The World's Most Admired Companies P. 113

FORTUNE

MARCH 1, 2017

FORTUNE.COM

THE PROMISE OF THE TRUMP ECONOMY
P. 80

The Quest for the Perfect Sugar
P. 102

THE PERIL OF THE TRUMP ECONOMY
P. 80

FORTUNE

CONTENTS

MARCH 1, 2017

VOLUME 175 /// NUMBER 3

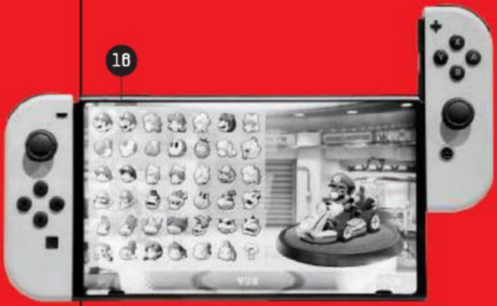
▲ ON THE COVER:
ILLUSTRATION BY **PAUL MARTINEZ**
FROM PHOTOGRAPHS BY
JOE PUGLIESE

CONTENTS

DEPARTMENTS

VOLUME 175 /// NUMBER 3

18



20

30

BACK PAGE

Fortune (ISSN 0015-8259) is published monthly, with extra issues in March, June, September, and December, by Time Inc. Principal office: 225 Liberty St., New York, N.Y., 10281-1008. U.S. Subscriptions: $22.00 for one year. Member, Alliance for Audited Media. POSTMASTER: Send all UAA to CFS (See DMM 507.1.5.2); Non-Postal and Military Facilities: Send address corrections to *Fortune*, P.O. Box 62120, Tampa, Fla. 33662-2120. Canada Post Publications Mail Agreement No. 40110178. Periodicals postage paid at New York, N.Y., and at additional mailing offices. Return undeliverable Canada addresses to: Postal Stn A, P.O. Box 4321, Toronto, ON, M5W 3G8. GST #888381621RT0001. Customer Service and Subscriptions: For 24/7 service, please use our website: www.fortune.com/customerservice. You can also call 1-800-621-8000 or write to *Fortune* at P.O. Box 62120, Tampa, Fla. 33662-2120. PRINTED IN THE U.S.A. Subscribers: If the postal services alert us that your magazine is undeliverable, we have no further obligation unless we receive a corrected address within two years. Your bank may provide updates to the card information we have on file. You may opt-out of this service at any time. Mailing List: We make a portion of our mailing list available to reputable firms.


KOHLERPOWER.COM
KOHLER
MedCentral
KATIE JANSEN DIDN'T DIE TODAY.
The grid went down. The city went dark. And you saved lives. Not long ago, you chose a pair of KOHLER® industrial generators to back up your hospital. So when the power went out, your ER still shined and a seven-year-old girl saw tomorrow.
From engines to generators, we give the world power.
KOHLER.
IN POWER. SINCE 1920.

THE CASE FOR OPTIMISM

EVEN IN NORMAL TIMES, economic forecasting is a risky business. In the Trump era, it has become a crapshoot.

At one extreme, there's the tantalizing prospect of hitting the jackpot: Corporate tax laws finally get their needed reform, excessive business regulations are rolled back, infrastructure investment grows, companies invest more in creating U.S. jobs, animal spirits rise, and life is good—at least for the next few years.

Then there's the possibility that it all unravels, with President Trump's protectionist message sparking a trade war, or his attacks on immigrants undercutting efforts of U.S. businesses to attract the best and brightest. There's also the possibility that by upsetting the global applecart, the President suddenly finds himself engaged in an economy-wrecking foreign policy crisis, sparked by an emboldened North Korea, Iran, Russia, or China.

Between those extremes, there are a host of questions that hang over the outlook. Can the new President overcome the chaos and distraction of his early days in office to govern effectively? Can he break away from the hot-button issues of race, gender, and religion long enough to focus on the economic prize? And given the whipped-up partisan fervor, can he successfully assemble a governing majority in Congress and push through legislation that might actually kick-start business?

Microsoft CEO Satya Nadella has helped revive the once-sleeping tech giant.

Our own Shawn Tully, a perceptive observer of half a century of economic experimentation, gives his best analysis of the prospects in our cover story (page 80). Trust me, you'll want to read it. But at the risk of giving too much away, I will say this: Like Shawn, I'm an optimist. With former Goldman sous chef Gary Cohn at his side, the new President has the best chance in a decade to get it right, helping us accelerate economic growth in a way that, ultimately, should lift all boats.

For the longer term, there are two important caveats to keep in mind. First, it's unlikely President Trump will repeal the business cycle. The current economic expansion is already long in the tooth, and there's little reason to think we'll make it through the next four years without a recession. (When that happens, count on upheaval.)

Second, the worker disruption and inequality that helped feed Trump's victory are likely to continue unabated, fed more by technological advances than trade. Many of the U.S. jobs being trumpeted in Trump's Twitter feed will prove ephemeral, as the impact of automation and artificial intelligence kick in. As Microsoft CEO Satya Nadella said in Davos earlier this year, we need technology to boost productivity and create an economic "surplus" that can solve many of the world's most pressing problems. But at the same time, "we have to deal with the real issue of equitable distribution of that surplus."

Speaking of Nadella, this month's issue includes our annual ranking of the World's Most Admired Companies, based on an extensive survey of business leaders. And this year, we asked a new question: Who do you think is the most underrated CEO? Guess who came out on top? Satya Nadella. He has taken a company that was once written off as a relic of the early computer era and turned it into a driving force for a new age of cloud computing and artificial intelligence. Microsoft tied with Facebook for the No. 9 spot on this year's All-Star list, up from No. 17 last year.

There's lots more in this list you'll find interesting—including the disappearance of two regulars, Wells Fargo and Samsung. Reputations are more easily lost than won.

Enjoy the issue.

ALAN MURRAY
Chief Content Officer, Time Inc.
Editor-in-Chief, *Fortune*
@alansmurray

NADELLA: JOE PUGLIESE


synchrony
BANK

THE WORLD IN 7 PAGES

BRIEFING

Google employees demonstrate against Trump's travel ban on the company campus in Mountain View, Calif., on Jan. 30.

©MORIAH MARANITCH—PICTURE-ALLIANCE/DPA/AP IMAGES

Business Waits in Limbo

Corporate chiefs on the whole have been loving the Trump Rally. The one thing that scares them: What comes next?

BY TORY NEWMYER

POLITICS

DONALD TRUMP has packed a surplus of uncertainty for Big Business into his already tumultuous presidency. Gone, for the most part, are the Twitter darts he aimed at companies he accused on the campaign trail of underinvesting in the U.S. Instead, he has welcomed a parade of executives into the West Wing for boardroom-style jawboning sessions.

Participants, including some Trump maligned as a candidate, have left feeling that they have a partner in the White House—a sentiment reflected in the market rally that followed his election, powered by hopes of tax cuts, regulatory rollbacks, and new infrastructure spending. (See our cover story for an in-depth look at what the new Trumponomics might ultimately mean for business and the economy.)

But while Trump's assurances have soothed some executive nerves frayed by his populist campaign rhetoric, his actions—namely the legally challenged travel ban—have galvanized other corporate leaders to push back. Silicon Valley tech barons, many of whom are immigrants themselves and rely heavily on foreign-born engineering talent, were first into the breach when the Trump administration stunned the world with the executive order on Jan. 27. (Some were pushed to act in part by vocal grass-roots protests to the ban—blowback that apparently even compelled Uber CEO Travis Kalanick to quit Trump's business advisory council a day before its inaugural meeting.) Other chief executives with globe-spanning operations, from Ford's Mark Fields to JPMorgan Chase's Jamie Dimon, also weighed in with tempered criticism. But tech—an industry Trump targeted for abuse as a candidate—remains the tip of the corporate spear pointed back at him, with nearly 130 companies from the sector formally supporting the legal challenge against the order.

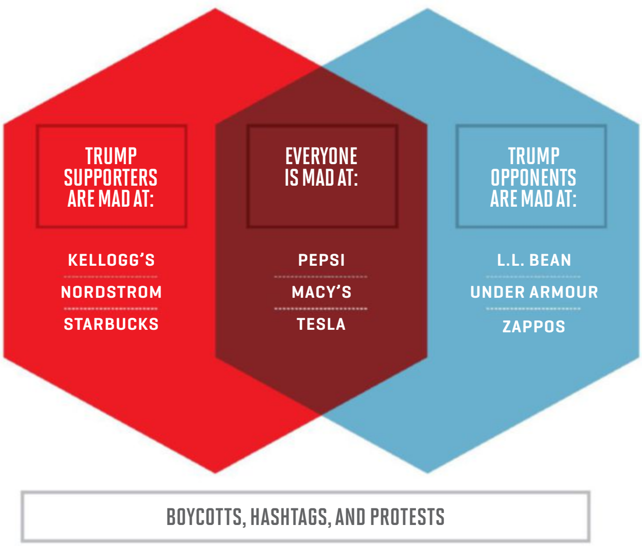
Beyond the substance of the ban, though, the process that yielded it and some two dozen other executive actions taken during the first weeks of Trump's presidency have sent new ripples of anxiety through C-suite ranks. Of particular worry: the sense that many in the highest levels of the Trump administration haven't been consulted on significant policy changes ahead of time—and often don't seem to know what's coming. That, in turn, has left some otherwise supportive business leaders wondering if the Trump White House has the focus to shepherd through Congress complex overhauls of the tax system and growth-choking regulation that many companies are counting on.

And then there's the important question of who has the President's ear: hard-right voices like chief strategist Steve Bannon (who seems to have seized an early advantage) or more business-friendly figures like Gary Cohn, the former Goldman Sachs president now serving as Trump's top economist.

The President, for instance, has promised to unveil a "phenomenal" tax-reform package in the next few weeks—a Cohn project that may slash corporate rates nearly in half. But then, who knows? Even that may be upstaged by the next round of immigration-enforcement measures or by a sudden Twitter war with a major trading partner. For now, Big Business is discovering that, in the Trump universe, it may not be that special after all. Just like everybody else, it has to wait to find out what comes next. ■

BACKLASH

CONSUMERS FLEX THEIR POLITICAL MUSCLE



CORPORATIONS prefer to be seen as apolitical creatures—governments change, and customers come in all stripes—but at this highly polarized and media-socialized moment, it's become mighty hard not to upset at least a few people.

Groups on the right have called for boycotts of Kellogg's (for pulling ads from alt-right site Breitbart News), Starbucks (for vowing to hire refugees rather than jobless Americans), and Nordstrom (for dropping Ivanka Trump's clothing line), among others. The left has gone after L.L. Bean (for a Trump-backing board member), QVC (for advertising on *The Celebrity Apprentice*), and Under Armour (its CEO said Trump was "good for business"). Not to mention Trump brands and the companies that sell them (like Zappos). Then there are the unfortunate few that have drawn ire from both sides: PepsiCo CEO Indra Nooyi offended some Trump supporters in an interview; then she joined his business council, offending opponents. Tesla's Elon Musk also joined the council, but he has been targeted by the right for his clean-tech fixation. And Macy's has taken heat for both discontinuing Donald's products and *not* dropping Ivanka's. —ERIKA FRY

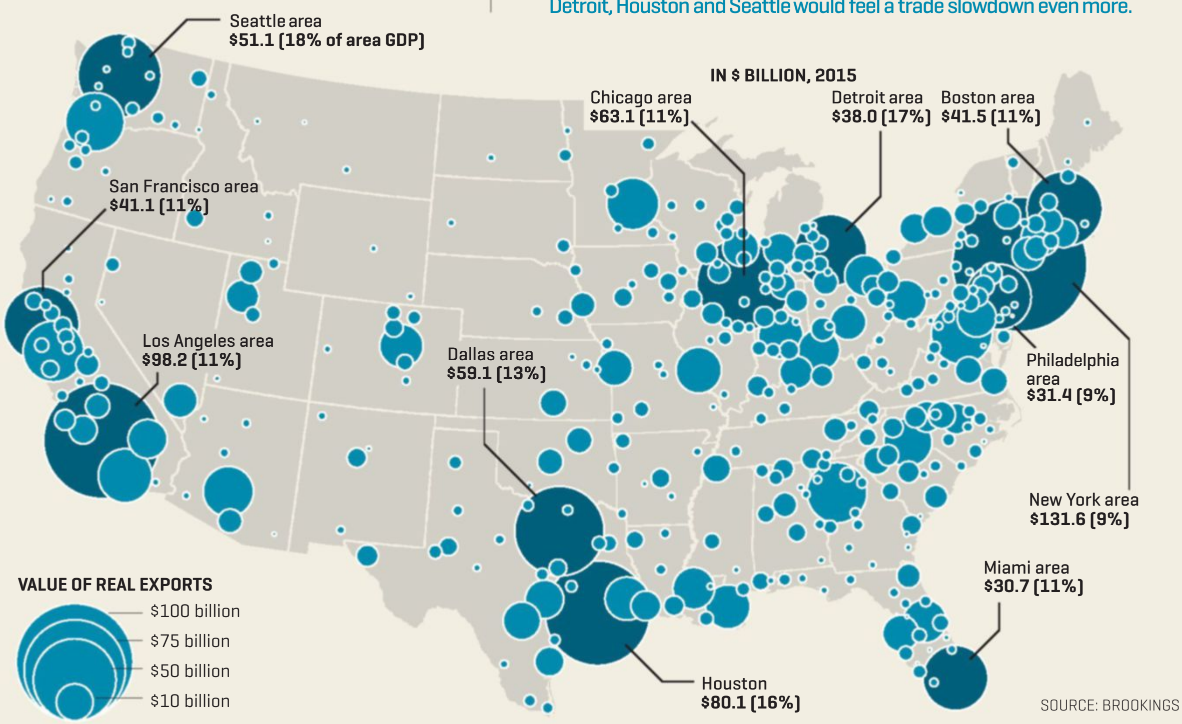
ANALYTICS

SEEING TRENDS IN THE DATA

TRADE

AMERICA'S LARGEST EXPORTING CITIES

As the U.S. flirts with protectionism, some areas are more vulnerable than others. New York and Los Angeles produce the most exports in dollar terms, according to the Brookings Institution, but they aren't the areas that rely on them the most. Advanced industrial hubs like Detroit, Houston and Seattle would feel a trade slowdown even more.

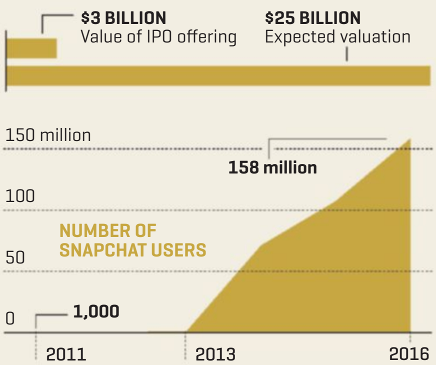


SOURCE: BROOKINGS

IPOs

SNAP JUDGMENT

Photo-messaging giant Snap filed its IPO paperwork in February. Huge user growth in Snapchat has goosed investor interest in its debut.



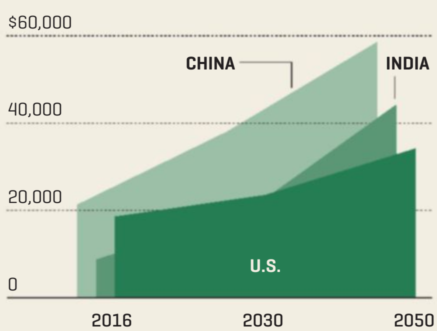
SOURCES: SNAP; NEWS REPORTS

GDP

WHO'S ON TOP?

Adjusted for purchasing power parity (a way to compare prices across currencies), China has already overtaken the U.S. in GDP, and India will soon.

PURCHASING POWER PARITY (PPP) GDP PER CAPITA



SOURCE: PRICEWATERHOUSECOOPERS

SHOPPING

THE TOY INDUSTRY IS A RETAIL BRIGHT SPOT

$20.4B

Amount spent on toys in 2016, up 5% from 2015. That growth outperformed the retail landscape for the year yet again, propelled by the force of Disney's *Star Wars* franchise.

PAYOUTS

HOW THE FTC GOT THE HERBALIFE SETTLEMENT DISASTROUSLY WRONG

Predatory direct-marketing scheme or delicious nutritional shake? Depends on whom you ask.

THERE WAS A MOMENT last summer when it seemed investor Bill Ackman's war with Herbalife was over. The nutrition products company agreed to pay $200 million to settle a Federal Trade Commission investigation, and Ackman, the Pershing Square hedge fund manager who shorted the company to the tune of $1 billion, looked to have won out. But in a twist, it now appears the settlement could actually help Herbalife.

In January the FTC rushed to mail nearly 350,000 settlement checks [hoping to close the case before the post-election turnover in Washington]. But hundreds of the recipients—Herbalife buyers who never made their money back—were protein-shake *users* rather than sellers and don't believe they were victims of a direct-marketing scam. Some of them say they will even use the money to buy more Herbalife—a blow to Ackman. What may eventually change their mind: *Betting on Zero*, an anti-Herbalife documentary starring Ackman, will hit theaters in March. —JEN WIECZNER

The number of solar industry jobs shot up 25% in the past year.

Sorry, Coal. Solar Is Where the Jobs Are

Donald Trump has promised to send workers back to the mines. He's missing the bigger picture. BY ERIKA FRY

ENERGY

ON THE CAMPAIGN TRAIL, Donald Trump donned a miner's hat and promised to bring coal jobs back. "Get ready," he told the embattled industry, "you're going to work your asses off!" Those pledges helped win over voters in the nation's Rustbelt, but they ignore America's new energy reality: The jobs aren't in coal.

According to a recent report from the Energy Department, the coal electric generation sector employed just 86,035 people—57,325 of them miners—in 2016. That's far fewer than the number who now work in solar: 370,000, up 25% from 2015. The wind-energy workforce, meanwhile, ballooned 32%, to 101,738, and the Bureau of Labor Statistics pronounced "wind turbine service technician" the nation's fastest-growing occupation, projecting 108% growth between 2014 and 2024.

Compare that with the fate of coal miners, whose number dwindled by 24% last year. There are lots of reasons for that—the shale gas boom, declining demand, Obama-era regulations, and automation. Even for those in the industry, it's hard to imagine all those coal jobs coming back. Luke Popovich of the National Mining Association has upgraded the industry outlook from "not great" to "improving," in light of Trump's early days in the White House.

Bringing back coal jobs, though, may prove a Pyrrhic victory. Loosening regulations and ending solar subsidies are unlikely to stop its slow decline.

FROM TOP: SCOUT TUFANKJIAN—THE NEW YORK TIMES/REDUX PICTURES; PATRICK T. FALLON—BLOOMBERG/GETTY IMAGES

Its users may love it, but VR still lacks mass appeal.

VR

Time for a (Virtual) Reality Check

The promised tech revolution isn't showing up in the sales data. BY JEFF JOHN ROBERTS

THIS TIME it's different, right? Unlike the virtual-reality fad that fizzled 15 years ago, boosters say, today's version of VR tech—backed by the likes of Facebook, Google, and Samsung—is going to be big.

Well, maybe not. Sales figures for 2016 are in, and they're not exciting: The VR industry shipped 6.3 million devices and pulled in $1.8 billion in revenue, according to research firm Super Data. That's below expectations, though analysts say it isn't terrible for an emerging technology.

What's more telling is who's buying. Though VR has promise for business, most customers now are gamers. They love it—VR game users reportedly engage in 40 sessions a month on average. But such hard-core fans aside, most people lack a compelling reason to shell out for the gear. Research firm Magid says that while interest in music and virtual travel is growing, there's a "lack of clear value proposition besides early adopter enthusiasm."

One field that could drive sales? Porn, which has been a catalyst for other early Internet technologies. But VR may be out of luck there too. Early users have found the depiction of virtual partners "strange and almost grotesque," says Super Data's Stephanie Llamas. "And the content is still limited."

BY THE NUMBERS

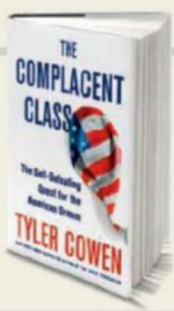
WIKILEAKS IS MEDDLING IN ANOTHER WESTERN ELECTION

3,630

Number of documents Wikileaks allegedly has relating to François Fillon. French presidential candidate Fillon was the clear establishment choice until a scandal rocked his campaign. Now a Wikileaks data dump (though not particularly salacious) is hurting him further.

1,138

Number allegedly relating to Marine Le Pen. Wikileaks also released documents on ultranationalist Le Pen, albeit fewer, and they were seemingly far more mundane.



BOOK VALUE

AMERICA THE LETHARGIC

AMERICANS move less than they used to. This is true when measured in moving vans: Interstate migration is about 50% lower today than in the 1960s. It's also true in economic terms, says Tyler Cowen in his compelling new book, *The Complacent Class*. There are fewer startups now as a percent of business activity, less corporate "creative destruction," and less development in cities. Cowen's takeaway: The stasis can't hold. Postponing the big changes that would combat rising inequality and segregation is just a recipe for crisis down the line.

JENS SCHLUETER—GETTY IMAGES


QUICKENLOANS.COM
DON'T GET HELD DOWN BY AN OUTDATED MORTGAGE PROCESS.
GO COMPLETELY ONLINE FOR A FAST, CONVENIENT APPROVAL.
GO WAITLESS
QuickenLoans.com
ROCKET MORTGAGE by Quicken Loans
BUY A HOME
REFINANCE

UNICORNS

REGULATORS ARE SQUEEZING THE VALLEY'S DARLINGS

AS LAWMAKERS worldwide fix their gaze on the sharing economy, it's starting to feel like the days of freewheeling growth are ending. Here's a snapshot of the two biggest players' recent battles.
BY MATTHEW INGRAM

UBER CEO
TRAVIS KALANICK

BESIDES long-running fights with taxi incumbents and local governments, places like California and the U.K. are now challenging Uber's claims that its drivers are contractors and not employees.

AIRBNB CEO
BRIAN CHESKY

CITIES LIKE Berlin, London, New York, and San Francisco are restricting Airbnb rentals on zoning and tax grounds. Its growing concessions to lawmakers look increasingly expensive.

A technician puts a set of semiconductor wafers through a processing step at RFMD headquarters in Greensboro, N.C.

China's Big Play for Small Chips

Low-cost Chinese semiconductor makers look poised to stage an industry takeover.
BY ROBERT HACKETT

CHINA

ANYONE FAMILIAR with China's history of industrial subversion—see the low-price steel or solar panels that have flooded world markets in recent years—will not be surprised to learn that the country is at it again. China's latest industrial target: semiconductors, the bedrock of modern electronics.

Computer chips power everything from phones and "smart" devices to satellites and advanced weapon systems. Half of the $340 billion in annual semiconductor sales flows to U.S. tech giants such as Intel, Qualcomm, and Apple. But the industry may soon find itself facing an existential crisis.

According to a U.S. government report released in January, "Chinese policies are distorting markets in ways that undermine innovation, subtract from U.S. market share," and, because of the chips' uses in critical infrastructure, "put U.S. national security at risk." During his confirmation hearing earlier this year for commerce secretary, Wilbur Ross said he, too, was "very, very concerned."

At issue is the Communist Party leadership's plan to jolt China's domestic chip sector with $150 billion in aid from 2015 to 2025. Industry watchers say they have seen this play before: Prop up indigenous businesses with subsidies, flood global markets with supply, and undercut the competition.

Are U.S. companies fighting back? Not exactly. China is the world's largest chip market, even though it accounts for less than 10% of global sales. And non-Chinese companies have had little choice but to partner with China's state-backed enterprises to maintain access to its buyers. Companies like Intel, Samsung, and TSMC have invested billions in local projects, joint ventures, and factories.

In the short term that makes sense, says IDC industry analyst Mario Morales. But in the long term, chipmakers should worry. "These guys are scaling so fast," he says of Chinese challengers like Huawei, "they'll inevitably catch up and surpass."

UBER: MONEY SHARMA—AFP/GETTY IMAGES; AIRBNB: STEPHANIE KEENAN—GETTY IMAGES; VICTOR J. BLUE—BLOOMBERG/GETTY IMAGES

The Nintendo Switch game console will be available in the U.S. in March for $300.

Nintendo Bets Big on the Switch

If the company's latest hardware flops, it may have to rethink everything. BY DAVID Z. MORRIS

TECH

ON MARCH 3, Nintendo's newest console will hit stores worldwide, in what will be one of the company's most important hardware launches ever. The Switch, which aims to act as both a mobile and a home console game, comes after Nintendo's belly flop with the Wii U, which has sold a mere 13.5 million units since 2012. Compare that with more than 53 million PlayStation 4s sold by Sony and more than 101 million sales of the original Wii in its heyday.

Early reviews of the Switch are in, and it has been praised for its design.

The heart of the system is essentially a tablet, which slides into a cradle to connect to a TV. The device, along with its small controllers, can be nearly instantly transformed into a portable system that plays the same games as at home.

But if the company's bet on the home-to-mobile console doesn't pan out, say game-industry analysts, the Switch could be Nintendo's last major hardware product. IDC's Sam Reynolds thinks a profit-minded board could push the company to transition from hardware toward producing games for other companies' platforms, as Sega did 15 years ago after the failure of the Dreamcast console. For a legendary company traditionally averse to working with outsiders, that would be, well, a tough switch.

THE TICKER

TRUMP'S STOCK SCORECARD

The companies President Trump tweets about get the attention (hello, Nordstrom), but those aren't the ones whose stocks have been affected most by the White House agenda.

INCREDIBLE, THE BEST

BANK OF AMERICA
+28% SINCE NOV. 8.

A likely Dodd-Frank rollback (a Trump priority) and anticipated Fed rate hikes have stoked investors' love—so much so that BofA's stock has outperformed even Goldman Sachs's.

FAILING. SAD!

MACY'S
–16% SINCE NOV. 8

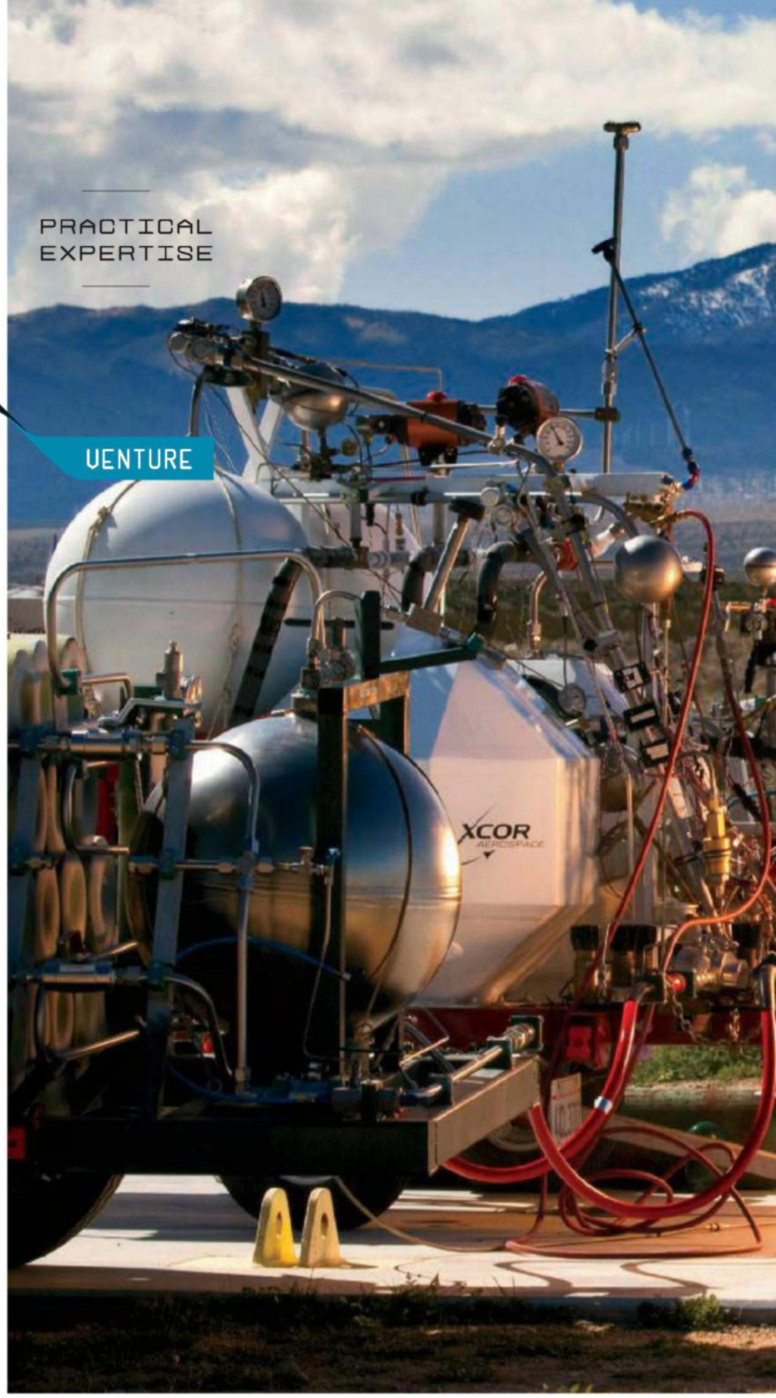
Macy's feuded with Trump the candidate over his comments about Mexicans. As President, Trump hasn't targeted Macy's, but shareholders fear the impact of a border tax on costs.

THERE'S SOMETHING GOING ON...

CEMEX
–11% (NOV. 9–12)
+18% (JAN. 8–25)

Investors in November: "A border wall would be a disaster for a Mexican cement maker!" Investors in January: "Wait: Maybe the wall will be made out of cement!" Expect more of the same.

FROM TOP: CHESNOT—GETTY IMAGES; IMAGE ON SCREEN: KAZUHIRO NOGI—AFP/GETTY IMAGES; SAUL LOEB—AFP/GETTY IMAGES



STARTUPS IN ASCENT

ROCKET BOOM IN THE DESERT

"NewSpace" companies are launching in the Mojave, and the technology is becoming more accessible. Could do-it-yourself space travel become a reality someday? BY JENNIFER ALSEVER

INSIDE A SERIES OF NONDESCRIPT buildings in the driest desert in North America, an entrepreneurial enclave is chasing the next frontier of commerce. Explosions are routine. The science is complex. Brain power and ambition are high, as is danger. This cluster of 17 young companies at the Mojave Air and Space Port, 90 miles northeast of Los Angeles, is shooting for the moon—and beyond.

The startups there are building the components, engines, materials, and rockets that are dispatching a new generation of cell-phone-size satellites and more into space. These so-called NewSpace companies have sprung up around a former military base in the California desert. The remoteness of Mojave and the permissive attitude toward, say, detonation and flames—the airport's slogan: We eat explosions for breakfast—make it the ideal location for companies aiming to reach the heavens.

"Mojave is the Silicon Valley of space exploration," says Mark Bünger, who follows the sector at Lux Research. Mojave isn't alone, as galactic entrepreneurship is also burgeoning in Seattle, Tucson, and Silicon Valley itself. Says Sunil Nagaraj of Bessemer Ventures: "2017 will be the year that NewSpace startups will hit their stride."

It used to be that space projects were so daunting and expensive that only governments and their massive corporate partners could take them on. Then, in the past decade or so, a cadre of billionaires—think Elon Musk, Jeff Bezos, and Richard Branson—entered the arena with what first seemed like eccentric pet projects. Today, in the wake of their successes, there's a third generation: minnows that service those private companies and leverage the growing economies of scale such that a startup without extraordinary resources can

XCOR tests an engine prototype for a reusable spacecraft.

COURTESY OF XCOR

now contemplate a voyage to another planet.

Plenty of factors are making space missions cheaper and more feasible: the miniaturization of electronics, the development of stronger and lighter materials, better engineering, and new standards that make it easier to build mini-satellites and send them up as hitchhikers on a larger launch. A traditional low-earth-orbit satellite, for instance, weighs three tons, stands two-stories tall, and costs tens of millions of dollars to build. Today there are "microsatellites" between 22 and 220 pounds and even "nanosatellites" under 22 pounds. A so-called cubesat, for example, weighs around two pounds, is about the size of a fist, and costs less than $100,000 to build. Some 60 companies now sell them, allowing small governments and companies to put a tiny probe into orbit for precision agriculture, oil spill monitoring, or security systems.

Of the 115 space-related companies started in the past decade and backed by investors, 84 focus on

▷▷ satellites, according to the Tauri Group, which tracks space investments. Just last year, those companies launched 100 microsatellites, up from 25 in 2011. Tauri projects that 2,400 nano- and microsatellites will launch between 2017 and 2023.

Investment is starting to take off. Venture capitalists have put $8.2 billion into space companies over the past five years, according to Tauri, most of it into rockets and satellites.

Mojave has become an oasis of billionaires, scientists, vendors, and service providers. Branson's Virgin Galactic has 500 people there building and testing propulsion systems and a suborbital spaceship, according to CEO George Whitesides. Paul Allen's Vulcan Aerospace is nearing completion of its massive Stratolaunch airplane. NASA officials scout Mojave for technology and commercial space partners, and rockets are launched by small companies like XCOR and Masten Space Systems, which are assembling light, reusable launch vehicles to drastically reduce the cost of spaceflight. All that activity has drawn even smaller operations, including a school for test pilots and tiny vendors that provide everything from industrial coatings to ancillary offerings like financial services and a gym.

The biggest driver has been the deep pockets and confidence of Musk, Bezos, and others, including dotcom entrepreneur Naveen Jain and hotel mogul Robert Bigelow, who have been funding startups through venture investments and contests like the Google XPrize. Musk's SpaceX slashed tens of millions of dollars from rocket prices, helping land the company a $1.6 billion deal with NASA to fly 12 cargo missions to the International Space Station. Musk and Bezos are now, separately, planning missions to Mars. "They were the primer to the pump for this new resurgence," says Jay Gibson, CEO of XCOR.

Moon Express, funded by Jain, plans its maiden voyage to the moon later this year, vying for Google's Lunar XPrize, a $20 million award to the first company to land a robotic spacecraft on the moon and accomplish several technical challenges. Once there, Moon Express plans to extract iron ore, water, minerals, and precious metals, as well as nitrogen, hydrogen, and more. Ultimately, Jain thinks, the moon could become a fuel depot where spacecraft can stop before continuing longer journeys. "Entrepreneurs have the potential to change the trajectory of how humanity lives," he says, "where the moon becomes the eighth continent and a great place to live."

Needless to say, the challenges remain immense.

Working on one of Interorbital Systems' Neptune rockets, whose modular design allows them to be expanded for larger payloads.

"I sound like a curmudgeon, but people always say this will be the year," says Gary Hudson, an industry veteran and the president of the Space Studies Institute. "Everything costs more and takes longer than you think, and people die if you screw up."

The difficulty hasn't curbed enthusiasm at Interorbital Systems, a 12-person operation in Mojave. Cofounders Roderick and Randa Milliron started their business two decades ago with a goal of eventually living on the moon. Interorbital sells satellite kits and says it will launch 137 satellites this year with its modular rocket, whose size can be adjusted depending on the mission. The revenue from satellite and launch sales, space-testing missions, and more should help it reach its goal of using its rocket to get to the moon this year, as part of a team competing for the Lunar XPrize.

Perhaps the ultimate evidence that space technology is catching on is that it is even filtering down to hobbyists. A hacker space called Mojave Makers allows individuals to, say, build their own 3D-printed rocket motors. Says Bessemer's Nagaraj: "You now have people tinkering with space just as the previous generation tinkered with computers." ■

RANDA MILLIRON—INTERORBITAL SYSTEMS

MEET MARVEL'S CHIEF MYTHMAKER

Under Axel Alonso's watch, a superhero can be anyone.

BY ROBERT HACKETT

AMERICAN VOICES

AXEL ALONSO EDITOR-IN-CHIEF, MARVEL COMICS

Art and Ink
Alonso has a tattoo of a Mayan calendar on his arm; he got it to celebrate his Mexican heritage.

New Authors
Alonso drafted National Book Award–winner Ta-Nehisi Coates to write the new installment of *Black Panther.*

Cultivating the Next Audience
After the Asian Hulk debuted, Alonso had to reassure his young Korean-American nephew he wouldn't turn green too.

VENTURE **AXEL ALONSO'S** Marvel universe looks a lot different from the one in your father's comic-book stash. There's Miles Morales, a black and Hispanic teenager who donned the Spidey suit in 2011. Three years later a 16-year-old Muslim girl from Jersey City became Ms. Marvel. Now there's a female Thor, a Korean-American Hulk, and a black girl genius in Iron Man's armor.

Since taking the helm of Marvel Comics six years ago, Alonso has overseen a bold refresh of the house's superhero lineup. But according to the editor-in-chief, the rush of diverse characters has more to do with business than politics: "Our creators are itching to show the world outside your window."

The strategy appears to be working. Last year Marvel Comics claimed roughly 40% of the market's $580 million comic-book shop sales, more than any other publisher, according to industry watcher John Jackson Miller. Add digital subscriptions, newsstands, and bookstores, and total revenue for comics in the U.S. has grown to more than $1 billion, per estimates by Miller and industry tracker ICv2. (Marvel's films and TV shows are handled by separate business units under corporate parent Disney.)

Marvel's makeover has critics as well as fans, of course, particularly as it alters the identities of beloved characters. But any backlash, Alonso says, tends to "subside after you put the books on shelves."

▲ PHOTOGRAPH BY ROGER KISBY

THIS STUDIO HAS A SPECIAL EFFECT ON MOVIES

Visual effects shop Crafty Apes has worked on a string of Hollywood hits like *La La Land* and *Hidden Figures*.

BY TOM HUDDLESTON JR.

For a *Hidden Figures* scene depicting an astronaut's prelaunch walk to board a space capsule, Crafty Apes combined scenes from an enclosed set (top) with new footage it filmed at NASA's Cape Canaveral complex (where the actual Mercury missions launched) for added authenticity and a larger sense of scale in the final shot (bottom).

TECH **FEW FILMS IN 2016** inspired gushing praise like *La La Land*. The musical romance that notched a record-tying 14 Academy Award nominations opens with one of the year's most buzzworthy scenes: five minutes of nonstop singing and twirling on a gridlocked Los Angeles freeway.

But what received less attention were the visual effects that made the scene possible. Crafty Apes helped stitch together a succession of cuts—the camera occasionally whipping from dancers on car hoods to cyclists performing acrobatics—to make the sequence appear as if it were filmed in one brilliant take.

A typical visual effects shot lasts mere seconds, perhaps 120 frames. *La La Land*'s opening scene contained more than 8,000, requiring hundreds of computer renderings and terabytes of data. The company erased trucks and film equipment from shots while adding dancers and cars to make the scene look as though it stretched for miles. It even gave some of the dancers a wardrobe change in postproduction by switching the color of their pants.

"Without visual effects, it would be a way different shot," says Tim LeDoux, cofounder of Crafty Apes, which handled *La La Land*'s visual effects alongside the in-house effects team at Lionsgate, the film's distributor.

La La Land isn't the only critical success displaying Crafty Apes' digital wizardry. The company worked on 2014 Best Picture Oscar winner *12 Years a Slave*, as well as other ▷▷

PHOTOS COURTESY OF FOX/CRAFTY APES


A brighter future together
We're driving the future of energy to meet our customers' needs. Employees, customers, communities – we're more powerful together. Because of you, we're honored to be one of The World's Most Admired Companies.
The true power in our communities comes from our people.
AEP AMERICAN® ELECTRIC POWER
AEP.com
FORTUNE WORLD'S MOST ADMIRED COMPANIES® 2017
From FORTUNE Magazine, March 1, 2017 ©2017 Time Inc. FORTUNE and The World's Most Admired Companies are registered trademarks of Time Inc. and are used under license. FORTUNE and Time Inc. are not affiliated with, and do not endorse products or services of, American Electric Power.

▷▷ nominees, including this year's *Hidden Figures,* the story of the African-American women mathematicians who worked at NASA in the 1960s. Crafty Apes was also one of several effects companies that played supporting roles in two of last year's biggest Hollywood blockbusters, *Captain America: Civil War* and *Doctor Strange.*

Ben Grossmann, an Oscar-winning visual effects supervisor for 2011's *Hugo,* tells *Fortune* that companies like Crafty Apes are often overshadowed during awards season by larger rivals working on the same big-budget films. Indeed, *Doctor Strange* was nominated for an Academy Award for its visual effects, although the film's lead effects supervisors got the credit, not Crafty Apes. The film's production budget was reportedly $165 million; in comparison, *La La Land's* was just $30 million.

"The kind of work that they do requires a kind of obsession, almost, with being invisible and letting the story flow," Grossmann says of Crafty Apes' focus on smaller-budget films with limited digital effects.

Crafty Apes was founded in 2011 by brothers Tim and Chris LeDoux, both experienced visual effects supervisors, and Jason Sanford, the company's executive producer. Unlike larger effects houses that focus on computer-generated imagery, or CGI, Crafty Apes is a boutique studio that specializes in "2D compositing," through which it takes images from multiple sources (such as discrete camera shots) and combines them into a single scene. It employs roughly 30 people in Los Angeles and Atlanta. Since it opened, Sanford says, the company has added about five new employees each year and has doubled revenue annually.

Crafty Apes expects to continue its steady growth into 2017. That's no small achievement in Hollywood, where dozens of traditional effects studios have failed in the past decade. Many of the industry's biggest companies moved most of their operations from Los Angeles to places like Vancouver and London that offer substantial tax incentives.

Side-by-side stills show a *Hidden Figures* scene before (left) and after Crafty Apes' visual effects tweaks.

"THIS WORK REQUIRES A KIND OF OBSESSION, ALMOST, WITH BEING INVISIBLE."

Boutique special effects shops like Crafty Apes can benefit from continuing to have an L.A. presence, since they're closer to Hollywood studios. But competition can still be cutthroat, driving down what film studios pay.

Crafty Apes has taken advantage of the growth in film production near Atlanta, the result of Georgia offering significant tax credits to local productions. *Hidden Figures* director Theodore Melfi says he hired Crafty Apes because it's the rare effects house that boasts both "brilliant work" and a permanent office in Atlanta, near where *Hidden Figures* was filmed.

Chris LeDoux led a team in Atlanta working on *Hidden Figures'* effects, which included simulating a space launch and space travel. To accomplish it, he incorporated actual footage of earth filmed from the International Space Station and space capsule diagrams from NASA to make the scenes look more authentic.

While Crafty Apes is missing from the Academy Awards' red carpet this year, the company can still get a financial boost from its connections to Oscar-nominated films. Chris LeDoux says the added street cred that came from working on *La La Land* and *Hidden Figures* can help the company pick and choose its gigs, even if producers and filmmakers hadn't previously heard of the company.

Says LeDoux: "Immediately, you're associated with a certain type of quality and greatness." ■


INT'L STOCKS
IEFA
INSPIRED TO HELP YOUR START-UP, START.
U.S. BONDS
AGG
U.S. STOCKS
IVV
Build for your future with iShares Core funds.
Essential building blocks for the heart of your portfolio at 1/10th the cost of typical mutual funds.[1] Smaller fees mean bigger dreams. Start building at iShares.com/build
INSPIRED TO BUILD.
iShares by BLACKROCK

LEADERSHIP

DEREK JETER'S NEXT SWING

The Players' Tribune, cofounded by the former Yankee great, could help pro athletes upend the broadcasting world. BY MICHAL LEV-RAM

TECH

A COUPLE OF DAYS after this year's Super Bowl, a newsletter from a relatively new sports website featured links to videos in which three National Football League players talked, in passionate terms, about race relations. Virtually all sports sites have reported on NFL players' responses to the recent spate of racially charged violence. But few have featured the athletes' perspectives in this kind of context—in their own words, at length, and not (noticeably) filtered through league or team PR offices.

That, in a nutshell, is what the Players' Tribune is all about. The site, started in 2014, was cofounded by former New York Yankees shortstop Derek Jeter—a future Hall of Famer known for being outspoken himself on social issues.

Dismissed by some as a vanity project when it launched, the site got traction once pro athletes began using it to break news. Just one example: Last summer, NBA standout Kevin Durant published a Players' Tribune essay to announce that he was signing with the star-studded Golden State Warriors. The site says it now averages about 100 million monthly content views, a small but growing fraction of the traffic at Yahoo Sports or ESPN.com.

In January the site announced it had raised $40 million in new investments, bringing its total funding to $58 million. Much of that money will be spent on ramping up video efforts, where the site could be part of a looming wave of tech disruption. Live sports has long been seen as the last bastion of the traditional cable bundle, and most professional leagues are tied up in lucrative, multiyear licensing agreements with TV networks. But nontraditional media companies have been edging their way in. Twitter has a modest deal to live-stream a small subset of NFL games. Hulu's planned live TV service is expected to include sports in its lineup. And Amazon has reportedly met with various professional leagues to discuss licensing.

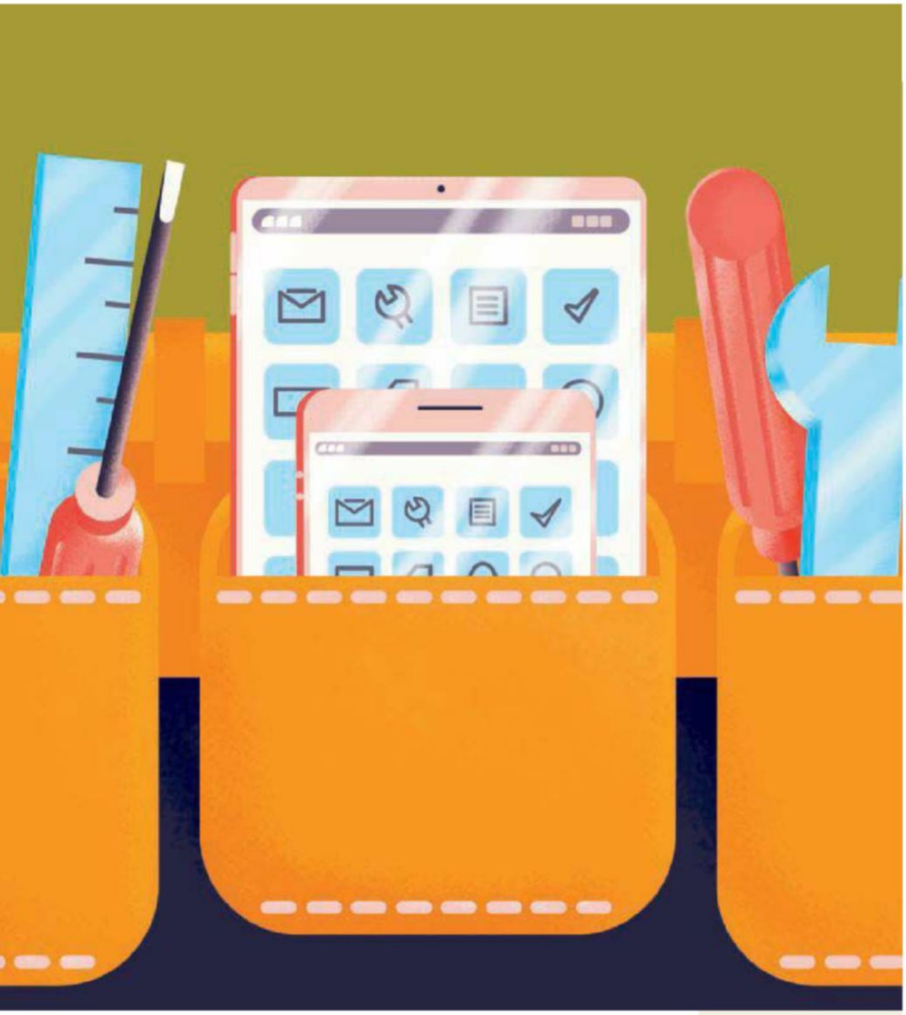
If the sports broadcast business model continues to fray, the Players' Tribune will have an edge over competitors: about 1,200 contributing athletes, from Durant to race-car driver Danica Patrick, eager to offer their takes. Though they're likely years away, the opportunities could be lucrative: Imagine streaming live sports events directly from a player's point of view.

"We're pretty far from bidding on NFL games," says Jon Sakoda, a general partner with New Enterprise Associates, one of the investors in the Players' Tribune. "But I think there will be many exciting possibilities as cable begins to unbundle."

Derek Jeter meets with Jaymee Messler, president of sports news site the Players' Tribune, in 2015. "We feel that every athlete has a great story to tell," Jeter says.

STEVEN FREEMAN—THE PLAYERS' TRIBUNE

PROGRESSIVE
COMMERCIAL
1-800-PROGRESSIVE
PROGRESSIVE.COM
BAKERY
FLO
DEFENDER OF SMALL BUSINESSES EVERYWHERE!
FEATURING OVER 30 COVERAGE OPTIONS!
GENERAL LIABILITY
WORKERS' COMP
COMMERCIAL AUTO
COLLECT THEM ALL!
FOR USE WITH ALL MIDSIZED COMMERCIAL VEHICLES!
PROGRESSIVE



TECH TAKES THE FIELD

Companies are increasingly using technology that helps field workers schedule appointments and save time on repairs.

BY HEATHER CLANCY

BUSINESS IN THE CLOUD

TECH **AT THE WORST TIME** imaginable, your washing machine starts making noises it shouldn't and then stops working completely. You carve four hours out of your day to await a technician, who shows up late and then discovers that a needed replacement part must be ordered.

It's the kind of snafu that companies are increasingly trying to avoid by adopting software that diagnoses equipment problems like cracked pistons—sometimes before they happen—and helps workers better schedule house calls. Instead of using paper, spreadsheets, and email, the nation's estimated 20 million field technicians—the people who fix appliances and tinker with wind turbines—are shifting to mobile apps for scheduling, submitting reports, and identifying the parts they'll probably need for upcoming repairs.

"The client relationship changes," says Gary Johnson, a vice president at shipping and logistics firm Pitney Bowes, of how his service teams can answer questions more quickly and in more detail after his company started rolling out the technology four years ago. "And our employees benefit hugely."

Business interest in field service apps and data services is fueling a parallel boom in supplying the technology. Sales in the category are expected to reach $5.1 billion by 2020, more than double the figure from five years earlier, according to research firm MarketsandMarkets.

General Electric, for example, is betting big that the technology will be in greater demand in the coming years. In January it closed a $915 million acquisition of ServiceMax, one of the better-known players in the field service technology sector.

GE plans to link ServiceMax's offerings with GE's existing Predix technology, which collects data from Internet-connected industrial equipment and then predicts when it will need maintenance before it actually breaks. Microsoft, SAP, and Salesforce.com all sell rival apps and services, as do niche players like ClickSoftware.

Before the acquisition, GE had firsthand experience with ServiceMax as ▷▷

▲ ILLUSTRATION BY **JOSH MCKENNA**

one of its customers. Over three years, GE has saved almost $100 million by using the software to coordinate schedules more efficiently for its army of 40,000 repair and maintenance workers, says Jim Fowler, GE's chief information officer.

If you consider what the industrial conglomerate cut in expenses over that time by also more accurately predicting what parts were needed for repairs, the savings grow to $200 million for just the GE Power services division, which does maintenance for power-plant and water-treatment gear that the company sells.

"It's the right parts at the right place at the right time," Fowler says.

Of course, getting field workers to change from using pen and paper isn't always easy. And the initial cost of implementing field service tech can cost millions if an organization needs to buy mobile devices for thousands of workers.

Still, Pitney Bowes is a big believer in the technology, which, Johnson says, has improved the company's overall efficiency.

For example, field workers now get updates about what repairs they will likely have to make for customers so they can bring the needed parts with them. And because they have tablets or smartphones, workers can look up any information they need about how to fix problems and, as a result, do their jobs more quickly.

Those benefits translate into another bonus: Field technicians can schedule appointments within smaller time windows—welcome news for customers who hate waiting around—because technicians can more accurately predict their arrival.

Adopting field service technology has also helped Pitney Bowes more easily collect data that can reveal ways to make its business operate more smoothly. For example, the company can identify which teams close customer tickets the quickest and whether a product should be redesigned, based on a flood of customer requests for repairs.

Yes, the analog era is quickly ending for field technicians who make home, office, and factory calls. For many of their customers, the changes can't come fast enough.

HOW AM I DOING?

Performance reviews are getting a review of their own as companies look to improve how they rate their workers.

FEW PEOPLE like annual performance reviews—neither managers who spend hours writing them nor employees whose hard work can end up being trashed in them.

Little wonder that more than 80% of large companies, including Accenture, General Electric, Goldman Sachs, IBM, Morgan Stanley, and New York Life, are overhauling (or planning to overhaul) the ways they appraise their workforces, according to consulting firm Deloitte. The goal is to make performance reviews timelier so that workers receive constant feedback rather than only once a year.

Many companies use tools for rating employees that are built in-house. But a number of software makers, including BetterWorks, Reflektive, Zugata, Glint, and Culture Amp, are also pushing apps for corporate customers to manage feedback between managers and employees in real time.

One big reason for the shift: Today's companies now change strategy so often that annual performance reviews can be moot by the time they're completed.

"We need to have more frequent conversations about what goals are and where employees should be going," says Stacia Sherman Garr, talent management research leader for Deloitte's Bersin human resources consulting division. "People desire feedback regardless of age."—H.C.

PHOTOGRAPH FROM GETTY IMAGES

Starbucks could be the world's most valuable restaurant chain by 2021, but the company's vast scale comes with its own set of problems.

RESTAURANT STOCKS

A COFFEE STOCK LOSES ITS BUZZ

Many investors have lost their taste for Starbucks over the past year, even though the company is growing faster than most competitors. Is a long-term drip, drip, drip inevitable for the café giant? BY RYAN DEROUSSEAU

INVEST

LATE LAST YEAR Starbucks CEO Howard Schultz opened the company's annual investor day with a characteristically bold and quirky proclamation. He described the coffee-shop giant's life span as a 20-chapter book and added, "I still think we're in Chapter 4 or 5."

Schultz intended the metaphor to symbolize the bright future awaiting the company, which turns 46 in March. But as any avid reader knows, Chapter 4 or 5 is where the complications and drama typically kick into high gear. And the past several months have generated plot twists that, from a shareholder's perspective, have changed the genre of the Starbucks story from romance to suspense.

Even as Schultz spoke, Starbucks' stock was stumbling. After rising an absurd 1,170% from 2009 through 2015, shares fell 8% in 2016, their first down year since 2008—even as the overall market jumped 10%. Distressingly enough, there was no single reason for the decline. A skeptic could point to slowing sales growth, uncertainty about leadership after Schultz's announcement of his (second) retirement as CEO, or even the Seattle-based company's plan to rely on overseas growth at the dawn of an era of Trump-driven uncertainty for multinational businesses.

Look past those short-term challenges, and you could confront an even more sobering reality: the law of large numbers. For a company as big as Starbucks has become, with about $21 billion in annual revenue and almost 26,000 stores in 75 countries, it's simply hard to keep growing at a pace that wows investors.

Starbucks' results from its most recent quarter, which ended Jan. 1, underlined this conundrum. U.S. comparable-store sales, a metric that measures performance at Starbucks-owned locations open more than a year, were up 3% year over year. Considering that "comps" for the restaurant industry as a whole were *down* 2.4% for that quarter, according to researcher TDn2K, that performance was remarkable. "Most other restaurant chains ▷▷

▲ ILLUSTRATION BY **NICOLAS RAPP**

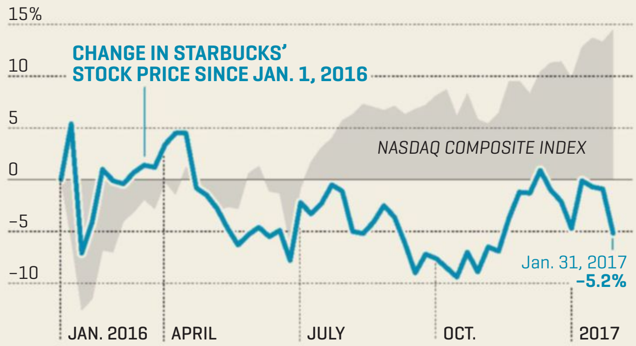
would kill" for Starbucks' results, says AB Bernstein equity analyst Sara Senatore. But by Starbucks standards, it represented a plummeting disappointment. In the year-earlier quarter, for example, Starbucks comps were up 9%. After the earnings announcement, investors fled, knocking another 7% off the share price.

Some longer-term changes within the company contributed to Starbucks' slowdown. The rollout of food service, which now accounts for about 20% of sales, is mostly complete, so growth from that category is no longer outpacing the market. Starbucks also suffered a hiccup in its rewards program. The company switched to offering free food and drink awards based on how much a customer spends rather than on the number of visits to a café, in hopes of speeding up service. But the switch didn't go as smoothly as planned: Although there are now 12.9 million members signed up, the rewards program grew more slowly than Starbucks had expected for most of the past year.

Starbucks portrays these issues as minor stumbles on a rising path. It opened 884 stores over the past year in the U.S., where it now boasts more than 16,000 locations. In China, Starbucks is opening a new store every 15 hours, making the country its biggest driver of growth. By 2021 it plans to have 37,000 stores, more than McDonald's currently has. Mark Kalinowski, an analyst at brokerage Nomura Instinet, believes Starbucks will also surpass the Golden Arches in market capitalization, making it the largest restaurant chain in the world by that measure. That could take place within the next five years.

STARING WHILE MY COFFEE GROWS COLD

STARBUCKS' STOCK PRICE rose more than 10-fold between 2009 and 2015. But the winning streak ended in 2016, as slowing sales growth cooled investors' ardor.



SOURCE: S&P GLOBAL

Size, of course, is a double-edged sword (just ask the shareholders of McDonald's). Such scale can make it "difficult to grow at an outsized rate," says Jeffrey Bernstein of Barclays Capital. Still, Starbucks estimates that its sales growth will reach into the "mid-single digits" for 2017, and Kalinowski pins it at 4% worldwide—which would continue to outpace the restaurant industry.

Starbucks' ability to keep hitting such targets will depend, in part, on Howard Schultz. He will step down from the CEO role in April, and COO Kevin Johnson will move into the top spot. William Blair analyst Sharon Zackfia points out that Schultz will continue to "drive the greater changes" that could help Starbucks draw more customers. It's not the first time Schultz has made such a move. In 2000 he stepped away from the CEO post to focus on Starbucks' global strategy; international sales, tiny at the time, now account for 26% of revenues.

Starting this year, Schultz plans to build up Starbucks' specialty Roastery and Reserve stores—higher-end locations catering to the coffee epicure with premium cups of Joe. There's currently only one in operation, but Starbucks expects to have more than 1,000 locations around the globe, and it will also look to incorporate mini-versions of the Reserve store in 20% of its regular locations.

Starbucks isn't counting on the stores themselves to be game changers (or, for that matter, on converting people who happily pay $4 for coffee to start paying $8). Buckingham Research Group analyst John Zolidis says he doesn't expect Roastery and Reserve revenues to "ever register a material impact" to shareholders. Instead, the stores will become a pipeline for new products that can help Starbucks sustain its foodie credentials while developing concoctions that could make it to regular stores. Focusing on organic beans and the search for the perfect espresso can also keep higher-end consumers from defecting to smaller, boutique competitors like Blue Bottle Coffee, even as Starbucks as a business strives to grow ever more like McDonald's.

What's particularly encouraging to some investors is that Starbucks is innovating while it's still growing, rather than waiting until its prospects dim. Of course, even people who believe in the company's potential would be paying a high price for it if they bought Starbucks shares today. Though it's down 13% from its 2015 peak, the stock trades at about 26 times estimated 2017 earnings, compared with 19 for the S&P 500—and both the stock and the benchmark are expensive compared with historical averages. Investors who took profits recently may want to wait for the stock to cool off a little more before they come back for a refill. ■

INVEST

COMPS ROSE ONLY 3% IN THE LAST QUARTER. BUT AS ONE ANALYST NOTES, "MOST OTHER RESTAURANT CHAINS WOULD KILL" FOR GROWTH LIKE THAT.

BEWARE OF HAPPY MEMORIES

Humans are hardwired to believe they can rely on the recent past to predict the future. As investors celebrate the eighth birthday of a bull market, that's a dangerous tendency. BY CHRIS TAYLOR

INVEST **PICTURE THIS:** It's the NBA Finals, and LeBron James has just drained a jump shot for the Cleveland Cavaliers. Then he hits another. And another.

He's on a hot streak: three in a row. He's going to hit the next one, right?

Most people would unhesitatingly reply, "Yes." That assumption doesn't say as much about King James's skills as it does about the inner workings of your own brain. Indeed, a whole lot of evolutionary history is packed into that projection. But here's the thing about that hunch: It's off the mark. Statistically, LeBron isn't significantly more likely to make the shot than he is to clang it off the back rim—streak or no streak.

This leaping-to-conclusions phenomenon is called "recency bias," and it's deep in our emotional wiring. "It's an interesting effect," says Dan Ariely, a professor of behavioral economics at Duke University and the author of books including *Predictably Irrational* (and the originator of the hoops analogy). "We look at the most recent evidence, take it too seriously, and expect that things will continue in that way."

There's an evolutionary advantage to this. Think back to the origins of humanity somewhere on the African savannas: If the wildebeests have shown up at the same watering hole a few days in a row, odds are we're going to hunt at that same spot the next day. Nowadays, though we're hunched at computers instead of hunting game, we still instinctively seek patterns in the events that have happened most recently, while memories of older occurrences have less influence over our behavior.

The problem, of course, is that the wildebeests don't always come back. And that makes recency bias particularly dangerous for investors: Unchecked, it's your brain's very own portfolio killer. Intellectually, we know that the market already saw two brutal bear markets this century—in 2000–02 and 2007–09. But as we approach the eighth birthday in March of the second-longest *bull* market in modern times, recency bias can lull us into a false sense of security, especially given the very good returns of the past three or four years. "If you think about the creation of asset bubbles, that's always what happens," Ariely says. "Things go up and up and up, and we start thinking it has to always go up."

Market professionals are hardly immune to this ▷▷

▲ ILLUSTRATION BY **SAM PEET**

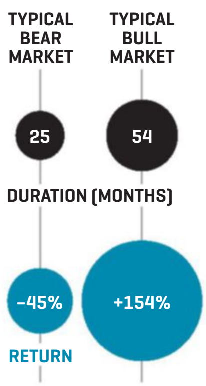
trend. At the beginning of 2008, trouble signs were emerging in the global economy. But after five straight years of positive returns, sentiment among equity analysts neared an all-time high, with the Wall Street consensus calling for an 11.1% gain, according to a recent study by Bespoke Investment Group. Their calls were based in part on—you guessed it—analysis of the recent past. We all know what happened next: The economy went off a cliff, and the S&P 500 fell 38.5% that year.

Recency bias also helps explain retail investor behavior during times of greed or panic. Assets often flow into stocks near market tops and exit at the bottom—exactly the opposite of what investors should be doing, says David Santschi, CEO of TrimTabs Investment Research. Recent signs here aren't encouraging: Net inflows for U.S. stock mutual funds hit $27.8 billion in December, according to fund research shop Morningstar—the highest monthly total since April 2000, at the dawn of the tech-stock crash.

Investors can be particularly susceptible to recency bias as they get closer to retirement—exactly the time when they can least afford big losses. That's part of the mechanism of coping with aging, according to Shlomo Benartzi, a behavioral economist and UCLA professor. If we felt constantly hamstrung by the bad things that have happened to us over the course of our lives, none of us would get out of bed. But those rose-tinted glasses can cloud investing decisions, leading savers to assume too much risk at the tail end of a bull market.

NOTHING LASTS FOREVER

THE CURRENT bull market will turn eight years old in March, making it 78% longer than the historical average. The good news is that bear markets tend to be much shorter than bulls; still, they can do plenty of damage in a brief time frame.



SOURCE: J.P. MORGAN

Looking ahead, few experts are predicting the imminent arrival of a bear market—then again, few ever do. So how can you combat and counteract your own recency bias and resist letting excessive optimism (or pessimism, for that matter) hurt your decision-making? For starters, you could put your portfolio on autopilot, taking your mood swings out of the equation. That might mean vehicles like target-date funds, which shift investment allocations automatically to make them less risky as the account holder ages. Also helpful: robo-advisers such as Betterment and Wealthfront, which can be set up to rebalance your portfolio automatically when the prices of one asset class get out of whack. "I'm a big fan of any investing approach that removes us from impulse-based decisions," says Lisa Kramer, a behavioral economist at the University of Toronto.

It's also worth keeping historical data in your decision-making arsenal. The average bull-market length is 54 months, according to J.P. Morgan Asset Management—41 months shorter than the Obama-Trump bull run, through January. And the S&P 500 long-term average price/earnings ratio? It's just 15, compared with more than 25 today. That kind of wider context signals that today's valuations and recent good times won't be easy to sustain.

All the more reason to make sure that, if and when the market does turn, any moves you make will be driven by a long-term plan rather than the emotions generated by the last thing you heard on CNBC. With major indexes setting records, it's a good time for investors to rebalance: If the equities portion of your portfolio has ballooned from your 60% target to 75%, say, take some profits off the table and use them to buy asset classes that are hardier during downturns, like investment-grade bonds. Older investors may want to move that money into assets that are even less risky, like cash or annuities.

"In investing you have to deny your emotions, like Odysseus sailing by the sirens in Greek mythology," says Raife Giovinazzo, research director at Fuller & Thaler Asset Management. "Put wax in your ears or tie yourself to the mast—otherwise, you're going to drown along the cliffs." ■

HOW TO BEAT YOUR BIASES

Deep-rooted mental habits, including "recency bias," can throw off investors' decision-making and hurt their portfolios. Here are three ways to keep the habits in check.

WATCH OUT FOR HIGH PRICES
Unusually high price/earnings valuations are often a sign that the party for stocks has gone on a little too long. With stocks trading well above their averages, now may be a good time to sell big winners and put the profits aside.

PLAY IT SAFE FOR RETIREMENT
The years immediately before and after retirement are when losses can hurt an investor's long-term plans the most. Savers in that life stage should consider putting more money in cash and bonds—no matter how bullish they feel.

RELY ON AN AUTOPILOT
When emotions run high, it helps to have tools that discourage buying or selling on impulse. Target-date funds, "robo-advisers," and annuities can help investors avoid taking excessive risks in good times or panic selling in bad.


Serta®
icomfort®
Experience Comfort Reimagined
Peek
inside!


Serta®
icomfort®
COMFORT THAT
CRADLES, SUPPORTS
& COOLS.
For those who prefer memory foam, Serta's exclusive Triple Action Gel Technology is designed to respond intelligently to your individual needs. Ideal for those who want the contouring feel of an all-foam mattress with the latest advancements in memory foam technology.
It's memory foam reinvented.
Learn more at serta.com

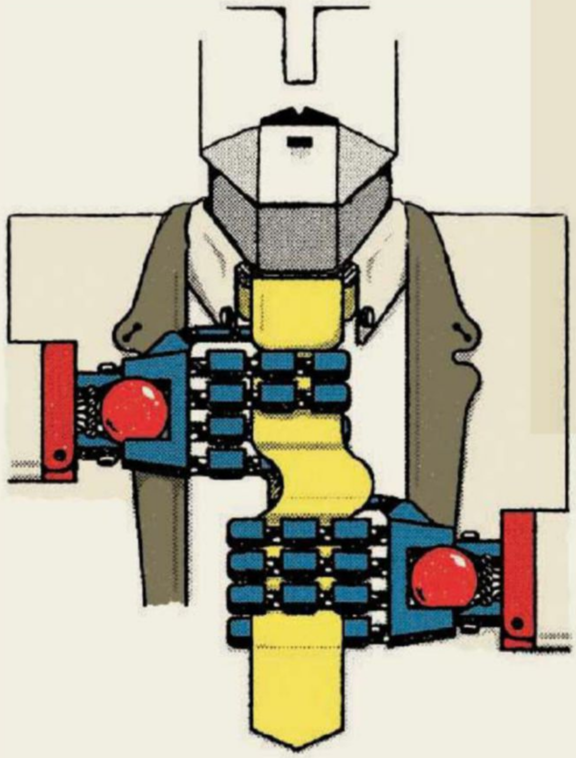

Serta iComfort


Serta®
icomfort®
HYBRID
COMFORT REIMAGINED
WITH THE BEST OF
BOTH WORLDS.
Experience the first hybrid mattress that combines advanced coils with our Triple Action Gel Memory Foam for comfort that cradles, supports and cools. It's comfort reimagined.
A truly unique combination.
Learn more at serta.com


icomfort
HYBRID


3 Ways To Personalize Your Comfort
TV/PC
Comfortable
Viewing & Browsing
Lounge
Perfect Way
to Relax
Zero G
Promotes Circulation &
Relieves Lower Back Pressure

A BOOM WITH A VIEW



IT'S TIME TO TAKE AI SERIOUSLY

Interest in artificial intelligence has reached a fever pitch. Unlike most overhyped technologies, it may not be a fad. BY ERIN GRIFFITH

THERE'S AN EASY WAY to tell when the hype around a technology trend has peaked. Ask yourself the following: Are the smartest venture capitalists complaining about valuations? Are big tech companies snapping up startups so young they can barely be considered real businesses? Are *Fortune* 500 executives talking about their [insert trend here] strategy? If the answer to any of these questions is yes, congratulations! You've identified a fad. A small, lucky handful of early movers will ride it to untold riches. By the time the rest of us find out about the phenomenon, it's too late.

Consider, then, today's hot trend: Artificial intelligence. Venture capitalists across the country are parroting the phrase "AI is the new mobile." Andrew Ng, chief scientist of Baidu, the Chinese Internet services company, declared that AI is "the new electricity." The more intensely tech thought leaders proclaim that a trend is here to stay, the more rapidly it tends to vanish. (Daily deals were "the future of commerce." SoLoMo—social, local, mobile—was "the future of marketing." On-demand services were "the future of work." Chatbots were "the future of customer service.")

FOR MORE
Follow Erin Griffith on Twitter (@eringriffith) or at fortune.com/boom.

And yet the smart money continues its embrace of AI startups. Last year VCs invested $5 billion in 658 companies, a 61% increase over the year prior, according to CB Insights. Acquirers are getting aggressive too. Last year corporations, mostly big tech companies, bought at least 40 AI startups, a trend that's expected to continue in 2017. Identifying AI acquisitions is a top priority for Don Harrison, head of corporate development at Google. "We're definitely AI-first," he says, noting that price is not a sticking point. "We pay attention to [valuation] but don't necessarily worry about it."

The fact that AI often lacks a clear business case doesn't matter. "These are not businesses," says John Somorjai, executive vice president of corporate development at Salesforce, which has acquired a handful of AI companies. "These [deals] are about technology and talent."

Years ago we marveled at the valuations of money-losing mobile startups and snickered at the lack of a business model at companies like Android, which Google bought in 2005 for around $50 million. Things have changed: Today we expect every company to have a mobile strategy because the very premise is a given. Meanwhile Android is the most popular mobile operating system in the world.

Will artificial intelligence be a given in the years to come? Is AI a short-lived fad on par with SoLoMo—or a revolution like mobile? If companies and investors believe the latter, they should be pouring money into the technology. In five years artificial intelligence could exist as a layer of capability atop every business process, from customer service and marketing to product development and sales, across every industry. And then it will be clear that the lucky early movers weren't just riding a fad to riches—they were shaping the future.

▲ ILLUSTRATION BY **MICHAEL GEORGE HADDAD**

WHO ARE YOU CALLING 'BORING'?

Blue chips are aggressively pitching a new message to lure hot talent: We're sexy too!

BY DAN LYONS

ONCE UPON A TIME, bold-letter names like IBM and GE had their pick of the most talented college grads. Oh, how quaint those days seem. Today's young tech elite (need we say?) covet gigs at Google or Facebook, or at sexy upstarts like Snap, leaving the big old brands with a big old talent gap.

The problem is plain: Millennials view the old guard as the corporate equivalent of mom jeans. And perhaps worse than that, in this era of triple-A (Amazon, Alphabet, Apple) domination, they're seen as underdogs. So to overcome that image, the mature megacompanies are investing heavily in "employer branding," marketing themselves to job seekers with the same fervor they use to woo customers.

GE rolled out a popular TV ad campaign in 2015 explaining why youthful techies should give the "digital industrial" giant a second look. One series featured "Owen," a twentysomething software engineer whose friends think he's nuts for taking a job at GE, while his pal works for a startup with an app that puts fruit hats on animal pictures.

DAN LYONS
Our brand-new columnist is the bestselling author of *Disrupted: My Misadventure in the Start-Up Bubble.*

Visits to the GE career site went up eightfold. The ads "turned into maybe the greatest recruiting program we've ever done," says Linda Boff, GE's chief marketing officer. Since then the company has shot versions in French and Chinese.

NBCUniversal has created a role called talent branding specialist—a marketer whose job is essentially to put the company on the radars of the most sought-after candidates. IBM is creating videos in which pierced-nose, flannel-clad hipsters talk about working at Big Blue. The videos were created by a startup called Uncubed that acts as a matchmaker between legacy brands and young job seekers. Last fall, those videos and a related campaign aimed at college seniors reportedly helped IBM land 73 new engineers.

The hidden narrative in nearly all of these campaigns, in case you've missed them, is that these fourth-, fifth-, and sixth-generation corporations are deeply purpose-driven, just as the new breed of startups promises to be. "People want to do business with organizations that reflect their personal values," says Daniel Chait, CEO of Greenhouse Software, a New York startup that sells HR-recruiting programs to hipsters like Airbnb, Pinterest, and Snap. "They want to be proud of where they work."

Which is why GE touts that its engineers tackle big, challenging problems with global impact, like "bringing electricity to a billion people, or delivering remote health care," says Boff.

To some, no doubt, the employer branding campaigns will reek of desperation—or worse, as empty "messaging" that could backfire and turn off talent. But it doesn't have to be either. Indeed, it shouldn't be either. There's often a good, honest case to be made that a century-old company has not only a knack for growing and managing a P&L, but also, perhaps, a heart and soul. How else could it survive that long? F

© LYONS: GRETCHEN ERTL

FEEDBACK: **LETTERS@FORTUNE.COM**

▲ ILLUSTRATION BY **SAM ISLAND**

COMPANY SPOTLIGHT | **UNIVERSAL HEALTH SERVICES**

Health Services Company UHS Earns Admiration By Putting Patients First

FORTUNE WORLD'S MOST ADMIRED COMPANIES 2017

ALAN B. MILLER
CHAIRMAN OF THE BOARD, CHIEF EXECUTIVE OFFICER UNIVERSAL HEALTH SERVICES

First-rate facilities, patient care and community involvement win high honors for hospital management firm.

ALAN B. MILLER HAD SEEMINGLY unlimited career opportunities after graduating from college—or, in his case, colleges: the College of William and Mary and the Wharton School at the University of Pennsylvania.

"If I was interested only in making money, I would have gone to Wall Street and traded bonds," he says. "But I wanted to do something that I thought would be more meaningful. Everybody has to make a living, and I respect that. What I wanted, though, was to have a life's work that when it was all done, it would also be meaningful to a lot of people."

A lot of people—including the 77,000 employees—might say that he has more than succeeded.

In 1979, Miller founded Universal Health Services Inc., with the goal of attracting top professionals and helping communities. Today, UHS is considered one of the largest and most respected hospital management companies, earning the honor of being named one of *Fortune*'s World's Most Admired Companies this year. Through its subsidiaries, the *Fortune* 300 company owns and operates 320 facilities in 37 states—plus Washington, D.C.; Puerto Rico; the U.S. Virgin Islands; and the United Kingdom—with annual net revenues of nearly $10 billion.

"What we're all about is taking care of patients," Miller says of UHS's mission. "Occasionally, someone will say, 'Oh, I know, we have to do well for the shareholders,' and I say, 'No, we have to do well for the patients!' If we have first-class facilities, equipment, and treatment, and if all of that works, patients will come and our shareholders will do very well. And they have."

Employees are highly engaged in their communities, and the company is a long-time supporter of wounded warriors, with some 15 of the company's facilities dedicated to treating injured veterans.

For Miller, the *Fortune* designation, the latest in a long list of honors, "means that our employees are recognized for all that we want to do: giving patients the best treatment they can possibly get, with the latest equipment and a highly qualified staff, and seeing them go home in much better condition than when they came."

UHS
Universal Health Services, Inc.

"Occasionally, someone will say, 'Oh, I know, we have to do well for the shareholders,' and I say, 'No, we have to do well for the patients!' If we have first-class facilities, equipment, and treatment, and if all of that works, patients will come and our shareholders will do very well. And they have."

ATLANTA

THIS CAPITAL CITY OF THE PEACH STATE OFFERS A THRIVING BUSINESS ENVIRONMENT AND AN UNMATCHED QUALITY OF LIFE. THE BEAUTY OF THIS SOUTHERN GEM IS HARD TO BEAT—AND IT'S WHY MORE CEOS ARE BRINGING THEIR COMPANIES HERE.

ATLANTA

WHERE BUSINESS GETS DONE

WITH ITS SUPERIOR QUALITY OF LIFE, EDUCATED WORKFORCE, AND OUTSTANDING COLLEGES AND UNIVERSITIES, THERE'S GOOD REASON WHY MORE AND MORE COMPANIES ARE CHOOSING TO CALL ATLANTA HOME.

THE ATLANTA FINANCIAL CENTER, in the heart of Buckhead's commercial district, is a group of striking aluminum and glass buildings that overlooks both Georgia 400 and Peachtree Road.

JEFFREY GREENBERG/UIG/GETTY IMAGES

RUNNING A MAJOR CITY IS NEVER EASY, but when it comes to attracting business, Atlanta Mayor Kasim Reed has a winning hand. This capital city of the Peach State has the third-highest concentration of *Fortune* 500 companies in the nation, and over the past four years, no fewer than 18 major corporations have moved their regional or North American headquarters to Atlanta. These companies have brought in thousands of jobs and millions of dollars in spending across all sectors of the city's economy. Mayor Reed can easily tick off the reasons why—lots of talented workers, great higher education, and, of course, he's quick to add, nice weather. But the core of Atlanta's attractiveness is this: The city is getting the fundamentals right.

Companies are flocking to Atlanta not only for what it offers but also because it has its financial house in order. The city's business-friendly tax structure means operating here is less expensive. According to a 2016 report by the tax and accounting firm KPMG, metro Atlanta has the lowest cost of doing business among the 10 largest U.S. metro areas. The 6% corporate income tax rate hasn't changed since 1969, and property taxes—an important consideration for relocated workers looking to buy homes and put down roots—haven't risen in more than seven years. The city is investing heavily in its roads and mass transit systems in response to a growing population. Pension reform will save the city more than $500 million over the next 30 years, and the major credit-rating agencies have upgraded the city eight positions over the past seven years to AA+. And—did we mention?—it's hosting the Super Bowl in 2019.

"All of this gives the business community confidence that when they move into Atlanta, they are coming to a city where the economic fundamentals are sound and the business environment is one where they can succeed," Reed says.

Lots of cities claim to be business-friendly, but few come close to what Atlanta offers. For evidence, just look to the dozen and a half *Fortune* 500 companies that call Atlanta home, including Coca-Cola, Delta Air Lines, the Home Depot, Mercedes-Benz USA, and Porsche Cars North America.

Life sciences companies are another source of growth, attracted by the presence of the Centers for Disease Control and Prevention and the national headquarters of the American Cancer So-

ATLANTA

"ATLANTA'S LOW COST OF DOING BUSINESS GIVES THE BUSINESS COMMUNITY CONFIDENCE THAT WHEN THEY MOVE INTO ATLANTA, THEY ARE COMING TO A CITY WHERE THE ECONOMIC FUNDAMENTALS ARE SOUND AND THE BUSINESS ENVIRONMENT IS ONE WHERE THEY CAN SUCCEED."

KASIM REED, *Mayor*

WITH 5.7 MILLION RESIDENTS, METRO ATLANTA HAS AN ECONOMY THAT IS STRONG AND GROWING. ITS $295 BILLION GDP MAKES IT THE NINTH-LARGEST METRO REGION IN THE COUNTRY.

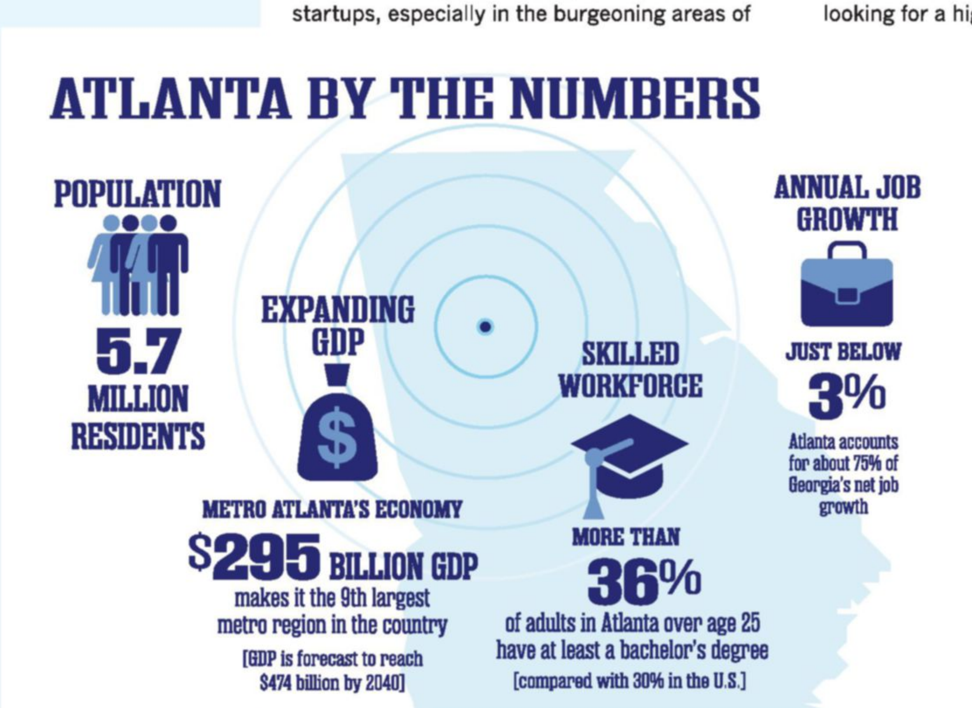
ciety. Children's Healthcare of Atlanta has become one of the country's premier healthcare facilities dedicated to children, in large part because of the talent it can recruit from the medical and nursing schools at the city's top universities.

Once companies are here, they expand. NCR, the hardware and software company best known for its point-of-sale retail terminals, moved its world headquarters from Dayton, Ohio, to metro Atlanta in 2009. In January 2015, NCR announced it was moving from suburban Gwinnett County to Midtown Atlanta, bringing 5,000 jobs with it. Earlier this year, athenahealth, a leading provider of network-based services and point-of-care mobile applications for hospitals, announced that it would expand its workforce to nearly 1,000 by 2018 and double its initial footprint in the city. The company surpassed its three-year projected employee growth rate by approximately 40% in its Atlanta office.

Add to this growth the exploding number of startups, especially in the burgeoning areas of healthcare IT and cybersecurity, and it's little wonder that metro Atlanta is known as the economic engine of the Southeast.

And that engine is humming along. Annual job growth in Atlanta hovers just below 3%, outranking the state (2.3%) and the nation (1.4%) overall. What's more, the city accounts for about 75% of Georgia's net job growth. With 5.7 million residents, metro Atlanta has an economy that is strong and growing. In fact, its $295 billion GDP makes it the ninth-largest metro region in the country, one that is forecast to reach $474 billion in GDP by 2040.

With a new administration in Washington and uncertainty about spending, Atlanta benefits from not being overly dependent on federal jobs. The city doesn't have a major military base, and only 4% of the metro area's nonfarm earnings come from federal employment, compared with 7.7% for the state as a whole. Instead, Atlanta has been able to attract a good mix of private employers looking for a highly educated workforce. And here they can find them: More than 36% of adults in Atlanta over age 25 have at least a bachelor's degree, compared with 30% in the U.S.



FRIENDLY SKIES

A major factor in Atlanta's thriving economy is its world-class airport. Hartsfield-Jackson Atlanta International Airport (ATL) hosts more than 104 million passengers annually, earning it the distinction of world's busiest airport. ATL offers direct flights to more than 150 domestic and nearly 70 international destinations in more than 50 countries, providing ultimate convenience for business and leisure travelers. In fact, ATL is within a two-hour flight of 80 % of the U.S. population.

INFOGRAPHIC BY DAVID FOSTER; MAYOR'S PHOTO: CITY OF ATLANTA

ATLANTA

HARTSFIELD-JACKSON AIRPORT HAS A DIRECT ECONOMIC IMPACT OF NEARLY $35 BILLION ON METRO ATLANTA, AND MORE THAN 63,000 PEOPLE WORK ON-SITE, MAKING IT THE STATE'S LARGEST EMPLOYER.

With its sleek, clean terminals, hundreds of food and retail shops, and spacious atrium, ATL has become a model for other airports nationwide. Now a $6 billion capital improvement program is underway. Plans call for a sixth runway, new concourse with 10 gates, new four-star hotel, and terminal upgrades featuring new technology and an atrium with a modern, airy feel. Part of the capital improvement program will include money to transform the area around the airport into a so-called aerotropolis. "Hartsfield is one of the main reasons why Atlanta has been as successful as we've been in attracting so many businesses," Reed says.

Indeed, Andre Oosthuizen, vice president of marketing for Porsche Cars North America, says the proximity of the airport to the carmaker's headquarters is a huge plus. "Our parent company is based in Germany, and there are direct daily flights there," he says. "Plus, we can get to most of our major markets in the U.S. in a short amount of time."

Hartsfield-Jackson is not only a driver of the region's economy, but it is also arguably its biggest asset. The airport has a direct economic impact of nearly $35 billion on metro Atlanta, and more than 63,000 people work on-site, making it the state's largest employer.

To leverage that power, the Atlanta Aerotropolis Alliance was formed in 2014 to build up and revitalize the area around the airport and create a cohesive plan for future development, says Reed. The goal is also to attract international companies, logistics companies, and others that can benefit from proximity to the airport.

In addition to Porsche locating its North American headquarters in the aerotropolis, new luxury hotels and class A office space are planned for the region. The Capella Hotel Group, a portfolio of luxury hotels around the world, has signed a deal to build the first Solis Hotel in the Atlanta region near Porsche's headquarters. A new four-star InterContinental Hotel will open as well. All of these buildings will be located near a travel plaza adjacent to the airport's main domestic terminal and MARTA (Metropolitan Atlanta Rapid Transit Authority) mass transit station.

"The airport has been the linchpin to our success, and it makes sense to develop a solid plan to make the most of the land the city owns around it," Reed says. Adds UPS chairman and CEO David Abney: "Email and Skype haven't replaced the need to sit down in person

ALAMY

HARTSFIELD-JACKSON AIRPORT is a global gateway, offering nonstop service to more than 150 domestic and nearly 70 international destinations.


Because the best dressing room is your bedroom.
When returning is as easy as buying, your customers get the hassle-free shopping experience they want. And since 45% of shoppers have returned something they purchased online in the past year*, we make it as simple as placing a label on a box. Plus, UPS Returns® services provide greater visibility of items coming back, so there are no surprises for you or them. Just one of the many ways UPS is helping companies solve for today's rising customer expectations. See how we can help you at ups.com/solvers
ups
united problem solvers™
*UPS Pulse of the Online Shopper™ Survey
Copyright ©2016 United Parcel Service of America, Inc.

EIGHTEEN *FORTUNE* 500 COMPANIES ARE HEADQUARTERED IN ATLANTA, BUT NONE IS MORE CLOSELY ASSOCIATED WITH THE CITY THAN COCA-COLA.

THE WORLD OF COCA-COLA is a popular museum showcasing the history of the company (top). **DELTA AIR LINES** has called Atlanta home since 1941, and is the state's largest private employer.

with your customers. Hartsfield-Jackson and the interstate system, with Atlanta as a hub, make travel convenient to our U.S. and international markets."

Delta Air Lines has called Atlanta home since 1941, and with more than 33,000 employees statewide, the airline is Georgia's largest private employer. Since 2008, it has added 6,500 employees.

Atlanta is Delta's largest hub worldwide, and its expansion over the decades has created one of the world's leading gateways. In the past few years, the airline and its joint venture partners have grown both domestic and international routes, and when Southwest Airlines reduced its operations out of Atlanta, Delta filled in the gaps. Today, it offers almost 1,000 peak day departures to more than 200 global destinations.

Delta benefits the city in other ways as well. The airline has worked with Hartsfield-Jackson executives to implement more than $4 billion in projects that have helped shape the airport into the world-class facility it is today. The bulk of this money has come in the form of direct contributions and airport fees.

Recently, the airline signed a new 20-year lease that will keep Delta's corporate headquarters in Atlanta through 2036. The previous lease was for seven years, which proves, says Reed, just how much faith Delta has in the business and economic vitality of the city it has called home for so many decades. Says Joanne Smith, EVP and chief human resources officer for the airline: "Atlanta is Delta's headquarters and home to our most important airport hub. Our confidence in the city's long-term success combined with their cost structure and efficiency of operations support Delta's continued and long-term commitment."

Eighteen *Fortune* 500 companies are headquartered in Atlanta, but perhaps none is more closely associated with the city than Coca-Cola. The beverage giant has been doing business here since 1886 and has grown to include more than 500 brands sold in over 200 countries. An astounding 20 of those brands are $1 billion businesses in their own right.

Next door to Coke's 26-story headquarters in downtown Atlanta stands the World of Coca-Cola, a museum that lets tourists learn about the history of the brand and its reach around the world, and view some of its more iconic commercials from over the years. Chairman and CEO Muhtar Kent, who has been at the helm of Coke since 2008, is an ambassador of sorts for Atlanta and has spoken to scores of other executives over the years about the many qualities that the city can offer to their companies.

COCA COLA/PICTURE GEORGIA


IT'S A NEW DAY IN RETAIL
Thanks to Atlanta, its business community and its people, we have the tools to lead the way.
THE HOME DEPOT
THE HOME DEPOT

ATLANTA

> "THERE'S A YOUTHFUL, CAN-DO ENERGY IN ATLANTA AND A BASE OF SUCCESSFUL AND INNOVATIVE COMPANIES. THE COMMUNITY AND THE PEOPLE HERE CONTRIBUTE IN COUNTLESS WAYS TO THE SUCCESS OF THE BUSINESSES HERE."— **MUHTAR KENT**, COKE CHAIRMAN AND CEO

"There's a youthful, can-do energy in Atlanta and a base of successful and innovative companies," he says. "The community and the people here contribute in countless ways to the success of the businesses here. And Atlanta has retained the kind of quintessential Southern reputation for hospitality and kindness and for looking out for your friends, neighbors, and co-workers. The people who come here love the weather and the natural beauty of the Peach State as much as the locals—if not more."

When a company decides to move to Atlanta, it will also find close cooperation between the state and the city. Pat Wilson, commissioner of the Georgia Department of Economic Development, says he can't remember a time when a governor and mayor have gotten along as well as Georgia Gov. Nathan Deal and Mayor Reed.

"There's no jockeying for credit over the wins that we've had," Wilson says. "And when you look at the current political climate, it's even more amazing. To have a Republican governor and a Democratic mayor together meeting with a CEO and to see them give each other credit is pretty unusual. That gives a level of credibility and comfort to a business leader that the investment they're about to make in the state and the city is a safe one." Reed explains it this way: "The governor and I work on all these things together and because of that we're able to pool the financial resources to compete with other cities in a seamless fashion. We work hand in glove on job creation and job retention."

This was certainly the case when Mercedes-Benz decided in 2015 to move its North American headquarters from Montvale, N.J., to Atlanta. As the company considered Texas, North Carolina, and Georgia for its new home, the pro-business climate and the cooperation between corporate executives and state and local government are what helped seal the deal and create 800 new jobs.

During the trip to meet with Atlanta officials, Mercedes-Benz USA executives were able to speak candidly with the CEOs of Delta, UPS, and Georgia Power about what it's like to live and work in the city and the kind of support they could expect to receive at the state and local levels. "There was no question that Atlanta offered the perfect balance of a high quality of life for our employees, a great talent pool, and the business infrastructure that would enable us to realize the vision we have for

ARTIST'S RENDERING of the new $1.6 billion state-of-the-art Mercedes-Benz Stadium Plaza, scheduled to open later this year.

MERCEDES BENZ

AT THE DRIVER DEMONSTRATION track at the Porsche Experience Center, visitors can see firsthand how a Porsche handles on different simulated road conditions.

PORSCHE

MBUSA over the decades ahead," says Dietmar Exler, president and CEO of Mercedes-Benz USA.

What's more, both Delta and Lufthansa have flights from Atlanta to Frankfurt, the city closest to Stuttgart, the German headquarters of Mercedes-Benz parent company Daimler AG.

The luxury carmaker also underscored its commitment to its new city by inking a 27-year deal for the naming rights to the new $1.6 billion state-of-the-art sports stadium scheduled to open later this year. Mercedes-Benz Stadium—complete with a spaceship-like retractable roof—will be home to the NFL's Atlanta Falcons and MLS's Atlanta United and will replace the Georgia Dome, where the Falcons have played since 1992.

Porsche Cars North America has been in Atlanta since moving from Reno, Nev., in 1998. Yet, according to marketing vice president Oosthuizen, it has been in the last two years that the company has put down serious roots and truly feels like a corporate citizen.

When Porsche first arrived in Atlanta 18 years ago, it occupied several floors of a nondescript office building near the airport. "We didn't really feel like the brand had a home," he says. "We were more like tenants." That all changed two years ago when the company invested $100 million in a new corporate headquarters and the Porsche Experience Center. Visitors can get off a plane in Atlanta and within minutes experience driving a Porsche on a driver demonstration track. Along with a driving coach, folks can see firsthand how a Porsche handles on different simulated road conditions and learn about the technology built into the cars.

Oosthuizen says more than 10,000 visitors booked time on the track last year and more than 45,000 visited the center's heritage gallery and fine dining restaurant, which overlooks planes taking off and landing at the airport next door.

"Porsche is a strong brand with a passionate following, and we're grateful to be pursuing sustainable growth in a mature economy," he says. "Our move to this vibrant part of Atlanta has set our company up for even more growth in the years ahead."

A LEADER IN TECH

Atlanta's growth as a technology hub is helping longtime corporate citizens as they transform to meet the demands of today's customers. Just take a look at the Home Depot. The home improvement retailer that was started in Atlanta nearly 40 years ago by Bernie Marcus, Arthur Blank, and Ken Langone today has 71 stores in the metro area and about 2.3 million square feet of office space.

Yet Carol Tomé, chief financial officer and EVP of corporate services, believes the technology-driven changes that will take place in retailing over the next five years are game-changing. "That's especially important to our business as we blend the physical and digital worlds to provide an interconnected retail experience to our customers," she says. In fact, the Home Depot is now one of the 10 largest e-commerce sites in the U.S. and has gained award-winning status among technology, retail, and other industry publications.

To make good on that transformation takes tech talent—the kind that Tomé says Home Depot can now develop in Atlanta. Recently, the company opened the Home Depot Innovation Lab and Technology Center at Georgia Tech, and last month it announced its investment in Reed's recently launched incubator for startups.

Competition for this top-notch talent is admittedly fierce, Tomé says. To meet that challenge, the company has a robust intern program where each year it brings in 250 of the best and brightest students, many from Atlanta and Georgia. These students learn every aspect of the company and become the pipeline of talent for the years ahead. "We don't hire them because they're local," she says. "We hire them because they're among the best."

When you're moving packages and freight to and from more than 220 countries, access to top-notch tech talent is a must. UPS, a leader in logistics and supply chain management, knows that firsthand. The company moved its headquarters from Greenwich, Conn., to Atlanta in the early 1990s. While the city's lower cost of living was a big draw, CEO David Abney says so too was the ability to recruit the needed engineering and technical talent: "There are a number of well-respected schools and universities in Atlanta that produce the highly qualified candidates that are attractive to our company."

Since the 1990s, UPS has been based out of Atlanta's logistics cluster, which is located near Hartsfield-Jackson International Airport. Late last year, the company announced that it plans to invest more than $400 million to build a new regional package-sorting hub on the west side of Atlanta. When completed in late 2018, the hub will create 1,250 new jobs. This facility will feature state-of-the-art technology, Abney said in a statement announcing the investment. "When combined with the strong transportation connections and talented labor pool that Atlanta provides," he added, "UPS is building flexibility and capability to meeting the growing needs of our customers and our business in Georgia and around the world."

The 1.2 million–square–foot facility will feature sorting, processing, and data-capture technology and will include a delivery vehicle center and retail customer center. The company employs more than 14,000 people across Georgia, with the majority based in metro Atlanta.

THE ATLANTA TECH VILLAGE, in the Buckhead section, serves the thriving tech community. This 100,000-square-foot space houses entrepreneurs and small companies, who share common areas including a fitness center and game room.

ATLANTA TECH VILLAGE

STARTUP CENTRAL

Of course, attracting and retaining big, well-established companies is only half the economic equation. The mark of a forward-thinking 21st-century city is providing the climate for startups to take hold and grow. That's happening in Atlanta with places like TechSquare Labs and Atlanta Tech Village.

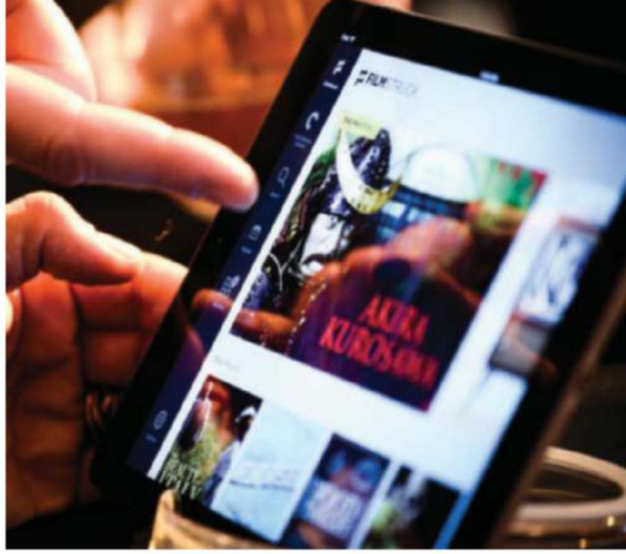
The former is an incubator, seed fund, and 25,000-square-foot co-working and innovation space in Atlanta's epicenter of tech talent, Technology Square. Startup founders, universities, and industry experts combine to help small tech companies get the talent, space, and funding they need to take their companies to the next level. Founders and serial entrepreneurs Paul Judge and Allen Nance formed TechSquare in Atlanta because of the enormous pool of talent coming from the state's colleges and universities, especially Georgia Tech, where more undergrad engineers graduate than from MIT, Stanford, and Caltech combined. So far, TechSquare has invested in nine local tech startups, including Greenlight, a company that devised a debit card for kids that parents control from their smartphone, and FraudScope, an automated intelligence platform for detecting healthcare fraud, waste, and abuse.

In the Buckhead section of the city is Atlanta Tech Village. Duke graduate and entrepreneur David Cummings started the co-working space to serve the thriving ecosystem in the tech community. He purchased the 100,000-square-foot building and rents out desks and private offices monthly to entrepreneurs and small companies, who also share common areas like a fitness center and game room. The goal: By creating a community, folks can collaborate, network, and generally feel less alone than when they're working on starting their own companies.

The city is getting involved as well. Earlier this year, Reed, the Georgia Institute of Technology, and the CEOs of 10 of Atlanta's top companies announced the launch of Engage, an accelera-

We're a 40-year-young start-up

leading the
next generation
of innovation
in Atlanta.



ATLANTA

WITH MORE THAN 30 COLLEGES AND UNIVERSITIES LOCATED IN ATLANTA, THE REGION IS CONSIDERED A LEADING CENTER FOR HIGHER EDUCATION AND TURNS OUT SOME 60,000 GRADUATES EACH YEAR.

tor program and venture fund. The idea for the program took hold several years ago when, during a trip to Silicon Valley, Reed met with venture capitalists and tech-sector entrepreneurs. He says he realized then that Atlanta needed a dedicated source of funding for startups based in the city and the state.

In a statement announcing the launch, Reed said, "Atlanta is the Southeast's technology, innovation, and entrepreneurship capital, with the third-largest concentration of *Fortune* 500 companies in the country. We must take advantage of these unique assets to further stimulate our growing ecosystem of startups and growth-stage companies."

Each of the 10 companies involved, including AT&T, Chick-fil-A, Cox Enterprises, Delta, and the Home Depot, will commit $1.5 million to the venture fund that will make equity investments in the startups admitted to the program. Engage will also offer these startups programming and other services through its affiliation with the Advanced Technology Development Center at Georgia Tech. Programming is scheduled to start in the spring, and up to 48 startups could potentially go through the program in the first three years.

A LEADER IN HIGHER EDUCATION

With more than 30 colleges and universities located in Atlanta, the region is considered a leading center for higher education. Emory University, Georgia State, Georgia Tech, Morehouse College, and Spelman College are all in Atlanta and help turn out some 60,000 graduates each year.

Among the most notable is the Georgia Institute of Technology, a research university located in Midtown that has been consistently ranked among the nation's top 10 public universities for its degree programs in engineering, computing, management, the sciences, architecture, and liberal arts. Georgia State is the second largest of the 35 colleges and universities in the University System of Georgia and a major contributor to the revitalization of the city's central business district.

Emory University is one of Atlanta's top private schools and consistently ranks among the top 20 schools in the U.S. Its Goizueta Business School has one of the best MBA programs in the country, and it also operates Emory Healthcare, the largest health care system in Georgia. Atlanta also boasts a campus of the Savannah College of Art and Design, a private art and design university that has proven to be a major factor in the recent growth of Atlanta's visual art community.

What's more, about 75% of graduates of Atlanta colleges choose to stay and work in the area.

GEORGIA TECH has more than 100 centers focused on interdisciplinary research that contribute vital research and innovation to American government, industry, and business.

A CONNECTED ATLANTA

To be sure, creating the next generation of high-tech companies in Atlanta is possible because of the city's reliable, high-speed connectivity. Glenn Lurie, president and CEO of Mobility and Consumer Operations for AT&T, says the telecommunications giant is at the forefront of this effort and is always looking for new opportunities to expand and grow its mobility and enter-

ATLANTA

MARK WAUGH / ALAMY

WITH THE INVESTMENT AND EXPANSION of the city's mass transit system, MARTA, the resulting improvements will help attract even more businesses to the downtown area.

tainment business.

In Atlanta they're doing just that. Back in 2008, the company realized that wirelessly enabling everything from household appliances to cars was the way of the future and started its Internet of Things business. "We started from scratch and put a full-time team here in Atlanta on it," Lurie says. Today, there are 30 million devices on AT&T's network as well as 10 million connected cars.

AT&T has invested in innovation centers in Atlanta, including its Drive Studio, a high-tech garage for the connected car. More than 20 brands—Audi, BMW, and Tesla among them—work with AT&T to figure out how to use connected technologies such as voice recognition to make cars safer and cut down on distracted driving.

Google Fiber is also trying to leverage the Internet of Things. It arrived in Atlanta several years ago and is in the midst of providing metro area residents with blazingly fast Internet speeds. This conversion to fiber-optic Internet service means that the area will be able to handle the smart network of sensors and cloud-based apps that allows us to control everyday devices and communicate with smart appliances in the home.

The service is being rolled out to different parts of the city according to where the fiber-optic cable is being installed. Google's fiber-optic installation is already complete in Austin, Texas; Kansas City, Missouri; and Provo, Utah.

Atlanta households that will most enjoy Google's new offering are those with lots of devices that eat up bandwidth (especially the cellphones and iPads of teenagers) and anyone who needs to download large files at home. Reed says he also views Google Fiber as a key ingredient in Atlanta's continued economic growth. "World-class Internet speeds are essential for our growing tech and startup industry, and we're hearing announcements about that industry every single day," he said last year when Google gave a demonstration of its high-speed Internet and TV services in the city. "Google Fiber gives Atlanta another powerful asset for attracting new businesses and helping individuals and companies chase their dreams."

WORKING TOGETHER

One of the most powerful tools Atlanta has when it comes to attracting new companies is the strong collaboration between the city, state, and business community. For over a decade, the Atlanta Committee for Progress (ACP) has acted as a board of directors for the mayor's office, providing advice and guidance on the city's future. The committee is made up of the CEOs and business leaders of Atlanta's largest private-sector companies, universities, and nonprofits, including Children's Healthcare of Atlanta, Coca-Cola, Emory University, Georgia Power, the Home Depot, and UPS.

Reed says the group meets quarterly and tackles some of the most vital issues facing the city, including pension reform, roads and transportation, technology infrastructure, education, and small-business startups. By hearing from leaders across a variety of industries, Reed says, the city

THE STATE AND CITY ARE INVESTING BILLIONS OF DOLLARS IN IMPROVING ROADS AND HIGHWAYS AND BEEFING UP ATLANTA'S MASS TRANSIT SYSTEM, MARTA.

gets access to best practices in dealing with the challenges Atlanta faces and corporate support—financial and otherwise—for initiatives that local government is looking to roll out.

ACP members, for instance, have contributed $10 million to the development of the Atlanta BeltLine. This sustainable redevelopment project is a network of public parks, multi-use trails, and transit along a historic 22-mile railroad corridor circling downtown and connecting 45 neighborhoods directly to one another. Residents and tourists alike can experience a wide variety of restaurants, bars, art, festivals, and other vibrant cultural events along its stretch.

The familiarity that ACP members have with one another, and with the mayor's office, is also a huge plus. "When we know that a company is coming to town to talk about moving to Atlanta, it's very easy for me to pick up the phone and ask a CEO to be part of the discussion," he says. "We want to make sure that when that business leader who's considering Atlanta is sitting there and looks across the table, there's another business leader present who he or she can have a candid offline conversation with. We think that's a huge differentiator for Atlanta."

Indeed, when Mercedes-Benz USA was considering the move to Atlanta from New Jersey several years ago, economic development commissioner Wilson says then-CEO Steve Cannon remarked that he was shocked to learn that the business leaders he met with during a dinner at the High Museum of Art all knew one another and were even familiar with where everyone's kids were playing baseball. "That warmth, that Southern hospitality, and the quality of life that we have here in Atlanta is really hard to beat," Wilson says.

MAKING THE INVESTMENT

Of course, with all this growth comes massive strain on roads and other infrastructure in the city and surrounding areas. "There's no question about it," Wilson says. "There is a downside to growth."

To counter the impact, the state and city are investing billions of dollars in improving roads and highways and beefing up the city's mass transit system, MARTA. Last year, Deal signed legislation that will invest $1 billion a year over the next 10 years to repair or replace 2,500 miles of roads and 400 bridges across the state. A mix of sales and hotel taxes will pay for the project.

The ACP's Infrastructure Task Force, chaired by Georgia Power Chairman, President, and CEO Paul Bowers, is working to provide the city with ways to address its backlog of infrastructure projects. It's working with private-sector experts to gather best practices in infrastructure construction management and consulting with Georgia Tech experts to determine technology strategies that can make Atlanta a more connected city.

In November, voters in Atlanta approved a slight increase in the sales tax that will raise roughly $2.5 billion for MARTA to add more buses, trains, and light-rail. Reed says this is the biggest expansion of MARTA in Atlanta's history and the improvements will help attract

ATLANTA

HAVING RELIABLE ENERGY AT COMPETITIVE RATES IS HELPING ATLANTA BUILD A WORLD-CLASS TECH HUB THAT ENABLES MORE COMPANIES TO START AND MOVE HERE.

even more businesses, many of which are choosing to bypass the suburbs in favor of the city. They're doing so, explains Wilson, primarily to attract millennials who prefer to live in the city.

Case in point: General Electric. Last year the company picked Midtown as the North American headquarters for its IT business, GE Digital. "With all the great universities here, there is access to the kind of talent we need," says Russell Stokes, president and CEO of GE Energy Connections. "As we become more of a digital industrial company, technical and engineering talent is highly sought-after. We can find it here in Atlanta."

A desire to tap into Atlanta's pool of tech talent is on the minds of its industrial companies as well. Novelis, for instance, a global producer of rolled aluminum for beverage cans and automobiles, among other products, does business with Coca-Cola, Samsung, and Ford, to name a few. Steve Fisher, president and CEO, says metro Atlanta has the kind of talent it needs to "fill a wide cross-section of corporate roles including advanced technical positions like those at our research and technology facility in nearby Kennesaw."

The added benefits of being located in a family-friendly city with a temperate climate, and being located a stone's throw from a world-class airport as a means to conduct global business, makes it that much easier for Novelis to attract the valuable talent it needs, Fisher says.

The same need for Atlanta's business and technical talent can be found at Genuine Parts Company (GPC). This $15 billion global distributor's access to graduates of Atlanta's top business schools, including Emory's Goizueta Business School, named after former Coca-Cola CEO Roberto C. Goizueta, means GPC will have a steady flow of top business talent. GPC's President and CEO, Paul Donahue, added, "Atlanta's growth as a tech hub has positively influenced our digital efforts, which is a huge bonus in today's competitive environment."

Building a world-class tech hub wouldn't be possible without reliable energy at competitive rates. That's where Georgia Power comes in. The electric utility serves 2.5 million customers throughout the state with rates 14% below the national average. Chairman, President, and CEO Bowers says the company's diverse portfolio of natural gas, nuclear, coal, and renewable energy is attractive to companies considering moving to Georgia. "Reliable and affordable power is a key advantage of doing business in Atlanta, and we recognize the essential role that it plays in keeping businesses fully functional under all circumstances," he says.

Like other major corporations in the metro area, Georgia Power depends on a continuous pool of technical and engineering talent. Bowers says he has seen tremendous growth in the number of jobs created, but he has also seen the talent pipeline replenished by the 60,000 students graduating from local universities and colleges each year. More than a quarter of these students are entering the workforce, he says, with degrees in the areas of IT and business.

GEORGIA POWER developed this 30 MW solar project located at Fort Benning, GA. This solar site uses nearly 134,000 photovoltaic panels to produce energy for Georgia homes and businesses.

GEORGIA POWER

The City of Atlanta is the economic and cultural center of the Southeast. Our young, diverse and well-educated workforce is a magnet for both Fortune 500 companies and innovative start-ups. Our affordable quality of life and progressive investments in connectivity and transportation make Atlanta the ideal place to locate your business, raise your family and build your dreams.

"Atlanta: a place where what's dreamed is achieved, and what's achieved is achieved together."

- Mayor Kasim Reed

For more information about the City of Atlanta please visit:
www.atlantaga.gov | facebook.com/cityofatlanta | @cityofatlanta

ATLANTA

CNN WORLD HEADQUARTERS is located in the heart of downtown's business district. The CNN Center is a 1.5 million square foot, multi-use megastructure, which serves as the central component of a 16 acre development.

As a corporate citizen of Atlanta for more than 130 years, Georgia Power has a long history of giving back. Last year, the company and the Georgia Power Foundation invested more than $16 million in communities and nonprofits in the state. Employees and retirees volunteered a combined 154,000 hours of their time. "Our first president, Preston Arkwright Sr., coined the phrase 'A citizen wherever we serve,'" says Bowers. "That mantra remains at the heart of our culture."

HOLLYWOOD OF THE EAST

Walk around Atlanta and chances are you'll see a TV show or movie being filmed. Over the past decade the number of productions that are set in the city, or simply use Atlanta to stand in for someplace else, has exploded. The recent film *Office Christmas Party*, starring Jennifer Aniston and Jason Bateman, did much of its filming in Atlanta, and the new FX series *Atlanta* is the story of the rap music scene set in—where else?—Atlanta. Filmmaker and actor Tyler Perry has an Atlanta-based production company and several years ago purchased the former Fort McPherson Army base on the outskirts of Atlanta, which he's converting into one of the biggest production studios in the country.

The appeal of Atlanta to filmmakers is easy to see: It has diverse locations, a good tax incentive, a temperate climate so that production companies can film all year, and lots of sound stages and crew. As a result, filming is now big business in the city that's often referred to as the Hollywood of the East. According to the mayor's office, Atlanta is No. 3 in the country for the amount of films and TV shows shot here, and the film and entertainment industry is a $6 billion business for the metro Atlanta region.

To keep the industry growing and creating jobs, the city last year launched a film training partnership program. The initiative helps local residents work on the sets of movies and TV shows in jobs such as animation, editing, makeup, postproduction, and visual effects.

The program is a partnership among the Mayor's Office of Film and Entertainment, the International Alliance of Theatrical Stage Employees (IATSE) Local 479, the film industry, and WorkSource Atlanta. The latter organization will identify qualified applicants (Atlanta residents 18 and over with a valid Georgia driver's license) and pay trainees' wages for the length of the 17-week program. Once accepted, trainees will work with IATSE Local 479 to learn the ins and outs of the film and TV industry and be placed on set. "The film industry is one of our economy's fastest-growing sectors," says Reed. "We are training the next generation of leaders in this business, which will help to drive our state and local economy for decades to come."

Turner knows a thing or two about film and TV. Ted Turner started the company, now owned by Time Warner, in the early 1970s and essentially put Atlanta on the map as a media and startup hub. It's the parent company of global news leader CNN, which is seen in over 200 countries. It also owns and operates many major networks and brands including TNT, TBS,

MIRA / ALAMY

TCM, the Cartoon Network, and Adult Swim and is the broadcasting hub for NBA and the NCAA's "March Madness" basketball tournament. About 6,500 employees—nearly half its total worldwide—are based in Atlanta. "The Atlanta workforce is second to none," says Angela Santone, executive vice president and global chief human resources officer for Turner. "It attracts and grows top talent, starting with the great local schools—both public and private."

As an example, CNN, a Turner staple, has grown into a global portfolio of about two dozen news and information services across cable, satellite, radio, mobile devices, and the Internet, as well as producing original content. Santone says Turner's ability to tap into a technical workforce—and especially those with the digital skills it needs now—makes Atlanta an especially important partner in growing the company.

And when it comes to recruiting talent to the area, there's a lot to offer. "When we're looking to attract people from Los Angeles, San Francisco, or New York, we can offer them a similar cultural and metropolitan experience, at a lower cost of living," she says. "Southern culture is laid-back and inviting, so we offer a change of pace."

SOUTHERN CHARM

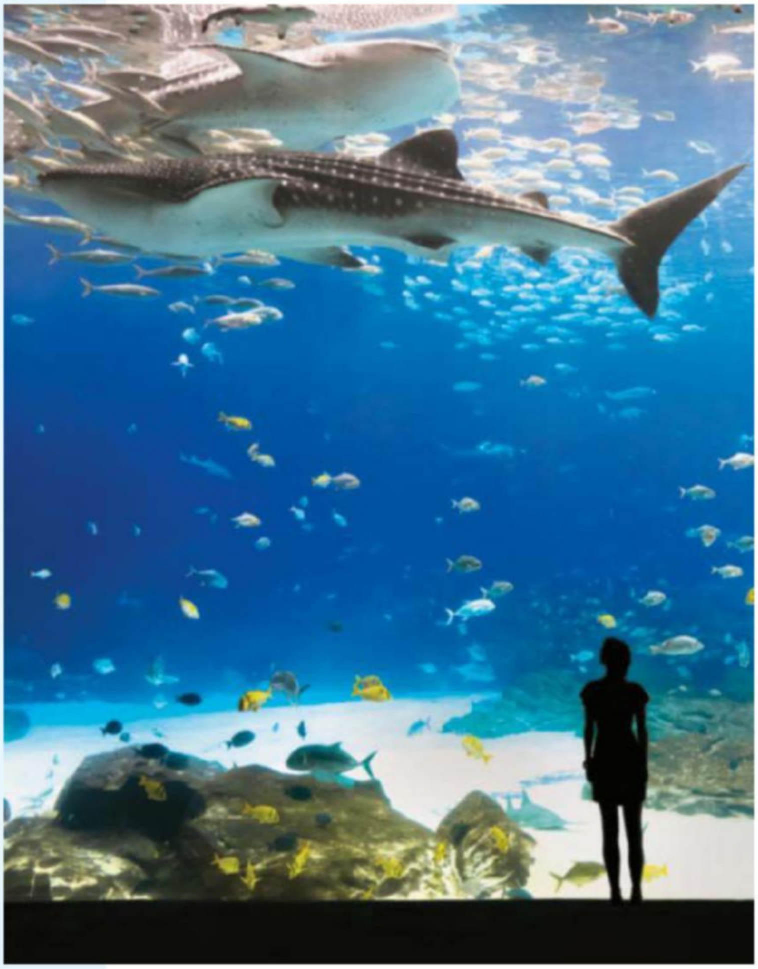
In fact, few cities can match Atlanta's reasonable housing costs, weather, outdoor activities, diversity, and, of course, Southern hospitality. And if you want to get anywhere, Hartsfield-Jackson International has daily flights to nearly anywhere in the world.

Tourist attractions abound in Atlanta, including the headquarters of CNN, the World of Coca-Cola, and the amusement park Six Flags Over Georgia, just west of the city. The stunning Richard Meier–designed High Museum of Art, Piedmont Park, and the restored Fox Theatre are all located in central Midtown.

For pure wow factor, Georgia

ATLANTA

TWO OF ATLANTA'S BIG SELLING POINTS ARE ITS METROPOLITAN VIBE COUPLED WITH A MORE REASONABLE COST OF LIVING COMPARED WITH THE EAST OR WEST COAST.



A VISITOR WATCHES intently as two giant whale sharks circle overhead at the Georgia Aquarium—the largest in the Western Hemisphere.

DEJAN PATIC/GETTY / GETTY IMAGES

Aquarium—largest in the Western Hemisphere—is tough to top. Opened in 2005, it has more than 10 million gallons of water in over 100 habitats. It is the only aquarium in North America, says president and chief operating officer Joe Handy, that is home to manta rays and whale sharks, the largest fish in the world. And just consider this: The four whale sharks in residence eat more than 47,000 pounds of food each year.

Glenn Lurie of AT&T is originally from New York but has been in Atlanta for 13 years. Throughout his career he has lived in Los Angeles, Phoenix, Portland, and Seattle, but he calls Atlanta an absolutely terrific place to raise his family. "I have a 23-year-old son and a 20-year-old daughter at the University of Georgia and both want to come back to Atlanta to live, they love it so much," he says.

"Atlanta is a city that gets even better once you're here," adds Russell Stokes of GE. He says one of the most common things he hears from relocated employees is this: "I never expected Atlanta to be such a great place to live." Two of the biggest selling points, he feels, are its metropolitan vibe coupled with a more reasonable cost of living compared with the East or West Coast. Carol Tomé of the Home Depot concurs: "I think people are amazed by the amenities our residential communities offer. Not only will you find incredible single-family homes in neighborhoods tucked away just below the city skyline but also some amazing multi-unit housing in the heart of the city."

Of course, no description of Atlanta would be complete without talking about its sports teams and what they mean to the city. Four major league teams—the Falcons, Braves, Hawks, and Major League Soccer's Atlanta United FC—currently play in the city. College sports teams draw huge crowds as well.

Three of the professional teams will get new stadiums this year. In the fall, the NFL's Falcons and MLS's Atlanta United will play their new seasons at the Mercedes-Benz Stadium scheduled to open in July. The $1.6 billion stadium, complete with that retractable roof, which can open and close in seven minutes, will host the Super Bowl in 2019. It has 75,000 seats but can be expanded to 83,000 for events like the NCAA Men's Final Four, which will take place here in 2020.

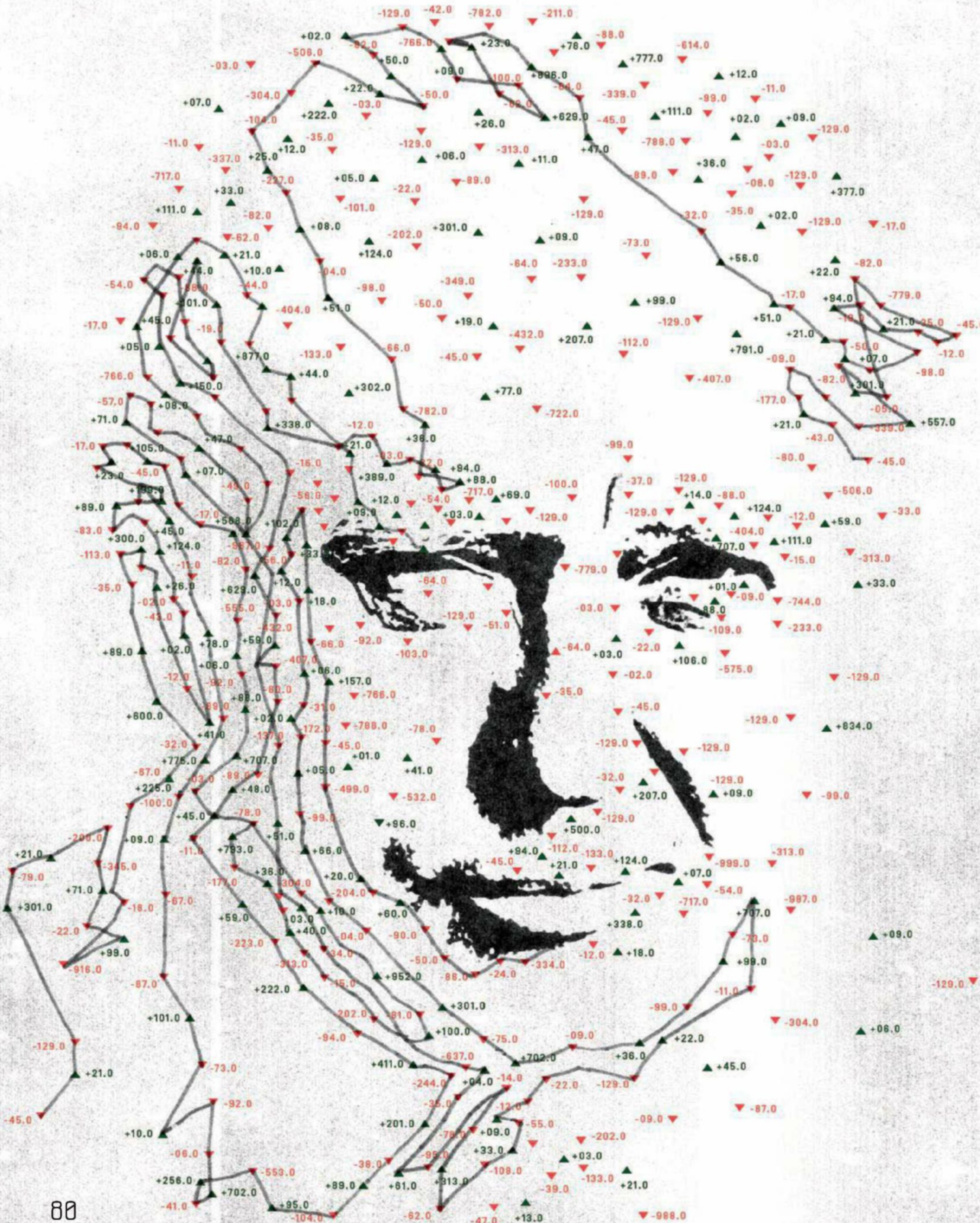
The new stadium is receiving $200 million in public funds, which will be financed from a hotel/motel tax collected by the city. The NFL will contribute $200 million, and Falcons owner Arthur Blank, co-founder of the Home Depot, is financing the rest. City officials are especially proud of the stadium's green profile. The sustainable design features include multiple public rail-line stations within a mile, solar-powered electric-vehicle charging stations to cut down on emissions from transportation to the stadium, and 4,000 solar panels, estimated to produce 1.6 million kilowatt-hours per year—enough to power 160 Atlanta homes.

Economic development commissioner Wilson works across the street from the new stadium and has been able to witness the construction process since the beginning. "It's gigantic and beautiful, and there will be nothing else like it in the NFL," he says proudly.

Not to be overlooked is the new SunTrust Park being built for MLB's Atlanta Braves in suburban Cobb County. Turner Field has been the home of the Braves since 1997. The stadium was originally built as Centennial Olympic Stadium when Atlanta hosted the 1996 Summer Olympics, but then renovated as a baseball-only stadium. The cost of upkeep and needed renovations at Turner Field proved to be too much, so a new park is being built instead. The state-of-the-art stadium will have more parking and additional transportation options for fans. SunTrust signed a 25-year agreement for the naming rights, while the Braves are investing roughly $400 million to develop the area around the stadium. Known as the Battery Atlanta, it will feature retail shops, restaurants, bars, and apartments.

For those more interested in Atlanta's cultural scene, the city doesn't disappoint. New shops, restaurants, and art galleries are opening all the time. Tennis, golf, and hiking can be enjoyed outdoors nearly year-round because of the mild weather. "I wouldn't say there's one biggest selling point to Atlanta because everyone has unique preferences, but that's where the city shines," says the Home Depot's Tomé. "You can go to a Falcons, Hawks, or Braves game one day, go hiking in the mountains the next day, and then have dinner at some of the world's most renowned restaurants."

As the business and civic leaders of Atlanta will tell you, the city that knows how to work hard knows how to enjoy life, too.



THE PROMISE AND THE PERIL OF THE TRUMP ECONOMY

NO PRESIDENT HAS EVER PUT FORTH SUCH A CONFLICTED MIX OF FREE-MARKET AND PROTECTIONIST POLICIES. WILL HE MAKE AMERICAN GROWTH GREAT AGAIN?

By SHAWN TULLY

Illustration by MIKE MCQUADE

IN DAVE COTE'S mind, the case for optimism is clear. The CEO of industrial giant Honeywell believes that the U.S. economy is poised for a surge under the Trump administration. President Trump's pro-growth plan to lower corporate taxes and streamline regulation, says Cote, has energized the business world. "I've talked to dozens of big- and small-company CEOs since the election," says Cote. "And I'm seeing a big improvement in animal spirits. Before, the attitude was, 'Things will muddle along, so we'll muddle along with it.' Now the herd is saying, 'Things are looking up. We don't want to miss out on this, so it's time to ramp up investment.'"

Such a shift in momentum can be powerful, asserts the veteran executive. "We needed some kind of a spark," says Cote. "And the spark was the change that occurred because of the election."

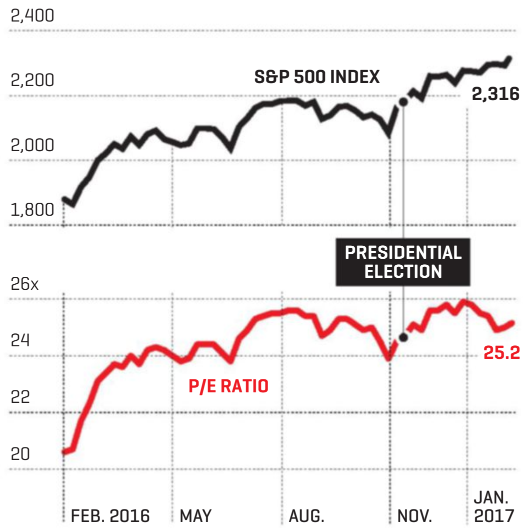
Indeed, it's not just *Fortune* 500 CEOs who have viewed the U.S. economy as primed for a breakout since Donald J. Trump's surprise victory on Nov. 8. Small-business optimism has spiked. In its December survey, the National Federation of Independent Business registered an astounding 38 percentage-point jump from November in the portion of business owners who expect better conditions going forward—from 12% to 50%.

The most obvious scorecard of confidence in Trumponomics, of course, is the stock market. And the huge Trump Rally in equities clearly indicates that investors are betting that the new President's policies will recharge corporate earnings. Since Election Day, the S&P 500 has risen more than 8%, adding some $1.4 trillion in value, and the manufacturing-heavy Dow Jones industrial average breached the historic 20,000-point threshold and kept climbing. After Trump said in early February that he was going to "announce something phenomenal on taxes in the next two to three weeks," the indexes leaped again to close at new highs.

The market rally assumes that the Trump administration can make good on its early promises to raise America's annual growth rate by gigantic proportions—from the dreary 2% of recent years to a robust 3% to 4%. That may just be doable, say a number of veteran economists, if Trump can deliver lower regulations and taxes without derailing the economy in some other way. "It's not in the bag, but it borders on the likely," says Allan Meltzer, a legendary monetary-policy specialist and onetime Reagan adviser.

RAISING THE STAKES

The Trump Rally since Nov. 8 has made already pricey stocks even more expensive, with the P/E of the S&P 500 now far above its long-term average of 16. If expectations for faster economic growth aren't met, the market could take a deep dive.



SOURCES: BLOOMBERG; S&P GLOBAL

That's what could go right. But there is much that could go very, very wrong.

Even many of Trump's ardent supporters in the business community fear that core elements of his platform could steer the economy in a far darker direction. The biggest risk is trade. Trump is advocating protectionist policies that could reverse the decades-old march toward open borders that has enriched both the U.S. and its partners, potentially igniting a global trade war. As he vowed he would on the campaign trail, Trump has already killed the Trans-Pacific Partnership—the trade agreement negotiated by the Obama administration that would have lowered barriers to U.S. exports with Japan, Australia, and nine other nations.

Conservative economists who support the tax and regulatory portion of his agenda are extremely wary about his instincts on trade. Trump has threatened Mexico and China with tariffs ranging from 20% to 45%—a strategy theoretically intended to lower our trade deficits with the two largest exporters to the U.S. that could backfire bigly. "The big risk to his success is a trade war," says Douglas Holtz-Eakin, the president of the American Action Forum and a former director of the Congressional Budget Office under George W. Bush.

But Trump's protectionist proclivities are hardly the only concern. His harsh anti-immigration stance is another downer for growth—with the potential to drive away or deport millions of workers who are the bedrock of the farming and construction industries, as well as to surrender the U.S.'s dominant position in the global talent wars by restricting visas for engineers and programmers who help power America's R&D.

Therein lies the promise and peril of the Trump economy: Put simply, America has never witnessed such a contradictory mix of free-market and antigrowth policies in the White House. Or a President who operates in such an unorthodox and unpredictable way.

Bolstering the case for pessimism is Trump's hair-trigger temperament and penchant for launching scorched-earth attacks on a daily basis—including on world leaders from whom the self-declared master dealmaker will need cooperation to deliver the export-boosting concessions that are the centerpiece of his "America First" economic plan. In addition to antagonizing China and Mexico, the President has lambasted Chancellor Angela Merkel for "ruining Germany." He even berated Prime Minister Malcolm Turnbull of Australia, a close U.S. ally, in a heated phone conversation.

Yet those incidents were but minor controversies in the chaos of the Trump administration's first few weeks. The Twitter-happy President lashed out at the "so-called judge" who suspended Trump's controversial immigration ban on people entering the U.S. from seven Muslim-majority nations, as well as the federal appeals court judges who upheld the ruling. Trump also found time to go after department-store chain Nordstrom after the retailer dropped his daughter Ivanka's clothing line because of falling sales, tweeting that she had "been treated so unfairly."

So much meshuggaas emanating from the Oval Office has raised very real questions about execution risk on all issues, including the economy. The hastily imposed Muslim ban in particular infuriated congressional Democrats, limiting chances for compromise even in areas like fixing roads and bridges, an initiative with bipartisan support. Although Republicans control both houses of Congress, it's unclear how much of the Trump agenda will actually become law. For example, financing his reductions in corporate levies depends heavily on the passage of an extremely complex "border adjustment tax," or BAT, that the Senate Republican leadership has yet to endorse.

"After the election, we were looking for areas of common ground, such as an infrastructure program," says Rep. John Delaney, a Maryland Democrat. "But now with the way the administration is behaving, the way they throw things out, people in Congress have gotten a lot more pessimistic. You need reliable parties at the table to negotiate a big, complicated tax and infrastructure plan. You have to ask, Are they going to be serious?"

Trump's sudden shifts in policy—and the difficulty in ever ascertaining whether he is bluffing or serious about his more dire threats—are causing widespread uncertainty. And if business hates anything, it's uncertainty. "I think things are moving in the right direction, but I'm seeing lots of nervousness," says Tom Barrack, chairman of real estate investment manager Colony Capital and one of Trump's closest friends. "I'm seeing totally polarized views on what's going to happen, from one camp believing things are going to be great, and an opposing camp predicting disaster."

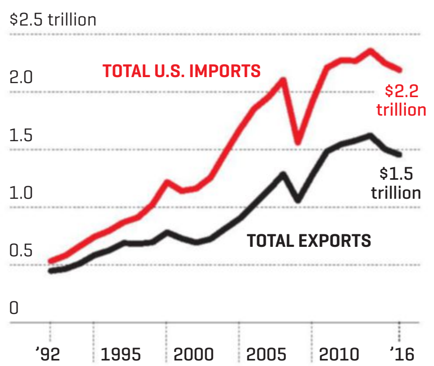
Some of Trump's proposals are already undermining his principal goals. His tariff threats against Mexico, for instance, have helped push the peso down 10% against the dollar since Nov. 8. That's made U.S. exports of everything from auto parts to appliances a lot more expensive across our southern border, slowing the exports that Trump vows to grow.

Both Trump's conflicted policy and his erratic execution have caused some on Wall Street to have second thoughts. For example, Ray Dalio, founder of the world's biggest hedge fund, Bridgewater Associates, praised Trump's policies in an essay on LinkedIn shortly after the election. In late January, he hedged his position in a note to clients and

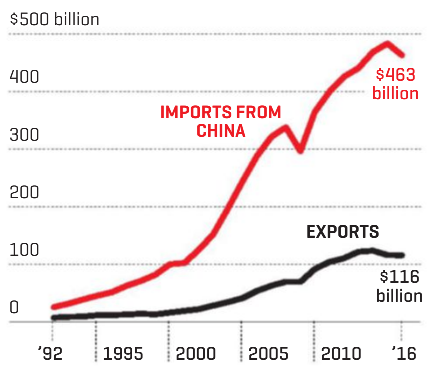
FILLING IN THE GAPS ON TRADE

For 25 years the U.S. has benefited from fast-growing trade, driven by agreements such as NAFTA that lowered barriers to foreign markets and opened America to cheap imports. But though exports grew rapidly, imports expanded faster, causing the protectionist backlash that helped elect Trump. The biggest factor by far in the U.S. trade deficit: the $350 billion gap with China—almost six times the shortfall with Mexico.

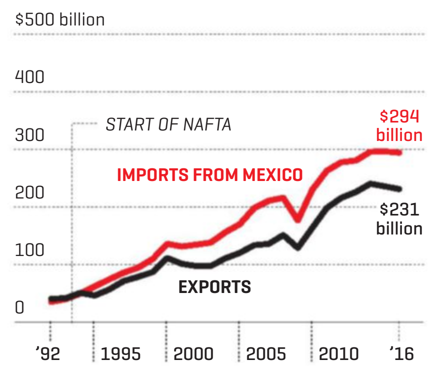
TOTAL U.S. TRADE



U.S. TRADE WITH CHINA



U.S. TRADE WITH MEXICO



SOURCE: CENSUS BUREAU

warned that he had become "more concerned that the damaging effects of President Donald Trump's populist policies may overwhelm the benefits of his pro-business agenda." In early February, Goldman Sachs sent a note to clients warning that "risks are less positively tilted than they appeared shortly after the election."

Danger is also lurking in the buoyant stock market. The big gains since the election have made pricey shares even more expensive, driving the trailing price/earnings ratio of the S&P 500 to 25 in mid-February—well above the historical average of 16. That leave equities extremely vulnerable to deep declines if investors begin to sense that Trump can't deliver the GDP gains that he's promising.

It's important to remember that it is still early days for the Trump administration. There's plenty of time for the new President and his advisers to refine their approach to governing and, in economic matters, to deliver his promised reforms. Speculating on the odds of that happening, however, is a fool's game. For now, we can focus only on what he has said he wants to do.

To better understand the specifics—and the unknowns—of Trump's policies and how they're likely to drive or slow the economy, *Fortune* interviewed dozens of economists, policy experts, former government officials, and business leaders.

What does Trump think of the turmoil he has caused so far? "I talk to him every day," says Barrack. "He thinks it's a revolution, and all the tumult is normal. He's not bothered at all by all the divisions in Congress and the electorate."

THE NEAR FUTURE of the American economy will depend on which side of the scale predominates under Trump: free-business initiatives or protectionist policies. Corporate tax cuts and regulatory relief will weigh heavily on the plus side. But an upheaval in trade would swamp all the potential gains from slashing regulations and taxes.

Trump's team appears divided on trade. Commerce Secretary nominee Wilbur Ross and White House National Trade Council chief Peter Navarro are in the protectionist camp, while Treasury Secretary Steve Mnuchin and top economic adviser Gary Cohn, the longtime No. 2 to Lloyd Blankfein at Goldman Sachs, seem wary of disrupting free-trade agreements. Keep in mind that Trump's pledge to protect workers from cheap, job-killing imports from China and Mexico was a key factor in helping propel him to the White House.

As quickly as things appear to be moving now, it's important to remember as well that negotiating big trade deals is a lengthy process. If Trump can significantly boost growth in the next two or three quarters, America will be in a far better mood. With payrolls and wages waxing, the pressure to build trade barriers will abate, and Trump could declare victory by trumpeting relatively minor concessions. That's probably the best-case scenario for achieving a healthy balance of policies. "If Trump can achieve consistent 3% to 4% expansion in GDP, nothing else matters," says Gary Hufbauer, an economist at the Peterson Institute for International Economics and a stern critic of Trump's views on trade.

Trump has a realistic shot at reaching that ambitious goal, though it will require implementing his unambiguously pro-business policies and mostly scuttling the rest. The President inherited a so-so economy that grew at just 1.6% in 2016 and has expanded at an average of 2.3% annually since the nadir of the Great Recession in mid-2009. Although the unemployment rate is now just 4.9% and the economy has created 11 million jobs in the past seven years, roughly an equal number of working-age Americans have ceased looking.

Many economists argue that a small pool of employable labor and an aging population, capped by low levels of immigration, have helped create a "new normal" that confines America to a plodding GDP growth rate of 2% or so. Trump isn't buying it. In the view of his economic team, the roadblock is a dearth of capital investment. They argue that Obama hobbled business with a host of expensive regulations in banking, energy, and manufacturing that forced CEOs into a defensive posture, in which they shunned risk taking and hoarded cash.

Whatever the reason, it's undeniable that capex in the U.S. has languished and that a healthy dose of new investment is absolutely essential to lifting America's growth trajectory. The crucial measure of capex, private nonresidential fixed investment, stalled in the third quarter of 2014. Since then, spending on new plants, labs, and research facilities has increased less than 0.5% a year, adjusted for inflation, creating a substantial drag on GDP.

Trump wants to jolt the U.S. economy back into action. He predicts a virtuous cycle in which his tax plan allows companies to raise their profits from new investments, driving them to boost spending. Then new machinery and tech breakthroughs will raise worker productivity and, hence, wages and employment. At the same time, lifting burdensome regulations should also recharge capex across the economy.

> "I TALK TO HIM EVERY DAY," SAYS TRUMP'S FRIEND TOM BARRACK. "HE THINKS IT'S A REVOLUTION, AND ALL THE TUMULT IS NORMAL."

SO LET'S GO DEEPER into Trump's plan to jump-start things. His three big pro-growth initiatives are corporate tax reform, regulatory reduction, and infrastructure renewal. We'll start with taxes.

Trump aims to greatly enhance the competitiveness of the U.S. economy by radically lowering the corporate rate. America's 35% federal corporate tax rate is the highest of any major developed nation, at least statutorily. In practice, U.S. corporations take advantage of so many write-offs that the effective tax rate is much closer to par with that of other advanced economies. Still, tax reform has a great potential to juice GDP. The Organisation for Economic Co-operation and Development (OECD) has identified heavy corporate levies as the most antigrowth of all tax categories.

Two plans are now in competition. The first is the relatively general platform that Trump issued during the campaign and hasn't updated. The second is the more comprehensive House Republican proposal. The two are remarkably similar, with one huge exception: The House plan includes a complex, controversial measure called the border adjustment tax, or BAT, which has the potential to raise a massive $1 trillion in tax revenue. More on that in a moment.

On personal taxes, both plans go big on simplification, reducing the number of brackets from seven to three and lowering the top rate from 39.6% to 33%. And on the business side, the House and Trump plans would both greatly reduce the corporate tax rate. Trump proposes a top federal rate of 15%, one of the lowest levies in the developed world. The House champions a maximum of 20%.

Both plans also propose another historic tax break for businesses, one aimed at raising investment. They would allow companies to write off 100% of all capital investments in the first year instead of expensing them gradually over three to 20 years or more, as required under current law. "It's crucial because when companies depreciate a $1 million investment over 10 years, they're really getting a tax break of maybe $750,000 because of inflation," says Kyle Pomerleau, an economist at the Tax Foundation, a nominally "nonpartisan" think tank with a free-market tilt. "If they write it off in year one, they get the entire $1 million as a deduction." That difference substantially raises the future returns on new plants and equipment.

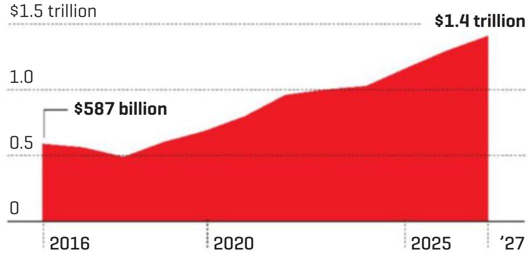
The crucial difference between the two plans is the BAT—a revolutionary new border tax that resembles the VAT, or value-added tax, levied by virtually all of America's trading partners. The BAT, however, is a different animal.

How does it work? Whereas the VAT is essentially a sales tax that's eventually tacked onto the price of a product or service, the BAT is more complicated. It would raise and lower corporate income taxes, increasing levies on importers and providing big credits to exporters. Today importers pay a 35% rate on their profits. Under the BAT, they would pay the new rate—let's call it 20%—on the entire revenue they collect selling,

STARING DOWN A TSUNAMI OF DEBT

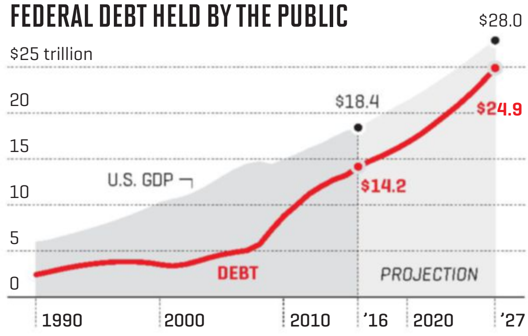
Trump has yet to outline a plan to deal with America's looming debt and deficit crises. According to the CBO, unless the U.S. curbs spending—especially on entitlements—the deficit will swell from $587 billion in 2016 to $1.4 trillion in 2027, and America's debt load will leap from $14.2 trillion to $24.9 trillion, a staggering 90% of GDP.

PROJECTED BUDGET DEFICIT



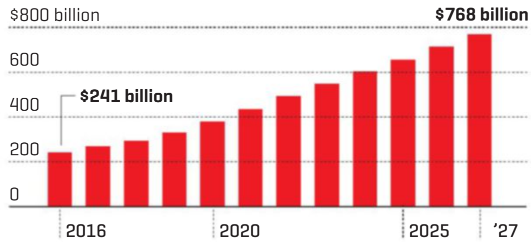
SOURCE: CONGRESSIONAL BUDGET OFFICE

FEDERAL DEBT HELD BY THE PUBLIC



SOURCES: FEDERAL RESERVE; CONGRESSIONAL BUDGET OFFICE

PROJECTED YEARLY INTEREST PAID ON DEBT



SOURCE: CONGRESSIONAL BUDGET OFFICE

for example, Japanese cell phones or French perfume in the U.S. That would more than double the taxes paid on a $30,000 car with a 20% profit margin—from $2,100 to $6,000.

By contrast, U.S. exporters would get an added deduction for the full revenue collected on the products they sell abroad. So they would go from paying 35% on their profits in Germany or Japan to receiving a big rebate. Supporters of the BAT claim that it will cause an already-strong dollar to further strengthen, lowering the cost of imports, so that foreign nations would sell the same volume of goods in the U.S. as they do now, and that the big rebates would exactly offset the drag on exports from the higher dollar, leaving foreign sales unchanged as well.

The House bill pairs the BAT with what's called a "territorial" tax regime. Today U.S. companies pay the 35% rate on all income, earned anywhere in the world. Most other major nations impose their national tax only on profits booked at home. The Irish subsidiary of a French drugmaker pays tax only in Ireland on the products it sells in Ireland. The House plan would change the U.S. from an outlier by adopting the global standard of a territorial tax.

The combination of a BAT and territorial tax has important virtues. U.S. companies would no longer have an incentive to switch their headquarters to low-tax nations through notorious "inversions." And because import revenues are fully taxable, it would no longer make sense for importers to manipulate pricing to inflate the "costs" of goods sent to the U.S., a common practice for reducing profits, and thus lowering U.S. tax payments. Nor would U.S. companies have any reason to park hoards of cash in foreign subsidiaries, where $2.5 trillion in unrepatriated profits sit today.

The BAT is a levy the likes of which the U.S. has never seen—and there is understandable resistance to introducing such an intricate new system. Trump himself has been waffling on the idea, stating in late January that the BAT was "too complicated," then seeming to endorse it two weeks later. Big retailers such as Walmart, Target, and Rite Aid are adamantly opposed to the BAT, arguing that we don't really know if the dollar would appreciate enough to offset the tax levies on clothing and furniture from China. Nor has the Senate Finance Committee or Majority Leader Mitch McConnell endorsed the BAT.

If the BAT isn't enacted, it's likely that either one of the two pillars of Trump's tax overhaul will have to go, or that both the immediate expensing of capex and a corporate tax rate cut will be scaled back to lower the cost of reform. On paper, the BAT is crucial to making the numbers work.

THE PRESIDENT'S ASSAULT on regulations has two major parts: His pledge to repeal and replace the Affordable Care Act and the campaign to roll back costly red tape that hobbles energy producers, banks, and manufacturers. The promise on Obamacare is a kind of microcosm of the Trump agenda: Favoring markets rather than mandates is sound policy in theory. But the unknowns about timing and the details of what Trump will propose are creating tremendous uncertainty among patients and providers.

Although both Trump and House Speaker Paul Ryan claim that replacing the ACA is their top priority, the Republicans and the administration haven't agreed on a plan, nor on a deadline for when a replacement bill will be introduced. It's simply not clear if Trump will keep his pledge not to disrupt coverage for the 20 million people who gained coverage via Obamacare. "Whether he will stabilize Obamacare for now or blow it up by getting rid of the individual mandate or cutting payments to insurers that cover losses is still unknown," says Larry Levitt, a senior official at the Kaiser Family Foundation.

Right now, the stability scenario looks more likely. The administration is actually moving to strengthen the ACA. It's imposing new regulations that maintain a stronger balance between healthy and sick folks in the insurance pools. The goal is limiting enrollment periods to cure an Obamacare syndrome: a flood of patients who game the system by signing up only when they're seriously ill and dropping coverage as soon as they recover.

Still, health care providers are fretting that when it finally arrives, Trumpcare will savage their businesses. Under the ACA, the nation's hospitals agreed to big reductions in payments from seniors and the poor through Medicare and Medicaid in exchange for the expanded coverage that would bring them far more paying customers and reduce uncompensated care. That arrangement has greatly bolstered their finances. But if Obamacare is repealed and the Medicare and Medicaid payments aren't restored to their old levels, America's hospitals will face enormous losses. A study by industry groups puts the figure at a staggering $200 billion.

Outside of the ACA, Trump is beginning a regulatory rollback unmatched in generations. The field is vast and varied, and estimates of the annual costs of federal red tape range widely, from the Office of Management and Budget's estimate of $250 billion to the Competitive Enterprise Institute's $1.8 trillion. Whatever the true figure, the number and burden of new rules rose sharply during the Obama years. From 2009 to 2016, Obama implemented about 300 regulations costing more than $100 million annually, compared with 120 during the George W. Bush years.

Trump has pledged to eliminate 75% of existing federal rules. In reality, that won't come close to happening. It can take years of public hearings and lawsuits to eliminate regulations already on the books. Still, he's already wielding his pen as a giant eraser.

On Jan. 30, Trump issued an executive order requiring that in the future, any executive branch agency or department must eliminate two rules for every new one it issues. In addition, the regulations added and repealed can't add to the agency's total cost of regulation, a rule that will be enforced by the OMB. He has also imposed

THREE WISE MONEYMEN?

Trump's economic agenda will be led by (from top) Treasury Secretary Steve Mnuchin, chief economic adviser Gary Cohn, and Commerce Secretary–designate Wilbur Ross.

FROM TOP: EDUARDO MUNOZ ALVAREZ—AFP/GETTY IMAGES; ALBIN LOHR-JONES—BLOOMBERG/GETTY IMAGES; MIKE SEGAR—REUTERS

a moratorium on the 2,596 proposed-but-not-implemented regulations.

INFRASTRUCTURE RENEWAL should be a prime area of cooperation between Trump and the Democrats. But the two sides have highly divergent approaches, especially on funding. During the campaign, Trump called for $550 billion in federal spending. The new administration hasn't proposed a specific plan. But Trump is on the record advocating that most of the spending be channeled into partnerships between government and private companies. In a position paper written for the campaign, Ross and Navarro proposed granting tax breaks equal to 87% for up to $187 billion in equity that companies invest in infrastructure projects. The idea is that those public-private partnerships would leverage that equity into $1 trillion in new infrastructure spending and that payroll taxes on newly created jobs and contractors' profits would cover the full costs.

In practice, the Ross-Navarro plan won't nearly do the job. Many of America's roads and bridges don't have tolls or any source of revenue, and projects that do are mostly owned by the government. The partnerships could finance pipelines or private water systems. But they won't work for most of our crumbling highways, commuter rail networks, and the aging electrical grid, all of which are in desperate need of funding. "For the vast majority of projects, direct public funding is needed," says Marcia Hale, president of Building America's Future, a group that champions a bold offensive on infrastructure.

Trump's public-private concept contrasts sharply with a new proposal from New York's Chuck Schumer, the Senate minority leader. Schumer wants to spend $1 trillion in federal funds—aided by a tiny dollop of private money—on projects stretching from bridges to schools and veterans' hospitals. His counterpart, McConnell, trashes the Schumer plan as far too expensive.

A possible compromise is a bill sponsored by Rep. Delaney, which gets around the spending issue by tapping the proceeds from repatriation of foreign profits. Both the House Republican and Trump tax plans mandate that companies bring back all of their approximately $2.5 trillion in profits parked abroad. It's not a choice; they have to do it.

Delaney would use the proceeds of $170 billion for grants to states, municipalities, and federal agencies. That seed money could then be augmented by matching funds and bond offerings to finance $1 trillion in new projects and renovations. The bill has a number of Republican cosponsors and broad bipartisan support. It's not clear that Trump and McConnell will embrace the Delaney plan. If they don't, a standoff on infrastructure will loom.

THREE KEY ECONOMIC POLICY QUESTIONS

1. Will Trump go to BAT? One Republican tax-reform plan calls for a complicated new levy called the border adjustment tax. It could raise $1 trillion to offset corporate tax cuts. But U.S. retailers hate it.

2. What's the right way to finance an infrastructure building boom? Trump has advocated public-private partnerships, which aren't practical for many projects. The Democrats are pushing a $1 trillion federal public-works campaign. A possible compromise: Use the tax windfall from repatriating stranded overseas profits of U.S. companies to fund the much-needed investment.

3. Is Trump serious about starting a trade war? The President has threatened to impose tariffs on countries like Mexico and China if they don't lower barriers to U.S. exports. But odds are that a full-on breakout of protectionism would cause the value of the dollar to spike, shrink exports, and hobble growth.

NOTHING IN TRUMP'S RHETORIC or his actions has polarized the nation more than his stance on immigration. And his views on the subject threaten both the high and low ends of the U.S. workforce. A pair of draft executive orders leaked to the press contain two provisions that could greatly restrict immigration. The first directs the Department of Homeland Security to issue a rule stating that any immigrant deemed likely to receive public assistance, such as Medicaid or children's health insurance, cannot be admitted to the U.S. That rule would grant the officials wide latitude to possibly shrink today's inflow of legal immigrants, already at a low level of around 1 million a year. That would be bad for growth. Research has shown that immigrants are disproportionately likely to start new businesses. A study last year by the National Foundation for American Policy found that 51% of startups in the U.S. worth over $1 billion were founded by entrepreneurs born abroad.

The second rule could limit one of the tech industry's best sources of talent. It's the H-1B visa program allowing foreigners in "specialty occupations" to work temporarily in the U.S., frequently in computers and engineering. That's one reason Silicon Valley despises Trump's stance on immigration. Apple, Facebook, Google, and more than 100 other companies sued Trump to stop his ban on immigrants from seven Muslim-majority nations.

Today, H-1B applicants are chosen by a lottery, and the annual number is capped at around 85,000. It isn't clear that Trump's new policies would cut that number, but the draft states that U.S. policy should "prioritize the protection of American workers." A new House bill with bipartisan support would raise the minimum salary companies need to pay H-1B workers from $60,000 to $100,000, a measure designed to prevent highly skilled immigrants from taking jobs from U.S. workers. The Trump team is pointing in the same, anti-H-1B direction.

THE MOST MENACING THREAT to the economy under Trump by far is trade policy. Hufbauer of the Peterson Institute reckons that imposing high tariffs would shrink the $5 trillion in goods and services the U.S. purchases at home and sells around the globe by 5%, causing a 1% drop in GDP. After the initial shrinkage, a trade war could explode. And even if our partners don't retaliate right away, America's multinationals would live in fear that formerly open borders would soon be barricaded with tariffs. Spreading protectionism is also likely to hurt equity prices. "That combina-

tion would chill investment," says Hufbauer.

For decades, the U.S. has benefited mightily from the spread of free trade. For example, our exports in goods to Mexico have risen 259% adjusted for inflation since NAFTA was enacted in 1994, to $231 billion in 2016. Over the same period, Mexico's exports to the U.S. jumped 345%, creating a $63 billion trade deficit—which by the way, mainly consists of our imports of Mexican crude oil and petroleum products.

Does that trade gap, or the bigger one with China, hurt the U.S.? From an economic point of view, just the opposite. "It makes no sense for us to make things at home if it costs less to import them," says Harvard economist Robert Lawrence. "We raise living standards by sending the Chinese airplanes that we exchange for their clothing."

Mainstream economists mostly agree that although imports can cause acute pain by displacing workers, especially in manufacturing, the economy benefits overall because the cheaper products leave our consumers with more money to spend on other things. Free trade steers capital into sophisticated, high-paying, high-value-added fields where America enjoys a competitive advantage. For example, by creating a single market in North America, NAFTA has encouraged superefficient supply chains where manufacturers produce parts and assemble cars in Canada, Mexico, and the U.S. depending on where costs are lowest—a system that has enhanced the competitiveness of Ford and GM on world markets.

The Trump team has offered some clues about how it will approach the trade issue. According to statements by Navarro and Ross, the opening gambit consists of shunning multilateral deals and instead negotiating agreements one-on-one with a number of nations, including Japan, the U.K., Canada, and Mexico. The initial offensive won't focus on limiting imports but on demanding that our partners buy a lot more U.S. goods—with the threat of tariffs providing a spur. That strategy may have some success with China, which enjoys a gigantic $350 billion trade surplus with the U.S.

One possible sticking point in the negotiations: The Trump team doesn't seem willing to offer more access to U.S. markets, where we protect airlines, forestry, sugar, and a number of other industries and award public projects mostly to the home team. "The idea is that we've been 'stripped naked' on trade agreements, and we have nothing to give," says Hufbauer.

That one-way attitude is unlikely to extract significant concessions, according to such experts as Hufbauer and Lawrence. So the question is whether Trump will really unleash the big stick, namely tariffs. If that happens, America's economy will likely grow not faster but slower.

An outbreak of full-on protectionism could potentially shrink both imports and exports. That's because when the U.S. slaps, say, a 35% or 45% tariff on Chinese goods, the world will become a far more uncertain place. The Chinese will look for somewhere safe to park their yuan, and the safest currency is the U.S. dollar. Ironically, the flight to safety could drive the dollar far higher, hiking the costs and prices of our exports and hobbling growth.

"WITH THE WAY THE ADMINISTRATION IS BEHAVING," SAYS ONE DEMOCRAT, "YOU HAVE TO ASK, ARE THEY GOING TO BE SERIOUS?"

NOW FOR THE MOST SOBERING news of all. Even if we escape a trade debacle, the Trump growth plan—for all its virtues—is designed for the short term. Unless we tackle the looming national debt crisis—and quickly—the best case is that the U.S. could grow briskly for a few years. After that, we're headed for territory that a Medieval cartographer would label "Here Lie Dragons."

According to the most recent CBO projections, by 2027, interest on the debt alone will triple, to $768 billion, accounting for one dollar in every eight the U.S. spends. And that's using the rosy assumption that the 10-year Treasury rate reaches only 3.6% in 10 years. In a few years, soaring deficits and debt could prompt foreigners who now own $8 trillion in U.S. government bonds to dump them, forcing up interest rates and choking a Trump recovery.

So far, Trump hasn't opted to offer any potential plans to solve the long-term debt problem. In his view, job one is getting the economy growing faster. And as for taming deficits, what's the rush?

That's a dangerous attitude given the scope of the problem, and one that can't last long. An immediate issue is how Trump plans to finance his proposed tax cuts. If the U.S. enacts the BAT and deploys the repatriation windfall to pay for infrastructure, the additional rise in future deficits, over and above current projections, could be modest. But if Trump borrows an additional $500 billion in 2019 to finance his stimulus, the deficit will quickly zoom to over $1 trillion, or a gigantic 5% of GDP.

Even Cote of Honeywell, who's bullish on Trumponomics, is concerned about the President's lack of concern about deficits. "We can't keep going the way we are," says Cote, who served on the 2010 Simpson-Bowles Commission on fiscal reform. "We can't grow our way out of it. This is a slow-moving freight train that we can see coming from miles way, and shame on us if we don't do something about it."

If President Trump suddenly stops picking fights with retailers and federal judges and starts working on a debt-reduction plan instead, that might be the most promising sign of all.

2017 ScaleUp SUMMIT in collaboration with: FORTUNE

May 23-24, 2017
San Antonio, TX
Marriott Rivercenter

“What we present first changes the way people experience what we present to them next.”

DR. ROBERT CIALDINI
CEO of Influence at Work, Author of *Pre-Suasion: A Revolutionary Way to Influence and Persuade*

RESERVE YOUR SEATS TODAY!
gazelles.com/summit
703-858-2400

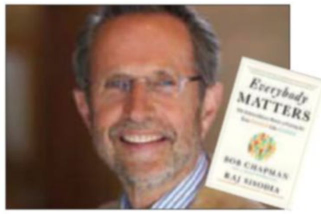
Where Leaders of ScaleUps Meet Up

A key source of business contacts, deal flow, and knowledge, the 2017 ScaleUp Summit, in collaboration with FORTUNE, hosts the newsmakers and thought leaders who will help you outlearn and outthink the competition in the fields of leadership, strategy, marketing, sales, operations, and finance.

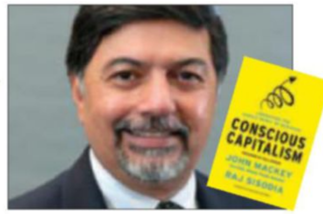
Join leaders from FORTUNE’s Fastest-Growing Companies along with hundreds of CEOs and executive team members of leading mid-market firms ($5 million to $500 million) for two intense days of interactive learning, networking, and idea generating.

Featured speakers include:

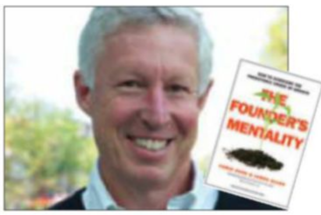
VERNE HARNISH
Chair of ScaleUp Summit, contributing writer for FORTUNE, Author of *Scaling Up*



BOB CHAPMAN
Chairman and CEO of Barry-Wehmiller Cos., Co-Author of *Everybody Matters*



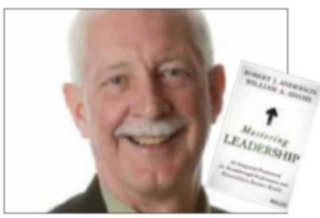
RAJ SISODIA
Co-Chairman of Conscious Capitalism Inc., Co-Author of *Conscious Capitalism*



CHRIS ZOOK
Partner of Global Strategy, Bain & Company; Co-Author of *The Founder’s Mentality*

JEANNE MEISTER
Partner of Future Workplace, Co-Author of *The Future Workplace Experience*

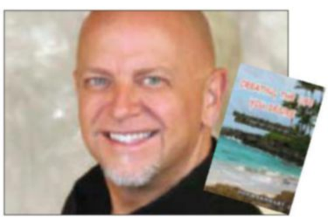
JOE POLISH
Founder of Genius Network, President of Piranha Marketing, Author of *The Average Joe’s Marketing Book*



BOB ANDERSON
Chairman of Full Circle & the Leadership Circle, Co-Author of *Mastering Leadership*

BILL ADAMS
CEO of Full Circle & the Leadership Circle, Co-Author of *Mastering Leadership*

MICHAEL BUNGAY STANIER
Founder & Senior Partner, Box of Crayons. Author of *The Coaching Habit*



DON BARNHART
Comedian, Hypnotist, Author of *Creating the Life You Desire*

DEAN GRAZIOSI
Real Estate Investment Expert & Trainer, Author of *Millionaire Success Habits*

Presented by Gazelles
GROWING LEADERS - GROWING COMPANIES - GROWING COMMUNITIES

Nationwide Is Getting Attention with Its Strength and Broad Array of Products

#1 in
TOTAL SMALL BUSINESS / 457 PLANS / PET / FARM & RANCH / CORPORATE LIFE

2nd-largest
DOMESTIC SPECIALTY (Excess & Surplus) COMMERCIAL LINES INSURER

7th-largest
HOMEOWNERS INSURER & COMMERCIAL LINES INSURER

TOP 15
BEST MUTUAL FUND FAMILIES OF 2015

8th-largest
AUTO INSURER & LIFE INSURER

10th-largest
IN 401(K) SMALL PLANS

The insurance leader—and major financial services provider—is benefiting from strengthening its brand and nourishing its rich and engaged company culture.

REBRANDING FOR MOMENTUM

NEARLY THREE YEARS AGO, Nationwide announced it would rebrand all its companies to align under one brand. For the first time, all aspects of the company would be known as Nationwide. That meant not just the property and casualty portion, but also the financial services business.

The move leverages the strength of the iconic "On Your Side®" brand while reducing expenses, says Steve Rasmussen, CEO of the Columbus, Ohio-based company since 2009. But its impact goes beyond costs, he adds: "When people realize we offer more than auto insurance, it opens the doors to new opportunities. It's really added to our momentum."

Momentum is the key word. The company, consistently rated A+ by A.M. Best and Standard & Poor's, increased sales by almost 17% over five years, to $43 billion in 2016.

Nationwide is also enjoying accolades as a desirable employer. Marching up *Fortune*'s 500 list, last year it hit No. 69, and it also made *Fortune*'s 50 Best Workplaces for Diversity ranking. In 2015 and 2016, it was named one of *Fortune*'s 100 Best Companies to Work For.

For years Nationwide had a solid reputation as a Midwest-based insurer. Indeed, it has long been one of the country's top 10 auto and home policywriters, but it's also No. 1 in small business, farm and pet insurance. In fact, although it's better known as a property and casualty company, nearly half its business is in financial services. It offers mutual funds, banking products, annuities, and 401(k)s; and it is the leading provider of both corporate life insurance and 457 plans, which are 401(k)-type retirement plans for the public sector.

Terrance Williams, Nationwide's executive vice president and chief marketing officer, describes a new ad campaign the company launched last summer: "We were resetting the narrative about how Americans view our brand. We provide a breadth of solutions for all of your insurance, banking and retirement needs."

To keep the momentum going, the company is pursuing innovation with its own venture fund, along with partnerships with Google, automakers, and others. It even uses drones to solve claims issues.

Still, Nationwide's culture, not its strategy, forms the bedrock of its success, says Rasmussen: "I truly believe we have built and maintain an incredibly strong culture. And I think culture eats strategy for lunch."

EVERYTHING MUST GO

AFTER A DISMAL HOLIDAY SEASON, THE $155 BILLION DEPARTMENT-STORE INDUSTRY IS IN UNPRECEDENTED DANGER. TO SAVE THEMSELVES, THE RETAIL GIANTS NEED TO FINALLY BREAK THEIR BAD HABITS. AND FAST. ***BY PHIL WAHBA***

PHOTOGRAPH BY **ALEX FRADKIN**

The Sears at Kings Plaza Shopping Center in Brooklyn, N.Y. It closed in 2016.

DEPARTMENT STORE BLUES

At 11 p.m. last Thanksgiving, shortly before Thursday became Black Friday, the crowds were thick at Macy's massive flagship store in Manhattan. Some 16,000 people had lined up around the block to kick off the biggest shopping weekend of the year. Five hours after the doors opened, they were still going strong.

Rabid consumers from across New York, the U.S., and the world were snapping up Tommy Hilfiger underwear and Keurig coffee machines and Macy's Hotel Collection bedding, leaving a trail of empty boxes, strewn sweaters, and toppled clothing racks in their wake. The mayhem didn't let up until the wee hours, and it wasn't unique to Manhattan—similar scenes played out at malls across the country.

CLEARANCE SALE An advertisement inside the slated-for-closure Macy's in Douglaston, N.Y. Outdated, deteriorating facilities have driven customers away from many department stores, and Macy's and other chains are closing underperforming branches.

SHANNON STAPLETON—REUTERS

But instead of portending a strong Christmas period, the hordes served only as a reminder of department stores' dwindling ability to generate excitement on an average day. For most of the rest of the holiday season, you could see tumbleweeds on their sales floors. And six weeks later, when many of the chains reported their numbers, they were downright awful: Kohl's, Macy's, J.C. Penney, and (especially) Sears all reported lower sales than the previous year. The high end hasn't been spared either: Saks Fifth Avenue and Neiman Marcus have reported soft business of late.

The defeat might have been easier to swallow if retail in general were suffering. But total retail spending rose a better-than-expected 4% over the holidays. Shoppers showed up; they just didn't show up at department stores.

In fact, outside of door-buster discount days, they have been staying away for a while. Without exception, the biggest chains have seen sales soften in the past year and a half, even as the economy improved. The holiday bloodbath deepened fears within the industry that there is much more at play than bad weather or consumers' love affair with Amazon. The bigger questions are whether big-box department stores have become obsolete and whether, in the interest of survival, they can shed decades-old habits of doing business. As Steve Sadove, a former Saks Inc. CEO and a former Penney director, puts it, "The world is moving faster than the department stores are adapting."

As recently as 1999, department stores had total sales of $230 billion. Last year they came in at $155.5 billion, according to Census data. That's still a lot of money—and big chains continue to command loyalty among older shoppers. Indeed, people have been talking about the "death of department stores" for decades, and yet here they remain. University of Essex visiting professor Vicki Howard, author of *From Main Street to Mall*, a 2015 history of the retailers, says people were predicting their disappearance in the 1930s. Big chains reinvented the format by moving to the suburbs when malls mushroomed across the U.S. in the 1950s, then again in the 1970s by focusing on fashion as more women entered the workforce, and once more in the '90s and 2000s, with mergers and consolidation that weeded out the weakest.

And it's not that these chains aren't trying to innovate today. Department stores have pumped billions into e-commerce; they now derive 15% to 25% of their sales online. They've introduced new product lines to woo younger shoppers, overhauled their beauty offerings, and launched discount chains. They have even collectively culled hundreds of failing stores from their fleets.

But this time around, the reinvention isn't yield-

ing results. According to a rolling survey by YouGov BrandIndex, consumers' favorable impressions of Macy's fell to an eight-year low in January, with Penney and Kohl's right behind. Investors have joined shoppers in running for the exits: The S&P retail index has fallen 16% since June 2015; shares of Macy's and Sears Holding are down 54% and 86%, respectively, over that stretch. Even developers, who once built their malls around department stores because of the traffic they delivered, are now buying back weaker stores to repurpose them into establishments people actually want to frequent. Farewell, Sears. Hello, Cheesecake Factory.

If department stores are to reverse these trends, they will need to address a multitude of self-inflicted wounds. For all the changes they have made in recent years, they still tend to revert to the same toolbox: more discounts on more of the same merchandise, with uninspired product presentation in the same old dingy buildings. Their CEOs know they need to do something radical to become relevant again: Attacking fundamental problems around what they sell and how they sell it may be the boldest step they could take.

"This wasn't inevitable," says Howard of the department stores' existential crisis. And it needn't be fatal, if the industry can tackle these challenges.

SAME OLD, SAME OLD

AT THE NEWPORT CENTRE in Jersey City on a recent Friday, a shopper could visit four department-store "anchors" under one roof: Sears, Penney, Kohl's, and Macy's. And it didn't take an expert eye to notice that they were selling much of the same merchandise. Izod polo shirts. Six-packs of Hanes men's tees. Levi's jeans. Blah, blah, blah.

Retail connoisseurs have long lamented this "ocean of sameness." But the problem has gotten steadily worse. Traditional, middle-of-the-road department stores now have a 40% merchandise overlap, according to consultancy AlixPartners—that's not just product categories (e.g., pants) but specific products (e.g., slate-gray flat-front relaxed-fit Dockers).

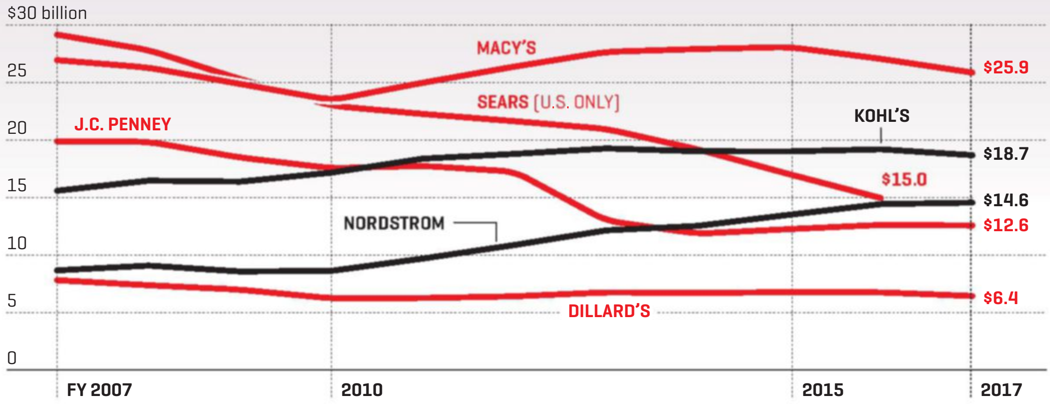
As recently as the 1970s, department stores were much more differentiated from one another. J.C. Penney sold hunting rifles back then, Sears was the Walmart of its day, and stores were famed for their toy and candy sections. But as Walmart and Target grew into behemoths in the 1980s and gradually dominated the "general merchandise" category, department stores sought refuge by concentrating on apparel. Now clothes, handbags, and shoes generate 75% to 80% of most chains' sales, compared with 50% or so a few decades ago.

Over the past few years, some department stores have diversified again. J.C. Penney, for example, has scored by opening in-store Sephora beauty boutiques, which garner four times the sales per square foot than the stores overall. Last year it resumed selling appliances, looking to benefit from Sears' years-long implosion.

The major chains have also attacked their clothes overlap problem with... more clothes. Over the past five years, they have ramped up their house brands, the idea being to offer shoppers something "exclusive" but affordable. Still, such clothes offerings don't exactly ignite consumers' fashion fantasies, says Clark Riess, a director in AlixPartners' retail practice: "It helps

DEATH BY DISCOUNT

Discounts have played a big role in the erosion of department-store revenues. The chains have to offer deals to compete not just with one another, but also with off-price stores like T.J. Maxx and mass-merchant retailers such as Walmart and Target.



NOTES: NORDSTROM SALES INCLUDE NORDSTROM RACK DISCOUNT CHAIN. SEARS U.S. RESULTS NOT AVAILABLE FOR FISCAL 2017. SOURCE: S&P GLOBAL

[stores] drive margin, but it doesn't really help them drive traffic." Kohl's saw that this holiday season: Its house brands, which generate about half of its revenues and include the Sonoma line, saw sales fall, while national brands like Levi's and Nike did well.

DISCOUNT ADDICTION

WITH SO MUCH SAMENESS, the only way to entice shoppers is with deals. Executives bewail the "promotional" retail environment, but the stores seem only to be doubling down. Penney last year introduced promotions for items priced at 1¢. "Door-busters" used to mean Black Friday specials, but now the term is deployed year-round.

Having created the expectation that they can always get a huge discount, stores find it impossible to wean customers off the fix. A survey of holiday shoppers by predictive analytics firm First Insight found that 45% of women wouldn't even enter a store unless there were discounts of 41% or more on specific items. Ouch, poor margins. "It's a race to the bottom, and all this does is drive deflation and devalue brands," says Robin Lewis, CEO of the influential retail periodical *The Robin Report*.

Luxury players have also tapped into the discounting boom, even at risk to their upscale credentials. Nordstrom and Saks Fifth Avenue have each reported several quarters in a row of declining business in their traditional stores, but they roughly doubled their respective Rack and Off 5th discount chains over the past five years.

DEPARTMENT STORE BLUES

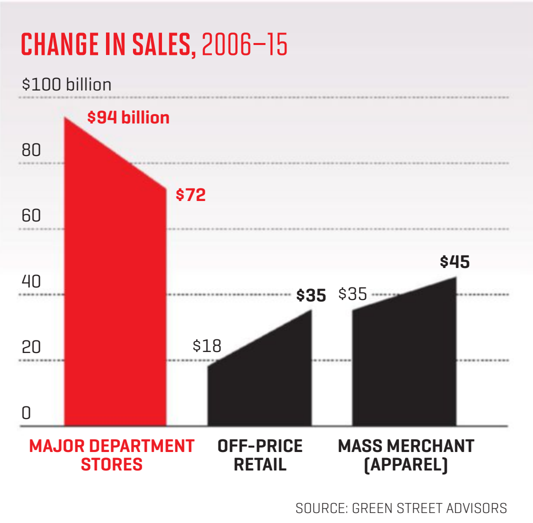
AT TRADITIONAL DEPARTMENT STORES, 40% OF GOODS FOR SALE OVERLAP; THAT IS, THEY'RE SELLING EXACTLY THE SAME BRANDS AND PRODUCTS AS THEIR RIVAL STORES.

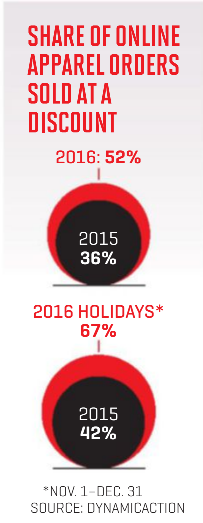
The discount dive shows how badly department stores have been outmaneuvered by "off-price" rivals. The likes of T.J. Maxx and Ross Dress for Less have unpredictable inventory, so shoppers who see something they want know they need to snap it up. Ditto fast-fashion chains like H&M and Zara, which turn over their merchandise very quickly. When those chains imply a low price is available for only a short time, their customers believe them. Not so for department-store shoppers. With a few exceptions—Kohl's and Penney are getting better at jumping on trends—traditional stores still move slowly in inventory planning and production. That leads to more unwanted and out-of-season clothes clogging showrooms and a greater likelihood of having to sell leftovers at clearance prices. Yet more discounts: Everything must go.

LOCATION, LOCATION, LOCATION

FROM THE 1960S through the 2000s, U.S. developers built hundreds of malls, most designed under the assumption that omnibus department stores would remain the retail world's biggest draw. But those big boxes no longer match many consumers' tastes. Millennials have no desire to get lost in a cavernous *Leave It to Beaver*–era barn, looking for jeans they could easily buy online. As the chains' revenue dwindles, maintaining high standards across their enormous fleets is nearly impossible—creating a vicious cycle in which deteriorating physical plants make stores even less appealing.

Department stores recognize the need to break





the cycle. Macy's, Penney, Kohl's, Dillard's, and Sears Holdings (which also owns Kmart) have together closed some 750 stores, or 20% of their fleets, since 2013, according to RBC Capital Markets. And real estate research firm Green Street Advisors estimates that 800 more across all chains would have to close for the industry to return to its 2006 sales-per-square-foot peak. "Having fewer stores means retailers can focus on giving shoppers more reason to go to their stores," says Kantar Retail senior vice president Mary Brett Whitfield.

No chain exemplifies that trend like Macy's, which has about 670 stores. It plans to lavish love on its 150 highest-grossing locations and recently finished a $400 million overhaul of the Manhattan flagship. But it will close 68 stores by this summer, with another 30 closings in the works.

VANISHING VENDORS

THE EROSION of department stores' primacy has punched a big hole in the revenues of some of their best-known suppliers—such mall stalwarts as Ralph Lauren, Coach, Michael Kors, and Tommy Hilfiger. Even when these brands don't participate in a store sale, the fact that a shopper walks past countless "50% off" signs on the way to their wares can contaminate their image.

Fed up with the discounting, Ralph Lauren CEO Stefan Larsson said last year that the brand would pull back on shipments to leading U.S. department stores, which generate about 25% of its $7.2 billion in annual sales. Michael Kors is withdrawing its goods from department-store sales events. And Coach has begun exiting 250 department stores and giving the remaining ones fewer markdown allowances. On the higher end, luxury brands like Gucci, Hermès, and Dolce & Gabbana are opening more of their own stores, to have better control over product presentation and shield themselves from dwindling traffic. That means more pain for the Sakses, Nordstroms, and Neimans of the world.

TOO BIG TO SUCCEED

MACY'S INC., the biggest of the traditional department-store chains, with $26 billion in sales last year, is also the product of the largest consolidation in the industry's history. In 2005 its parent company, Federated Stores, bought several regional chains and merged them under the Macy's flag.

THEN AND NOW
At left: a crowd inside a J.C. Penney in Oklahoma City circa 1960. Right: Shoppers hunt for going-out-of-business deals at a Sears in the Bronx.

J.C. PENNEY: BETTMANN ARCHIVE/GETTY IMAGES; SEARS: RICHARD LEVINE—CORBIS/GETTY IMAGES

But what Macy's gained in scale, cost savings, and clout, it lost in agility and the ability to cater to local tastes. Indeed, something similar afflicted the whole industry after successive waves of mergers. Paco Underhill, founder and CEO of marketing consultancy Envirosell, says the chains' expanding scale led to "management by spreadsheet," as companies transferred power from the chief merchants who assembled distinctive product offerings to executives more mindful of hitting Wall Street estimates. "The centralized buying and disappearance of brands that have some local flavor to them has really caused them a lot of grief," Underhill says.

At the same time, the chains' scale impedes their ability to adapt quickly. Macy's "Backstage" outlet-store concept is a good example. The idea was floated to the Macy's board in 2009. But it took six years for the retailer to launch the first stores, by which time T.J. Maxx had run away with the off-price market. Similarly, it took Kohl's until 2014 to introduce beauty sections, even though beauty has been one of retail's hottest areas for decades.

REMEMBER WHEN RON JOHNSON tried to radically reinvent J.C. Penney back in 2012? He strove to remake its stores as hangouts in the image of the Apple Store, swapped much of the merchandise for hipper brands, and cut off the chain's addiction to everyday discounts, cold turkey. The result: disaster. Sales plummeted 33% and almost killed the retailer, and the board quickly showed Johnson the door.

The Penney catastrophe has made retail CEOs gun-shy about radical change. But after five years of further decay, the blueprint for potential revival that outside experts recommend shares considerable DNA with Johnson's playbook. Operating sprawling fleets of mammoth, dull stores in the "stack 'em high, watch 'em fly" mold has become the road to ruin. If department stores are to get a second, or really a fifth, wind, they will need to embrace a future of fewer and smaller stores—stores that are more about experiences and discovery and less about buying the same Fruit of the Loom underwear you could find cheaper online.

Macy's incoming CEO, Jeff Gennette, knows where his chain needs to go. "We are in a transitional time. Department stores will be reimagined, services and experiences will be ramped up," he recently told *The Robin Report*. When department stores were the apex of retail, in the 1930s, they offered dazzling experiences like the indoor ski hill at Saks Fifth Avenue (eat your heart out, Dubai), dancing lessons, and the fancy tearoom atop the 16-story Hudson's in Detroit.

DEPARTMENT STORE BLUES

SHRINKING ... IN ORDER TO GROW

Department-store sales-floor space has shrunk—but sales have fallen even faster. To make their businesses sustainable, the chains have little choice but to close more stores.

CHANGE 2006–15

MAJOR DEPARTMENT STORE SALES:
DOWN 23%

GROSS LEASABLE AREA:
DOWN 7%

SALES PER SQUARE FOOT:
DOWN 18%

SOURCE: GREEN STREET ADVISORS

Many experts would like to see stores think pie-in-the-sky again. Future retail experiences should be more social and interactive, says Leslie Ghize, executive vice president of Tobe, a consultancy that advises retailers on tapping creativity. The social dimension helps explain why strip-mall retailer Ulta Beauty has poached so much market share from department stores: It presents cosmetics and beauty products in such a way that customers can play with them and learn. So how about in-store cooking classes? Why not put members-only social clubs on stores' top floors? Let your imagination go, and implement even a fraction of that, is Ghize's cri de coeur.

We are also starting to see the emerging contours of a smaller, more fragmented future for department stores. Chains are giving big-name vendors more flexibility to present their products in stores within stores. In the past two years, Macy's has opened boutiques for brands like Apple, Best Buy, Brookstone, and even Etsy, while Penney and Kohl's are implementing souped-up Nike and Under Armour shops. At the high end, Nordstrom has teamed up with J. Crew and brands like Beyoncé's Ivy Park athletic line and given them store space.

U.S. stores could eventually look like their counterparts in Europe and Asia, which rely on a concession model. Under that approach, a brand rents and independently runs space within a department store, with about 30% of the revenue going to the host. There's less upside for department stores if a brand takes off, but less risk of being stuck with unsold merchandise. With enough flexibility, the concession model could also mark a return to how department stores worked before the suburban boom. Each emporium could operate in tune with local tastes, not by the diktats of a faraway corporate office, combining national brand names with unique experiences that put the store at the center of the community.

The obstacles to transformation remain daunting. Becoming more nimble most likely means closing more stores, shedding jobs, and enduring further erosion in revenue. Publicly held chains are not likely to get much leeway from investors to spend on new initiatives; indeed, stores that want to radically retool may need to go private.

Still, the department-store format, declared dead so many times, may yet renew itself. In their decades-long expansion, many chains lost sight of what put them at the center of consumers' lives. "The department stores have lost the battle department by department," says Scott Galloway, founder of retail consultancy L2. But with ingenuity, they may have the time and resources to win the war. F

The Goldman Sachs & Fortune

GLOBAL WOMEN LEADERS AWARD

Rima Kotaiche El-Husseini / 2016 Winner, Lebanon

Goldman Sachs Chairman and CEO **Lloyd Blankfein** congratulates the winners

Ciiru Waweru Waithaka / 2016 Winner, Kenya

Celebrating the Power of Women

At the 2016 Fortune Most Powerful Women Summit, two rising-star women from developing countries were honored with the Goldman Sachs–Fortune Global Women Leaders Award. Lloyd Blankfein, chairman and CEO of Goldman Sachs, helped to honor these business owners who have participated in the Fortune/U.S. State Department Global Women's Mentoring Partnership or the Goldman Sachs *10,000 Women* initiative, and have effectively applied these learnings to their businesses. These women represent the powerful multiplier effect of investing in women.

Rima Kotaiche El-Husseini, of Lebanon, a participant in the Fortune/U.S. State Department Global Women's Mentoring Partnership, is co-founder and CEO of Blessing and founder of the Blessing Foundation. With branches in five countries in the Middle East, Blessing is a company that specializes in chocolates and gifts for luxury events. Through her Blessing Foundation, she brings women artisans into her supply chain to create robust business opportunities for these small businesses. Rima spent three weeks of 2012 at The Nielsen Company. She is now working with hundreds of rural female small-business owners in Syria and Lebanon to get them online to sell their creations.

Ciiru Waweru Waithaka, of Kenya, is the founder of FunKidz Limited, a manufacturer of children's furniture, accessories, and educational learning tools inspired by African stories. Through the Goldman Sachs *10,000 Women*/IFC Finance Facility, Ciiru received a business loan that enabled her to renovate her factory, double her production capacity, and offer more than 100 products. She is also a graduate of the *10,000 Women* training program at the United States International University-Africa in Kenya, which allowed her to further expand her business and enter new markets. Ciiru actively gives back to her community by providing children from disadvantaged backgrounds with training in technology, engineering, and innovation.

To learn more about this program, visit:
www.GoldmanSachs.com/10000women

@GS10KWomen

By Beth Kowitt

SUGAR RUSH

The mounting campaign against the ultimate sweetener is bringing new urgency to the longtime search for a good-tasting, zero-calorie alternative. But the challenge is only getting harder.

WHEN THE HISTORY OF SUGAR is written, 2016 may go down as the year its image turned. Sure, we always knew those sweet white crystals could rot teeth and cause people to pack on the pounds. Obesity and diabetes were already national emergencies, with the latter representing 10% of U.S. health care costs in recent years.

But now an increasing number of researchers and a buzzy book, *The Case Against Sugar,* have also begun linking our favorite natural sweetener to such dreaded conditions as heart disease, Alzheimer's, and cancer. (Those conclusions are far from universally accepted to this point.) Adding a dark undercurrent, revelations in the fall suggested that the sugar industry paid Harvard scientists in the 1960s to trivialize its role in coronary problems and instead play up saturated fat as the culprit—which helped shape the direction of nutrition research to this day.

"Sugar is the new tobacco" in the minds of the public, says David Turner, a global food and drink analyst at market research firm Mintel.

And a public health war has followed. A handful of cities have responded with taxes on sugary drinks, and next year the Food and Drug Administration will start requiring companies to reveal the amount of added sugars on product packaging.

Consumers seem to be hearing the message. Research firm NPD Group has found that sugar is now the No. 1 substance they are trying to cut or eliminate from their diets. Of course, "try" is the operative word here. Whatever their aspirations, people keep right on gorging. Americans now eat a total of 76 pounds in various sugars every year, up 8% from 1970.

That's the problem for Big Food: It's built on the stuff. Some 74% of packaged foods and beverages in the U.S. contain some form of sweetener, according to a recent study in *The Lancet,* making it a more than $100 billion market. Companies "use hedonic substances, and sugar is the most ubiquitous hedonic substance," says Robert Lustig, a professor at the University of California at San Francisco's School of Medicine and a leading critical voice on the topic. That's an academic way of saying that food companies know customers crave a sugar rush.

All of this has infused new urgency in the multi-decade quest to find low-calorie sweeteners. And it's occurring just as the incumbent alternatives face ever more skepticism. According to Mintel, 39% of consumers think it's best to avoid products containing artificial ingredients like aspartame and saccharin because of perceptions of health risks. Sales of such substitutes fell 13% between 2011 and 2016.

That brings us to the final factor that is pressing heavily on packaged food companies: the ever-more-ravenous appetite for "natural," unprocessed products. "Health and wellness used to be synonymous with reduced caloric intake," says Bernstein analyst Ali Dibadj. By that standard, as he puts it, referring to the iconic early diet cola, "Tab used to be damn healthy." No longer.

Think of food companies' plight this way: The finest scientists in industry have spent decades trying to find or invent a no-calorie sweetener that tastes and feels as good as the stuff extracted from pure cane. And now, after they largely failed to master that complex, arduous task, the level of difficulty is being raised even higher: *This improbable concoction cannot appear to have been engineered by scientists.*

Let us pause here to acknowledge the sugar-frosted codependent embrace of Big Food and the American consumer. You could rightly fault consumers for their insistence on an oxymoronic product. But who has been indulging their fantasies for decades now, promising sweet, satisfying taste and no calories? Big Food, of course. Now customers are upping the stakes—and it's not at all clear that companies can pass the test.

A stevia taste test at the Illinois offices of Tate & Lyle. Stevia is 100 to 350 times as sweet as sugar but can have a bitter undertaste.

▲ PHOTOGRAPH BY **SAVERIO TRUGLIA**

Stevia seedlings in Paraguay. Sweetener is extracted from the leaves when the plants are fully grown.

JORGE ADORNO—REUTERS

IT'S NO ACCIDENT that sugar has been a fixture in food since around 10,000 years ago. Historians trace the first use of sugarcane to New Guinea. By 500 BC, some farmers in India were transforming the cane into raw sugar. Sucrose, as it's known to scientists, is a nearly perfect compound. It preserves. It ferments and caramelizes. It provides viscosity and mouthfeel, texture, and bulk. It enhances the flavors of other ingredients. As even a toddler could tell you, it is the gold standard of sweetness.

That hasn't stopped multiple pretenders from trying to one-up it. A succession of sweeteners—saccharin, aspartame (best known today as Equal), and sucralose (Splenda)—have all swaggered onto the scene over the decades, each claiming maximal sweetness and minimal calories. Each product has followed a similar trajectory: Initially presented as a scientific miracle, with assurances that it tastes just like the original, it enjoys a stretch of popularity before eventually disappointing consumers with strange aftertastes or, in some cases, concerns about its effects on health.

The most recent low-cal marvel to reach the market is stevia—the best-known brand is Truvia—and it's hailed as natural because it is derived from the leaf of a plant. Stevia's story illustrates the opportunity—and the conundrum—of the sugar-replacement mission, which is why I've traveled to Illinois to visit PureCircle, the largest producer in the world.

The winter weather does not agree with stevia, which thrives in warm climates. "You'll have to forgive our plants," Faith Son, head of global marketing and innovation, says apologetically as she eyes a struggling seedling on a conference room table. "It's January in Chicago." Her company has built its entire business on the small green leaves that Son has placed in front of us.

Stevia's sweetness is unexpected. For starters, it's extracted not from a fruit, but from the plant's leaves. More surprising, though, is the way the sweetness lingers. Even a few minutes after I bite, chew, and spit, the essence remains in my mouth. "It's almost like a freak of nature," Son says.

The compounds that give the plant its magical properties are called steviol glycosides. They are 100 to 350 times as sweet as sugar and make up only a fraction of the leaf's weight. It's what the industry calls a high-intensity sweetener, which delivers dulcitude but not any of the other attributes of sugar, like its mouthfeel or texture.

Stevia was supposed to be the answer to the great dilemma. But like its predecessors, it's burdened with a tragic flaw: A persistent bitter undertaste conferred by some of the most commonly used steviol glycosides, along with a metallic and licorice quality. "Tastes like sucking on a penny!" is not the type of selling point food manufacturers are looking to plaster on a label.

Scientists believed that an antidote to the bitterness lurked inside the more than 40 different glycosides that have since been discovered in the leaf. At Cargill, one of PureLeaf's stevia competitors, scientists initially believed there was one bad actor, a single glycoside it could remove to solve the taste issues.

It turned out to be more complicated. Each chemical compound has a unique sweetness and bitterness. Cargill's scientists started categorizing the taste profile of each individually and in combination to create a complex model of what works best together. "It wasn't intuitive," says Andy Ohmes, who runs the company's high-intensity sweetener business. In 2014 Cargill rolled out ViaTech, a sweetening system based on this work that combines permutations of the nine glycosides approved for use. Several, including some of the best tasting, such as one known as Reb M, are present in less than 1% of the leaf. Cargill and PureCircle are trying to build them up through breeding practices.

Stevia has other deficiencies. Some product formulators say it's harder to use than artificial sweeteners, which taste more like sugar and can therefore more easily be used as a substitute. PepsiCo CEO Indra Nooyi, for example, has stated that stevia doesn't work well in colas.

Like other sweeteners, stevia enjoyed an early moment of exuberance. Companies, not recognizing that the then-known glycosides can replace only 70% to 80% of the sweetness in a typical soda, rolled out some truly terrible products. At a certain point, adding more stevia leads to diminishing returns and makes its flaws more prominent. Formulators have caught on, using stevia to help reduce a product's calorie count rather than eliminate it completely. Even then, glycosides perform differently depending on the product. Reb A works well in tea, for example, but can clash with the taste of citrus. There's no single solution for even one product category. "It's a tinkering type of ingredient," says John Martin, PureCircle's head of technical development and innovation.

A whole series of companies are now experimenting with ways to bolster or modify sweeteners. MycoTechnology in Colorado, for example, uses the root system of mushrooms to block the off-taste of stevia. It can also reduce the need for sugar by masking the bitterness in products like wheat bread. Sensient in Milwaukee looks for properties in natural ingredients like tree roots or bark that can enhance the sweetness of sugar so formulators can use less of it. Chromocell, which works with Coca-Cola, is doing similar work, as is Senomyx, which collaborates with PepsiCo.

Most people in the business believe that a "systems approach"—a blending of ingredients rather than a single molecule—is the future of the natural-sweetener industry. "I don't think you're going to see just one thing," says Mike Harrison, senior vice president of new product development at British ingredient giant Tate & Lyle.

For some people, tinkering or blending will never be enough to make stevia palatable. When I visit Tate & Lyle's U.S. office outside Chicago, I sample a cucumber lime drink with stevia cooked up by a team there. I find it light and refreshing, though a bit sweet, with a few hints of bitterness at the end. But I glance over at my host, Harrison, and catch him grimacing. "I can't drink this," he says. "It makes me go *bleh*." An hour later, it's still bothering him. Harrison cracks open a can of root

"I CAN'T DRINK THIS," SAYS A TATE & LYLE EXECUTIVE OF A STEVIA DRINK PREPARED BY HIS OWN COMPANY. "IT MAKES ME GO *BLEH*."

beer to try to drown out the sensation that lingers in his mouth.

It's not the fault of his team. Harrison's high degree of sensitivity is unusual, but in truth, nearly half the population has an aversion to stevia's bitterness. That's untenable for a seller hoping to reach a mass market. "If you're making a food product and some 40% will out and out reject it," Harrison says, "that's a defect that you can't really live with." Another 20% of the population doesn't detect any bitterness at all. It just depends on your genetic makeup. "Where that threshold is differs for everybody," says John Smythe, Tate & Lyle's head of sensory.

Tate & Lyle has been working on new incarnations of stevia, mixing glycosides in different variations. Its second generation, due on the market next year, is not as bright as sugar; it's "a little papery," explains Smythe (who used to work for a wine company). Tate & Lyle's next generation, currently in development, gets closer. But don't expect to see it on the market anytime soon. Right now it's simply too costly.

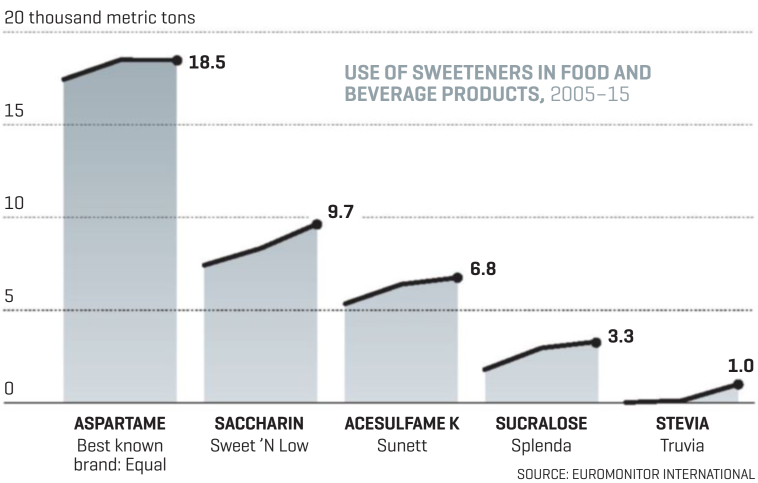
Still, even that pricey version has a sweetness that is slow to dissipate, suggesting that stevia's problem simply may not be fixable. That's partly because the sugar experience consists not only of intensity but also of more subtle aspects. Sugar's sweetness spikes quickly, then fades almost as fast. Replicating it requires replicating that curve. "To have the exact same profile would be something closer to a miracle," Smythe acknowledges.

PureCircle is addressing that issue by setting expectations about stevia. "People will say to us, as we come up with different innovations, 'Well, it doesn't taste like sugar.' No, it tastes like stevia," Son says. "We acknowledge that they taste different."

Still, every time I eat something sweet that's not sugar it tastes artificial to me. That's just the way my brain and taste receptors are wired. "The way we think about it is, Tastes like sugar, good," says Smythe. "Tastes like anything else, not good."

BATTLE OF THE SWEETENERS

Stevia has enjoyed high percentage growth while aspartame has leveled off.



SOURCE: EUROMONITOR INTERNATIONAL

IN THE DECADES after World War II, "scientific" food production was seen as the height of progress. Today, of course, consumers want their food to be "natural" and simple.

That has greatly complicated the search for a low-calorie sweetener. Shoppers view products with fewer ingredients as healthier than those with lengthy assortments. "The goal is not to add anything," says consultant Alex Woo, who has worked at Kraft and PepsiCo. If ingredients must be inserted, he says, the fallback position is "to claim no artificial flavors or sweeteners."

It's the crux of the current dilemma. How does one engineer a natural solution? Cargill, for example, is trying to produce some of the rarest and best-tasting steviol glycosides through a fermentation process. The product, called EverSweet, has been delayed because of production costs, but there's also the looming issue of whether consumers will accept the product as natural if it doesn't come from a leaf.

The same can be said of erythritol, a zero-calorie sugar alcohol that's found in fruit, which ingredient companies can also produce by fermenting yeast. Erythritol is often coupled with stevia, especially in tabletop sweeteners like Cargill's Truvia, to replicate the bulk and weight of sugar. "Our biggest challenge is that the consumer doesn't understand how wonderful erythritol is," says A.J. Aumock, Cargill's global marketing leader for Truvia. Some are wary of its chemical-sounding name and its classification as a sugar alcohol, some of which are associated with what's known in polite circles as "gastrointestinal distress."

Even stevia is not exempt from the question of naturalness. Sure, it comes from a plant, but it's then processed into an extract. "There's a large debate about whether those products are natural," says Bernstein analyst Dibadj. "Some would argue that sugar is more natural than stevia." ("Natural" sugar, too, is made by applying chemicals to pure cane or beets.) The FDA does not define the term "natural," so in the end it's left to the opinions of the buyers and sellers.

A more recent sweetener candidate is derived from monk fruit found in China. It tastes good but so far is too expensive for widespread use.

ISTOCKPHOTO—GETTY IMAGES

Some consumers clearly prefer what they perceive as pure substances—one reason that cane sugar has been making a minor comeback. They would rather accept the perils of too much sugar than the perceived risks of an artificial alternative.

It's irrational to assume that natural sugar substitutes are better than artificial ones, argues Paul Breslin, a professor who specializes in taste perception in the department of nutritional sciences at Rutgers University. Calorie-free natural sweeteners, for example, have not been cleared of all of the risks some researchers attribute to artificial ones—messing with gut bacteria, causing metabolic dysfunction like glucose intolerance, and leading people to overeat.

"We just don't know one way or the other," says Dana Small, the deputy director of Yale's John B. Pierce Laboratory, which studies physiology and health. "We know enough to know that we don't know enough." For example, what does it mean that sweetness used to always indicate the presence of calories and now it frequently does not? And what are sweetness receptors doing not only in the mouth but along the intestinal tract? Even today, scientists don't fully understand what it is we're looking to replace.

WHEN GRANT DuBois joined Coca-Cola in 1992, the Type 2 diabetes crisis was looming large. "Quickly my focus became finding alternative sweetener systems," says DuBois, an organic chemist who would go on to become the company's director of ingredient and product sciences. It was his job to find a way to make Diet Coke taste like the real thing. By the end of the decade, the additional caveat was that it had to be natural. "They had already reached the conclusion that they had to get artificial flavors and sweeteners out of their products," he says.

DuBois and his team started combing through the plant-based materials that had potential. They examined more than 50 possibilities. All had their flaws—some of them pretty major. Monatin, for example, comes from a South African plant and is 3,000 times as sweet as sugar, but it produced a nasty fecal odor when exposed to light. "It was horrible," DuBois says. Finding that perfect alternative is "a fool's errand," he contends. "There's a lower probability in my view than prospecting for gold. The probability is essentially zero."

Even if DuBois and his team had found something that tasted right, it would also have to be cost-effective. It's hard to beat the price of artificial sweeteners. "They're dirt cheap," he explains—even cheaper than sugar. When DuBois left Coca-Cola in 2011, he says, it cost about 60¢ to sweeten a case of 24 eight-ounce bottles with sugar, 50¢ with high-fructose corn syrup, and just 5¢ with aspartame. Companies "love selling it because of the margins they make," he says. By contrast, DuBois says, natural sweeteners are "very expensive and always will be." That would cut significantly into profit margins or lead to higher soda prices for consumers.

Despite the hurdles—and the unlikelihood of finding an answer—companies continue to search. "Chemists have been fascinated by sweet-tasting things in nature ever since there have been chemists," says DuBois, who is now a consultant.

Natur Research Ingredients has developed a product called Cweet made from the brazzein protein, which is 2,000 times as sweet as sugar and comes from the African *oubli* plant. Miraculex in Davis, Calif., is working with a sweetener protein found in a berry called the miracle fruit that binds to taste buds to make sour things taste sweet.

Tate & Lyle already has the rare sugar allulose on the market. The body does not retain it, so it can't cause weight gain, and it has a pure and bright taste with 70% the sweetness of sugar. But it suffers a huge marketing impediment: Since allulose is chemically a sugar, it would have to be identified as such on the nutritional facts label even though it has almost no calories—a confusing proposition for consumers. Tate & Lyle is currently petitioning the FDA to grant an exception.

One plant-based alternative that has gained some traction is an extract from monk fruit, or *luo han guo,* which is part of the melon family and is grown in China. Its fruity taste is often coupled with stevia to soften its bitterness, but it's rarely used as the sole sweetener in part because it costs about five times as much as sugar. Elaine Yu, president of the U.S. subsidiary for monk fruit and stevia producer Guilin Layn Natural Ingredients, says the company is trying to lower its cost. Guilin Layn is attempting to double the output of its active ingredient, Mogroside V, through breeding practices, as well as getting two harvests a year out of its crop rather than just one.

Still, Yu says she's always on the lookout. During a recent trip to Central America she tasted a leaf that had potential and is now sending someone back for a sample. "Whatever tastes sweet," she says, "we're going to grab and send in for analysis."

S**OME SCIENTISTS BELIEVE** fixing sugar is a better idea than replacing it. For example, a startup called DouxMatok, based in Israel, is taking a lesson from the pharmaceutical industry's research in targeted drug delivery. If a chemotherapy drug is encapsulated so it releases only when it hits the tumor, it will cause less damage on the way to the target. DouxMatok is trying a similar approach. It coats minerals with sugar, which keeps most of it from being released until it hits the sweetness receptor. Since very little material is lost on its journey, the company says it can achieve the same level of sweetness by using up to 50% less sugar.

Yet even DouxMatok's product, which is more than 99.5% sugar, did not always behave exactly like sugar. Though it tasted the same, the company had to come up with different versions that would, say, react properly in a fatty solution or if cooked at high temperatures.

Nestlé, meanwhile, is trying to change sugar's structure, essentially by hollowing it out. Stefan Catsicas, the company's head of innovation, describes a sugar crystal as being like a box. We taste only the outside of it in our mouths, but we swallow the contents of the entire thing even though the sugar on the inside is not essential to the sense in our mouth. "We can structure it so whatever we put on the tongue will be perceived and will represent most of what we swallow," Catsicas says. This could potentially cut down on sugar by up to 40%. The tradeoff—and you should know by now there's always a tradeoff—is that the structure is destroyed in water, which is present in most foods. Luckily for Nestlé, chocolate is one of the only foods that are not aqueous.

"WHATEVER TASTES SWEET, WE'RE GOING TO GRAB AND SEND IN FOR ANALYSIS," SAYS AN EXECUTIVE OF THE SEARCH FOR A NEW SWEETENER.

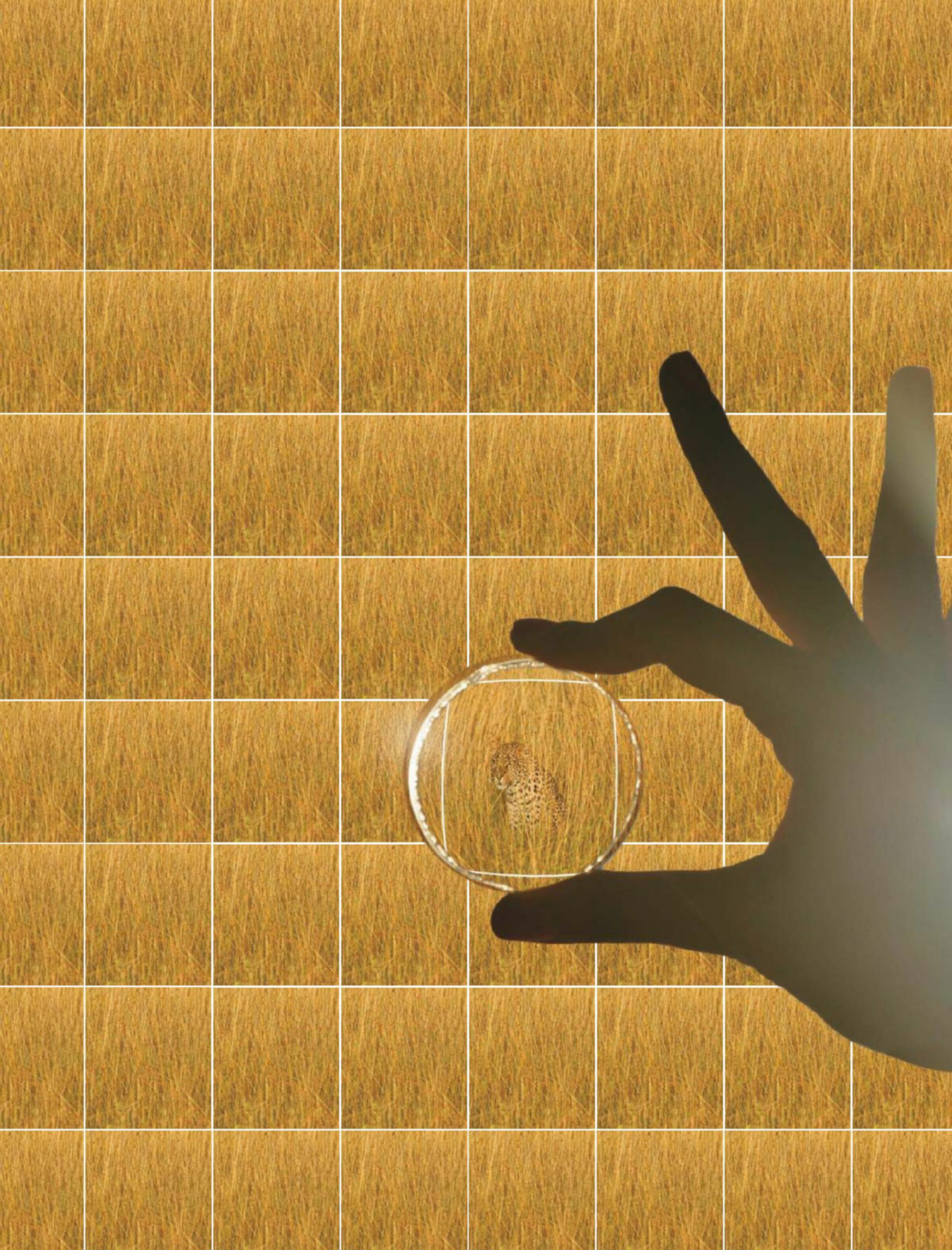
There seems to be an obvious solution to all of this that would be much easier for everyone: Why not just eat less sugar? "As we move away from sugar, we are facing this dilemma that nothing tastes like sugar," says consultant Woo. We know, after all, that our expectations are not set by nature. In the U.S. products tend to be sweeter than in Europe. For example, a liter-size bottle of American Dr Pepper has 108 grams of sugar, vs. about 73 grams for the U.K. equivalent. Why not just drop the threshold in the U.S. market too?

Several of the big food and beverage manufacturers have pursued this path, vowing to cut sugar in their products. Coca-Cola says it has already reduced it in more than 200 of its sodas. For its part, PepsiCo has committed that by 2025, at least two-thirds of its volume will have 100 calories or fewer per 12 ounces. (A can of Pepsi has 150 calories, for example.) General Mills has begun slashing sugar in its cereals and yogurt. Nestlé and Dr Pepper Snapple have made pledges of their own.

The challenge stems in large part from what the rest of the market is doing. "They're afraid that consumers will taste 20% lower sweetness and go to a competitor," says DuBois. Paul Bakus, Nestlé's president of corporate affairs, told me that the company has to walk a narrow line between being nutritionally superior to the rest of the market and not sacrificing taste. "We want to reduce sugar where possible as long as we don't put ourselves at a competitive disadvantage," he says. "How do you compete if your competitors aren't following the process or rules or guidelines?"

Some experts believe the industry should follow the template of the U.K.'s sodium reduction program. In 2005 the country's food industry pledged to reduce sodium in key categories by as much as 50% over eight years. By 2011, national sodium consumption had dropped 15%, and deaths from stroke and heart disease fell about 40%. The U.K. is now considering a similar coordinated attack on sugar.

It's hard to imagine the U.S. government attempting such an initiative. More likely, American regulators will leave consumers and food companies locked in their long-lasting sugary embrace. The former will keep demanding, and the latter keep promising, the perfect sweet solution—and the next miracle will always be just over the horizon.

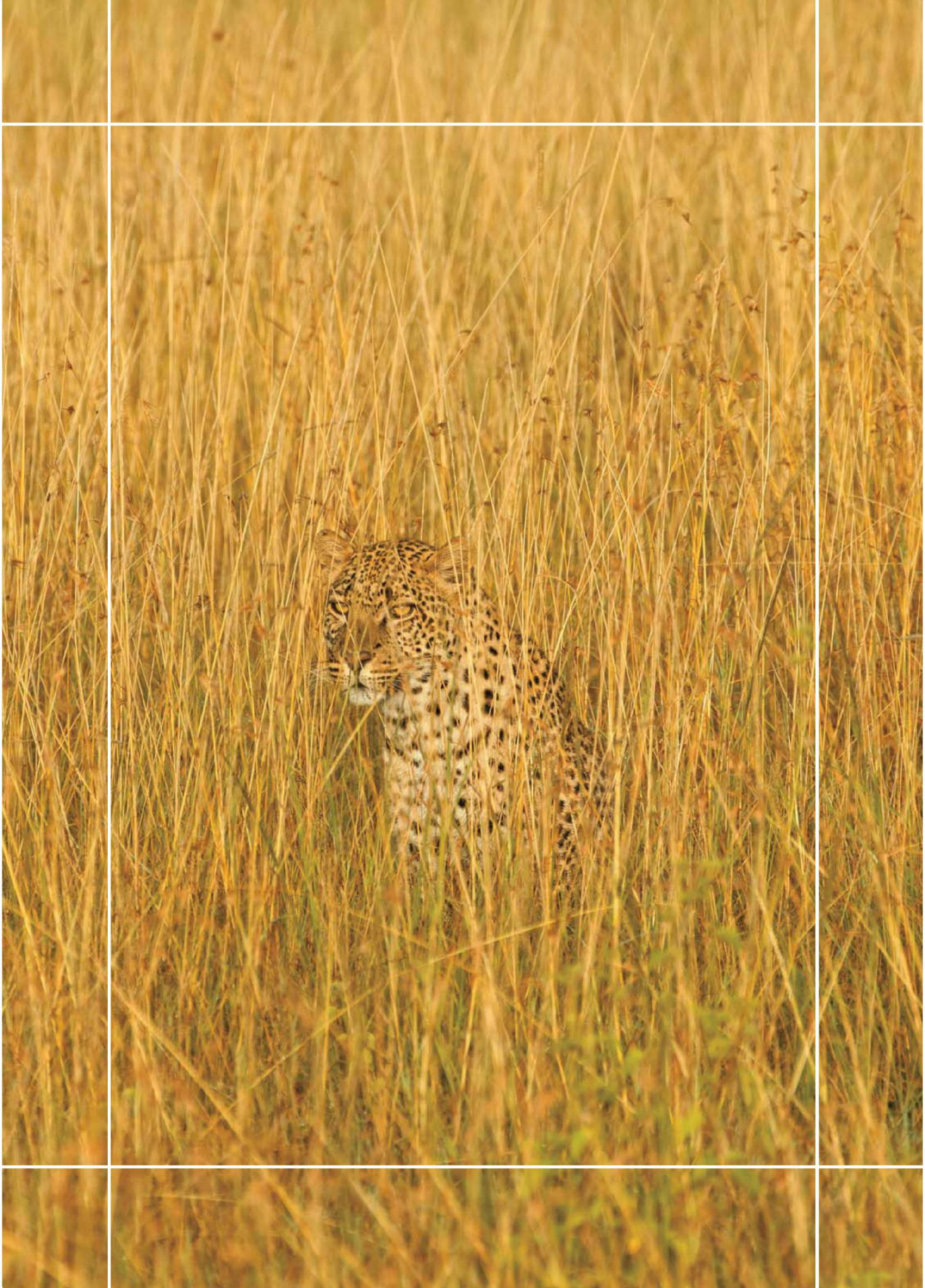


THE WORLD'S MOST ADMIRED COMPANIES

▸ WHICH COMPANIES ARE MOST RESPECTED? SOME 3,800 EXECUTIVES, ANALYSTS, DIRECTORS, AND EXPERTS VOTED—AND HERE ARE THE RESULTS.

NOBODY CAN QUANTIFY THE VALUE OF A GOOD REPUTATION. But nobody wants to lose one. Just ask Wells Fargo, whose practice of opening accounts without permission tarnished its formerly gleaming name, sending it plunging off *Fortune*'s list of the World's Most Admired Companies this year. (Volkswagen and Chipotle suffered the same fate last year.) The happier news? Surging rankings for Microsoft, which tops an industry category for the first time since 2003, as well as for Facebook, Netflix, and Salesforce. A few companies, such as 3M and McDonald's, made their way back onto the All-Star list, proving that, though it may not be easy, it's possible to restore a reputation.

▲ ILLUSTRATIONS BY **LA TIGRE**



THIS YEAR we also asked survey respondents to offer views on chief executives—who wasn't getting enough credit and who was getting too much.
(TWO CEOs PLACED IN BOTH CATEGORIES.)

MOST UNDERRATED CEOs
BASED ON 2,170 RESPONSES

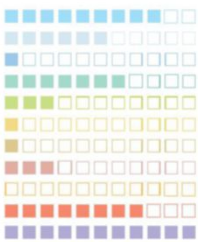
Satya Nadella
MICROSOFT
123 VOTES

THE 50 ALL-STARS
THIS ELITE ASSEMBLAGE WON VOTES FROM INSIDE AND OUTSIDE THEIR OWN INDUSTRIES.

Rank	Company	2015 rank	Rank	Company	2015 rank
1	Apple	[2015 rank: 1]	25*	Marriott International	[29]
2	Amazon	[3]	27	Goldman Sachs Group	[23]
3	Starbucks	[6]	28	Whole Foods Market	[24]
4	Berkshire Hathaway	[4]	29	BlackRock	[26]
5	Walt Disney	[5]	30	Boeing	[22]
6	Alphabet (Google)	[2]	31	Delta Air Lines	[30]
7	General Electric	[10]	32	Home Depot	[31]
8	Southwest Airlines	[7]	33	Singapore Airlines	[—]
9*	Facebook	[14]	34	Toyota Motor	[28]
9*	Microsoft	[17]	35	UPS	[33]
11	FedEx	[8]	36	Nestlé	[38]
12	Nike	[9]	37	AT&T	[48]
13	Johnson & Johnson	[15*]	38	Unilever	[41]
14	Netflix	[19]	39	PepsiCo	[44]
15	Costco Wholesale	[12]	40	Exxon Mobil	[37]
16	Coca-Cola	[15*]	41	Accenture	[36]
17	American Express	[11]	42	Walmart Stores	[42]
18	Nordstrom	[13]	43	St. Jude Medical†	[40]
19	Procter & Gamble	[21]	44	Target	[39]
20	Salesforce.com	[34]	45	CVS Health	[27]
21	BMW	[18]	46	Intel	[43]
22	JPMorgan Chase	[20]	47	Caterpillar	[45]
23	3M	[—]	48	McDonald's	[—]
24	IBM	[32]	49	Visa	[47]
25*	USAA	[—]	50	Deere	[46]

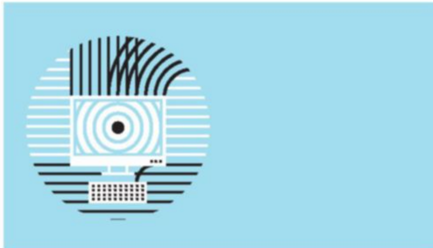
THE 50 ALL-STARS BY CATEGORY

- COMPUTERS AND COMMUNICATION
- CONSUMER PRODUCTS
- CONTRACTED SERVICES
- FINANCIALS
- MEDIA AND ENTERTAINMENT
- NATURAL RESOURCES
- POWER
- PRECISION
- SHELTER
- STORES AND DISTRIBUTORS
- TRANSPORT



INDUSTRY STANDOUTS

COMPUTERS AND COMMUNICATION



CABLE AND SATELLITE PROVIDERS

1. **Comcast** [1]
2. Liberty Global [2]
3. Dish Network [4]

COMPUTER SOFTWARE

1. **Microsoft** [2]
2. Adobe Systems [1]
3. Salesforce.com [3]
4. Intuit [4]
5. SAP [8]
6. Electronic Arts [6]
7. Autodesk [5]

INFORMATION TECHNOLOGY SERVICES

1. **Accenture** [1]
2. IBM [2]
3. Booz Allen Hamilton Holding [3]
4. Gartner [6]
5. Cognizant Technology Solutions [5]
6. Fujitsu [4]
7. Science Applications International [9]
8. Maximus [—]

INTERNET SERVICES AND RETAILING

1. **Alphabet** [1]
2. Facebook [2]
3. Amazon [3]
4. Priceline Group [4]
5. Expedia [7]
6. eBay [5]

NETWORK AND OTHER COMMUNICATIONS EQUIPMENT

1. **Qualcomm** [1]
2. Cisco Systems [2]
3. Corning [5]
4. Juniper Networks [6]
5. Ciena [—]
6. L.M. Ericsson [3]
7. Nokia [7]
8. Brocade Communications Systems [—]

TELECOMMUNICATIONS

1. **AT&T** [1]
2. Verizon Communications [2]
3. Telefónica [5]
4. Vodafone Group [6]
5. China Telecommunications [10]
6. China United Network Communications [—]
7. KDDI [8]
8. NTT (Nippon Telegraph & Telephone) [7]

CONSUMER PRODUCTS

APPAREL

1. **Nike** [1]
2. VF [2]
3. PVH [4]
4. Adidas [5]
5. Kering [—]

BEVERAGES

1. **Anheuser-Busch InBev** [1]
2. Diageo [3]
3. Coca-Cola [2]
4. Constellation Brands [15]
5. Heineken Holding [4]
6. Dr Pepper Snapple Group [8]
7. Brown-Forman [—]
8. Coca-Cola Bottling [—]

CONSUMER FOOD PRODUCTS

1. **Nestlé** [1]
2. PepsiCo [3]
3. Danone [4]
4. Kellogg [7]
5. Mondelez International [5]
6. General Mills [6]

*TIE IN RANK. †ACQUIRED BY ABBOTT LABORATORIES AFTER THE SURVEY WAS CONDUCTED. DROPPED OUT OF THE TOP 50: CHARLES SCHWAB (RANKED 50 LAST YEAR), PUBLIX SUPER MARKETS (49),

Jeff Bezos
AMAZON
109 VOTES

Gary Kelly
SOUTHWEST AIRLINES
85 VOTES

Elon Musk
TESLA
73 VOTES

Jamie Dimon
JPMORGAN CHASE
72 VOTES

THE MOST REPUTABLE COMPANIES, AS RANKED BY PEERS IN THEIR SECTOR.

FOOD PRODUCTION

1. Tyson Foods [5]
2. Archer Daniels Midland [1]
3. Ingredion [2]
4. Wilmar International [3]
5. Bunge [4]

HOME EQUIPMENT, FURNISHINGS

1. Fortune Brands Home & Security [3]
2. Leggett & Platt [7]
3. Whirlpool [1]
4. Mohawk Industries [—]
5. Stanley Black & Decker [4]
6. Newell Brands[1] [5]

SOAPS AND COSMETICS

1. Unilever[2] [2]
2. L'Oréal [2]
3. Colgate-Palmolive [1]
4. Procter & Gamble [6]
5. Estée Lauder [3]
6. Henkel [4]

CONTRACTED SERVICES

DIVERSIFIED OUTSOURCING SERVICES

1. Robert Half International [2]
2. Sodexo [4*]
3. ManpowerGroup [4*]
4. Cintas [6]
5. Aramark [1]
6. Randstad Holding [—]

HEALTH CARE: INSURANCE AND MANAGED CARE

1. UnitedHealth Group [1]
2. Aetna [2]
3. Humana [4]
4. Cigna [3]
5. Magellan Health [8]

HEALTH CARE: MEDICAL FACILITIES

1. HCA Holdings [1]
2. Universal Health Services [2]
3. DaVita[3] [3]
4. Kindred Healthcare [4]
5. LifePoint Health [6]

HEALTH CARE: PHARMACY AND OTHER SERVICES

1. CVS Health[4] [3]
2. Cerner [2]
3. Quintiles IMS Holdings[5] [1]
4. Quest Diagnostics [3]
5. Express Scripts Holding [6]
6. Team Health Holdings [5]

FINANCIALS

CONSUMER CREDIT CARD AND RELATED SERVICES

1. Visa [1]
2. Mastercard [2]
3. PayPal Holdings [—]
4. American Express [3]
5. Capital One Financial [4]

FINANCIAL DATA SERVICES

1. Automatic Data Processing [1]
2. Thomson Reuters [2]
3. Fiserv [3]
4. Broadridge Financial Solutions [4]
5. Paychex [6]

INSURANCE: LIFE AND HEALTH

1. Prudential Financial [1]
2. TIAA[6] [3]
3. New York Life Insurance [2]
4. Aflac [5*]
5. Massachusetts Mutual Life [7]
6. Northwestern Mutual [5*]

INSURANCE: PROPERTY AND CASUALTY

1. Berkshire Hathaway [1]
2. USAA [2]
3. State Farm Insurance [5*]
4.* Nationwide [9]
4.* Swiss Re [3]
6. Travelers Cos. [4]
7. Liberty Mutual Insurance Group [12]
8. Allianz [8]

MEGABANKS

1. JPMorgan Chase [2]
2. Bank of America [5]
3. Morgan Stanley [4]
4. Goldman Sachs Group [1]
5. UBS Group [—]
6. Citigroup [6]
7. HSBC Holdings [7]
8. Mitsubishi UFJ Financial Group [8]

SECURITIES AND ASSET MANAGEMENT

1. BlackRock [1]
2. Charles Schwab [2]
3. T. Rowe Price [3]
4. Carlyle Group [4]
5. Raymond James Financial [5]
6. TD Ameritrade [8]

SUPERREGIONAL BANKS

1. U.S. Bancorp [1]
2. PNC Financial Services Group [2]
3. Northern Trust [3]
4. BB&T Corp. [6]
5. State Street Corp. [5]
6. Bank of New York Mellon [4]

NADELLA: TOBIAS HASE—AP; BEZOS: JOE SCARNICI—GETTY IMAGES; KELLY: KHOLOOD EID—BLOOMBERG VIA GETTY IMAGES; MUSK: EVAN VUCCI—AP; DIMON: KRISTOFFER TRIPPLAAR—SIPA VIA AP

SAMSUNG ELECTRONICS (35), AND WELLS FARGO (25).

MOST OVERRATED CEOs

BASED ON 1,497 RESPONSES

Tim Cook
APPLE
229 VOTES

Mark Zuckerberg
FACEBOOK
205 VOTES

Jeffrey Immelt
GE
201 VOTES

TOP COMPANIES BY ATTRIBUTE

INNOVATION: 1. **Alphabet** 2. **Netflix** 3. **Nike** ▸ **QUALITY OF MANAGEMENT:** 1. **Walt Disney** 2. **TJX** 3. (tie) **Starbucks and U.S. Bancorp**

CORPORATE ASSET USE: 1. **Walt Disney** 2. **U.S. Bancorp** 3. **Starbucks** ▸ **LONG-TERM INVESTMENT VALUE:** 1. **Walt Disney** 2. **U.S. Bancorp**

MEDIA AND ENTERTAINMENT

ENTERTAINMENT

1. Walt Disney [1]
2. Netflix [2]
3. Activision Blizzard [6]
4. Discovery Communications [3]
5. Liberty Media [7]
6. Bertelsmann [9]
7. Time Warner [5]

HOTELS, CASINOS, AND RESORTS

1. Marriott Intl. [1]
2. Hilton Worldwide Holdings [2]
3. Wynn Resorts [3]
4. MGM Resorts International [6]
5. Hyatt Hotels [4]
6. Las Vegas Sands [7]

NATURAL RESOURCES

CHEMICALS

1. PPG Industries [3*]
2. Monsanto [1*]
3. Ecolab [3*]
4. DuPont [6]
5. Sherwin-Williams [—]
6. BASF [5]

METALS

1. Arconic[7] [1]
2. ArcelorMittal [2]
3. Nippon Steel & Sumitomo Metal [3]
4. China Minmetals [9]
5. Kobe Steel [—]
6. POSCO [4]
7. Nucor [—]
8. ThyssenKrupp [6]
9. China Baowu Steel Group[8] [8]

PACKAGING, CONTAINERS

1. Sealed Air [1]
2. Sonoco Products [2]
3. International Paper [3*]
4. WestRock [3*]
5. Ball [5]

PHARMACEUTICALS

1. Johnson & Johnson [1]
2.* Novartis [2]
2.* Roche Group [3]
4. Merck [5]
5. Amgen [7]
6. Pfizer [8]
7. Gilead Sciences [6]
8.* AbbVie [9]
8.* Eli Lilly [10]

POWER

ELECTRIC AND GAS UTILITIES

1. NextEra Energy [1]
2. Dominion Resources [2]
3. American Electric Power [5]
4.* PG&E Corp. [10]
4.* Xcel Energy [4]
6. Southern [3]
7. Exelon [6]
8. Public Service Enterprise Group [—]

PRECISION

ELECTRONICS

1. Honeywell International [4]
2. Samsung Electronics [3]
3. Panasonic [5]
4. Sony [6]
5. Hitachi [8]
6. Emerson Electric [—]
7. Royal Philips [7]

MEDICAL PRODUCTS AND EQUIPMENT

1. Abbott Laboratories [1]
2. 3M [3]
3. Medtronic [2]
4. Becton Dickinson [10]
5. Stryker [5]
6. Boston Scientific [6]

SEMICONDUCTORS

1. Nvidia [4]
2. Intel [1]
3. Taiwan Semiconductor [2]
4. Texas Instruments [3]
5. Applied Materials [5]
6. Jabil Circuit [8*]
7. Flex[9] [8*]
8. Analog Devices [—]

Jamie Dimon
JPMORGAN CHASE
128 VOTES

Jeff Bezos
AMAZON
93 VOTES

▸ **QUALITY OF PRODUCTS:** 1. **Walt Disney** 2. **Nordstrom** 3. **Amazon**

3. **Starbucks** ▸ **TALENT ATTRACTION:** 1. **Facebook** 2. **Walt Disney** 3. **Alphabet**

SHELTER

ENGINEERING, CONSTRUCTION

1. Fluor [1]
2. EMCOR Group [3]
3. Jacobs Engineering Group [2]
4. Peter Kiewit Sons' [4]
5. AECOM [5]

HOMEBUILDERS

1. Toll Brothers [1]
2. Lennar [2]
3. D.R. Horton [3]
4. CalAtlantic Group [4]
5. NVR [6]

REAL ESTATE

1. Simon Property Group [1]
2.* Host Hotels & Resorts [2]
2.* Jones Lang LaSalle (JLL) [6]
4. CBRE Group [3]
5. Equity Residential [4]

STORES AND DISTRIBUTORS

FOOD AND DRUGSTORES

1. Walgreens Boots Alliance [5]
2. Kroger [4]
3. Publix Super Markets [2]
4. Whole Foods Market [1]
5. Smart & Final Stores [—]
6. Royal Ahold Delhaize[10] [7]

FOOD SERVICES

1. Starbucks [1]
2. McDonald's [2]
3. Domino's Pizza [—]
4. Yum Brands [3]
5. Panera Bread [5]

GENERAL MERCHANDISERS

1. Nordstrom [1]
2. Target [2]
3. Walmart Stores [4]
4. Kohl's [6]
5. Macy's [3]

SPECIALTY RETAILERS

1. TJX [1]
2. Costco Wholesale [2]
3. L Brands [3]
4. Home Depot [4]
5. Lowe's [5]
6. Ross Stores [6]
7. Gap [13]
8. Best Buy [7]

WHOLESALERS: DIVERSIFIED

1. W.W. Grainger [1]
2. WESCO International [3]
3. NGL Energy Partners [—]
4. World Fuel Services [10]
5. Rexel [4]
6.* Genuine Parts [7]
6.* Wolseley [5]

WHOLESALERS: ELECTRONICS AND OFFICE EQUIPMENT

1. Arrow Electronics [1]
2. Tech Data [4]
3. Avnet [2]
4. ScanSource [5]

WHOLESALERS: HEALTH CARE

1. McKesson [2]
2. Cardinal Health [3]
3. Henry Schein [1]
4. AmerisourceBergen [4]

NOTES

A DASH IN PRIOR YEAR'S RANK MEANS THE COMPANY WAS NOT IN THE SURVEY LAST YEAR.

*TIE IN RANK.

[1] CHANGED NAME FROM NEWELL RUBBERMAID.

[2] RANK IN CONSUMER FOOD PRODUCTS LAST YEAR.

[3] CHANGED NAME FROM DAVITA HEALTHCARE PARTNERS.

[4] RANK IN FOOD AND DRUGSTORES LAST YEAR.

[5] CHANGED NAME FROM QUINTILES TRANSNATIONAL HOLDINGS.

[6] CHANGED NAME FROM TIAA-CREF.

[7] PART OF THE FORMER ALCOA.

[8] CHANGED NAME FROM BAOSTEEL GROUP.

[9] CHANGED NAME FROM FLEXTRONICS INTERNATIONAL.

[10] ACQUIRED DELHAIZE GROUP AND CHANGED NAME FROM ROYAL AHOLD.

[11] RANK IN ELECTRONICS LAST YEAR.

COOK: TORU HANAI—REUTERS; ZUCKERBERG: MARIANA BAZO—REUTERS; IMMELT: GARY GERSHOFF—GETTY IMAGES; DIMON: KRISTOFFER TRIPPLAAR—SIPA VIA AP; BEZOS: JOE SCARNICI—GETTY IMAGES

INDUSTRY STANDOUTS

TRANSPORT

AEROSPACE AND DEFENSE

1. Northrop Grumman [5]
2. Lockheed Martin [2]
3. United Technologies [3]
4. Raytheon [4]
5. Boeing [1]
6. General Dynamics [6]
7. Airbus Group [7]
8. BAE Systems [9]

AIRLINES

1. Delta Air Lines [1]
2. Air France-KLM Group [3]
3. Cathay Pacific Airways [6]
4. Singapore Airlines [2]
5. Lufthansa Group [7]
6. United Continental Holdings [4]
7. Southwest Airlines [5]
8. ANA Holdings [11]

CONSTRUCTION AND FARM MACHINERY

1. Caterpillar [1]
2.* Cummins [3]
2.* Deere [2]
4. Paccar [—]
5. Komatsu [4]
6. Volvo [5]

DELIVERY

1. UPS [3]
2. FedEx [1]
3. Deutsche Post DHL Group [2]
4. Royal Mail [7]

INDUSTRIAL MACHINERY

1. Siemens[11] [1]
2. Ingersoll-Rand [4]
3. General Electric[11] [2]
4. Illinois Tool Works [1]
5. ABB [3]
6. Alstom [8]

MOTOR VEHICLE PARTS

1. Robert Bosch [1]
2. Goodyear Tire & Rubber [3]
3. Toyota Industries [2]
4. Michelin [5]
5. Continental [8]
6. Johnson Controls [4]
7. Lear [11]
8. ZF Friedrichshafen [7]

MOTOR VEHICLES

1. Toyota Motor [1]
2. BMW [2]
3. Honda Motor [5]
4. Daimler [3]
5. Ford Motor [9]
6. General Motors [6]
7. Renault [13]
8. Nissan Motor [8]

TRUCKING, TRANSPORTATION, LOGISTICS

1. Union Pacific [1]
2. C.H. Robinson Worldwide [4]
3. CSX [2]
4. J.B. Hunt Transport Services [5]
5. Ryder System [3]

HOW WE DETERMINE THE LIST

AS WE HAVE IN THE PAST, *Fortune* collaborated with our partner Korn Ferry Hay Group on this survey of corporate reputations. We began with a universe of about 1,500 candidates: the 1,000 largest U.S. companies ranked by revenue, along with non-U.S. companies in *Fortune*'s Global 500 database that have revenues of $10 billion or more. We then winnowed the assortment to the highest-revenue companies in each industry, a total of 680 in 28 countries. The top-rated companies were picked from that pool of 680; the executives who voted work at the companies in that group.

To determine the best-regarded companies in 51 industries, Korn Ferry Hay Group asked executives, directors, and analysts to rate enterprises in their own industry on nine criteria, from investment value and quality of management and products to social responsibility and ability to attract talent. A company's score must rank in the top half of its industry survey to be listed.

Results were not published in the following categories due to insufficient response rates: Computers, U.S. Energy, Mining/Crude Oil Production, Petroleum Refining, and Pipelines.

To select our 50 All-Stars, Korn Ferry Hay Group asked 3,800 executives, directors, and securities analysts who had responded to the industry surveys to select the 10 companies they admired most. They chose from a list made up of the companies that ranked in the top 25% in last year's surveys, plus those that finished in the top 20% of their industry. Anyone could vote for any company in any industry.

The difference in the voting rolls explains why some results can seem at odds with each other. For example, Samsung Electronics fell off the All-Star list as its combustible phone batteries singed its sales and stature, but Samsung moved up one notch within the electronics category when votes from only those in that industry were counted. —*Scott DeCarlo*

KORN FERRY

FOR MORE ON THE WORLD'S MOST ADMIRED COMPANIES, VISIT **FORTUNE.COM/WMAC.**

▸ WORLD'S MOST ADMIRED RANK: **NO. 38**
▸ 2016 REVENUES: **$58 BILLION** ▸ 2016 PROFITS: **$5.7 BILLION**
▸ EMPLOYEES: **169,000** ▸ NUMBER OF BRANDS: **400+**

SELLING SOAP AND SAVING THE WORLD

▸ **UNILEVER** CEO PAUL POLMAN HAS REMADE HIS COMPANY AS A MODEL OF RESPONSIBLE CAPITALISM. BUT CAN THE CONSUMER GOODS POWERHOUSE GROW FAST ENOUGH TO PROVE THAT HIS NEW MODEL WORKS?

BY VIVIENNE WALT

▲ PHOTOGRAPH BY **JILLIAN EDELSTEIN**

Paul Polman photographed at Unilever's London headquarters on Feb. 1, 2017.

“THE QUESTION IS, ‘DO YOU RUN THIS FOR SOCIETY OR NOT?’ ” SAYS POLMAN. “THE REAL PURPOSE OF BUSINESS HAS ALWAYS BEEN TO COME UP WITH SOLUTIONS.”

STEP OUT OF THE FRIGID DRIZZLE into Unilever’s factory outside Liverpool in northern England, and the brightly lit, automated assembly line gleams in stark contrast to the gloom outside. Thousands of bottles shoot down a conveyor belt with a click-clack sound, in a streak of bright purple. Look more closely, and there is an important detail. The new bottle is squatter than the older, taller style on another assembly line, with a smaller dispenser and a label explaining that this version of Comfort brand fabric conditioner is good for 38 washes, rather than the 33 of the last-generation package. The message is clear: Customers need to help save one of earth’s most precious resources—water.

This might appear to be a clever bit of marketing by one of the world’s biggest consumer product companies, and marketing it surely is. But to Unilever, its updated, concentrated liquid is also a crucial innovation. It’s one of countless tweaks underway by the Anglo-Dutch company in its more than 300 factories across the world, which churn out more than 400 brands for 2.5 billion or so customers—an astonishing one in every three people on the planet. Central to these changes is a message Unilever is determined to convey to its investors, as well as to other companies: Big corporations need to change the way they do business, fast, or they will steadily shrink and die.

To most of Unilever’s customers, the state of the world is probably the last thing on their minds as they push their shopping carts through the supermarket, tossing in Ben & Jerry’s ice cream, Dove soap, Lipton tea, Hellmann’s mayonnaise, and other Unilever products. It’s hard to imagine that eco-disasters might someday lead to those items disappearing from shelves. But to Unilever, which was born as a solution to a crisis, the potential for calamity seems real enough. The company got its start in the 1880s, right here in this picture-perfect redbrick village near Liverpool called Port Sunlight—named after the world’s first packaged, branded bar of soap and the company’s founding product. It was created in an effort to stop rampant epidemics and child deaths amid the grinding poverty and squalor of Victorian England. Nearly 130 years later, there is still an acute sense at Unilever that the world needs fixing.

The person most responsible for that feeling of urgency is 60-year-old Paul Polman, the tall, soft-spoken Dutchman who has led Unilever as CEO for the past eight years. Folded into an armchair more than 200 miles south of Liverpool, in the company’s London headquarters on the Thames River, Polman rattles off figures more commonly heard in the UN General Assembly than the C-suite of a company with $58 billion in sales. Indeed, this past November the French government pinned a knighthood on him, not for his ability to drive profits but for his vociferous global campaigning to rein in climate change.

When I meet Polman on a chilly February morning, it’s just a few days after he has released Unilever’s 2016 earnings. Yet he is not particularly interested in discussing the results. (Unilever reported $5.7 billion in net profit for the year on slowing sales growth.) The figures that seem more pressing to him are ones that he’s convinced have greater potential to put his and other companies in peril. More than 160 million children in the world are stunted from malnutrition, he says. Eight million people die prematurely each year from pollution. The world’s richest 1 billion people consume 75% of its natural resources. “We’re wasting 30% to 40% of the food in this world, whilst millions of people go to bed hungry,” he says, as if amazed that the situation is even possible. “Why do we not have the moral courage to attack that?”

Polman hands me just one document to read: a report of the Business & Sustainable Development Commission, a group of CEOs and NGOs that advocates business growth by applying the UN’s development goals. In 2012, Ban Ki-moon, then the UN Secretary-General, picked Polman as one of 26 people to craft 17 goals for the world body—the only business executive in the group. Introduced in 2015, the UN’s Sustainable Development Goals, or SDGs, include eliminating poverty and gender inequality. When I ask Polman how much time he spends on Unilever business compared with lobbying politicians and heads of state or addressing NGOs, the World Economic Forum, Stanford’s Graduate School of Business, and others, he draws a blank. “To me it is the same,” he says, sipping a cup of green tea. “I don’t separate that. I think it is an integral part of the way we run our business.”

Proving that point is now Polman’s—and Unilever’s—major challenge. There is certainly ample evidence that the world is in trouble. This century has seen an acceleration of global-warming trends, as well as an extreme widening of the gap between the world’s richest and its poorest. But it is less clear whether Polman can succeed in convincing his peers in the business world that it’s their job to fix those problems—or at least, whether he can succeed in doing that during his remaining time as CEO of Unilever. When the company named Marijn Dekkers as its new chairman last year, investors concluded that his first task would be to find a successor to Polman.

If Polman is concerned about his job status, he doesn’t show it—perhaps because he is so intent

Workers test new shampoo formulas in a lab at Unilever's facility in Port Sunlight, England. The company spends more than $1 billion annually on R&D.

on making his development strategy work. To the CEO, his logic seems irrefutable. Environmental risks and poverty are fundamental problems for almost every part of business operations, from storing data to manufacturing laundry detergent to growing tea. More customers will begin to shun companies that fail to grasp that, he believes, while businesses that practice gender equality and environmental preservation will inevitably become more profitable. In that sense, he thinks that Unilever can play a vital role in showing other companies the best path forward. "This is not a charity we're talking about here, you know," he says. "We are running a business."

Polman's embrace of sustainability as a core management principle has helped bolster Unilever's reputation globally. The consumer goods company ranks No. 38 this year on *Fortune*'s list of the World's Most Admired Companies Top 50 All-Stars, up from No. 41 in 2016. It's the sixth straight year Unilever has made the list, which is determined by surveying thousands of executives and analysts.

But in the unsentimental world of markets, Unilever's good intentions count for little compared with its bottom line. And over the past 12 months, the company's stock has slipped by more than 2% while the S&P 500 has soared 25%. "A minority of investors I speak to give two hoots about Unilever's Sustainable Living Plan," says Jefferies analyst Martin Deboo in London, referring to Polman's signature blueprint for Unilever, dubbed USLP. Polman introduced the plan in 2010, and it now informs every aspect of the company's sprawling worldwide operations. The dizzying array of 50 goals includes stopping all nonhazardous waste going to landfills, training 5 million women, and halving the water waste in its factories.

As a stagnant global economy has hit Unilever's growth during the past two years, Deboo says, some investors have begun to question whether the strategy should trump other factors. Unilever says 80% of its investors see the approach as boosting long-term value. Still, Deboo suggests that there's a sense Polman has morphed into the classic Davos Man, more intently focused on fixing global problems than the nitty-gritty details of operations. Indeed, Polman says as much. "I am really more interested in development," he says. "And there is no better way than using companies like this to

▲ PHOTOGRAPH BY **PETER DENCH**

▸ ONE PLANET, MORE THAN 400 BRANDS

UNILEVER IS RETHINKING EACH BRAND UNDER ITS SUSTAINABLE LIVING PLAN, WHICH DEMANDS IT HALVE ITS WATER USE AND CARBON EMISSIONS, STOP SENDING WASTE TO LANDFILLS, AND HELP FIGHT DISEASES. HERE ARE FIVE EXAMPLES:

BEN & JERRY'S SAVE OUR SWIRLED

The company invented this marshmallow flavor to mark the global climate talks in Paris in 2015. The ice cream even has its own motto: "If it's melted, it's ruined!"

LIFEBUOY TOTAL 10 HANDWASH

The hand-soap brand is central to Unilever's global handwashing campaign to help prevent deadly infectious diseases. Currently 5 million children die yearly of diarrhea.

DOVE BODY WASH

Unilever says the new MuCell technology it uses to make its bottles requires 15% less plastic. It has made the technology open-source, encouraging other manufacturers to do the same.

COMFORT ONE RINSE

A newly released version of the fabric conditioner uses 20% less water than previous editions, saving the equivalent of 10 million Olympic-size swimming pools per year.

SURE COMPRESSED AEROSOL DEODORANT

Unilever says it redesigned the product in 2013 to use 50% less propellant gas and 25% less aluminum. And the entire package is now recyclable.

drive development." As for being the boss, Polman, who has refused increases on his base salary of $1.27 million, says, "I never wanted to be a CEO, and I don't really care about that."

While that might be sincere, it could also suggest to investors that Polman's energy is not entirely focused on his company. "People indulged Unilever on USLP in the early years when the reporting numbers were going well," Deboo says. "Now they want to hear more muscular language about earnings and returns."

Nearly a decade into his tenure at Unilever, the jury is still out on the lasting impact of Polman's grand plan. Can he help save the world and still sell enough soap, snacks, and other goods to please shareholders? And is his version of Unilever going to be the new model for successful multinationals?

IT IS ON THE SUBJECT of climate change that Polman is most passionate. During the global climate talks in Paris in December 2015, Polman drummed home the point to business leaders and politicians that companies' survival depended on averting environmental catastrophe. Polman believes that naysayers are losing the argument on climate change—notwithstanding the climate skeptics in President Trump's administration. He credits a wired, savvy younger generation that's intensely concerned about the planet. Among CEOs, too, Polman says he has noticed a dramatic change in attitude. "Five years ago I could not get a single CEO to be on a panel about climate change," he says. "They were worried about being attacked by people in beards and sandals. Now many can talk about climate change."

Even so, Polman's argument that it is the job of businesses to help fix these problems requires a mental shift for many companies. Typically, most have carved off issues like the environment and poverty into corporate social responsibility (CSR) programs, separating them from revenue-generating business. To Polman the distinction makes no sense. In 2009, when he landed as CEO at Unilever from its Swiss competitor Nestlé in the depths of the financial crisis, he scrapped the CSR department, instructing Unilever's 169,000 employees instead to embed the company's

COURTESY OF UNILEVER (5)

> "HERE WAS A COMPANY WHERE, BECAUSE OF THE LEADERSHIP, IT WAS OPEN TO THE PROBLEMS WE THREW AT THEM." **Rachel Wilshaw,** ethical trade manager at nonprofit Oxfam

extensive social commitments into their business targets. The strategy extends companywide, to "every brand, every market. No exceptions," as Keith Weed, who heads Unilever's sustainability program, described it in a LinkedIn post.

It was part of a bold makeover. Polman said his goal was to double revenues from $40 billion to $80 billion, while halving the company's environmental footprint. Unilever staff say that the aggressive targets helped instill a "growth mentality" within the company and that, although revenues have not doubled, they have increased more than 10 billion euros since Polman arrived. (But only about $4 billion because of dramatic currency fluctuations.)

Polman quickly understood that it would take years for the company's sustainability plan, the USLP, to show concrete results, and that some of its targets could run counter to growth. So he scrapped quarterly earnings guidance for investors, a system he calls "absolutely ridiculous." Polman sides with those who argue that the tyranny of quarterly goals traps public companies into continually trying to drive up share prices for investors, while downgrading more long-term, complicated missions, like improving working conditions and the environment.

"The question you ask is, 'Do you run this for society or not?'" Polman says. "The real purpose of business has always been to come up with solutions that are relevant to society, to make society better."

THOUSANDS OF MILES from the London headquarters, with its motivational wall posters and health-food canteen, Polman's strategy is playing out in real time, exposing not only the growth potential he says is inevitable, but also the big obstacles to making it work.

The hurdles are especially steep in countries with a long history of discrimination and environmentally bad practices. Unilever has about 76,000 suppliers, and it produces or sells in 190 countries—all but six in the world. Nearly 60% of its turnover now comes from emerging markets in Asia, Latin America, and Africa (compared with under 40% for Cincinnati-based competitor P&G). Those regions are home to a soaring number of middle-class shoppers, who represent much of Unilever's growth potential. They're also places where putting Unilever's sustainability goals into action has proved tricky.

Soon after Polman began at Unilever, the nonprofit Oxfam began investigating working conditions in the company's factories. It picked as its test case Vietnam, where the company had operated since 1995. Today about 15,000 Vietnamese work for Unilever making products like Lifebuoy soap and Knorr broth granules. Oxfam's findings, published in 2013, showed that factories routinely ignored Unilever's stated principles, including Polman's dictate of paying workers decently. "People were earning much less than they ought to have been to work their way out of poverty," says Rachel Wilshaw of Oxfam, which led the study. Many workers pieced together second or third jobs to make ends meet, she says—a surprise to Unilever, which believed it was treating its workforce fairly. "The company didn't understand that though they were paying above the minimum legal wage, it was far below a living wage."

For all of Polman's good intentions, getting suppliers to comply with guidelines from London has not been easy. Driven by Polman, Unilever issued its first human rights report on its operations in 2015—much as the U.S. State Department does each year. Among its contractors in India the company found hundreds of cases of poor health and safety conditions in factories, as well as workers being underpaid. Only 13% of cases were resolved, according to Unilever's report.

Both union officials and NGOs say Unilever seems serious about tackling the problems, which are common in the supply chains of giant corporations producing across the globe. After Oxfam's Vietnam report appeared, the company reviewed its factory workers' wages globally and introduced tougher requirements for suppliers, according to Oxfam, which published a follow-up study last year. For that, Wilshaw credits Polman. "Here was a company where, because of the leadership, it was open to the problems we threw at them," she says.

Absent from Oxfam's report was just how those improvements might also boost Unilever's sales in Vietnam. There, with 90 million people and a fast-growing middle class, Unilever could ill afford a public backlash over poor labor conditions. Tapping into those millions of new customers in markets like Vietnam is key to growth in emerging markets. Three years ago Unilever rolled out a program in Vietnam it called "perfect villages," in partnership with the Communist government there. In about 1,000 rural communities it now promotes products through programs around hygiene—for example, by handing out free packages to schools that include toilet cleanser and toothpaste while building playgrounds and upgrading clinics. "You can see the impact in terms of more penetration of our brands," says Van Nguyen Thi Bich, Unilever's vice president of customer development in Vietnam. The perfect villages, she says, are much faster-growing

In Vietnam, Unilever has partnered with the government to promote good hygiene, creating new customers for its brands in the process.

markets for Unilever than other parts of the country. At the schools, for example, "we teach them to use the products," and children then "talk about that with their moms."

The tactic of pushing its products while doing good is hardly unique to Unilever, and for the company it extends far beyond Vietnam. In 2008 it helped launch a global "handwashing day" in more than 50 countries. To promote the effort, Polman regularly flies into rural areas and scrubs his hands with soap—Unilever soap, whose Lifebuoy brand is now closely identified with the campaign. The company aims to reach 1 billion people by 2020, and says it has already reached nearly half that number. In South Africa, where a severe drought has devastated many communities, the company erected Sunlight billboards made from drums of water—essential, of course, to using Unilever's soap—and distributed the water to drought-stricken areas.

The strategy harks back to the company's first business model, crafted by Lord Lever in Liverpool in the 1880s to help improve hygiene among English families. The results back then were impressive, as were Lever's profits. The company is hoping history will repeat itself. "The problems were horrendous," Polman says. "Today they have just moved to sub-Saharan Africa and India."

F**OR UNILEVER TO BEAT** its competitors, it will need to do a lot more than sell laundry soap and toilet cleanser in emerging markets. Crucial, say investors, is appealing to millions of millennials with money to spend, from New York to Berlin to Tokyo, whose demands have upturned decades of consumer habits at lightning speed. Increasingly they are opting for local, smaller brands rather than the traditional mass-market items that until now have constituted most of Unilever's offerings. Despite Unilever's more than $1 billion annual R&D budget—it has six research centers around the world, including the original one in Port Sunlight—the company simply cannot invent enough new products to match its growth demands. So Polman has increasingly turned to acquisitions.

In the past two years, Unilever has used its mountain of free cash (about $5.1 billion last year) to snap up small brands—ones that sell for higher prices in stores. In 2015 it bought Murad and Dermalogica, a pair of California skin-care companies, both of which Unilever says had double-digit growth last year. In July it spent $1 billion to buy Dollar Shave Club, a Venice, Calif., company that mails its subscribers monthly shaving products. And in September it bought Seventh Generation, a Vermont company producing eco-friendly detergents and cleaning products, in a deal worth between $600 mil-

COURTESY OF UNILEVER

lion and $700 million, according to one source who spoke to *Fortune* at the time.

For all that excitement, Polman sounded almost somber on the telephone with analysts in late January when he announced the company's 2016 earnings. The newspapers that morning were giddy about the Dow breaking 20,000 the day before. But Unilever's revenues were down 1% year over year. (Unilever says corrected for currency moves such as a strengthening dollar, its sales grew 4.3%.) The company hopes to cut $1 billion in costs this year. After listening in on the call, some investors concluded the company was partly driving up growth from higher margins rather than higher volume. "For Unilever, their issue is that they have quite a mass-market consumer products portfolio," says Warren Ackerman, an analyst at Société Générale in London. In addition to acquiring high-end products from companies like Seventh Generation, he says, "they really need innovation to grow volume."

That is just one challenge, however. Polman told analysts on the call that Unilever was being whipsawed by events that seemed to come from nowhere. The Brexit vote last May caused the British pound to plunge 20% against the euro and dollar. There have been months of economic upheaval in Brazil, a big market for Unilever. And in November, India's government scrapped the 500- and 1,000-rupee notes, which many people used to pay for regular household products. Polman foresaw a litany of other problems ahead, he told investors, listing these: "subdued economic growth, geopolitical tension, the resultant backlash against globalization and technology, a planet under increasing environmental stress, and the fragmentation of consumer trends, shopping channels, and media." Within hours the share price plunged 4.4% on the London Stock Exchange.

When I ask Polman a few days later why he painted such a stark picture of the world, he replies, "What's new? I'm surprised that people are surprised."

For him, the campaign to rein in climate change and improve working conditions no longer seems enough—there are even bigger problems threatening businesses. Those include the way global financial systems appear to benefit a minority of people. In January, Oxfam reported that the richest eight people now hold as much combined wealth as half the world's population. To Polman, the system seems doomed. What is needed, he says, is "a better form of capitalism."

"Global governance is broken," says Polman. "Since the financial crisis we have put $63 trillion into the global economy. We have got zilch back in growth."

As gloomy as all that sounds, Polman is nevertheless optimistic about the future. He remains convinced that Unilever's sustainability plan—including the initiatives on labor rights and zero carbon emissions—will inevitably lead to business growth, even if the two imperatives are not always in sync.

The difficult balancing act that Polman's vision requires became clear to the team that investigated the company's Vietnam operations, where some suppliers seemed uncertain which Unilever demand took precedence: delivering quickly and cheaply or delivering sustainably. "Unilever wants a product at a very good price at a good delivery time, and they want better standards for their workers," Oxfam's Wilshaw says. "But these two don't fit together neatly." Usually, she says, "the commercial demands win out."

Wilshaw believes that before Polman leaves Unilever he should try to reward suppliers who improve labor standards—something that might have a marked impact. Still, she doubts that the company can ultimately deliver what Polman calls "a better form of capitalism."

"At the end of the day Unilever is a shareholder-owned business, and shareholders are voracious for profits," she says.

Polman is nowhere done trying to fix the world. But it will take time. Even achieving Unilever's sustainability plan goals is an intensely complicated, long-term task. Last year the company admitted it would take until 2030 to halve its greenhouse gases, about a decade longer than it had hoped.

By then, Polman will be long gone. Yet he remains convinced his ideas will leave business in better shape. Already, he says, Unilever has seen big success in recruiting millennials, who want to work for a company that is engaged in the world; he says the company receives 1.8 million applications a year.

As our conversation wraps up, Polman emphasizes again that his economic development goals will certainly boost Unilever's fortunes too, especially since the company depends on hundreds of millions of people having enough money to buy staple items. "If 800 million people no longer go hungry, that is a big opportunity for us to sell our food," he says. "If we fight for them and do it well, our shareholders will do well." Even if that takes many years more.

IF I RAN THE CIR

▲ PHOTOGRAPHS BY **MARK PETERSON**

CUS

For 30 years, Cirque du Soleil has thrilled audiences with acrobatic spectacles of split-second precision. But it hasn't had the same discipline behind the scenes. Can a new private equity owner turn the world's best-known circus into a well-managed business?

By **MICHAL LEV-RAM**

LAS VEGAS

I'M SEATED ON THE INNER EDGE of a *cerceau*—a thin, white hoop, suspended from the ceiling by a wire. My fingers tighten around the sides of the apparatus as my legs dangle, frighteningly far from the ground. I try to look casual, but it's hard to feel at ease while perched, sans harness, on this raised-up roost. My mind wanders to the fine print on my insurance plan. (Are aerial hoop accidents covered under workers' compensation?) That doesn't exactly help me relax: I'm still recovering from the earlier routine when I hung from the hoop by my hands while spinning spasmodically.

"How high up was I?" I ask when I'm finally lowered back to terra firma, or in this case, a foam-filled, bright-blue gym mat that makes me wobble with every step. "Probably just about 10 feet," answers James Guilford, a project manager with the renowned live-entertainment company Cirque du Soleil.

We are in a training room deep within the labyrinthine backstage belly of *O*, one of Cirque's famous Las Vegas–based shows. The makeshift gym is full of exercise machines, trampolines, and trapeze swings—mere toys for the likes of Pierre Cottin, the ponytailed, French-born acrobat who is also on hand, assisting with my clumsy initiation to the *cerceau*. To my right, high up on the wall, is a poster of Cottin's blond, beaming girlfriend, Christina Jones, an Olympic synchronized swimmer. Both are Cirque du Soleil performers. And I'm pretty sure neither has any body fat.

Clearly I am out of my element. But so are most of the people Guilford guides through these aerial adventures. And Guilford is a bit out of place himself. He's a former educator whose mandate at Cirque is to head a new offering called Spark—essentially a corporate team-building retreat with more mystique and off-the-charts production values. Companies like Google, Adobe Systems, and Kmart Australia have already sent employees through Spark, which includes hands-on acrobatics training with Cirque talent. That makes Guilford part of an unusual, ambitious experiment. He's helping transform a quirky, bohemian circus founded by street performers into an optimized, monetized, strategically managed global entertainment brand.

Cirque already has the global part covered: The performing powerhouse, founded in 1984 in Quebec, now encompasses 10 "resident" shows in the U.S. and Mexico, including *O*, and eight traveling productions, which tour to 130 cities around the world. Even as traditional circuses continued a long decline—in January, after a run of 146 years, Ringling Bros. and Barnum & Bailey Circus announced that it would soon shut down—a stunning 10 million people saw a Cirque show last year. Its extravagant productions are famed for their mixture of daredevil acrobatics and lowbrow clown comedy, pop hits and New Agey compositions, and daring design. (*O*, for example, takes place in and above a 1.5-million-gallon pool of water.) But lately Cirque has branched out in unprecedented and potentially lucrative ways: There are plans to launch a theme park and a kids' entertainment project, and to design an interactive NFL store in New York's Times Square. There are—of course—plans to go big in China.

In short, the big top wants to crack into the corporate big league. And leading that charge is private equity firm TPG Capital, which acquired a majority stake in the company in 2015 from its cofounder, Guy Laliberté, for an estimated $1.4 billion.

In a world of spangled leotards, Cirque's new managers are the suits. The year before the acquisition, Cirque reportedly brought in

TIGHTROPE WALKER: CEO Daniel Lamarre is one of the few executive holdovers from Cirque's pre-acquisition days. "I passed from a regime of a one-man show ... to feeling it's a partnership," he says.

$845 million in revenue. (By comparison, all the shows on Broadway combined brought in $1.37 billion last season.) But TPG has an extensive résumé when it comes to helping artistic enterprises grow—and it has much grander plans. Since the transaction, it has made sweeping changes, moving quickly to identify and exploit opportunities that may have been anathema to Cirque's original managers, who preferred a more loosey-goosey approach to scaling the company.

Not that many of those managers are around to see the changes. Over the past 18 months, TPG has replaced nearly all the executive leadership. (No former employees contacted for this story, including Laliberté, agreed to talk with *Fortune*.) The private equity giant cleaned up Cirque's financial practices and implemented data analytics and discipline where once there was mostly instinct. And, yes, the new team found ways to cut costs. "Cirque needed to make some major changes," says Daniel Lamarre, its CEO since 2006 and one of a few executives who were asked to stay on post-acquisition. "We couldn't continue to do the same thing and hope for different results."

Indeed, Cirque's shot-from-a-cannon rise had stalled in recent years. The Great Recession hit Cirque hard, especially where it really hurt: its high-profit-margin Vegas productions. A slew of setbacks ensued—including the early closure of its underperforming show *Viva Elvis* and the company's first fatal onstage accident, in 2013, when an aerialist fell to her death during a show in Las Vegas. That year the company had its first-ever layoffs, letting about 400 of its 5,000 employees go. The ongoing struggles partly explain why Laliberté sold control of the circus (he retains a 10% stake).

The stakes are high for TPG

too, as evidenced by the fact that co-CEO and cofounder Jim Coulter and TPG partner David Trujillo joined Cirque's board. "This was a very sensitive transition, where we had to make sure we didn't impact the creative genius that is Cirque," says Coulter. His team sees Cirque as a way to play a bigger, counterintuitive trend: a yearning for live entertainment in a digital era. Recent surveys show that millennials, in particular, increasingly prefer to spend money on selfie-worthy experiences that screens and gadgets can't provide. (Selfie breaks, by the way, are now built into Cirque shows.)

If TPG successfully expands the circus, it could create the go-to platform for live entertainment, a creator of not just Cirque-branded shows but events and experiences for all sorts of corporate clients. Just as notably, it could rewrite the playbook for expanding creative entities without choking off their artistic inclinations. Cirque is as inventive as companies come, as befits a business founded by people whose prior experience included breathing fire and playing the accordion. As a person familiar with both companies puts it, "They bought a circus. Not a figurative one, but a literal circus." It's TPG's job to make sure nobody compares management to a bunch of clowns.

HOW TO MANAGE CREATIVE CHAOS

TPG IS WALKING A FINE LINE AT CIRQUE DU SOLEIL, STRIVING TO DEVELOP IT AS A BUSINESS WITHOUT SNUFFING ITS CREATIVE SPARK. THE PLAYBOOK:

USE DATA ARTFULLY

Dynamic ticket pricing, which TPG introduced at Cirque, can help arts organizations get the optimal revenue from shows when they're hot, while moving more tickets at discounted rates during slowdowns.

EXPAND JUDICIOUSLY

Cirque had expanded its brand to businesses that had a public presence, but no profits (e.g., nightclubs). TPG's ideas generally have clearer potential for revenue and for generating wider publicity.

LET THE BEAUTIFUL WEIRDOS BE WEIRD

TPG thoroughly overhauled the executive team on Cirque's business side, but it left the chief creative decision-makers in place—and doesn't interfere with them. That's partly a recognition that the core of a successful creative brand is distinctive and hard for outsiders to improve.

MONTREAL

NESTLED IN THIS CITY'S working-class Anjou borough, not far from one of Montreal's biggest shopping malls, is a warehouse that stores thousands of heads. They are the pates of Russian gymnasts, Mongolian contortionists, and West African dancers.

The busts are replicas—exact down to the distance between the eyebrows and the diameter of nostrils—of the heads of Cirque du Soleil performers. For decades, the making of these molds was part of Cirque's onboarding process. New hires sat still as plaster was painstakingly shaped around their heads. The resulting sculptures were labeled with each performer's name and used by the costuming department to create perfectly proportioned, individualized headpieces (think feathery masks and fuzzy clown hats). They were also used for repairs: When someone's chapeau tore on tour, it would be sent to headquarters, where milliners patched it up, using the model to get the exact fit.

Some of these heads are also on display at Cirque's mazelike main building, a few miles away, where the entryway is guarded by a giant metal sculpture of a clown shoe. The decapitated decorations, glued to tiny pedestals that protrude from the hallway walls, give the office the feel of an ancient multicultural mausoleum. "It does throw you a little bit when you round the corner and see this wall of heads," says Trujillo, the TPG partner most involved in Cirque's day-to-day operations. "As you get closer, you realize those are all individual people. That leads to the question, 'Who are these people and why are they here?'"

TPG is one of the few invest-

WORKSHOP FOR THE BIG TOP:
Inside the costume workshop at Cirque's Montreal headquarters. Above, personalized casts used to design and repair wigs and hats for performers. At left, an artist works on costume pieces for the shows *Ka* (top) and *Amaluna* (bottom).

ment firms that could ask such questions without making artistic types feel like second-class citizens. Founded in 1992, it has a sturdy track record of investing in companies in tech (Uber), retail (J. Crew), and airlines (Continental). But it's also known for taking stakes in creative fields, where its portfolio includes movie studios, the giant talent agency CAA, and Fender Musical Instruments, creator of rock stars' guitars. (U2's ubiquitous frontman, Bono, is a TPG "special adviser"—and a board member at Fender.) And it has the resources to make a big impact in the thin-margin entertainment world: TPG has more than $74 billion under management.

It was in 2014 that TPG first began mulling big investments in live events, which Trujillo calls "DVR-proof." Not long thereafter, a center-ring opportunity came along: The firm's contacts at CAA passed the word that Cirque was looking for a buyer. (Cirque and CAA already had a working relationship based on bringing third-party intellectual property like music and movie characters to Cirque's live shows.)

Despite its relatively small size, Cirque was attractive. At a time when most circuses were fading sideshows, Cirque had a distinctive, edgy feel, along with remarkable capabilities virtually unique in live entertainment. Its leaders had developed a global network for recruiting contortionists and clowns. They had engineered some of the most elaborate stage sets ever built. They had unmatched expertise at dyeing belt buckles and designing shoes for little people and decking stretch-velvet leotards with 4,000 tiny mirrors and 155 crystals.

But that creative rigor hadn't translated to the corporate side. While Cirque's leaders were seasoned, they weren't au courant. Cirque wasn't utilizing digital marketing tools. Ticket pricing systems hadn't been upgraded. Financial reporting was exasperatingly sporadic. In deciding whether to make an offer, Trujillo traveled to Montreal for a management presentation led by Lamarre. As the Cirque team outlined a multiyear strategic plan, Trujillo had a realization: This basic corporate exercise was "something the company had historically not done."

TPG turned elsewhere for reassurance. The firm enlisted Jonathan Tétrault, then a managing partner in McKinsey's Montreal office, to do some market research. Tétrault calculated Cirque's Net Promoter Score, a measure of the loyalty of its customer base. "The brand of Cirque du Soleil was extremely strong," says Tétrault. "Even people who have not seen the shows have respect for the brand."

For TPG, that helped tip the balance. The firm recruited partners—Chinese investment group Fosun and Canadian pension fund Caisse de Dépôt—and made its best offer to Laliberté, who owned the vast majority of the company. After a bidding process handled by Goldman Sachs, the founder handed the reins to the TPG group, and the acquisition was finalized in July 2015. (Laliberté has since invested in real estate and other ventures, including a cemetery that he says will someday allow visitors to use holograms and other whiz-bang technologies to "interact" with the deceased.)

Almost overnight, the circus began to change. Unprofitable distractions like nightclubs and restaurants were killed off. In their stead, TPG identified a list of new revenue opportunities and improvements to Cirque's traditional shows. But to execute that wish list, Cirque needed the right processes and people in place. One of them was Tétrault. The new owners coaxed the exec to leave McKinsey and become Cirque's new chief operating officer. In his gray jacket and slacks and slicked-back hair, Tétrault is a near-caricature of the more buttoned-up management team at Cirque. (Buttoned-up by comparison, at least: Laliberté famously donned a foam clown nose in 2009 when he traveled to space—having paid $35 million to spend 12 days aboard a Russian Soyuz.)

Each of the new "suits" brought along a team and a set of new tools—table stakes at most corporations but largely foreign to Cirque. Kristina Heney, Cirque's first-ever chief marketing officer, brought in the company's first digital and social-media marketing programs and a new customer-relationship management system. Stéphane Lefebvre, a longtime public company exec, came on as CFO. Because Cirque had been a founder-owned business from inception, he says, it had never adopted disciplined accounting practices. "When you have only one guy

INSIDE TPG'S BAG OF TOYS

TPG HAS A HISTORY OF INVESTING IN BRANDS WITH CREATIVE DNA AND LOYAL FOLLOWINGS—THE KIND THAT CAN BE TRICKY TO TURN INTO EFFICIENTLY RUN BUSINESSES.

DUCATI

In 1996, TPG bought a 51% stake in the iconic Italian motorcycle maker. It helped the firm focus on new markets and streamline manufacturing. Ten years later, TPG sold off Ducati; it is now owned by Audi AG.

STX ENTERTAINMENT

New movie studios are a rare commodity. But TPG and its partners think they have a winning formula. STX, founded in 2014, focuses on easy-to-produce, mid-budget films and has deals to distribute in China.

FENDER

After shelving plans for an IPO, the guitar-maker became majority owned by TPG and its partners in 2013. It hired a new CEO, named Bono to its board, and allowed customers to order guitars online for the first time.

J. CREW

Retail has had a rough decade, and J. Crew is no exception. TPG, an investor since 1997, took it public, then led a 2011 buyout to take it private. Reportedly it recently slashed the value of its stake by more than 80%.

CAA

TPG recently upped its investment in the talent agency, becoming its majority owner. Under TPG, CAA has brought in fresh leadership, cut costs, and invested heavily in new areas like sports and licensing.

VIKING CRUISES

Last year TPG sank $250 million into a minority stake in the high-end river- and ocean-touring company. The plan? To accelerate Viking's growth—particularly in China—and strengthen the company's balance sheet.

DUCATI: MANAN VATSYAYANA—AFP/GETTY IMAGES; STX (MATTHEW MCCONAUGHEY): STX ENTERTAINMENT/PHOTOFEST; FENDER: COURTESY OF FENDER; J. CREW: MARLENE AWAAD—BLOOMBERG VIA GETTY IMAGES; CAA (BRAD PITT): MIKE MARSLAND—GETTY IMAGES FOR PARAMOUNT PICTURES; VIKING: IBRAHIM UZUN—ANADOLU AGENCY/GETTY IMAGES

FLEX TIME: Melissa Fernandez, an uneven-bars artist in *Amaluna,* has a stretching session with a coach.

owning the company and a report is due on Monday, it doesn't matter if you send it on Monday," says Lefebvre. Suffice it to say, that's no longer true.

The sweeping management changes inevitably led to tension between the leotards and the suits, as Lamarre admits. With his tinted blue glasses and polka-dot ascot, he's a visual reminder of Cirque's more colorful culture. But the new structure has given him more freedom. "I passed from a regime of a one-man show, which was Guy, to feeling it's a partnership," Lamarre says. That said, he lauds Laliberté as a "creative genius" whom he still calls on to get advice on the artistic front.

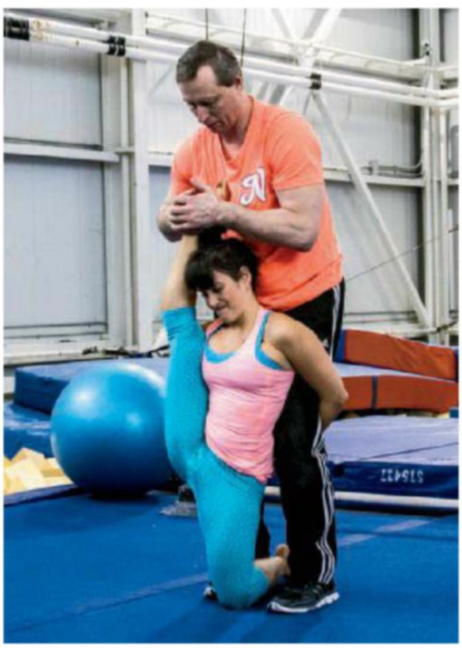
Just as important, the creative part of the business has largely been left to the artists. "I said to TPG at the time, 'You can come in my office 10 times a day if you so desire. I'll give you all the financial and operational information you need,'" Lamarre says. "'But you shouldn't go in the creative department, because that's the core of the company.'" TPG has kept Cirque's creative leadership intact, from the longtime head of costume and creative spaces, Benoît Mathieu, to Bernard Petiot, vice president of casting and performance.

Other arts leaders are watching the transition with interest. "One understands the need for professionalization," says Patrick Willingham, the executive director of New York's Public Theater and the former president and COO of another creative entertainment company, Blue Man Productions. "You have to give as much power to those voices who are advocating for the art as to those who are advocating for the revenue."

That tightrope walk is visually apparent at Cirque's headquarters. Yes, there are former McKinsey consultants crunching numbers. But there are also vats of dye and spools of glittery string and wigmakers and acrobats. And heads—but not quite as many of them. These days the wig-and-hat busts have been outsourced, and plaster is obsolete. Each new performer's head is now scanned by computer. The files are sent to a firm outside Montreal where an automated cutter chisels models out of a synthetic material called Renshape, and only as needed. "It's a lot lighter, a lot faster, a lot cheaper, and a lot more stable," says Mathieu, the costumes chief. "And we don't need to make them all the time."

SAN FRANCISCO

TPG'S SPACIOUS HEADQUARTERS in the heart of San Francisco's Financial District feels a world away from Cirque's colorful campus. The understatedly swank office is where most of the firm's biggest deals have been drawn up, from its 1996 purchase of motorcycle maker Ducati to its 2011 leveraged buyout of J. Crew. And its proximity to Silicon Valley could yield big benefits for Cirque.



"The circus has been an incredible showcase of human capacity for centuries," says Brent Bushnell, CEO of Two Bit Circus, a startup that develops interactive, tech-centric experiences for corporations. "But entertainment needs to evolve." TPG, which has made major investments in Uber and Airbnb, among others, is well-positioned to help Cirque do that. Late last year, when Cirque brought *Luzia,* a show inspired by Mexican culture, to San Francisco on tour, co-CEO Coulter invited his tech exec friends to see it—and to talk about what virtual reality could add to the experience. The prospect of a pipeline to such wizardry energizes Cirque's managers. "We've never had that before," Lamarre says. And the circus is already strengthening its ties with Facebook and boosting its YouTube presence.

It will take more than technology, of course, to engage with younger audiences. Cirque has prioritized creating more shows that incorporate recognizable characters and music (replicating hits like the Beatles-themed *Love*). Brands matter too. Cirque's new show, *Volta,* which launches in Montreal in April, will include action sports like snowboarding and BMX. It will also have a first-time "content partner": energy drink Red Bull. Bill Hornbuckle, president of MGM Resorts, which hosts six of Cirque's shows, says such evolution is critical. "There will always be a place for Cirque and its core product," he adds. "But Las Vegas does not need

SUSPENDED OPERATIONS: A scene from *O*. Cirque's new corporate team-building program draws on its aerialist expertise.

TOMASZ ROSSA—CIRQUE DU SOLEIL

another circus show."

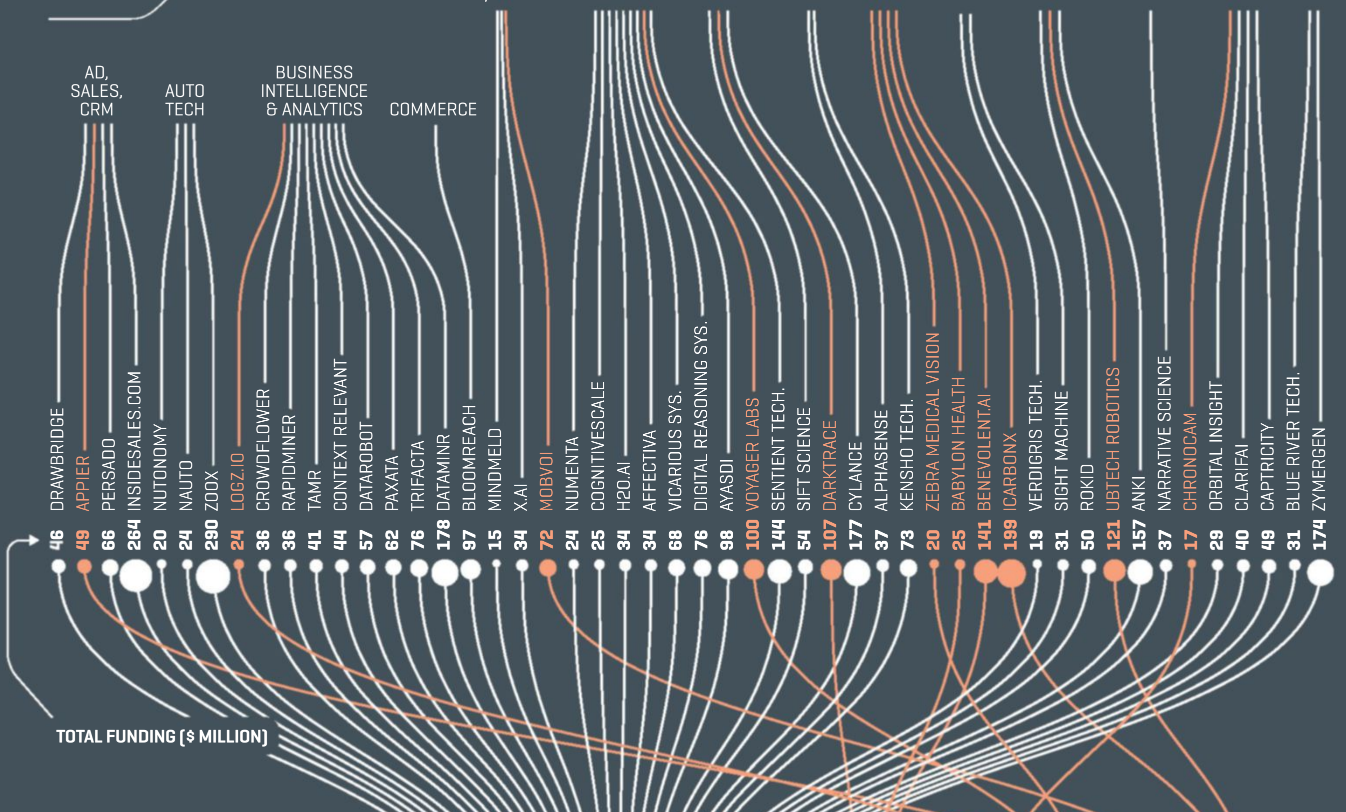
One place that TPG believes *does* need a circus show is China. It's already the country of origin for many Cirque performers, but the circus wasn't previously able to crack the market. TPG is an old hand there, having invested in China for more than 20 years: Its notable deals include buying a stake in computer maker Lenovo and partnering in 2014 with China's Hony Capital to launch STX Entertainment, a movie studio focused on mid-budget films.

Such connections are now turning into deals. Later this year, Cirque will launch a touring show in six cities across China, including Beijing. And sometime in 2018, a show unique to China will open in Hangzhou. The company also plans to create its own local school for technicians (a sizable chunk of the staff for any Cirque production). "China has the potential to maybe double the size of this organization," says Lamarre.

TPG has other growth tricks up its sleeve, and its ambitions sound vast. Coulter compares Cirque to another entertainment company that started small. "Just as Disney ... started in animation but became so much more over time, Cirque has the ability to do so much more," says Coulter.

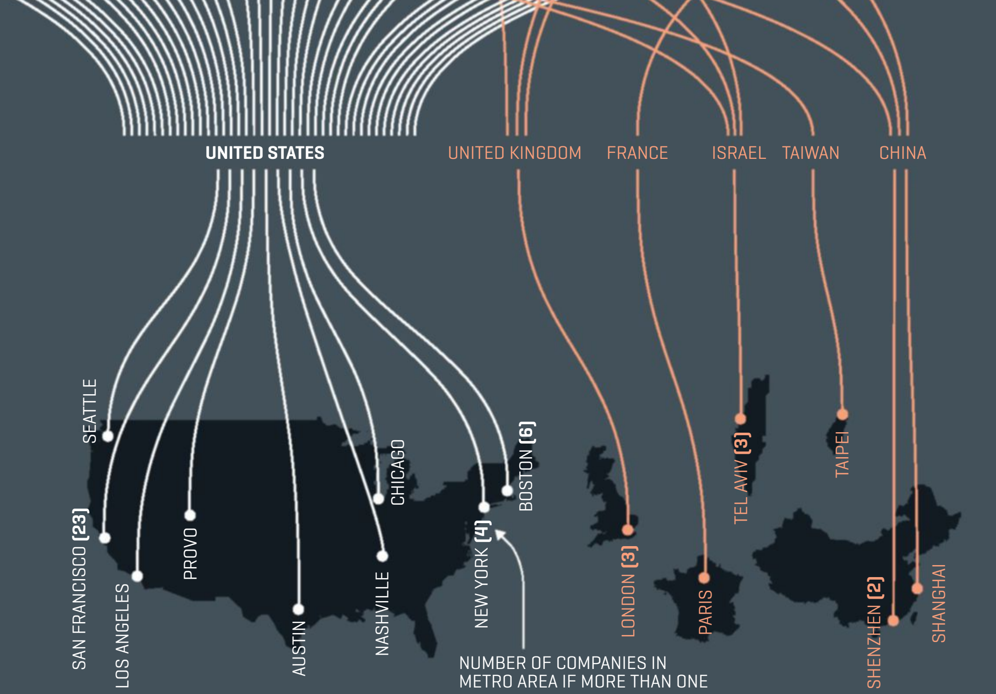
Whether or not Cirque reaches that scale, one question is how long TPG will keep its stake: Private equity firms, after all, are structured to look for an "exit." Cirque's prospects as a public company are murky. But given its new China ties, it's more likely that it would be bought by a Chinese investor or conglomerate. A cash-rich acquirer like Dalian Wanda, for example, which has already snapped up Legendary Entertainment, the company that licenses the Ironman competition and Dick Clark Productions, could easily buy Cirque. And China has huge cities that could host permanent shows and use them to lure tourists, as Las Vegas does today.

However it plays out, the Cirque that emerges 10 years from now will look very different from the company that was Cirque just two years ago. Change can be disorienting, but it's preferable to ceasing to exist. Cirque may have the DNA to survive where traditional circuses failed—and no circus in memory has had such a deep-pocketed, aggressive backer under its tent. ■



BETTING ON AI

WE KNOW that artificial intelligence will soon reshape our world. But which companies will lead the way? To help answer that question, research firm CB Insights recently selected the "AI 100," a list of the 100 most promising artificial intelligence startups globally. They were chosen (from a pool of over 1,650 candidates) by CB Insights' Mosaic algorithm, based on factors like financing history, investor quality, and momentum. A look at the 50 largest, ranked by funds raised, shows that AI is surging worldwide. —**BRIAN O'KEEFE**



SOURCE: CB INSIGHTS

GRAPHIC BY NICOLAS RAPP