drop in Nora's blood sugar levels prompted a 24-hour stay in the neonatal ICU. But once the new mother was home, she hooked herself up to a Spectra, a brand that didn't exist in the U.S. pre-ACA. She'd read online reviews and consulted friends and family, and the consensus was clear: Medela had been knocked from its perch.

In 1955 a Swedish engineer named Olle Larsson, moved with his pregnant wife, Doris, to the Swiss town of Zug, a half-hour drive south of Zurich, to lead the design department at Crypto AG, a company that had developed code machines used in World War II. Six years later, Larsson founded Medela. The name was a simplification of the compound of the German words for "medical and electronic devices." Initially the company sold an odd assortment of products beyond what the name would imply, including thermoses, emergency fuel cans, and ski racks for car roofs.

Medela offered only one breast pump back then, included largely as a personal favor to its inventor, Einar Egnell. Called the Syster Majas Bröstpump, it weighed almost 18 pounds and cost 1,000 Swiss francs (about $4,500 in today's dollars), but nursing mothers found that it was more comfortable and that it yielded more milk than anything that preceded it. Larsson and Egnell jointly founded a company called Ameda to make the pumps, while Medela, operating from the same office, handled marketing and distribution.

An aggressive move by Larsson would transform Medela from a middling, unfocused company selling products it didn't make and put it on a path toward becoming a global pioneer. Larsson had grown frustrated with the resistance of Egnell, and then with Egnell's heirs upon his death in 1975, to invest in product development to update the pump. "They remained rock solid in their conviction that we produced the best breast pumps in the world," Larsson would later write in a self-published autobiography. "After all, sales continued to rise, and in their opinion this state of affairs would last indefinitely." So in 1979, after Egnell's heirs declined a takeover attempt, Larsson sold his 45% stake in Ameda.

In the process he lost the exclusive right to sell the pump created by his late partner. Larsson was himself an inventor, though, and 10 months after the split he introduced a pump that wasn't terribly different but had a base of plastic instead of aluminum, a longer electrical cord, and a modern design. Medela's sales team began offering it to hospitals, pharmacies, and drugstores instead of the Egnell pumps, and all of them switched. "Thus we managed to take over the entire Swiss market for breast pumps in the space of just a few days," Larsson recounted.

The company opened its first subsidiary in 1981, in Crystal Lake, Ill., which was strategically close to the influential pro-breastfeeding group La Leche League. Richard Weston, a salesman hired as the subsidiary's third full-time employee, says he slowly won contracts by offering hospitals 60-day free trials. He also gave the then-$850 pumps to La Leche League chapter leaders, pharmacies, and hospital gift shops, in return for a share of the revenue earned renting them out. The U.S. breastfeeding rate had only recently begun rising after years of declines with the advent of commercial infant formula. Lactation consultant wasn't even a specialty yet; Weston says Medela helped fund the creation of the certifying body in 1985.

The 1990s ushered in a big shift in the American workplace: the normalization of pumping. Rona Cohen, an obstetric and neonatal nurse practitioner, had advised the Los Angeles Department of Water and Power to provide private space for women to pump, with the goal of decreasing absenteeism, in 1988. By 1992, Medela was working with Cohen to set up similar corporate lactation programs at employers throughout the country. These efforts showed employers they could save money by helping working mothers breastfeed for longer.

In 1996, Medela released the Pump in Style, the first double-electric pump for personal use. (It's more efficient to pump both breasts simultaneously than one at a time.) Marketed to working mothers, it came in a black shoulder ▶


Medela Pump in Style


Spectra S2 Plus

Willow Wearable


Elvie

◀ bag containing everything needed to express, store, and transport milk. The company grew fantastically, buoyed by rising rates of breastfeeding. (By 2016, 87% of new mothers in America breastfed for at least some period, up from 22% in 1972, according to data compiled by researchers at Brown University.) "No matter what Medela did, we continued to grow," says one former executive, who left in 2018. "We joked that you can't kill this company, it's doing so well," says another.

Section 2713 of the Affordable Care Act, which passed in 2010, requires private health plans to provide "coverage without cost sharing of certain preventive health services," including breastfeeding supplies. Insurers began implementing it in 2012, expanding the customer base exponentially. Place an order online during your pregnancy or after you give birth, and a pump will show up at your home, at no cost to you.

The law was a blessing for Medela, at first. In the two years after the ACA's breast pump provision went into effect, sales jumped 34%. But competitors saw the opportunity as well, and they soon crowded the space. Entrants were also reacting to growing demand for innovation in an industry that had been stuck in a past almost completely dominated (and designed) by men. "If men could breastfeed, surely the breast pump would be as elegant as an iPhone and quiet as a Prius by now," lamented a piece in the *New York Times* in 2014. "It's high time someone redesigned the breast pump. There's dignity to be regained and a whole lot of money to be made." The MIT Media Lab held its first Make the Breast Pump Not Suck hackathon to do just that later that year.

Today, when new moms trade pumping tips and horror stories, three brands generate the most excitement: Willow, Elvie, and Spectra. The first two were introduced in 2017 and 2018, respectively, and their makers have raised more than $200 million in venture capital between them. Both products consist of two separate self-contained pumps placed in a mother's bra. They're wireless and discreet, allowing users to pump in public. (They're also expensive: around $500.) Spectra, a South Korean brand that entered the U.S. market in 2012, has overtaken Medela as the top recommendation on review sites such as the Wirecutter and BabyGearLab.

At the other end of the market, there are dozens, possibly hundreds, of options, which may have emboldened insurers to slash payments for pumps. Anthem Inc., for example, one of the largest U.S. health insurers, has cut its rate 44%, to $95 from $169. That's killed profit margins on insurance-paid pumps, which now make up a large share of Medela's U.S. sales.

To maintain the retail part of its business, where the margins are stronger, Medela must convince the sliver of moms open to buying a second pump that its name is synonymous with quality, its products backed up by decades of research and thus worth the higher prices. In an interview in January, Chief Executive Officer Annette Brüls emphasized that the company was diversifying its offerings to include services, not only products, such as a subscription for 24/7 lactation consultation and an online hub for support and community called the Moms' Room. Last winter at Medela's U.S. headquarters in McHenry, Ill., David Cho, head of research and development, showed off new flanges. They're more comfortable and proven to extract 11.8% more milk, he said, with an oval-shaped design based on a "nipple database" and thousands of 3D scans of lactating breasts. He held them up as translucent plastic manifestations of Medela's rebuttal to criticism that it's failed to meet the needs of the modern mother.

Bloomberg Businessweek reported in 2015 that Medela's revenue the previous year was 577 million Swiss francs ($630 million). The company declined to update these figures (former employees speculate that it's since shrunk) but offered that it now distributes its products in more than 100 countries and employs 1,800 people worldwide. One of its latest offerings is the $380 Freestyle Flex, unveiled last November. It weighs only 10 ounces, fits in the palm of a hand, and took Medela years to develop. But in some ways, it's just a sleeker version of its predecessor, the Freestyle. It isn't discreet like the Willow or Elvie; you must still attach bottles and tubes to your nipples. For the relatively few moms willing to spend that much money, why choose one that still requires locking yourself in a bathroom? "I'm really surprised that of all the things Medela could have chosen to spend time on," one former employee says, "they chose to focus on a very high-end pump with limited appeal."

Another former employee cites the theory of Clayton Christensen, the late Harvard Business School professor and author of *The Innovator's Dilemma*: Industry leaders fail to harness groundbreaking innovation, because they get locked into a business

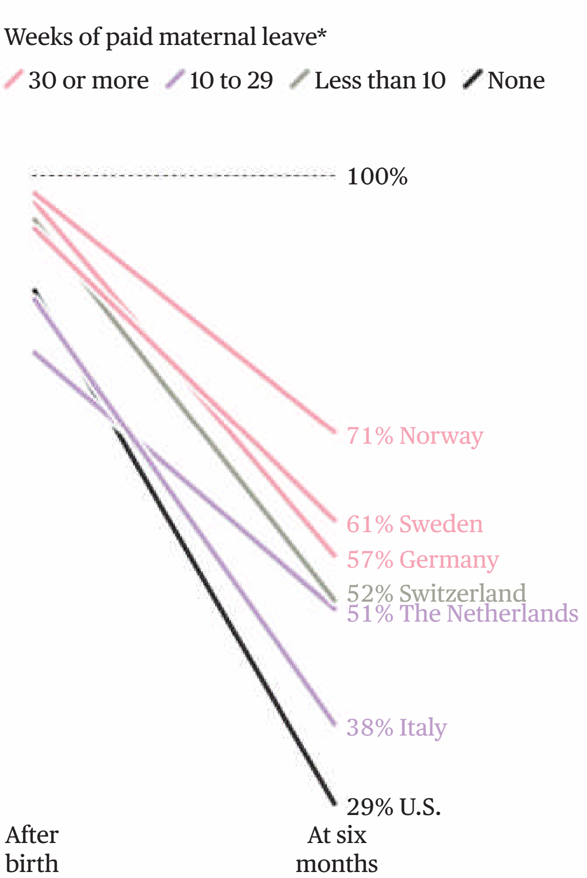
PRODUCTS: COURTESY COMPANIES

model or are blind to what customers of the future will demand. "Medela embodies that," the employee says. "They make incremental innovation and yet fail to see the huge game-changing innovation that startups are now surpassing them with."

Then there's the biggest factor of all, one Medela can't do anything about: The global fertility rate has declined and is expected to keep falling through 2100. Breastfeeding rates aren't increasing fast enough to overcome that. That's an issue facing the entire industry, "but we, of course, as the market leader, always have to be concerned about this," Brüls says. Whatever the company can do to boost breastfeeding is "a win-win for everyone."

It's too early to conclude what the pandemic's long-term impact will be on breastfeeding and, in turn, pumping and Medela. For women who are newly working from home or have quit their jobs altogether, it may be easier to nurse instead of pump. It's unlikely the virus travels through breast milk, according to what limited studies have been done so far. (Medela is supporting such research with product donations.) Public-health experts still recommend that women breastfeed, while taking precautions such as wearing a mask. Yet evidence that Medela compiled suggests fewer women are initiating the practice, in part because hospitals have cut access to lactation consultants and the length of patient stays. "We need to ensure that this does not become the new normal," says Medela spokeswoman Kate Schraml.

Share of Mothers Breastfeeding, By Country



*WEEKS OF FULL-TIME EQUIVALENT PAY MANDATED BY THE NATIONAL GOVERNMENT. DATA: JOURNAL OF PEDIATRIC GASTROENTEROLOGY AND NUTRITION; ORGANIZATION FOR ECONOMIC COOPERATION AND DEVELOPMENT; WORKING PAPER, BROWN UNIVERSITY

It's not simply that the breast pump enables a woman to continue breast-milk feeding while working outside the home. It allows her to be the type of mother that society has decided is good: one who does what's best for her baby by feeding it breast milk.

Few medical devices occupy such a conflicted place in American society. "Feminist-minded mothers and scholars alike have struggled to come up with a position" on them, Jessica Martucci, author of *Back to the Breast: Natural Motherhood and Breastfeeding in America*, wrote in a journal article. The machine provides autonomy and freedom, relieving women of the obligation to do the feeding every time. "It can also restrict women's abilities to make choices about their maternal experiences by making breastfeeding a 'woman's burden'—something no 'good' mom can excusably not do," she wrote.

Pumping has helped make breastfeeding, already a privileged pursuit in the U.S. (70% of babies born to college graduates are still breastfed at six months, almost twice the rate born to high school dropouts), even more so: It's much easier for salaried office workers to pump than for hourly and blue-collar workers. The breast pump also frees governments and employers from the obligation to institute policies, such as paid family leave, that support the full recommended term of breastfeeding. It enables economies to demand that mothers work.

A big part of selling breast pumps is selling breast-milk feeding. Medela lauds the benefits of human milk on its website and social media, in brochures distributed by hospitals, and in newsletters to and talking points for health professionals. It devotes sizable resources to expanding what we know about the science and production of human milk, working with academics, providing grants to researchers, and hosting the International Breastfeeding and Lactation Symposium. Then there's the Family Larsson-Rosenquist Foundation, founded by Larsson and his two sons in 2013. Its website says grants are available for research projects "that further the understanding and appreciation of breastfeeding and breast milk."

Human lactation is extraordinary. A woman draws on the sugars, proteins, and fat in her own body to form the basis of milk. Composition changes constantly according to the unique needs of her growing baby and even to the environment, becoming more watery in hot climates and fattier in cold. It transports antibodies to protect her baby from disease and amino acids to aid in brain development; the same goes for taste preferences for flavors such as garlic, carrot, and mint. Lactation isn't limited to biological mothers: With enough planning and stimulation from a breast pump, even women who haven't given birth (such as adoptive mothers or those in same-sex couples) can induce their body to make milk.

Universal breastfeeding is the cultural and public health aspiration of our time. "Breastfeeding is nutritionally, immunologically, neurologically, endocrinologically, economically, and ecologically superior to breast-milk substitutes," a series on the topic in the *Lancet* proclaimed in 2016. "The deaths of 823,000 children and 20,000 mothers each year could be averted through universal breastfeeding, along with economic savings of US$300 billion." Medela, which uses slogans such as "Research is in our DNA," is among those amplifying purported benefits.

But there's growing skepticism of the far-reaching claims that governments and public-health organizations have used to inform policy. Brown University economist Emily Oster analyzed the landscape of breast-milk-feeding research for her 2019 book, *Cribsheet: A Data-Driven Guide to Better, More Relaxed Parenting, From Birth to Preschool*. Evidence supports a link between babies being breastfed and experiencing, in the short term, fewer allergic rashes and gastrointestinal ▶

Few medical devices occupy such a conflicted place in American society

◀ disorders, lower risk of a rare, fatal condition called necrotizing enterocolitis, and maybe fewer ear infections, she wrote. Breastfeeding mothers may be less at risk of breast cancer, too. But that's it: Any other purported benefits (such as higher IQs or better eyesight and teeth alignment) are derived from studies of subpar quality (tiny samples sizes, for example, or correlation confused with causation). "The data does not provide strong evidence for long-term health or cognitive benefits of breastfeeding your child," Oster wrote.

Medela rejects the suggestion that it may overstate research conclusions. "There is overwhelming evidence that breastfeeding is the best for babies," says Schraml, the company's spokeswoman. "Every statement made in our marketing materials is supported by evidence."

Purposely or not, though, the dogma of "breast is best" can leave infant formula vilified. Is it any surprise, then, that moms consider themselves failures if they're unable or unwilling to feed their babies breast milk? Consider the shame—oh, the shame—of not breastfeeding, or even the prospect of not doing it for as long as one "should." Women put themselves through hell to feed their babies breast milk, even if it means joining a growing community of "exclusive pumpers"—women who don't nurse but still feed their babies breast milk by pumping eight times a day for 15 to 30 minutes each time—or buying unregulated breast milk from strangers on the black markets of Facebook and Craigslist. We've gone milk mad.

What's true for so many consumer goods is also true for breast pumps: The future is in Asia, China in particular. Analysts predict the market will boom as more Chinese women enter the workforce, breastfeeding rates increase, infant mortality rates decline, and health-care infrastructure and government support improve. Medela's Chinese subsidiary is now the company's third-largest in sales.

China's birthrate has been declining, but women there still had 14.6 million babies last year (vs. 3.75 million babies in the U.S.). The formula industry is entrenched there, with the country accounting for one-third of global formula consumption, according to *China Daily*. Fewer than 30% of women breastfeed exclusively for six months. But the government aims to increase the share to 50%. The number of hospitals in the WHO's Baby-Friendly program, as well as lactation consultants and lactation rooms in malls and airports, is growing. Medela is trying to raise awareness of breastfeeding's benefits by educating health-care workers through seminars and by sponsoring symposiums in Shanghai. Brüls is clear-eyed, however, about the cultural challenge of increasing the adoption of breastfeeding and hence pumping. And unlike when Medela entered the American market in the 1980s, Chinese consumers now have countless options from which to choose.

Medela has its work cut out for it outside China, too. The Pump in Style has been a blockbuster hit since its introduction in 1996. That it's still Medela's bestselling pump is a testament to its quality and ingenuity; it also means Medela hasn't been able to top it in a quarter-century.

The U.S. subsidiary developed the Pump in Style. Notwithstanding that success and others, former employees say there's a pervasive feeling in the company that the Swiss perceive anything not made by them as inferior. This contributed to a rift between Larsson and the man he'd hired to start up U.S. operations, Gotthilf Weniger, which ended with Weniger getting bought out in 1997.

In late 2013, a few years before Medela would feel the negative impacts of the ACA, tensions at the top erupted again. Over the next 18 months, seven executives left, including the CEO, chief financial officer, and chief operating officer. The bunch represented decades of institutional knowledge, and all had worked with Larsson, who died in 2018.

Brüls, who was born and educated as an electrical engineer in Belgium, took over as CEO in 2018 after more than a decade at Medtronic Plc, where she'd risen to president of the global diabetes division. She's the second woman to lead Medela. Although her two sons are now grown, she says she remembers how wonderful, but also tough and overwhelming, new motherhood can be. "Medela is all about empowering moms," she says. "Knowing that I can contribute to that has just been a fantastic attraction."

Brüls says competition is good—the more focus and attention on breast-milk feeding, the better—and notes that, far from being threatened by innovation, Medela sponsored the first MIT Hackathon to spur it. (It did so again in 2018.) But quality trumps all, she says. "You go today on Amazon, you will find 200 companies who are offering all kinds of things. They are there one day, they are gone the next. They claim FDA approval—you look on the FDA website, and they have never even submitted a file. These are the kind of situations we're facing. And my biggest worry is that moms will be tempted to buy these products, have bad experiences, and abandon breastfeeding. And then it's a lose-lose situation." Ⓑ
—*With Corinne Gretler*

A Guide to Giving Back at a Local Level

This year, no one could ignore the needs in their own communities. Seven success stories provide a blueprint for the future

Illustrations by Bill Rebholz

December 14, 2020

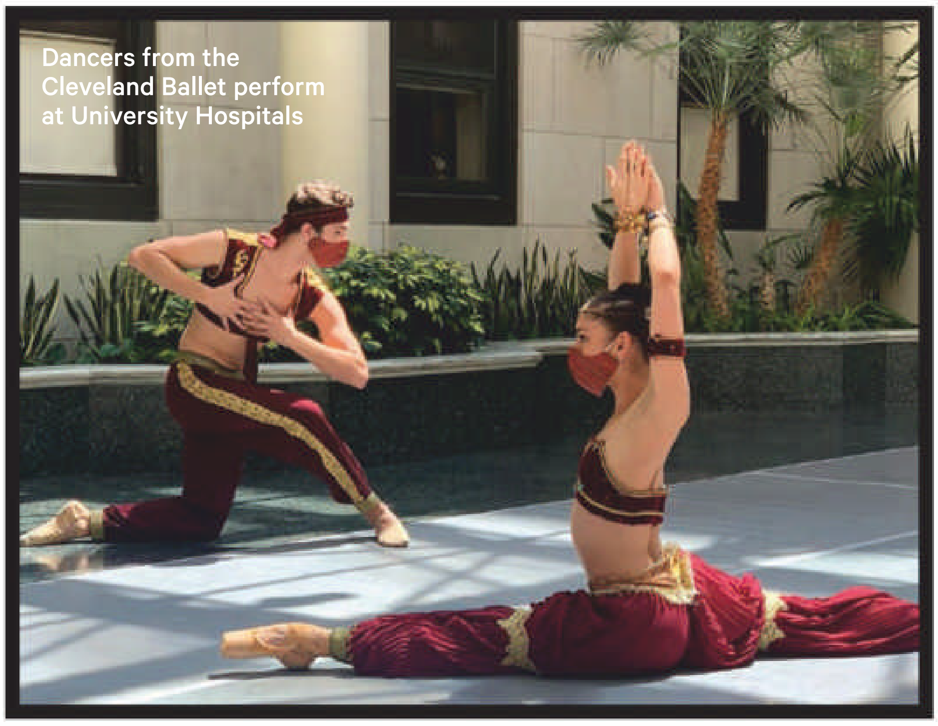
Edited by James Gaddy

Businessweek.com

The Appeal of Civic Pride

Big cities, take note: Arts organizations are finding an audience eager to ensure that their town remains on the cultural map. ***By James Tarmy***

By the end of March, the Cleveland Ballet's prospects were bleak. The company was barely 5 years old, without an endowment, and responsible for the salaries of its five full-time and two part-time staff, plus 24 dancers—many of whom had moved to the city from other countries for the job. And because of the pandemic-related shutdown, the ballet's revenue was reduced to grants, loans, and donations.



Dancers from the Cleveland Ballet perform at University Hospitals

"Our company had a better-than-average formula," says co-founder Mike Krasnyansky. Almost 58% of revenue was from ticket sales, while 42% was from donations. "But that was working against us," he says.

Krasnyansky cut the Cleveland Ballet's budget from $1.5 million to $1 million for the fiscal year begun in August and eliminated 80% of its performance costs—not hard, given that when performances did resume they were held outdoors. He also received funds from federal Paycheck Protection Program loans to cover salaries for about six weeks.

What he didn't do was lay off any employees or furlough a single dancer. Instead, he turned to the Cleveland community for help.

"There is a lot of civic energy behind it," says Richard Pogue, chairman of the board of the Cleveland Ballet and a senior adviser for the law firm Jones Day. "Michael has got this saying, that every great city needs a great ballet company, and that sort of epitomizes what we're talking about," Pogue continues. "A number of [people] are involved because we want to have a strong ballet company, not because we're great aficionados of ballet, frankly."

Throughout the Covid-19 pandemic, small and midsize cities across the U.S. have rallied around the arts in a similar fashion. "Even though we're a million people, it's very community-oriented," says Karen Sivert, interim chief executive officer and president of the Tucson Symphony Orchestra. "I believe the community views the symphony as an institution that needs to be preserved. It transcends people who are interested in music."

That sense of civic duty—a belief that cities need the arts and that locals have an obligation to maintain them—has been the key to cultural organizations' survival.

Examples such as Tucson and Cleveland are also instructive to residents of larger cities who might take their own embarrassment of riches for granted. Carnegie Hall, with its deep-pocketed donors and international fame, isn't going anywhere, but tiny dance companies that rely on ticket sales and the occasional patron's largesse are in trouble. An August report by the Brookings Institution found that 53 metropolitan areas with populations of more than 1 million represent 68% of an estimated 2.7 million job losses in creative industries, more than half in fine arts. New York's and Los Angeles's metro areas lost an estimated 500,000 of these jobs, along with $50 billion in sales.

"We have not used crisis language in our fundraising," says Angela Gieras, executive director of the Kansas City Repertory Theatre. Instead, "we talk about where we are and where we are going to inspire giving." That support was needed soon after the theater company shut down the night of a world premiere from its New Works festival.

Gieras thought it would be temporary:

Hometown Heroes

PITTSBURGH
Founded in 1969, the Steel City's ballet theater has a full dance company, an orchestra, and a large school. This year it's streaming *The Nutcracker. Free, Dec. 17-31; pbt.org*

KANSAS CITY
Over the last half-century, the city's repertory theater has built a national reputation and an enviable $10 million endowment. *A Christmas Carol*, produced with the local PBS affiliate, can be streamed online. *$65 through Dec. 31; kcrep.org*

TUCSON
The symphony orchestra in Arizona's second-largest city normally performs over 430 concerts and events a year. Its brass quintet's *Seasons Greetings* airs Dec. 18. *Free; tucsonsymphony.org*

CLEVELAND
The most recent iteration of its ballet company was founded in 2015. This month, a version of *The Nutcracker* will take place in venues around northeast Ohio. *From $30; clevelandballet.org*

ILLUSTRATION BY BILL REBHOLZ; PHOTOGRAPH COURTESY CLEVELAND BALLET

"You know, in a few months we'll get back to it and remount these shows," she says. They left everything onstage, ready for its return. But the months dragged on, and the building stayed dark. Forty percent of the Kansas City Repertory Theatre's $8.2 million 2020-21 budget was supposed to be earned revenue; of that expected $3.3 million, the company has seen a few hundred thousand dollars, mostly because some early subscribers deferred their tickets for next season rather than request a refund.

To make up for the shortfall, Gieras aggressively cut costs, both on production and in administrative areas. But she also turned to the theater's supporters. "There is this community's just general generosity," she says. One donor who'd given last year with the understanding that it would be their final gift "gave us $10,000," Gieras says. "People from whom we thought we might receive $1,000 have given $5,000."

Major donors are key, but small contributions are also on the rise. "The interesting thing to me," says the Tucson orchestra's Sivert, "is how many people are participating. Those $100 checks that come in are so appreciated, because those people are doing what they can to preserve the symphony."

The Pittsburgh Ballet Theatre, many of whose 85 full-time employees were furloughed for a month then rehired, lost about $1.3 million in revenue from March 19 to July 31. Starting in June, the ballet initiated several successful fundraising appeals, including a $700,000 campaign to purchase a mobile stage, which it used to put on outdoor performances in the fall.

"There's a groundswell of small gifts," says Harris Ferris, the company's executive director, "and an outpouring of generosity from longtime patrons who've not once, not twice, but three times given $10,000, $15,000, $25,000."

After the company announced it would stream *The Nutcracker* for free, it received more than $3,500 in small-donor gifts over eight days. The secret, Ferris says, is that it's not " 'Please give us money or we'll fail.' It was 'Keep giving us money so we can succeed.' " Ⓑ

A Spicy Update on An Old Formula

Giving Black-owned restaurants professional creative services can level the playing field. *By Kate Krader*

Before the summer, Danilo Batson had no direct connection to political activism. He worked as an events space bartender and server at places such as the Staples Center in Los Angeles and was a few months away from getting his license to practice nursing.

But after the police killing of George Floyd in Minneapolis, people in his predominantly White neighborhood gravitated to him as a source of information on how they could channel their outrage and help support Black-owned businesses. "Orange County is 74% White," Batson says. "There aren't that many Black people they could ask, and I like to think I'm open and expressive."

At first, he advised anyone who asked to "educate themselves." Then he came up with a more active role they could play. On June 2 he reached out to Dan Williams, a friend who does web development, to create a site for Black-owned spots in his area. On June 3 they bought the domain name for Spicy Green Book.

Anyone who saw *Green Book*, the 2019 Oscar winner for best picture, knows the story behind the name. The guide—its full name was *The Negro Motorist Green Book*—was created in 1936 by writer Victor Green for Black travelers on the lookout for welcoming restaurants and hotels in the Jim Crow era.

Spicy Green Book is Batson's digital answer to that concept. The directory is featured on an app and website that lists more than 150 Black-owned restaurants and food establishments in 20 states, from Oregon to New Jersey.

He started with two L.A.-area spots, Bred's Nashville Hot Chicken and the independently owned Grocery Outlet. He then began reaching out to businesses beyond his area and fielding calls from people in other cities as word of Spicy Green Book spread.

Within a month he had 30 businesses. "These places weren't being talked about properly," he says. The proprietors could cook, "but they couldn't necessarily communicate with people outside their demographic."

What distinguishes Batson's project from similar guides is its all-encompassing approach. A small army of volunteers take professional photographs and videos of each listing and write a vivid description of it, helping to market the place in ways that aren't always in the skill set of its owners.

Among the businesses that Batson reached out to early on was Blondery, a bakery in the Greenpoint neighborhood of Brooklyn, N.Y., that specializes in gourmet brownies, including a triple chocolate Brooklyn Blackout. Founder Auzerais Bellamy, who baked at nearby Pies 'n' Thighs and also at the French Laundry in Yountville, Calif., says Spicy Green Book has made a difference. "They sent a photographer to one of my pop-ups, which I thought was super cool," she says.

"I see people go out to eat just because of the pictures. Black businesses haven't always had that advantage"

The placement has driven "quite a bit of traffic," Bellamy says. "Since we went live on their website in late July, we've gotten $7,000 to $8,000 worth of business from them. For my bakery, that's something."

The Blondery listing features images by photographer Sheri Silver. "You think, 'I want to do something to help.' This makes you feel like you are," says Silver, who's White.

Batson estimates that three to five businesses are added to the site each week, with help from a pool of more than 130 volunteers and the site's project manager, Kim Jackson. "I live in Orange County," Batson says. "I see people go out to eat just because of the pictures. Black businesses haven't always had that advantage. I want to get new eyes on them."

As a nonprofit, Spicy Green Book takes donations, and Batson says he's applying for grants. A few companies have reached out about corporate partnerships; official announcements will be made in early 2021. Ⓑ

Bridalveil Fall in Yosemite National Park

PHOTOGRAPH BY APU GOMES/AFP/GETTY IMAGES

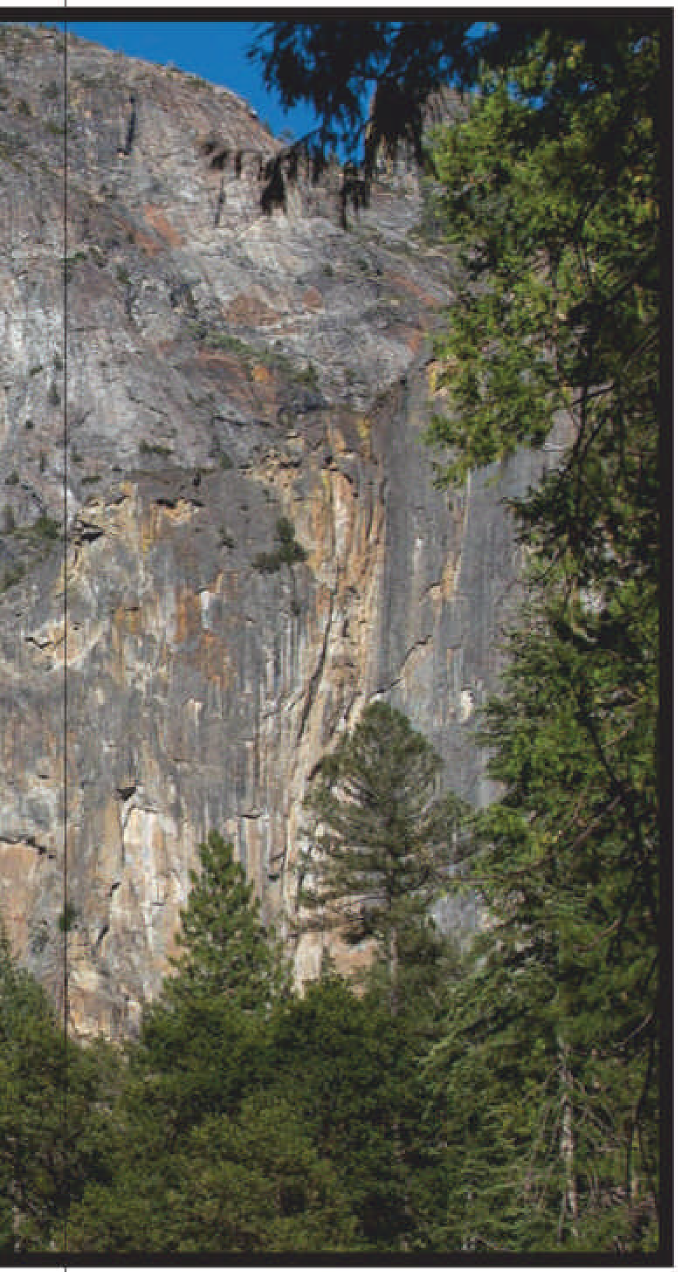
A Cleaner Shade of Green

Subaru's pilot program with the National Park Foundation readies to roll out nationwide. *By Jennifer Flowers*

It's been a mostly sedentary year everywhere except in U.S. national parks. Typically quiet spots to escape the bustle of urban life, they've been teeming with activity during coronavirus lockdowns.

In September, Yellowstone National Park logged more than 800,000 visitors, a 21% increase in attendance from last year. In October, Grand Teton's numbers were up 88%, to more than 351,000. And while some parks such as Denali in Alaska are difficult to reach without an airplane or a cruise ship, many are on track to exceed their already high visitation numbers from years past.

That should be good news, but the parks' growing popularity, which predates the pandemic, has a downside: 70 million pounds of trash



in 2019. (Figures for 2020 haven't been released.)

Subaru of America Inc., the New Jersey-based subsidiary of Subaru Corp. of Japan, thinks it has a solution. The car company has only a 4.1% market share in the U.S. auto industry, but it's built an outsize reputation among drivers who jones for the great outdoors.

In 2004 it turned its Lafayette, Ind., assembly facility into the country's first zero-landfill auto plant by persuading suppliers to ship materials in Earth-friendly packaging and finding ways to recycle everything from Styrofoam to dinged bumpers.

Since 2015 the company has been applying what it learned from that effort to help the National Park Foundation manage its dirtiest problem. The program, Don't Feed the Landfills, has so far reduced landfill waste by half through recycling, composting, and educational initiatives. It has successfully eliminated 16 million pounds of refuse across the three pilot locations in the Denali, Yosemite, and Grand Teton parks.

The initiative does more than dispatch trash pickers or write checks, though Subaru has given more than $35 million to the National Park Service's charitable arm since 2013. Even Denise Coogan, Subaru's manager of environmental partnerships and the initiative's director, has rolled up her sleeves for "waste characterization studies"—dumpster dives, in other words.

Those first steps, she says, help identify the makeup of the trash that's already there and seeing how much of it is plastic, food, cardboard, or paper to shape guidelines for each park.

On an early trip to Yosemite, Coogan recalls seeing 40-year-old trash bins that were so overfilled they were attracting bears and coyotes. Subaru has since added almost 1,000 animal-proof waste receptacles throughout its three pilot parks, along with clear signage that's helped increase visitor recycling by 27%.

"The park service is thinking long term," Coogan says. "They're thinking about what happens when we install the wrong containers: Will it have an impact on the bears? Will it impact the noise when they're emptying them?"

Diverting waste is also crucial. For that, Subaru has expanded composting facilities. It's also advised on sustainable food packaging and reusable containers for concessionaires such as on-site restaurants or cruise lines that send guests into Denali with packed lunches.

In March, Don't Feed the Landfills earned Subaru the Corporate Stewardship Award from the Public Lands Alliance; also this year it was recognized by Engage for Good with a 2020 Silver Halo Award for Best Sustainability Initiative. These successes are enabling the company to pivot from pilot programs to a national rollout, eventually to all 62 national parks.

"The purpose is to try to get the pilot parks to be zero-landfill," says Tom Doll, Subaru of America chief executive officer and a self-professed parks enthusiast. "Once we get the processes all in place, we'll be able to take those best practices around the country."

Each park has its own mosaic of unique considerations, though, making it impossible to copy-paste solutions across the entire system. For instance, Grand Teton is so remote, the park had to get special permission to drive organic waste through Yellowstone to reach the nearest composting facility. Yellowstone deals with disproportionate peak-season crowds from May to September that create mountains of garbage in a short amount of time.

The advantages of untangling these dilemmas is economic as well as environmental. "Subaru has been helping us substantially reduce the operating costs of a park by reducing waste," says Will Shafroth, president and CEO of the National Park Foundation. "That's a good thing. It means those operating dollars are available for other purposes that actually benefit the visitor."

If they succeed at scale, Shafroth says, the impact will outlast the current burst in demand as well. "We're trying to help the park service prepare for the future," he says. Ⓑ

Shift Your Love of National Parks Into A Higher Gear

GET HANDS-ON
The National Park Service offers volunteer opportunities across all of its parks, whether it's managing wildlife traffic jams as part of Grand Teton's Wildlife Brigade, restoring native plants in Yellowstone, or collecting grizzly bear scat for DNA researchers in Denali. *nps.gov/volunteer*

PAY A VISIT
Travel outfitters are increasingly supporting the national parks. They include DuVine Cycling + Adventure Co., which began a fundraising partnership this summer with Outdoor Afro, a nonprofit that connects Black Americans with the great outdoors. *duvine.com*

MAKE A DONATION
The National Park Service is federally funded, but it also relies on private backing from the nonprofit National Park Foundation. Donors can provide financial support through more than 450 partners, including Friends of Acadia and Yosemite Conservancy. *nationalparks.org*

Better for Wear

Branded merchandise has become an omnipresent option to support local businesses, pitch in, and put your money where your heart is—right on top of it. *By Jacqueline Davalos*

PHOTOGRAPHS COURTESY ORGANIZATIONS

❶ SAGE
As lockdowns spurred interest in his Instagram cooking demos, Dan Pelosi hit influencer status then paid it forward. His assorted Spaghetti Bear merchandise has yielded more than $20,000 (so far) for SAGE, an organization dedicated to improving the lives of LGBT elders in the U.S.—a group that's been inordinately affected by the pandemic. *$35; grossypelosi.com*

❷ INDEPENDENT RESTAURANT COALITION
Two New York institutions—kosher comfort food purveyor Russ & Daughters and actor-heartthrob Jake Gyllenhaal—teamed up to sell more than 4,000 salmon tie-dye shirts. They raised $92,000 for the national trade group Independent Restaurant Coalition to lobby the government for fiscal relief. *$40; russanddaughters .goldbelly.com*

❸ CASA MAGAZINES
Print media may be dying, but not if Neighborhood Spot has anything to say (since March 15) about it; 100% of proceeds go to the iconic Meatpacking District newsstand that carries more than 2,500 titles. *$65; neighborhood-spot.com*

❹ INNOCENCE PROJECT
Bakers Against Racism has hit its sales goal ninefold, raising more than $15,000 with this illustrated T-shirt to help exonerate the wrongly convicted. *$30; bonfire.com*

❺ FEARLESS INITIATIVE
Fashion retailer Dover Street Market joined with designers such as Off White, Valentino, and Belgium's Walter Van Beirendonck (seen here) for a limited-edition line of 30 shirts to support health-care workers in its home cities: Beijing, London, Los Angeles, New York, Tokyo, and Singapore. In the U.S., proceeds are donated to GiveDirectly Inc. *Other styles available at shop.dover streetmarket.com*

❻ TURKEY & THE WOLF
With this now-sold-out "Stop On By" tee, designer Paul Portis and Inferno Screen Printing helped contribute to the $13,000 that the New Orleans sandwich shop amassed for its furloughed staff. *Additional styles available at turkeyandthewolf.com*

❼ TORO BOSTON
The award-winning South End tapas spot worked with Merch 4 Relief to raise $2,000 with a Stephen Raaka design. A restock is coming for the holidays. *$29; merch4relief.com*

❽ LINCOLN PARK ZOO
Ashley Bedore's all-too-relatable "Mask Fails" design benefits Chicago-based Lincoln Park Zoo's, ahem, education efforts. Sales end Dec. 23. *$25; bonfire.com*

❾ LIFE LEBANON
The Beirut port explosion on Aug. 4 that killed more than 200 people was a local tragedy felt globally. Frendz.Club, a creative agency in Berlin, was compelled to help, selling an "Endless Feelings" sweatshirt through Jan. 3 and sending half the profits to benefit the Life Lebanon Emergency Relief Fund, an $8.7 million pot for vetted NGOs. *$46.25; everpress.com*

❿ CHATEAU FAMILY FUND
When celeb haven Chateau Marmont closed its doors in March (at the time, it seemed like for good), it enacted its own Hollywood twist: opening its gift shop to nonguests. During the first months, sales from this $550 cashmere sweater by Bella Freud helped grow a kitty of more than $250,000 to benefit laid-off staff. *shop.chateau marmont.com*

⓫ HOUSE OF YES
Every merch sale helps, but with no reopening date for nightlife in sight, the joyous, come-as-you-are (as-long-as-you're-on-theme-and-in-glitter) Brooklyn club uses exclusive Patreon-only drops. This limited edition Netta Schwarz-designed "Gasm" tee will bolster a more sustainable fundraising base, and there are totes available as well. *$30 after $5 monthly membership; patreon .com/houseofyes*

A Big Moment For Bail Funds

More than $100 million was given this year to help get people out of jail, and most of it came from first-time donors

By Sarah Holder

In the U.S., bail is as old as jail itself. But the idea of donating to someone's bail fund goes back only a century, when the American Civil Liberties Union pooled resources to support political demonstrators during the First Red Scare of the 1920s.

Every few decades, calls for bail fund donations emerge during periods of civil unrest—the civil rights movement of the 1950s and '60s, the marches for LGBTQ rights—and in the past decade the tool has evolved to help alleviate the daily toll of pretrial detention and mass incarceration. In terms of scale and cultural awareness, though, nothing compares to this summer.

In a good year, the National Bail Fund Network might bring in a few million dollars to its centralized rapid response fund. According to Pilar Weiss, the director of the Community Justice Exchange, which hosts the fund, its 85-plus community-led partners could raise anywhere from $5,000 to $3 million.

This year the network raised $80 million from more than 3 million donors in June alone. "The catalyst for them donating was the horror of watching or hearing the recording on the news of George Floyd being murdered," Weiss says. "Then people started putting the connections together."

The bail system has been widely studied as a pillar of systemic racism. Almost 60% of people in U.S. jails haven't been convicted. They're waiting for their trial but are unable to leave because they can't afford the collateral. Many of them ultimately aren't charged. Robin Steinberg, chief executive officer of the Bail Project, another national organization, says it's helped release almost 14,000 people since it began in 2018. About a third of them "have had their cases dismissed entirely after we paid bail, and only 8% of those who were convicted received any sort of jail time." The fund brought in more than $23 million this year, and of the 500,000 individual donors, 300,000 were new.

Typically, bail funds are a uniquely sustainable form of philanthropy: After a case is resolved, the courts must return anywhere from half to 90% of the fee, which organizations can then reinvest in future bail payments.

This year coronavirus-related delays have challenged that revolving model. "Because cases weren't closing, bail money we paid wasn't being returned at the same rate, reducing our ability to use a dollar from twice a year to only once," Steinberg says. "The rate continues to trend down."

Eliminating cash bail entirely is the ultimate goal, Steinberg says. Bail funds are a short-term tool for now, but they're a tool that could get a lot stronger.

Weiss emphasizes the outsize effect that this sort of giving can have. "Giving $10 or $5 to a local organization that maybe had a budget of $20,000 last year is amazing," she says. "There's a growing realization that giving locally is so significant." Ⓑ

The Food Pantry Pivot

Donors and volunteers are reshaping how they respond to hunger at their doorstep

By Amanda Gordon

Feeding the hungry gets a lot of attention around the holidays, but this year food pantries began putting out calls for support the day lockdowns began. The increase in need was compounded by social distancing measures, which meant forging new ways of giving and volunteering. We checked in on four areas in the U.S. where income inequality is particularly acute.

PALM BEACH COUNTY, FLA.

In the pandemic's early days, the Palm Beach County Food Bank began distributing three times the amount of food it usually does. Then the executive director left her post to live closer to her children. Jim Greco, a board member and former chief executive officer of Sbarro LLC, stepped in as interim CEO. He's had to manage a virtual job search along with an influx of locals moving to what's now the third-wealthiest spot in the country (average annual income $1.37 million). "Folks contact us and say they'd like to help," he says. "I don't know some of them, because they're new here, but I'll see they've just purchased a home on Palm Beach island." This year, the organization secured its largest gift ever, $1 million, from longtime resident Lois Pope, widow of the *National Enquirer*'s founder. Greco says the biggest impression made on him has been from the donors asking to come in to tour the facility—about three a month since June. The organization has raised $2.3 million, with $400,000 to go, to move into another facility that will double capacity.

SUMMIT COUNTY, UTAH

The Christian Center of Park City is serving 1,000 people a week using drive-through pantries it operates every day but Sunday. Last year, no more than 15 families a month would apply for cash assistance in the tourism-reliant locale; this year the number is up to 1,300. So far, the CCPC has distributed almost $1 million in rent aid.

The community has contributed more than $2 million, and there's been a 40% increase in new donors. Money given to CCPC through the Park City Community Foundation, where many affluent families set up donor-advised funds, approached $500,000. CCPC also administers the Most Vulnerable Fund, which was started in late March by three friends to help restaurant and service workers in Summit and neighboring Wasatch County who had lost their jobs. About a hundred people have participated, bringing in more than $220,000.

LOWER FAIRFIELD COUNTY, CONN.

At Person-to-Person, located in a county that contains eight of the top 100 wealthiest ZIP codes in the U.S., the number of volunteers is down 33%. Retirees and older adults normally make up the bulk of them, but as an at-risk population, many have been stepping back, perhaps permanently. College students and furloughed workers have filled part of the void, powering a new free delivery service: More than 200 volunteers made 744 door-to-door deliveries to provide about 40,000 meals in October. "We had to pivot," says Person-to-Person CEO Nancy Coughlin. Early on, supply chain issues pushed food costs up 145% from $11,000 to $27,000 a month, but fundraising efforts have met the additional expenses. The biggest budget increase has been for emergency cash assistance to help pay rent and electricity bills: It's gone from $35,000 a month before Covid-19 to as much as $144,000. The end-of-year campaign has a goal of $1.4 million, up $400,000 from last year.

BLAINE COUNTY, IDAHO

Sun Valley's home, with its skiing and Davos-like Allen & Co. conference, has the nation's fifth-highest grocery costs, according to Feeding America. When resorts and restaurants shut down, the Hunger Coalition's food pantry—the only one within 200 miles—began providing food to more than 330 families a week, up from 142 last year. The wave of support included donations of hundreds of egg cartons and 500 pounds of potatoes, while 65 volunteers maintained a community garden of vegetables and fruit for a curbside pantry. The organization is raising $10 million for a center to open in 2021 that'll have greenhouses and a "next-gen" food pantry with online ordering capability. Other features will include a community kitchen and health services. There will also be staff and meeting space for advocacy that addresses the root causes of hunger. B

ILLUSTRATION BY BILL REBHOLZ

Hear, Hear!

The Palladium earbuds perform exactly as a great pair of headphones should—while also doing a whole lot of good
Photograph by Frank Frances

It's easy to take a good listening experience for granted. Just look at the new $99 Palladium earbuds from LSTN Sound Co. They're comfortable and easily connect with a phone, and the bass absolutely thumps. There's more to them than that, though: Since LSTN was founded in 2012, the company has provided hearing aids to more than 35,000 people around the world in partnership with the Starkey Hearing Foundation. The inspiration for co-founder Bridget Hilton came while she was working as a record label publicist and saw a video of a woman hearing for the first time. "She was the same age as me," Hilton says, "and it got me thinking how different my life would be if I didn't have music" in it.

THE CASE
LSTN's newest earphones come in a compact charging case that's just 2.5 inches long and an inch tall. But once they charge, they offer more than three hours of use time or 90 hours on standby. They have three sizes of silicone tips to nestle in your ears comfortably, and the built-in microphones make them useful for more than merely rocking out: They can make and take calls, all while the Bluetooth 5.0 lets you wander as far as 30 feet from your device. *$99; lstnsound.com*

THE COMPETITION
• Master & Dynamic has collaborated with luggage company Away on a small collection of gear, including its $249 MW07 GO earbuds from which 100% of net profits go to MusiCares for Covid-19 relief.

• The $199 Citrus Red Beats Solo3 wireless headphones can last as long as 40 hours on a single charge. A partnership with (RED) means purchases mitigate the pandemic's impact on HIV programs in Africa.

• Skullcandy's "Mood Boost" campaign helps those dealing with addiction and depression. Its new Champagne-colored $80 Indy Evo earbuds support the mental health alliance To Write Love on Her Arms.

Tobacco Liability Suits Are Still Smoldering

By Joe Nocera

ILLUSTRATION BY GEORGE WYLESOL

Patricia Harris v. R.J. Reynolds Tobacco Co., Case 19-11907, U.S. Court of Appeals for the 11th Circuit

● Will these Engle cases ever end? Not anytime soon, that's for sure. There are currently about 50 trials a year—and the Public Health Law Center estimates that they won't end until 2075.

● Can you get rich from winning a case? You betcha. The jury awards are usually in the millions, and one was even $67 million. With the lawyers usually getting a third of that, is it any wonder that all the big plaintiffs firms now have Florida offices?

❶ THE ORIGIN If there's one name that brings a shudder to the tobacco industry, it's Howard Engle. A pediatrician with a two-pack-a-day smoking habit, Engle was the lead plaintiff in a huge class action brought against Big Tobacco in 1994, at the height of the tobacco wars. Six years later, a jury awarded the estimated 500,000 plaintiffs (gulp) $164 billion. In 2006 the Florida Supreme Court decertified the class and overturned the damages. However, it said that the smokers who'd been part of the now-disbanded class could file individual suits. These cases became known as the Engle progeny.

❷ THE SUITS If you think a massive class action suit is a nightmare for a company, try defending thousands of individual cases! Especially when the deck is stacked against you. The Florida Supreme Court agreed to the findings in Engle that smoking was addictive and caused cancer and that Big Tobacco had hidden the truth about its dangers. What the plaintiffs had to prove was that their smoking had caused their illness, and that they had been diagnosed before Nov. 21, 1996. Not surprisingly, more than 9,000 cases were filed.

❸ THE CASE Engle progeny cases have been going to trial in Florida ever since. The plaintiffs have won most of them. And it looked like *Harris v. Reynolds* would end up that way, too. Gerald Harris was a lifelong smoker with heart disease and oral cancer. After he died in 2012, his wife, Patricia, continued the lawsuit he'd filed against R.J. Reynolds Tobacco Co. After a trial, a jury awarded her $1.7 million, which the district judge cut to $650,000.

❹ THE OUTCOME Even though the award was small, Reynolds fought it. It argued that Harris had never been eligible to be an Engle class member. Why? Because while his heart disease had been diagnosed before November 1996, there was no proof that cigarettes caused it. And his oral cancer hadn't been diagnosed until after the Engle deadline. On Nov. 20, the appeals court ruled that Reynolds was right—a rare victory for Big Tobacco in an Engle progeny case. Ⓑ —*Nocera is a columnist for Bloomberg Opinion*

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