
FORTUNE
DECEMBER 1, 2017
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NVIDIA CEO
JENSEN HUANG
HOW HIS COMPANY
IS POWERING THE
AGE OF A.I.
BUSINESS
PERSON
OF THE YEAR
+
19 MORE
OF THE
HOTTEST CEOs
OF 2017
ASIA PACIFIC EDITION
NUMBER 15

RING COMMAND BEZEL

ANNUAL CALENDAR


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DECEMBER 1, 2017

VOLUME 176 /// NUMBER 7

▲ ON THE COVER: PHOTOGRAPH BY **WINNI WINTERMEYER**

THE 2017 BUSINESSPERSON OF THE YEAR

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Fortune Asia (ISSN 0738-5587) is published monthly, with extra issues in March, June, September, and December, by Time Asia (Hong Kong) Limited. *Fortune* Asia may also publish occasional extra issues. Customer Service and Subscriptions: For 24/7 service, please use our website: fortune.com/customerserviceasia. You may also contact Customer Services Center at 852-3128-5688, or email to enquiries@timeasia.com or write to Time Asia (Hong Kong) Limited, 37/F Oxford House, Taikoo Place, 979 King's Road, Quarry Bay, Hong Kong. Subscribers: If the postal authorities alert us that your magazine is undeliverable, we have no further obligation unless we receive a corrected address within two years. Mailing List: We make a portion of our mailing list available to reputable firms. If you would prefer that we not include your name, please contact Customer Services Center. Member, Audit Bureau of Circulations. *Fortune* Asia is printed in Singapore. Singapore MCI (P) 061/11/2016. Malaysia KKDN permit no. PPS1162/05/2013 (022950).

BETTING LONG

WE'VE ALL BEEN TOLD TO EAT RIGHT, sleep longer, exercise more. We nod politely, and then many of us go back to our double cheeseburgers, late nights, and long stretches behind a desk. There is the wisdom of the ages, after all, and there is the reality of the day. On most days, the day wins.

That, inevitably, is how many corporate executives respond when they are reminded—as they so often are—of the advantages of "thinking long term" about their businesses: They nod politely and then go back to planning feverishly for the next quarter.

The evidence supporting the notion that future-minded companies—those that invest substantially in R&D and focus on developing and growing businesses far into the future—outperform the short-term thinkers is overwhelming, just as it is, of course, for the benefits of healthy diets and exercise. A February report from the McKinsey Global Institute lays out the business case with the kind of power data analysis you'd expect from the number crunchers there: Studying a universe of 615 large and midsize companies over the years 2001 to 2014, McKinsey researchers found that "long-term firms," as they define them, had significantly higher revenue growth and profit than the short-termers. Their market value grew faster, and they fared better during the financial crisis too. (Feel free to nod politely.)

The problem is, studies and white papers can be easy to ignore. Much harder to ignore is someone like Jensen Huang, *Fortune*'s 2017 Businessperson of the Year. The 54-year-old CEO of Nvidia, who cofounded the Silicon Valley chipmaker in 1993, has built it into a 21st-century phenom that now rivals IBM in market capitalization. As *Fortune* digital editor Andrew Nusca writes in this issue (please see his wonderfully lively profile of Huang on page 28), Nvidia makes the "muscular mystery stuff"—the graphics processing units, or GPUs—that enable the "visual fireworks" in new video games and movies. In the past four quarters, it has racked up profits of $2.6 billion on $9 billion in sales, capping a three-year growth rate that is nothing short of astonishing.

Photo illustration of drones in the sky over Guangzhou, China, where our 2017 Global Forum and inaugural Brainstorm Tech International are being held this month.

The company's latest chips, importantly, support the deep neural networks that are powering the modern revolution in artificial intelligence. But that didn't happen by accident. Huang never took his aim off the future, even when the stock was floundering a decade ago. "The world didn't quite realize what we were building," an Nvidia exec tells *Fortune*. But the CEO knew his sophisticated chips were foundational. Says Huang, "I've been talking about the same story for 15 years. I've barely had to change my slides."

You'll see the same far-horizon gaze—and the courage to believe in it—in the other 19 CEOs who made our "Businessperson of the Year" list (see our package beginning on page 27). You'll see it in Bezos and Benioff and Dimon. It's embedded in the careers of Ulta Beauty's Mary Dillon and Progressive's Susan Griffith. It's there in François van Houten's ongoing transformation of the 126-year-old Royal Philips.

Perhaps most tellingly, you'll see that same invest-in-what's-next mindset in the Chinese government, which is helping to power the coming decades of innovation in that country—particularly in critical areas such as advanced semiconductors and robotics that are redefining industry (see our report on page 50). That's a big reason we're convening the 2017 *Fortune* Global Forum in Guangzhou this month—and why hundreds of CEOs and entrepreneurs from around the world will join us.

They'll be looking for wisdom that will help them lead their companies into the future. And you can bet they'd like that to mean the next decade or two—not the next quarter.

CLIFTON LEAF
Editor-in-Chief, *Fortune*
@CliftonLeaf

BRIEFING

THE WORLD IN 8 PAGES

2018 *Fortune* Crystal Ball

GOOD BUSINESSES KEEP UP WITH THE HOTTEST TRENDS. Great ones anticipate them. To help you discern what's coming next, we've mined the forecasts, predictions, and projections from countless sources and polled *Fortune*'s in-house experts to bring you this look at the coming year. Our best bets? India will grow, cars will fly, and Bitcoin will crash—before it rebounds to new highs. Billionaires will blast off into space, and you'll be eating meat with no animal in it (and you might even like it). Herewith, our predictions for the world of business in 2018, in our fifth annual edition of *Fortune*'s Crystal Ball.

▲ ILLUSTRATIONS BY **SAM PEET**

Amazon Keeps Eating the World Hot on the heels of its acquisition of Whole Foods Market, Amazon will keep bolstering its physical presence to speed up delivery. That could mean buying more retail chains with big footprints like Kohl's or Office Depot.

TERMS TO KNOW **"Pine Island" & "Thwaites"** The two [relatively] fast-moving Antarctic glaciers are big enough that if melted, sea levels would rise roughly four feet over time, inundating many coastal cities. Both are shedding ice at accelerating rates.

TELL US HOW YOU FEEL ABOUT THE MARKET, AND WE'LL TELL YOU WHICH BIG BANK IS YOUR SOUL MATE

AS OF NOV. 10, THE S&P 500 WAS AT 2,582.

Do you think we're overdue for a decline and that the phrase "'tormented bulls' best describes investor mentality"? You're a match for Goldman Sachs, projecting the S&P will end 2018 at

2,500

Do you think 2017's global rally will be "restrained by ongoing global headwinds from high debt [and] slow labor recoveries"? You're besties with Wells Fargo, projecting a 2018 finale as high as

2,550

Do you see a "supportive economic backdrop, with benign recessionary risks"? You should get to know Credit Suisse. It projects the S&P 500 will close out 2018 at

2,875

Trump's Triumph, and the EU's Crisis

In the year ahead, India's economy will climb, Britain's delicate Brexit negotiations are likely to derail, and the U.S. will see a pivotal election.

DEMS WIN THE POPULAR VOTE, BUT STILL CAN'T RETAKE CONGRESS

▸ Democrats will have the numbers in the 2018 midterm election, but we predict it won't be enough for them to take the House. Urban clustering [and gerrymandering] favors Republicans so heavily that not even a presidential approval rating below 40% will be enough to put Nancy Pelosi back in the House Speaker's seat. The Senate, meanwhile, is an even longer bet.

BREXIT CHAOS BRINGS DOWN THERESA MAY

▸ A snowballing sexual harassment scandal in Parliament and divisions over Brexit will coalesce into a force strong enough to bring down Theresa May's government. The Labour Party's Jeremy Corbyn will become U.K. Prime Minister and will try to complete Brexit negotiations with the EU [hoping to create a socialist paradise outside the "neoliberal" EU's Single Market]. The foreign exchange and bond markets will push back, hard.

PUERTO RICO MAKES AN ENERGY COMEBACK

▸ The devastation wrought by Hurricane Maria in Puerto Rico leaves the field wide open for entrepreneurial experiments. Although the first bid to rebuild the island's power grid was a debacle, Gov. Ricardo Rosselló has said the old system could eventually be replaced with localized microgrids powered by solar and wind. A similar idea involves small modular nuclear reactors. By this time next year, Puerto Rico will be jump-starting a global renewable [or nuclear]

THREE THINGS WE'LL BAN

1. Texting while walking: **Pedestrians absorbed in their *Fruit Ninja* games aren't just annoying, they're dangerous. Next year, more states will copy Honolulu's "Distracted Walking" law.**
2. Electric bikes: **Beloved of deliverymen, the zippy cycles have become a regulator target in New York City and elsewhere.**
3. Vaping: **Safer alternative to cigarettes, or gateway to addiction? The latter, say states like New York, which are increasingly banning e-cigs in regular nonsmoking zones.**

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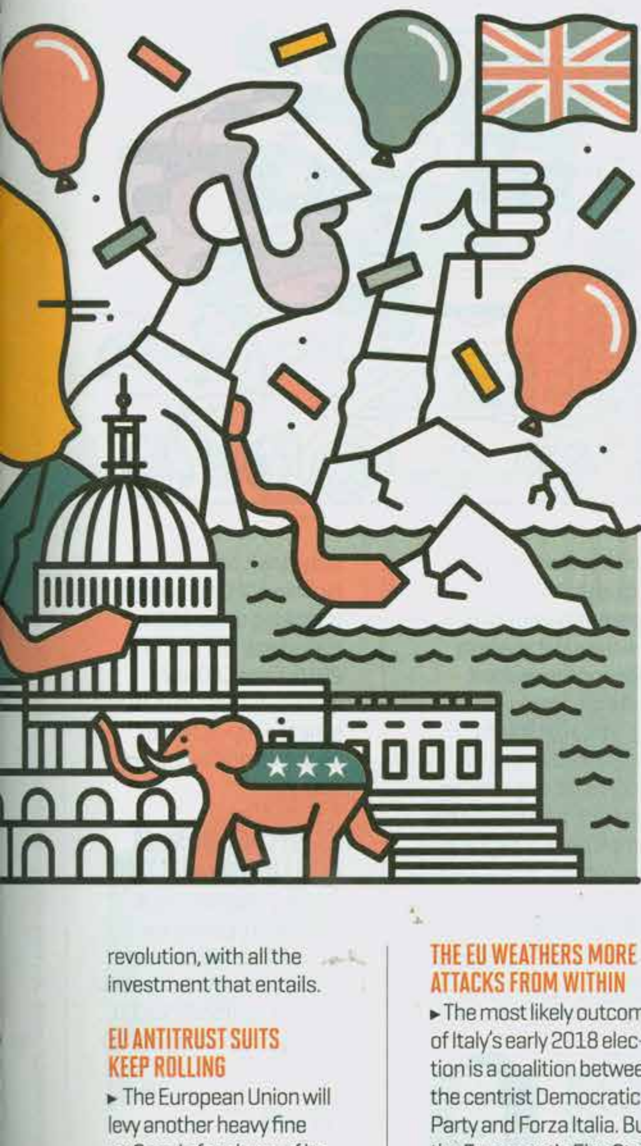
Home Prices (Barely) Rise Zillow asked more than 100 economists and real estate experts where they thought home prices would wind up next year. The average answer? Up—but not by as much as in 2017.

These Three Companies Will Make Your City Beg to Host Them Amazon got plenty of positive press (and offers of tax breaks) when it said it was looking for another HQ. More companies will follow its lead in 2018. Looking at you, Facebook, Nvidia, and Alibaba.



revolution, with all the investment that entails.

EU ANTITRUST SUITS KEEP ROLLING

► The European Union will levy another heavy fine on Google for abuse of its dominance of the Android system. It will also reject the tech giant's proposed fixes in its other ongoing case over rigging shopping results. Look for Bing to make inroads.

THE EU WEATHERS MORE ATTACKS FROM WITHIN

► The most likely outcome of Italy's early 2018 election is a coalition between the centrist Democratic Party and Forza Italia. But the Eurosceptic Five Star Movement is also polling well. Its populist leader, 31-year-old Luigi Di Maio, wants to ditch many EU rules (or pull out entirely). Meanwhile, Catalonian separatist leader Carles Puigdemont will be convicted of rebellion by Spanish courts.

INDIA SURGES

► The world economy should grow modestly in 2018, but India will boom. After 7.1% growth in 2016 and a projected 6.7% uptick in 2017, the Indian economy is expected to balloon 7.4% next year, thanks in part to its demonetization reforms starting to bear fruit. (China, by contrast, is expected to grow 6.5%.) While economic risks linger and more reforms are needed, India will be the fastest-growing major economy the IMF tracks.

TAX REFORM PASSES ... BUT GDP DOESN'T HIT 3%

► President Trump and the GOP-led Congress are able to enact some corporate tax reforms, but find that tax cuts alone can't quickly compensate for an aging population and an underskilled middle class. GDP grows by 2.5% for the year.

THE ODDS

LONG SHOT: Mark Zuckerberg will personally fact-check Facebook posts related to the 2018 election and learn Russian to sniff out any interference.

SLAM DUNK: Russian President Vladimir Putin wins reelection in March.

HOW THE SUPREME COURT WILL RULE

Back to a full bench of nine, the Supreme Court justices are ready to rule on what Ruth Bader Ginsburg described as a "momentous" series of cases. Here, three predictions:

ON UNIONS: The justices will strike another blow to the power of unions by ruling, in a case known as *Janus*, that government workers may opt out of mandatory dues.

ON PARTISAN GERRYMANDERING: The court's key swing vote, Anthony Kennedy, has a flair for the dramatic. He will cast the deciding vote in a 5–4 ruling in *Gill* v. *Whitford* that will declare the serpentine redrawing of election districts for political purposes to be unconstitutional.

ON PRIVACY: Famously tech-resistant, the court has gradually come to recognize the privacy hazards of constant cell phone use. In *Carpenter* v. *United States*, it will require cops to get a warrant if they wish to determine a suspect's location using phone records.

The U.S. IPO market jumps to life again. Last year was particularly weak for domestic IPO proceeds, at just \$16.2 billion. That ticked up to a projected \$39.7 billion this year, and—according to global law firm Baker McKenzie—will hit \$70.9 billion in 2018. Investors will thank a robust stock market and tech companies for the boost.

ECONOMIC FORECASTING

2.25%

The federal funds rate at the end of 2018. *Yuge* economic growth remains elusive, but continued low unemployment puts enough upward pressure on wages and prices to prompt more rate hikes from the Federal Reserve, led by new chairman Jerome Powell. The Fed's benchmark rate rises above 2% for the first time since the 2008 financial crisis.

\$60

What a barrel of oil will cost next Christmas. Saudi political turmoil and the occasional disruptive summer storm will make the price of crude fluctuate plenty in 2018. But U.S. shale oil will keep the domestic supply flowing, putting an expiration date on any price spikes. No need to pawn the SUV just yet.

Planes, Trains, and Cars That Fly

Next year will see breakthroughs in zero-emissions vehicles that could help save the planet—and rockets that may one day help us escape it.

AUTONOMOUS CARS START KILLING A LOT OF DEER

▸ So far, driverless cars have a (mostly) clean record cruising the orderly streets of Singapore, Arizona, and Ann Arbor. But as hundreds more hit the road next year, accidents are inevitable. Blind spots? Kangaroos, deer, and bicyclists.

GEOPOLITICAL INTRIGUE STYMIES THE HYPERLOOP

▸ As more companies set their sights on a Hyperloop transit system, they're finding that several of the most promising spots—with the most space to build and the deepest pockets for budgeting—are in politically fraught sections of the Middle East. Engineering is easy compared with the complexities of regional geopolitics.

TESLA TAKES OFF

▸ Uber is building a flying-taxi pilot program in L.A., and the hovercraft-maker Kitty Hawk, backed by Alphabet CEO Larry Page, is working on consumer transports. Our bet: In 2018, Tesla CEO and mobility futurist Elon Musk joins the sky-race with an aeronautic venture of his own.

ALL-ELECTRIC CAR SALES NEAR 1 MILLION NEXT YEAR

▸ Even if Washington is resistant to paving the way, global sales of all-electric cars will surge 70% in 2018, up from 580,000 this year, according to LMC Automotive.

THE ODDS

LONG SHOT: The Trump administration, at Detroit's urging, sinks \$10 billion into zero-emissions car research.

SLAM DUNK: Next year will be the warmest La Niña year on record.

CELEBRITIES GO TO SPACE

Both Elon Musk and Richard Branson say they'll send tourists to space next year. (Jeff Bezos is targeting 2019.) A few of the A-listers dreaming of a better life on Mars (or wherever):


STEPHEN HAWKING


ANGELINA JOLIE


PETER THIEL


KATY PERRY*

*MAY BE A RETURN TRIP

TERM TO KNOW **"Carfentanil"** An elephant tranquilizer and synthetic opioid, often manufactured in labs in Asia, that has become an especially scary and deadly force in America's opioid crisis.

The hot new show: *My Brilliant Friend* HBO and Italian state broadcaster RAI are teaming up to produce the first installment of Elena Ferrante's "Neapolitan Novels," the international bestselling series, for an as-yet-undisclosed release date in 2018.

Who to Watch, Who to Root for, What to Eat

Sports, media, food, and culture are changing almost as fast as the ways we consume them.

THE NUMBER OF CORD-CUTTERS WILL HIT 27 MILLION

► The ranks of cord-cutters will keep ballooning in 2018. By the end of this year about 22.2 million Americans will have ditched their cable TV providers, a 33.2% increase from 2016. Those losses will rise next year—and the next, and the next. But don't shed a tear for the cable industry's bottom line. As traditional TV subscriptions plummet, companies like Comcast and Verizon are seeing big growth in broadband.

MEATLESS MEAT IS THE NEXT DAIRY-FREE MILK

► We'll say it: Plants are hot. Milk alternatives—think almond and soy—have grown 45% by volume over the past five years to constitute 7% of the U.S. market. Expect meat aisles to transform next, as food and tech collide to produce alternatives that taste more, well, meaty. Right now, substitutes make up less than 1% of the processed-meat and seafood market—but their rate of growth should outpace the real stuff's.

E-SPORTS GET HUGE

► Competitive gaming is going mainstream. Research firm Newzoo says e-sports, a $660 million industry, will soar 40% next year thanks to sponsorships, media rights, and, yes, ticket sales. Gamemaker Blizzard opened its first U.S. arena this fall.

THE FAVORITES

Super Bowl: The Patriots meet the Vikings in Super Bowl LII. Despite complaints from Papa John's, the TV audience falls below 105 million, down 5%. **World Series:** The Dodgers square off against the Cleveland Indians, as L.A.'s investor-owners pray that their payroll—the highest in baseball, at $240 million—finally yields a trophy. **NBA:** The Cleveland Cavaliers face a surprise contender, the Houston Rockets, owned by steak-house and casino magnate Tilman Fertitta.

STARS WILL BE BORN

GIANNIS ANTETOKOUNMPO
A.K.A. "THE GREEK FREAK"
Born in Athens to Nigerian immigrants, the Milwaukee Bucks' 22-year-old hoops prodigy is joining the NBA's elite. Proof? His forthcoming Nike signature shoe.

CHLOE KIM
OLYMPIC SNOWBOARDER
The halfpipe champion, just 17 years old, will be the 2018 Olympics' breakout sensation.

DOMHNALL GLEESON
ACTOR
The 34-year-old Irishman (and *Star Wars* villain) will be the industry's next darling.

KHALID
MUSICIAN
Big-data firm Affinio says the newest huge musician will be this 19-year-old singer (who already has a *Billboard* top 10 hit.)

© ANTETOKOUNMPO: ROCKY WIDNER—NBAE VIA GETTY IMAGES; KIM: DOUG PENSIGNER—GETTY IMAGES; GLEESON: ANTHONY HARVEY—GETTY IMAGES; KHALID: C FLANIGAN—FILMMAGIC/GETTY IMAGES

TERM TO KNOW **"RNA"** Companies are testing new tech to silence gene expression and combat deadly genetic diseases by manipulating RNA, DNA's biological partner, with new treatments due out as soon as 2018.

Walmart snaps up more trendy companies.
As Walmart revamps its website to counter Amazon, its acquisitions of small but hot online brands will continue. Expect to see deals for stalwarts like eyeglass maker Warby Parker and clothiers Everlane and Untuckit. The bids will help Walmart reach the higher-income customer it so covets.

Tech's Peril and Promise in 2018

Next year, incredible innovations, intrepid hackers, and executive infighting will leave their mark on Silicon Valley and beyond.

FACEBOOK FINALLY ADMITS IT'S A MEDIA COMPANY

► If it looks like a duck, swims like a duck, and quacks like a duck, then it's probably a tech company. Right? Facebook insists it's not a media business, despite evidence proving otherwise: fake news frustrations, editors as employees, $27 billion in annual advertising revenue. Next year, look for it to drop its resistance to the moniker, even though that could open it up to more regulation.

APPLE BREAKS RECORDS

► In November, supplies of the Apple's $999 iPhone X sold out in hours (only to turn up on eBay for up to $8,000). In 2018, expect the X to help Apple finally beat its 2015 phone sales record.

THE SHEER NUMBER OF HEALTH APPS WILL CAUSE YOU TRAUMA

► There's a health app for just about everything these days. Robo-therapy? Diabetes assistance? Rare disease support groups? Check, check, check. Global mobile health venture funding reached a record $1.3 billion last year, according to Mercom. The field will continue to boom in 2018 (the total global market could exceed $100 billion by 2022), especially as the FDA moves to make it easier for mobile health apps to reach the market.

TRAVIS KALANICK RESURFACES

► Americans love second acts. Kalanick, the epitome for good and ill of the American entrepreneur, will get his this year. He's still on the Uber board of directors, and IPO preparations will include Kalanick, a master fundraiser and spinner of the Uber narrative.

BITCOIN CRASHES! BITCOIN HITS ALL-TIME HIGHS!

► It's been a banner year for the cryptocurrency Bitcoin, but mark our words: A crash is coming. Expect the price of one Bitcoin to tumble from its current heights above $6,500, to around $5,000. And then, after the fall, watch the price rebound to above $20,000 by the end of 2018. That's our bet, but we wouldn't put all our tokens on it. We'll leave that to the institutional investors, like mutual funds and banks, who are taking cryptocurrency increasingly seriously.

ONLINE DATING PIVOTS TO VIDEO

► As more media companies make the leap into video, dating apps are doing the same. In 2017, Hinge began allowing users to upload 30-second films, Bumble launched a video-chat feature, and even good old Match.com is adding a new "Story" option, with minute-long, live-action compilations. Millennials, already primed by Instagram and Snapchat to share their lives with strangers, will embrace the features as their new normal.

THE ODDS

LONG SHOT: Bullying concerns plague a hot new Postmates/Sarahah-hybrid app, where gig economy workers hand-deliver anonymous notes.

SLAM DUNK: Another company with a staggering amount of your private information gets hacked.

Who's Going to Have a Good Year

In business as in all things, there are winners and losers. Here's what will be hot (or not) in 2018.

TRENDING UP

LYFT. The ride-sharing startup will continue to benefit from Uber's scandals (and a focus on business travel), with market share speeding from 21% in early 2017 to more than 30% in 2018.

CHINESE BILLIONAIRES. There are already more billionaires in China than there are in the U.S. by some counts. And, like the Chinese economy, those fortunes look set to continue their outsize growth.

LAWYERS. Someone has to benefit from the tide of lawsuits coming at opioid manufacturers—particularly if drugmakers pay out a multibillion-dollar settlement.

EDIBLES FOR PETS. Pet edibles are the next doggy Prozac. It's just one market that will get smoking hot when legal recreational weed goes on sale in California in January.

$500 YOGA PANTS. Sure, malls are flailing, but the priciest among them (a.k.a. "Class A" malls, featuring racks of designer labels) still have strong growth prospects.

FLOWER FLAVORING. Forget the pumpkin spice latte, Whole Foods says people will go nuts for flower flavors like rose and lavender in 2018.

THE FANNY PACK. Call it normcore, or call it practical. But the fanny pack, already gracing the frames of several Kardashians, will hit more runways in 2018.

TRENDING DOWN

UBER. Despite stabilization efforts at the company (including a huge cash infusion from SoftBank), Uber will keep losing ground to its smaller rivals.

WARREN BUFFETT'S NET WORTH. Sure, the Oracle of Omaha's net worth hit a hew high of $81.5 billion this fall, according to Bloomberg, but further growth next year will be thwarted by his tendency to give it away.

OPIOID DISTRIBUTORS AND MANUFACTURERS. They'll be forced to rethink their practices under mounting litigation filed by cities, counties, and states, not to mention growing public pressure.

MOM-AND-POP WEED COMPANIES. Quickening industry consolidation will nip many aspiring cannabiz moguls in the bud.

$100 YOGA PANTS. Lululemon and other stalwarts of the "athleisure" craze will lose market share as people who actually exercise realize there's no point in working out in expensive clothes.

FOOD DELIVERY STARTUPS. The day of reckoning is finally nigh for heavily VC-subsidized food delivery startups. (Just ask Blue Apron investors.)

PODCASTS. The airwaves have reached the saturation point for three guys and a Patreon account. A shakeout is coming.

CRYSTAL BALL CONTRIBUTORS: Ryan Bradley, Clay Dillow, Erika Fry, Leigh Gallagher, Robert Hackett, Matt Heimer, Tom Huddleston Jr., Beth Kowitt, Adam Lashinsky, Michal Lev-Ram, Sy Mukherjee, Andrew Nusca, Brian O'Keefe, Aaron Pressman, Jeff John Roberts, Geoffrey Smith, Anne VanderMey, Phil Wahba, Valentina Zarya, Claire Zillman

HOW WE DID IN 2017

ON TARGET: We predicted correctly that President Trump would put his stamp on the business world by rolling back clean power regulations and rescinding rules that let undocumented "dreamers" work legally in the U.S. We foresaw that steady economic growth would prompt the Fed to hike interest rates three times in 12 months. And in entertainment, we predicted an Oscar for a streaming service (Amazon's *Manchester by the Sea* won two) and a decline in Super Bowl TV ratings.

IN THE BALLPARK: We predicted major upgrades for the new iPhone, including its OLED screen, in tandem with a big sales rebound. We also warned that VR technology would struggle to gain traction with consumers. (Our apologies if you're reading this through an Oculus headset.)

OFF THE MARK: We predicted that Trumpian policy uncertainty and sky-high share valuations would end the long bull market in stocks. We were right about the uncertainty and valuations, but wrong about investors' moods: The S&P 500 is up 18% since then. Meanwhile, if you'd like to make a French person laugh, just utter these three words: "President Alain Juppé."

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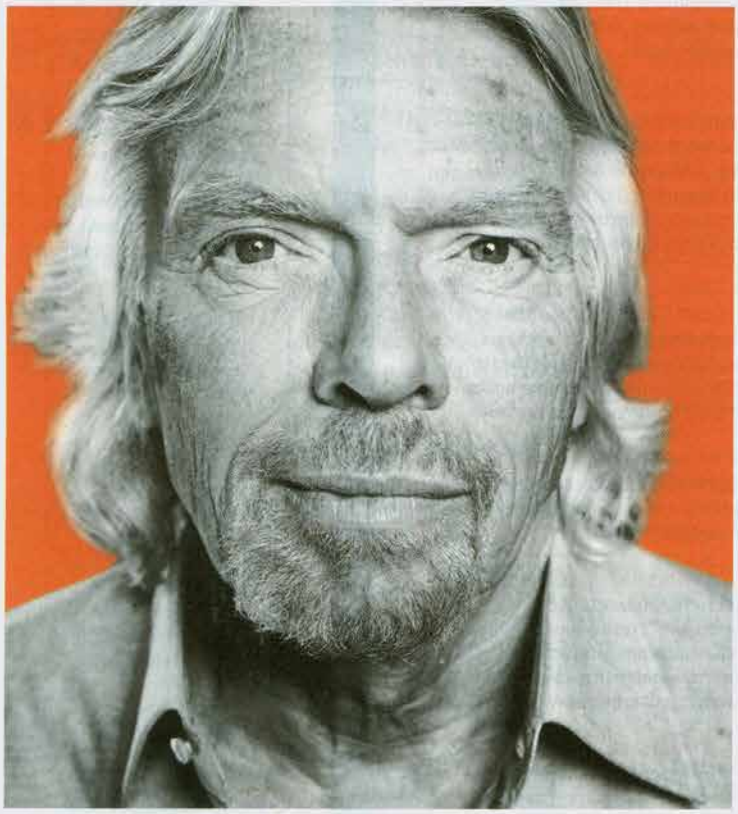
Richard Branson's Best Advice

Q&A As famous for his death-defying stunts as for successfully running hundreds of companies over the past 50 years, Richard Branson has one of the best stories in business—which he tells in his new book, *Finding My Virginity.* He sat down with *Fortune's* **Anne VanderMey** to talk about his plans to go to space, the airline industry, and whether he's on a collision course with Elon Musk.



Branson's latest book, *Finding My Virginity* [a follow-up to *Losing My Virginity*], is part autobiography, part entrepreneurial instruction manual.

Is there a key lesson that people should draw from your career trajectory?
Well, I've never pulled in the accountants and said, "If we go into space can we make a lot of money? If we start an airline can we make a lot of money?" Because I know that if you went to two separate accounting firms, you'd get a big bill, and one would say, "Great idea," while the other would say, "Terrible idea." What I've learned is, Screw it, just do it.

I don't have business plans. I mean, I have a back-of-the-envelope idea of what I want to do. Just make sure that your product is better than anyone else's out there.

Virgin America recently sold to Alaska Air against your wishes [for $2.6 billion plus assumed debts and obligations]. Are you done with U.S. air travel?
I don't normally give up. If we see a gap in the market you may well see us back again. As I say, watch this space. But anyway, the money that we got was not inconsiderable. We're building cruise ships, we're building new ventures, there's the Hyperloop [transportation system]. So it won't go to waste.

Speaking of the Hyperloop—between that and Virgin Galactic, your companies seem to have a lot of overlap with Elon Musk's. What is he like as a competitor?
We haven't gone completely head to head so far. Elon is interested in sending people to Mars. We are more interested in our earth that we live on. We will overlap, and he will be a formidable competitor. But, you know, like in most businesses there's room for the two of us. There's room for Jeff Bezos and in time there will be room for others as well.

Is it true you weathered Hurricane Irma on Necker Island in your wine cellar?
Yes, so you don't have to take too much pity on us.

What is one thing that you hate?
Anybody who's living in the White House.

What is the best piece of advice that you give entrepreneurs?
As a leader you've got to praise a lot. You've got to be a good listener. You've got to write notes and listen and then do something about it. You've got to inspire your team to believe in what you're doing. If you can't do that, you're doing the wrong thing, I think. ■

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INVEST

THE HEDGE FUND WANNABES

A new breed of ETFs promises to imitate the souped-up strategies of hedge funds—at a much lower cost. But how will they fare when the rubber hits the road in a market downturn? By Ryan Derousseau

SOME INVESTING PITCHES target your inner optimist, with a promise of "outperformance" or a hot stock tip. But others address the pessimist in your soul: *Something's bound to go wrong*, they whisper, *and we can keep you safe.*

You can expect the latter message to grow louder in the months ahead; the longer the stock market's bull run continues, the more skeptics suspect a correction is due. And the loudest voices in the pessimist choir may belong to managers of hedge funds. Those funds, which rely on sometimes sophisticated strategies to protect clients' portfolios, lost significantly less than stocks and mutual funds did in the last two U.S. bear markets. That, plus impressive short-term returns from a few celebrity managers, has helped them attract truckloads of cash; hedge fund assets now top $3 trillion.

The typical hedge fund charges annual fees that can top 1.5% of customers' assets, plus up to 20% of profits. That hefty premium has created an opening for new exchange- ▷▷

▲ ILLUSTRATION BY JOSH MCKENNA

▷▷ traded funds that offer similar ritzy strategies, but at cheapskate prices. These me-too funds use a grab bag of investments to emulate hedge fund tactics. They're unusually complicated for ETFs—and with about $3 billion in assets, they're a tiny segment of the market. But in an era when the performance of low-fee funds is luring growing numbers of price-conscious investors, they could attract a lot of new money in a downturn.

There are now 36 hedge fund ETFs in the U.S., according to FactSet, and their annual fees typically run between 0.5% and 1%, on par with actively managed mutual funds. Capital management firms ranging from boutique advisories to giants like JPMorgan have rolled out such ETFs over the past three years. But the industry's granddaddy is IndexIQ, which essentially invented the category in 2009 with its flagship fund, **IQ Hedge Multi-Strategy Tracker (QAI)**. It's the largest hedge ETF, with $1.1 billion in assets; it melds numerous strategies that include taking both long and short positions on U.S. stocks and bonds and emerging markets.

A look inside QAI's portfolio, however, is instructive: It gets much of its downside protection from products investors could buy themselves, at notably lower prices. As of its most recent filings, 52% of QAI's assets were in short-term Treasury or U.S. corporate bonds. Its largest holding was the Vanguard Short-Term Bond ETF, which has an expense ratio of .07%, or $7 per $10,000 invested. QAI itself charges $76 per $10,000. Indeed, the "fund-of-funds" approach is a common hedge ETF strategy, which strikes some strategists as needlessly complex. "Why not just hold the underlying ETFs?" asks Mariana Bush, who heads ETF research at Wells Fargo Advisors.

ETF SELLERS ARGUE THAT THEIR FEES are a small price to pay for access to assets that hold their value when stocks fall. Still, the funds could struggle to prove their value to potential clients, because most haven't been around long enough to weather a recession.

A Vanguard study found that from November 2007 to February 2009, during the last bear market, a "fund-of-funds" index that tracked hedge fund performance fell 18%, while an unhedged portfolio split 60%/40% between stocks and bonds fell 25%, and the S&P 500 fell more than 40%. But since then, hedge funds as a group have consistently lagged the broader market. Hedge ETFs have followed a similar arc: QAI, for example, has returned 3.1% on an annualized basis since its 2009 inception, compared with 16% for the S&P 500.

The takeaway: Because hedge ETFs (like hedge funds themselves) are designed to do better in down markets—to hedge the risks to your other investments—they're best used sparingly. Bush advises investors to choose only ETFs with $100 million in assets or more; anything smaller may struggle to ride out a rough patch. That's a threshold that only six hedge fund clones, including QAI, currently meet. Grant Engelbart, a portfolio manager at CLS Investments, favors **JPMorgan Diversified Alternative (JPHF)**, which manages $154 million; it launched late last year. JPHF invests mostly in individual stocks, futures, short positions, and derivatives. Since its inception, it has produced a "beta" of just .32, a metric that indicates there's little correlation between its performance and the stock market's. Engelbart typically invests around 5% of a client's diversified portfolio in JPHF, enough to manage risk and cushion the blow of a downturn without hurting returns in good times.

Of course, if you want a shield against stocks' volatility, there are more straightforward options. The **iShares Core U.S. Aggregate Bond (AGG)** fund is a proven traditional ETF whose performance doesn't correlate with stocks, with an expense ratio of just .05%. As its name suggests, it invests solely in U.S. Treasury and corporate bonds—and that simplicity is its own kind of security blanket. ■

WHAT'S UNDER THE HOOD

Many ETFs that "clone" hedge fund strategies—including IQ Hedge Multi-Strategy, the biggest fund in the category—do so primarily by investing in other, less expensive ETFs.

	SHARE OF PORTFOLIO	COST PER $10,000
IQ HEDGE MULTI-STRATEGY TRACKER		$76
TOP HOLDINGS		
VANGUARD SHORT-TERM BOND	27.0%	$15
ISHARES IBOXX $ INVESTMENT GRADE CORPORATE BOND	14.7%	$15
ISHARES SHORT TREASURY BOND	7.1%	$15
POWERSHARES SENIOR LOAN PORTFOLIO	4.9%	$66
ISHARES MSCI EAFE SMALL-CAP ETF	4.7%	$40

AS OF 9/30/17 SOURCE: FUND FILINGS

ALPHABET'S GURU OF GOOGLEY RIGOR

Ruth Porat, chief financial officer of Google's parent company, balances Silicon Valley whimsy with hard-nosed reality. **By Adam Lashinsky**

TECH

MY CONVERSATION WITH RUTH PORAT, chief financial officer of Alphabet and its money-gushing subsidiary Google, begins, as chats so often do, at the company's Mountain View, Calif., "Googleplex" headquarters, with food. I have food on my brain because some fine Indian fare from Charlie's Café, the main eatery there, is in my stomach, having just come from lunch. It is the first day of November, the week after Alphabet reported a third-quarter profit of \$6.7 billion on revenues of \$27.8 billion that grew at a blistering 24% pace, and I'm keen to find out from Porat if the company ever will stop giving its employees so much free food.

Ruth Porat has instilled financial discipline at Alphabet while keeping oodles of perks.

Porat, known inside Alphabet for her fierce attention to controlling costs, doesn't flinch in her defense of the company's touchy-feely legacy. The all-free micro kitchens and food trucks and cafeterias, she says, are "a core part of the work experience. We've looked at it, and we think it's a really smart way to run the business. Our view is if we have people staying on site, hanging out together, the return on that is terrific."

This all-together-now spirit blended with financial and analytical rigor is all rather Googley, a quality Porat, who joined the company two years ago, earnestly embraces. A longtime investment banker with Morgan Stanley and ultimately the firm's CFO, Porat is the current steward of the unique culture that cofounders Larry Page and Sergey Brin established for their grad-school-like enterprise that now employs more than 78,000 globally. (They eat 178,000 meals daily, by the way.) Not merely the finance chief, Porat also oversees the company's "real estate and workplace services" group, which means she's in charge of the buildings and all those famous perks. The company's facilities around the world have a high standard, she says. They need to be "fun" and "whimsical" and to enable collaboration.

As a new Googler, Porat spent some time learning the words that describe the Googley people who work in those buildings. "It's inquisitive, risk taker, curiosity, excitement, fun, collaborative, teamwork," she says. "We want people who are really bright, really inquisitive, really passionate, who want to make a big difference."

Yet the signal contribution of Porat, a Silicon Valley native who turned 60 this year, has nothing to do with whimsy. Months after joining Google, she led the initiative that seemed like a joke when it was announced. Alphabet would be a holding company to house its wackier or noncore efforts—like its Verily life sciences, Waymo self-driving cars, and Loon Internet balloon projects—while Google's advertising-oriented business would stand apart and continue to drive the company's finances.

The financial engineering had the immediate effect of demonstrating two things to investors: Google was minting even more money than they thought, and the "other bets" weren't losing as much as they feared. Before the split, Porat ▷▷

▷▷ recalls, "research analysts were coming out with their range of estimates as to how big the operating loss would be in 'other bets.' At the high end it was $10, $11 billion. The reality was that the operating loss was around $3.5 billion that first year. And I think that what that said is we have a portfolio of businesses we're investing in, and it's a really reasonably sized portfolio."

Those losses have continued apace, totaling $812 million in the most recent quarter. Porat has overseen some painful cuts. "One of the key elements is being granular about resources required to support any particular area," she says, including making decisions to "invest, disinvest, or slow things down." The company is tempering its investment in the costly Fiber high-speed Internet and TV service, for example. And earlier this year, Google shed its Terra Bella satellite imaging business. "Our conclusion was that we don't need to own this asset," says Porat. "We'd rather have our resources put into other areas. Somebody else can own it; we can be a customer."

Porat has enforced new discipline on what remains too. One radical change involved accounting: Leaders were required to factor in the cost of employee stock options and other equity compensation for their routine budgeting. It's a break from Internet-industry norms that is intended to provide managers with a more realistic picture of their spending.

Another shift was to require clear financial planning companywide. "I want milestones," Porat says, like the expected number of users of individual products. "I want to know in six months when we're sitting down with the midyear plan, what would you like to have achieved?" Her philosophy, she says emphatically, is that "everybody has to have a plan against which they're executing."

To say that Alphabet's finances are secure is an understatement. The company is worth more than $700 billion, and its cash reserves are a cool $100 billion. And the core Google operation has two legitimate high-growth areas: YouTube and a nascent cloud-computing business, which competes with Amazon Web Services and Microsoft Azure.

Porat is among a handful of top people who work for both Alphabet and Google. As such, there's a regular cadence to her week. Monday is Google day, she says, spent in meetings with Google CEO Sundar Pichai and other top leaders. Tuesday is devoted to other bets, meaning extensive face time with Page and Brin as well as former Google CEO Eric Schmidt, now Alphabet's executive chairman. Friday she spends with her finance team. "But the way we operate is, you sort of live in a Chromebook, and you just pop down in a huddle," Google lingo for a small conference room. And no matter what, a good meal is just around the corner. ■

ALPHABET'S FINANCIAL ACE

RUTH PORAT ALPHABET, CHIEF FINANCIAL OFFICER

AGE: 60

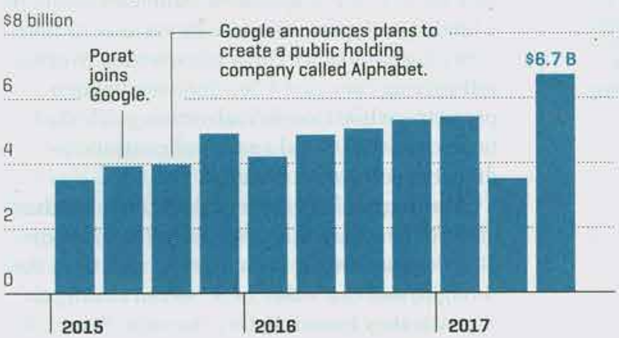
BORN: England (raised in Palo Alto)

EXPERIENCE: Spent 28 years as an investment banker, mostly at Morgan Stanley, where she was chief financial officer. Porat backed technology companies, making her well-positioned when Google recruited her as CFO.

DUTIES: She oversees finance plus "real estate and workplace services," which includes human resources. She also runs Google's in-house strategy group called Business Operations.

UNDER PRESSURE: She led the Morgan Stanley team that advised the U.S. Treasury Department during the 2008–2009 financial crash.

ALPHABET'S QUARTERLY PROFITS



CHANGE IN STOCK PRICE

SOURCE: S&P GLOBAL

PASSIONS

FOR THE BON VIVANT

$55 FOR A SINGLE BOX, $45/MONTH TO SUBSCRIBE
BESPOKEPOST.COM

Bespoke Post, aimed at men, quizzes the recipient about his preferences, then sends one of a variety of themed boxes each month. Recent offerings range from raw bar essentials (pictured) to winter-month necessities.

THE POST WITH THE MOST

IN A WORLD WHERE LETTERS ARE DEAD and bills rule the mailbox, the allure of subscription boxes is obvious. The combination of surprise and assortment also makes them perfect holiday gifts: Sign a lucky recipient up for a few months and spread the joy well into the new year. There's now a box for pretty much anything you can imagine (undershirts! bath bombs! mugs!), which means there's a pick for everyone on your list; here are a few of our favorites. —**Kate Flaim with Chloe Lieske**

© PROP STYLING BY MICHELLE LONGO

▲ PHOTOGRAPHS BY **YASU + JUNKO**

FOR THE FASHION MAVEN

$99/BOX /// ***BOXOFSTYLE.THEZOEREPORT.COM***

Celebrity stylist-turned-designer Rachel Zoe curates the quarterly **Zoe Report Box of Style,** packed with trendy accessories and beauty products. The upcoming winter box features earrings designed by Zoe and actress/House of Harlow designer Nicole Richie; past picks included custom leather clutches, statement necklaces for the holidays, and glam sunglasses; each box is valued at $400 or more.

Selections from the spring and fall 2017 boxes are pictured above.

FOR THE SINGLE-MALT SEEKER

GIFT SUBSCRIPTIONS FROM $220 FOR TWO SHIPMENTS /// ***CRAFTWHISKYCLUB.COM***

Bimonthly deliveries of limited-edition Scotches and whiskeys, plus the perfect snacks to accompany them? **Craft Whisky Club** is a no-brainer gift for the aficionado looking to build a collection. Plus you're supporting the art of distillery: The company's mission is to connect small-batch distillers with a wider audience in something like a farm share program for booze.

A selection from two boxes is shown here.

FOR THE STYLISH MINIMALIST

$78 FOR A SINGLE BOX, $71/BOX TO SUBSCRIBE /// ***NORSEBOXES.COM***

Indulge a favorite *hygge*-seeker with a sprinkling of perfectly curated Scandinavian goods from **Norse Box**—think Ferm Living kitchenware, Marimekko ceramics, a planner and notebook created in homage to legendary designer Arne Jacobsen—all beautifully packaged and shipped with styling suggestions. Each quarterly box is centered around a theme from Scandinavian culture.

A selection from several boxes is shown here.

FOR THE HANDY TINKERER

FROM $59 TO $89/MONTH DEPENDING ON SUBSCRIPTION LENGTH /// ***THIMBLE.IO***

Shopping for an aspiring engineer? STEM-focused **Thimble** ships all the components for a supervised preteen or curious adult to build a cool electronic gadget, from a MIDI piano with a laser-etched plywood keyboard [pictured] to a Wi-Fi-controlled mini robot. The company also sells a toolkit with everything needed for the projects [soldering iron, hot glue gun, and all the accessories].

A selection from several boxes and the toolkit is shown here.

BANGA BEZOS

BUSINESSPERSON OF THE YEAR

NOS. 01–20 LETTERING BY MARIUS ROOSENDAAL

BENIOFF

FORTUNE

DILLON / ZUCKERBERG / HEWSON / NARAYEN / MA

It starts with results. Each December, when we choose *Fortune's* Businessperson of the Year, we focus first on CEOs who are delivering the goods. Through an exhaustive screening process, we rank companies by 12- and 36-month increases in profits, revenues, and stock performance, then go deeper to include factors like return on capital. (We give more weight to the 12-month results to identify who's on top today, but also include the 36-month figures to weed out those who may have just had a lucky year.) But it's not only about the numbers. We lean toward CEOs with vision—those impacting the world beyond their companies. The 20 star executives featured on the pages that follow are doing nothing less than defining the future of business.

NOVAKOVIC / PURI / GRIFFITH / BETTINGER

HUANG

JENSEN HUANG

BY
ANDREW NUSCA

LEADING A TECTONIC SHIFT IN TECH

THE COFOUNDER AND CEO OF SEMICONDUCTOR AND SOFTWARE MAKER NVIDIA SAW THE FUTURE OF COMPUTING MORE THAN A DECADE AGO, AND BEGAN DEVELOPING PRODUCTS THAT COULD POWER THE ARTIFICIAL INTELLIGENCE ERA. THANKS TO THAT VISION, AND RELENTLESS EXECUTION, HIS CHIPMAKER TODAY IS PERHAPS THE HOTTEST COMPANY IN SILICON VALLEY. AND IT MAY JUST BE GETTING STARTED.

CEO	NVIDIA
JEN-HSUN "JENSEN" HUANG	
Photographed at Nvidia headquarters on Nov. 3, 2017.	

▲ PHOTOGRAPH BY WINNI WINTERMEYER

BUSINESSPERSON OF THE YEAR

PROFILE NO. 01

JENSEN HUANG

HALFWAY THROUGH DINNER AT EVVIA, A BUSTLING GREEK RESTAU-rant in downtown Palo Alto that Apple cofounder Steve Jobs used to frequent, Jen-Hsun "Jensen" Huang rolls up his shirtsleeve to show me his tattoo. It's tribal in style, with thick curves extending across his shoulder cap. The black ink gleams in the warm glow of the restaurant's low lights.

"So, I really want to extend it," he says with a glint in his eye, gesturing along the length of his arm. "I actually kinda do. I would love to. But getting it really, really hurt. I was crying like a baby. My kids were with me, and they're like, 'Dad, you've gotta control yourself.'"

Huang's two adult children, speakeasy proprietor Spencer and hospitality professional Madison, also have tattoos. But at 54, their father, cofounder and CEO of the red-hot Silicon Valley semiconductor and software company Nvidia, so far has only this one, an abstract version of the company's logo. He got it about a decade ago.

"Every six months we have an off-site," Huang says, leaning back in his chair to tell the story. "And at one, someone said, 'What are we gonna do when the stock price hits $100?' That was two splits ago. One person said they'd shave their head, or paint their hair blue, or get a mohawk, or something. And another said they'd get a nipple ring. And then by the time they come around to me, it was already at tattoo level. So I said, 'Yeah all right, I'll get a tattoo.' And then the stock price hit $100." He pauses and grimaces a little, remembering. "And it hurt so bad."

Most *Fortune* 500 CEOs over 50 don't have tattoos, let alone of the logos of the companies they run. But Huang, who was born in Taiwan, isn't most *Fortune* 500 CEOs. For starters, he's the rare cofounder still running his company 24 years later. He is both a trained electrical engineer (Oregon State; Stanford), and a formidable executive who leads employees with encouragement, inquiry, and often flurries of vacation emails. (Sent during his, not theirs.) And he is, according to many people in the industry, a visionary who foresaw a blossoming market for a new kind of computing early enough to reposition his company years in advance.

That vision and his company's incredible financial performance make Huang the clear choice as *Fortune*'s Businessperson of the Year for 2017.

"Jensen is one of those rare individuals who combines incredible vision with ruthless focus on execution," says Adobe CEO Shantanu Narayen. "Now with Nvidia's focus on artificial intelligence, the opportunities for leadership are endless."

"Jeff Bezos, Elon Musk—I put Jensen in that group," says Todd Mostak, CEO of MapD, a San Francisco database company in which Nvidia has thrice invested.

If you haven't heard of Nvidia, you can be forgiven. It doesn't make a chat app or a search service or another kind of technology meant to appeal to the average smartphone-toting consumer. No, Nvidia makes the muscular mystery stuff that powers all of it. Its GPUs, or "graphics processing units," crunch the complex calculations necessary for cryptocurrency markets, so-called deep neural networks, and the visual fireworks you see on the big screen. The

© CHIP PHOTOS COURTESY OF NVIDIA

THE BRAINS OF A.I.

NVIDIA'S BAG

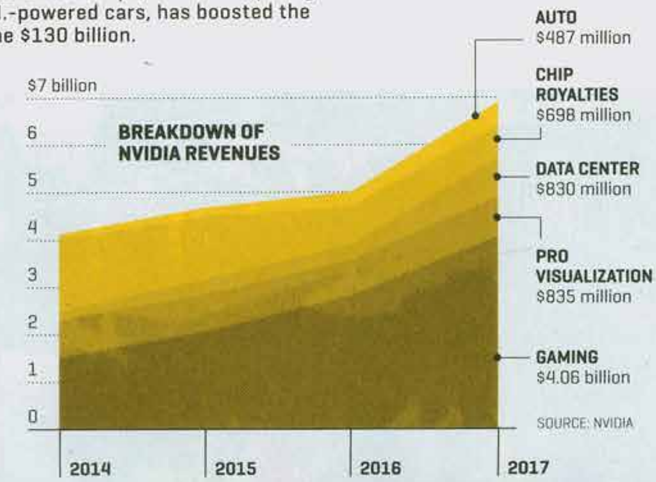
Pegasus

A supercomputer that promises to enable Level 5 autonomy—as in no human intervention required—for self-driving cars. It arrives in the second half of 2018.

FOR: SELF-DRIVING CARS

STANDING TALL IN SEMICONDUCTORS

Exploding demand for Nvidia's advanced chips, inside everything from video game systems to A.I.-powered cars, has boosted the company's market value to some $130 billion.



same technology that makes brutally realistic shooter games come alive helps self-driving cars take an "S" curve without assistance—enabling computers to see, hear, understand, and learn.

Booming demand for its products has supercharged growth at Nvidia. Over the past three full fiscal years, it has increased sales by an average of 19% and profits by an astonishing 56% annually. In early November the company reported results that once again blew past Wall Street's estimates, with earnings per share 24% higher than expected. In its past four quarters, it has generated total sales of $9 billion and profits of $2.6 billion.

Such results have made Huang's company a darling of investors. Nvidia's share price, just two years ago hovering around $30, was recently over $200. Its market capitalization, at about $130 billion, is approaching that of IBM and McDonald's.

Nvidia meanwhile has so far managed to retain its roughly 70% market share in GPUs despite competition from formidable rivals—among them Intel and AMD—who want their share of the billions in chip sales to come from this new tech revolution. "IBM dominated in the 1950s with the mainframe computer, Digital Equipment Corp. in the mid-1960s with the transition to mini-computers, Microsoft and Intel as PCs ramped, and finally Apple and Google as cellphones became ubiquitous," wrote Jefferies equity analyst Mark Lipacis in a July note to clients. "We believe the next tectonic shift is happening now and Nvidia stands to benefit."

Or as Jim Cramer, host of CNBC's *Mad Money*, put it on air in November: "Nvidia is one of the great companies of our time."

BATTLING WITH THE WORLD'S biggest tech companies for A.I. supremacy was far from Jensen Huang's mind when he cofounded Nvidia with friends Chris Malachowsky and Curtis Priem in 1993. At the time, Malachowsky and Priem were engineers at Sun Microsystems, and Huang was a director at San Jose chipmaker LSI Logic. Malachowsky and Priem had lost a political battle within Sun over the direction of its technological development and were itching to leave. Huang, just 29 years old, was on firmer ground. The three men met at a Denny's

OF CHIPS

THREE PRODUCTS HELPING NVIDIA PUT THE CRUNCH ON ITS COMPETITORS.

GeForce GTX 1080 Ti

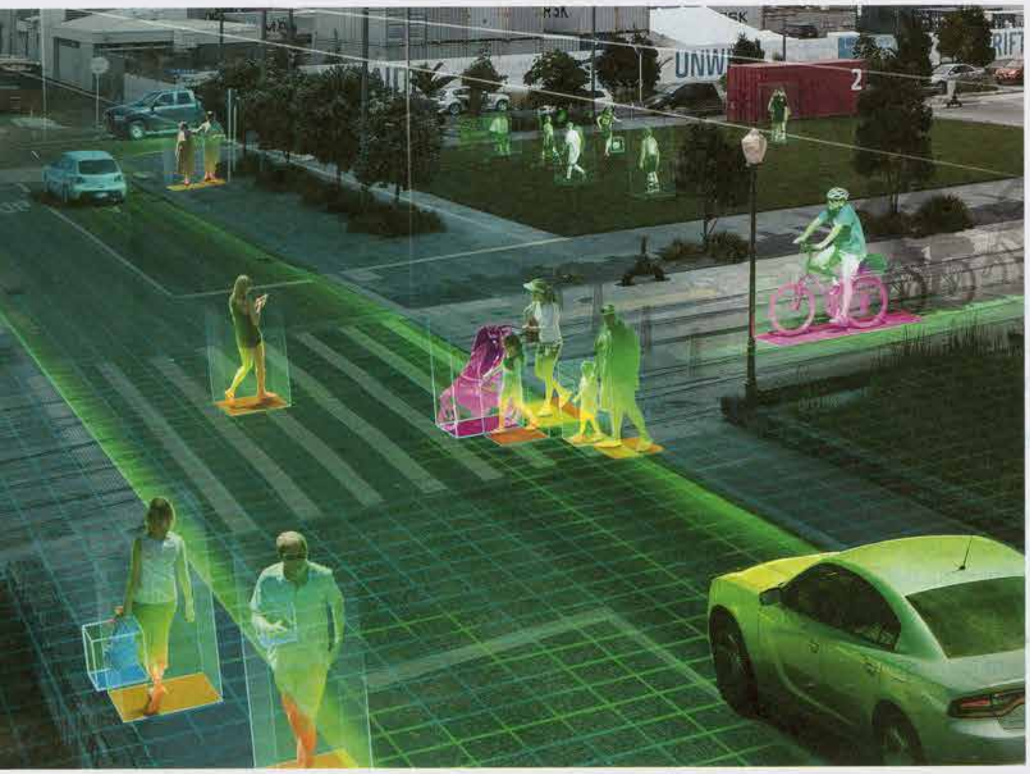
FOR: GAMING

Nvidia's $700 flagship gaming card, billed as the world's fastest for video gaming, allows for screenshots in 360 degrees and ultra-high-definition game play.

DGX-1

A dense cluster of interconnected chips (call it a brain) that powers deep-learning systems—an area of A.I. that requires massive data sets.

FOR: DEEP LEARNING



Above: Nvidia is developing artificial intelligence systems that can take advantage of the more than 1 billion video cameras in cities to help manage everything from traffic congestion to parking. Right: Nvidia demonstrated its A.I. for self-driving cars at the Consumer Electronics Show in January 2017.

restaurant near Huang's home to discuss what they believed was the proper direction for the next wave of computing: accelerated, or graphics-based, computing. Huang walked away from the meal with enough conviction to leave his position at LSI.

"We believed this model of computing could solve problems that general-purpose computing fundamentally couldn't," Huang says. "We also observed that video games were simultaneously one of the most computationally challenging problems and would have incredibly high sales volume. Those two conditions don't happen very often. Video games was our killer app—a flywheel to reach large markets funding huge R&D to solve massive computational problems."

With $40,000 in the bank, Nvidia was born. The company initially had no name. "We couldn't think of one, so we named all of our files NV, as in 'next version,'" Huang says. A need to incorporate the company prompted the cofounders to review all words with those two letters, leading them to "invidia," the Latin word for "envy." It stuck.

Nvidia's early employees moved into an office in Sunnyvale, Calif., by the Lawrence Expressway. "It was a small office. We had lunch around a Ping-Pong table. We shared a bathroom with another company," recalls Jeff Fisher, the company's first salesman and currently an executive vice president. "The Wells Fargo bank that shared our parking lot got robbed two or three times."

Nvidia's first product, a multimedia card for personal computers called NV1, arrived in 1995 at a time when three-dimensional games began to gain traction. The card didn't sell well, but the company kept tinkering with its technology over four more releases, gaining sales—and traction vs. rivals 3dfx, ATi, and S3—each time.

"We knew that in order for us to scale as a company, we had to provide more value than just a replaceable component in a PC," says Fisher. "We had so much more value to add than just a commodity."

A successful IPO on the Nasdaq in 1999 set in motion a flurry of milestones for Nvidia. That year it released the GeForce 256, billed as the world's first GPU. In 2006 it introduced CUDA, a parallel computing architecture that allowed researchers to run extremely complex exercises on thousands of GPUs, taking the chips out of the sole realm of video games and making them accessible for all types of computing. In 2014, the company revived a failing

COURTESY OF NVIDIA (2)

bid for the smartphone business by repositioning those chips, called Tegra, for automotive use. Over time, these moves proved prescient, unlocking new revenue streams for Nvidia in industries such as defense, energy, finance, health care, manufacturing, and security.

"There were some rough years there," says Rev Lebaredian, a Hollywood veteran who serves as vice president of Nvidia's GameWorks and LightSpeed Studios units. "Look at our stock price, say, 10 years ago. The world didn't quite realize what we were building. What we're doing is foundational to humanity. This form of computing is too important for it not to be valuable."

Key to Nvidia's ability to endure years of market doubt, Lebaredian adds, is Huang—a leader with deep conviction in the potential of graphics technology and an ability to think in 10-year time horizons.

While Huang says he didn't anticipate how self-driving cars would evolve or when A.I. would arrive, he had utter conviction in the superiority of graphical computing. So he invested to make sure his company was ready to capitalize on the opportunities created by a major shift in tech. "I've been talking about the same story for 15 years," Huang tells me. "I've barely had to change my slides."

DOZENS OF PEOPLE PATIENTLY stand outside awaiting the grand opening of Endeavor, Nvidia's massive new headquarters in Santa Clara, Calif. The 500,000-square-foot structure is nothing less than imposing. A triangular foil to Apple's circular new headquarters six miles away—its shape is drawn from the building block of computer graphics, the triangle—Endeavor's glassy facade rises up over the San Tomas Expressway like the bow of a starship coming into port.

Unofficially, Endeavor has been open for a month, allowing more than 2,000 employees to acclimate to its tree-house-like structure. (Staffers enter from an underground parking garage and ascend at its center.) Today some 8,000 people are expected to stream through the doors for an open house for employees and their families. There are stations prepped with lines of finger food and beverages. Face painters await an inevitable onslaught of children. The smell of sawdust and paint lingers in the halls.

Inside, triangles abound. Floor tiles, privacy screens, lobby couches, window decals, skylights, cafeteria counters, even cross braces for the structure itself—all in shapes with three points. In a continuation of the theme set by Endeavor's name, the building is bursting with rooms nodding to science fiction: Altair IV, Skaro, Skynet, Vogsphere, Hoth, Mordor.

Huang doesn't keep an office, preferring to move around the building nomad-like, setting up shop in a variety of conference rooms. When *Fortune* visits, he's taken up temporary residence in one called Metropolis, after the 1927 silent film—but the CEO is not present. A container stuffed with Clif Bars rests at the center of the table. Rolls of blueprints lie across a chair to the side.

When I finally locate Huang, he is wearing his signature leather moto jacket and nibbling on breaded chicken strips from a cup as he strides across the sprawling cafeteria with at least two dozen employees and their families in tow. At Huang's side are his wife, Lori, as well as his son and daughter, who flew in from Taipei and Paris, respectively, to surprise their father. The CEO is apparently in a bind. He is trying, but failing, to complete a design review of Endeavor that was scheduled before the doors opened. But he's already inundated with guests seeking handshakes and selfies, and he can't resist a single one.

Daughter Madison plays photographer as Huang moves to take a photo with a family of four. He takes one knee to get on the same level as their two kids. "You built this," he says to the parents after the photo is taken, gesturing to the space around them. "Have a good time today."

Huang will repeat a version of this exchange hundreds of times during the open house, sometimes with handshakes, sometimes with hugs. Indeed, over the course of four hours, the CEO sits only once, for a photo with a young girl who resists her mother's calls for a smile. (In a fatherly feat, Huang manages to wring one out of her.) The line to greet him never subsides.

The spectacle is a vivid example of what many former and current

Nvidia employees say is the company's secret sauce: its culture. For a publicly traded technology company with more than 11,000 employees, Nvidia is surprisingly tight-knit. It's a credit to the many long-serving staffers who remain at the company (badge numbers are issued in serial; the lower the number, the longer the tenure) and the business battles they've endured together. It's also the product of a founder CEO who embraces community, strategic alignment, and a core value system that promotes the pursuit of excellence through intellectual honesty.

Rene Haas, a senior executive at British semiconductor design company ARM, recalls six-hour meetings where Nvidia's general managers would offer the CEO status updates for their lines of business. If Huang didn't like what he heard—a roadblock, a missed goal—he would move to solve the problem then and there. "A head of software, a mid-level engineer, it didn't matter—he would call those people and bring them to the conference room and determine the root cause of the issue," Haas says. "If something had to be reprioritized and rescheduled to get it back on track, he would do it in real time, and the rest of the meeting was aborted. It was incredibly liberating. And he would never do it in a way that was diminishing. It might feel like that at the beginning, but then you'd realize that he's trying to expedite the process by getting the right people in the room."

"NOBODY IS THE BOSS," SAYS HUANG, EXPLAINING HIS EGALITARIAN APPROACH TO PROBLEM-SOLVING. "THE PROJECT IS THE BOSS."

The scientific pursuit of truth resonates at all levels of the company, employees say, helping tamp down on the organizational politics that obstruct other companies' progress.

Or as Huang explains it: "Nobody is the boss. The project is the boss."

NVIDIA'S CEO TAKES OFF HIS wire-rimmed glasses and rubs his bloodshot eyes, fatigued after hours of slapping backs and pumping palms. He plops down at a wooden table where his wife and two kids are seated as the last of the open house attendees exit the building. Staffers working the event begin to sweep up the area around him, picking up plastic cups, wiping surfaces, arranging chairs. His security guards stand alert.

Huang leans toward me and asks me to pose the questions I had intended to get to earlier, when he was still busy working the rope line. I ask him what he believes is the next major application of artificial intelligence technology—the next billion-dollar opportunity for Nvidia, category competitors like Intel and Qualcomm, and players like Google, Facebook, and Baidu.

"The thing that I believe is going to be really incredible that's going to happen next is the ability for artificial intelligence to write artificial intelligence by itself," he replies.

My eyes widen at the prospect as Huang continues. "In the future, companies will have an A.I. that is watching every single transaction—every business process—that is happening, all day long," he says. "Certain transactions or patterns that are being repeated. The process could be very complicated. It could go through sales to engineering, supply chain, logistics, business operations, finance, customer service. And it could be observed that this pattern is happening all the time. As a result of this observation, the artificial intelligence software writes an artificial intelligence software to automate that business process. Because we won't be able to do it. It's too complicated."

By now my head is spinning, lost in a bizarre vision that somehow combines the films *Office Space, The Matrix,* and *Inception.*

But Huang is still rolling. "We're seeing early indications of it now," he adds. "Generative adversarial networks, or GAN. I think over the next several years we're going to see a lot of neural networks that develop neural networks. For the next couple of decades, the greatest contribution of A.I. is writing software that humans simply can't write. Solving the unsolvable problems."

Suddenly, a massive thud rips through the room, followed by the clatter of plastic cups. The space falls to a hush and Huang pauses, losing his train of thought. In one corner, two employees with overfilled arms had been precariously juggling the remnants of the wine and beer station. Gravity won.

"Lots and lots of perfectly good beer," Huang says, breaking the silence. If only the humans in the room had detected the pattern; if only we were intelligent enough. "I felt that he was in an awkward position," Huang says, hamming it up to giggles from the rest of his family. "My intelligence ... I saw it coming. That's why I was watching him. My eyes were getting bigger. It happened, exactly as I thought."

It's merely more evidence of Huang's ability to see into the future. ■

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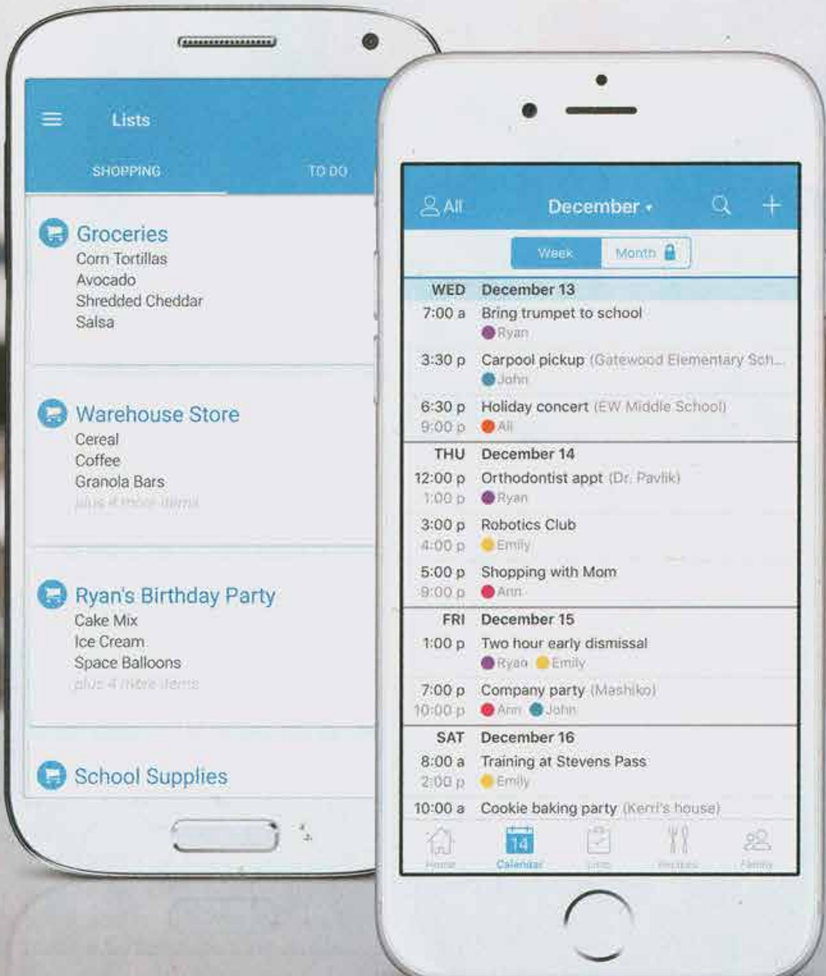

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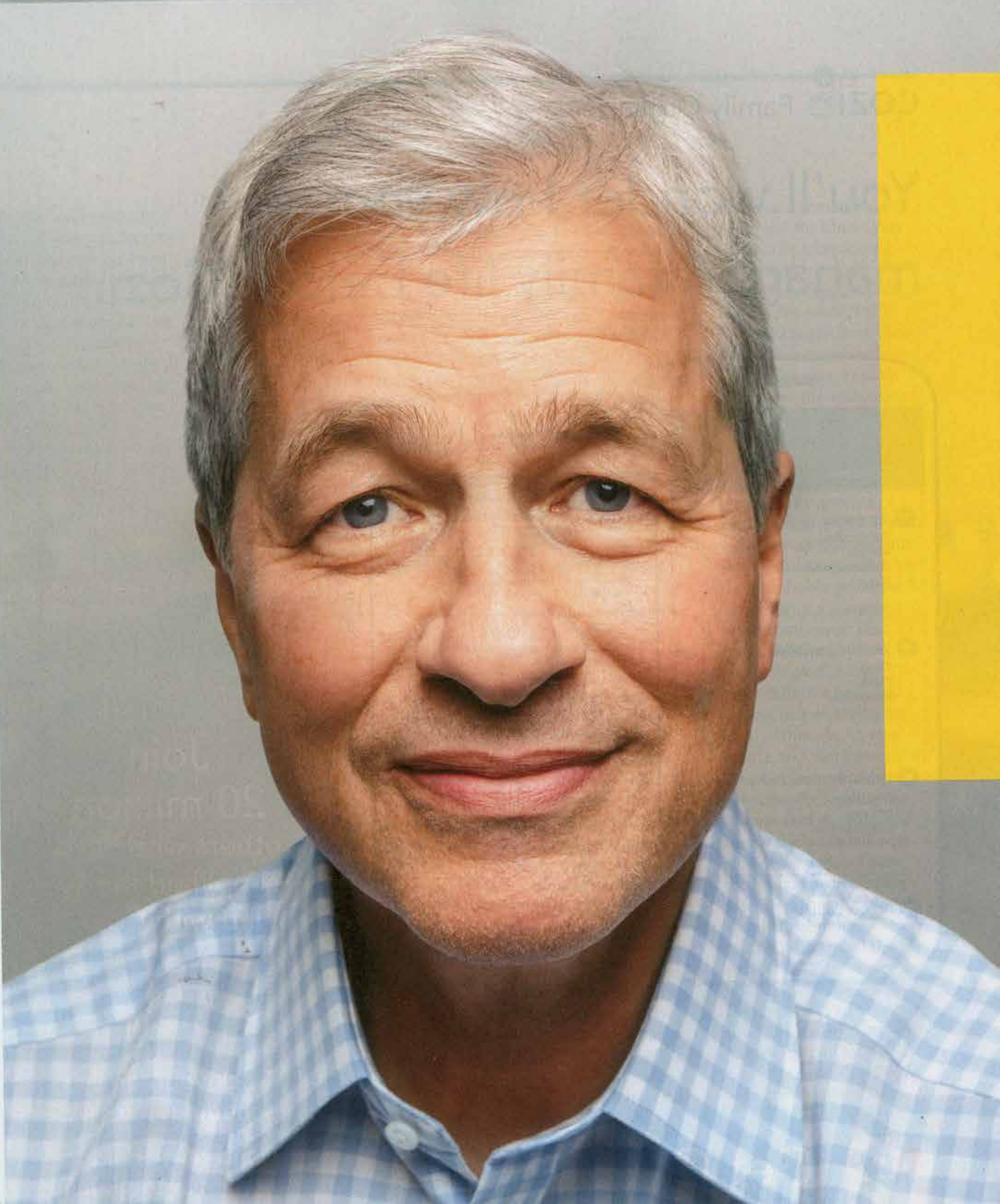

PHOTOGRAPH BY BEN BAKER ▲

JAMIE DIMON

CEO | JPMORGAN CHASE

THE 61-YEAR-OLD NEW YORKER guided his bank through the financial crisis with an unscathed balance sheet and an undamaged brand. Now, as Dimon finishes his 12th year as CEO, his influence has never been greater. JPMorgan Chase's $2.6 trillion in assets make it by far the nation's biggest bank, and the stock's 45% return over the past 12 months shows how attractive to investors a well-managed financial institution can be amid relaxing regulations and rising growth. But surging profits have hardly made Dimon complacent. As chairman of the Business Roundtable, he has used his bully pulpit to stump for smarter investments in infrastructure and education. And he has led the company to commit more than $200 million to investments in small businesses and vocational training in inner-city neighborhoods—reimagining philanthropy as an engine of economic growth. *—Matt Heimer*

3 MARC BENIOFF

CEO | SALESFORCE

THE UNINITIATED observer of online software purveyor Salesforce would be forgiven for not knowing that Benioff is a businessman. He tends to speak foremost about causes like health care and education and oceans and equality. It's such a long list, really, that it often takes Benioff a while to get around to discussing revenues and products and business strategy. But make no mistake: Business is one of Benioff's passions, and by creating a new model for selling software he's been able to build Salesforce into a fast-growing enterprise with nearly $10 billion in revenue—which helps the CEO focus on all those areas that need his attention. *—Adam Lashinsky*

4 JEFF BEZOS

CEO | AMAZON.COM

IN THE 23 YEARS SINCE he founded Amazon.com, Jeff Bezos has become the whirling dervish of corporate titans, a maestro of a voracious conglomerate with enough side hustles to impress the most ambitious entrepreneur. His widely admired but tough-to-imitate approach is now a mantra for both MBAs and would-be disrupters: Build scale by lowering prices, and defer profits until later. Meanwhile, the rise of online computing provider Amazon Web Services—which is both a market leader and highly profitable—has given Bezos an unexpected win. Next up is international expansion, where ferocious competition lies in wait. *—A.L.*

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5

MARY DILLON

CEO	ULTA BEAUTY

SINCE MARY DILLON STEPPED INTO THE CORNER office in 2013, Ulta's stock has doubled—buoyed by sales and profits that have risen at a competitor-taunting 20% annual clip. Though shares have fallen sharply since hitting an all-time high of $314 in June, dragged down by Wall Street doubts about whether Ulta can maintain its torrid growth, Dillon is moving ahead with Ulta's next chapter. After landing a deal to sell higher-end products such as Estée Lauder's MAC, Ulta recently opened its first Manhattan store. The message? Ulta has no intention of remaining solely a strip-mall retailer selling mid-tier products. Dillon is now taking the fight even more directly to the department stores, whose business Ulta has been poaching for years. —*Phil Wahba*

▲ PHOTOGRAPH BY **REBECCA GREENFIELD**

6

AJAYPAL "AJAY" BANGA

CEO	MASTERCARD

WHEN BANGA ASCENDED to the top job at Mastercard, it was 2010, the company had just gone public, and new disrupters like Square and PayPal had just come on the mobile payments scene. Banga's strategy: double down on tech. The consumer products lifer, who had clocked stints at Nestlé, Pepsico, and Citibank, rolled out a slew of innovations from biometric cards to payment technology embedded in devices like fitness bands and even dressing room mirrors. Such steps, and an increase in consumer spending, have helped drive up sales and profits by double-digit percentages in the past year.
—Leigh Gallagher

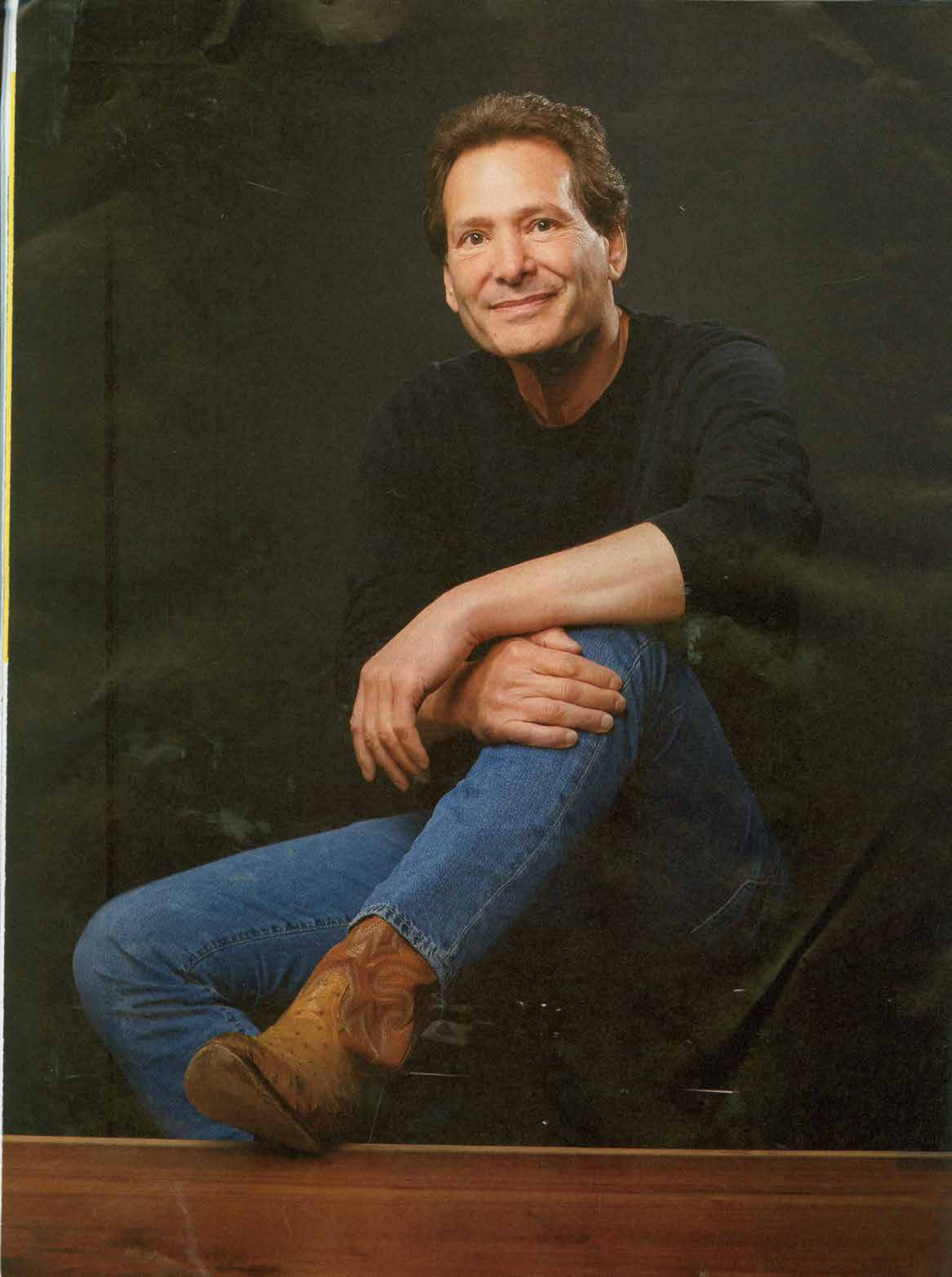
7

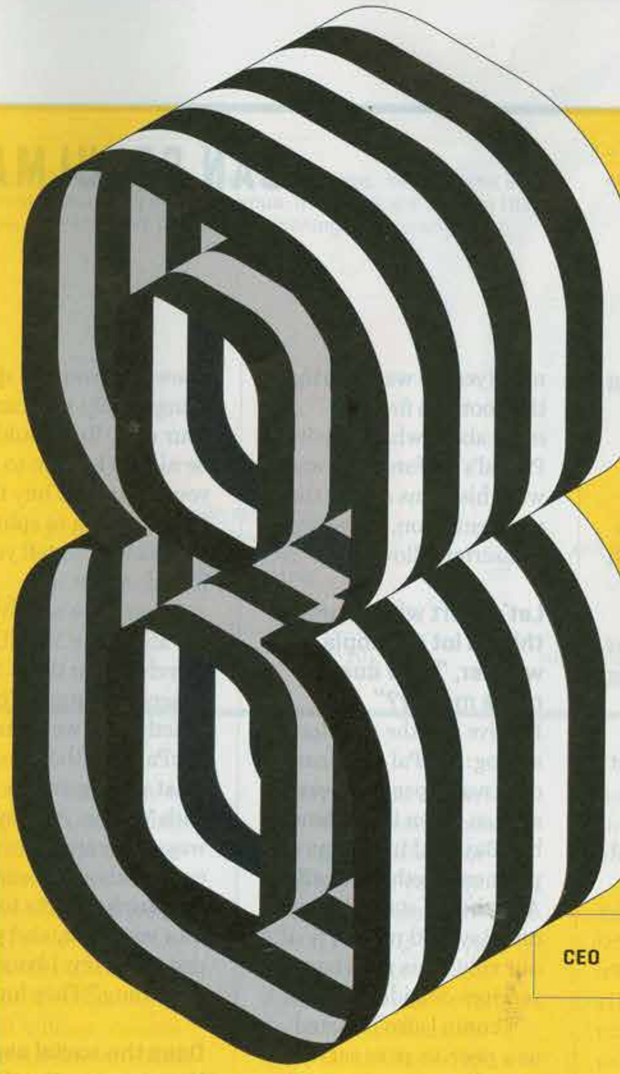
HUATENG ("PONY") MA

CEO	TENCENT HOLDINGS

IT'S HARD TO OVERSTATE how deeply embedded Tencent's products—like its flagship social media app WeChat—are in the lives of its nearly 1 billion users in China. In gaming, messaging, banking, and more, Tencent has made itself indispensable. That has quite literally boosted the fortunes of "Pony" Ma (his surname translates to "horse" in English), who holds almost 9% of the stock in the company he cofounded in 1998 and who briefly snatched the title of China's richest man away from Alibaba's Jack Ma. Recently, Tencent spent $2 billion on a 10%-plus stake in Snap, despite the newly public firm's growth struggles. *—Robert Hackett*

6: MACKENZIE STROH; 7: YAN YAN—IMAGINECHINA





CEO | PAYPAL

DAN SCHULMAN

PROFITING FROM THE PAYMENT PIPELINE

ON SCHULMAN'S WATCH, PAYPAL HAS EVOLVED FROM NICHE PLAYER TO MAINSTREAM PAYMENTS GIANT. HE TELLS *FORTUNE* WHY HE THINKS THE VENMO APP CAN FOLLOW THE SAME ARC, AND WHY PAYPAL CAN "DEMOCRATIZE" FINANCIAL SERVICES.

UNTIL RECENTLY, PAYPAL CEO DAN SCHULMAN WAS BEST KNOWN IN SILICON Valley as the New Jersey newcomer who liked to wear cowboy boots. These days he's more renowned for his leadership of the iconic payments company—one of few dotcom-era darlings that not only survived but flourished. (Shortly after going public in 2002, PayPal became a subsidiary of eBay; in 2015 it was spun back out.)

Since coming on board to run the newly independent company, after stints at American Express, Sprint, and Virgin Mobile—where he was the founding CEO—Schulman has made some shrewd bets. Opening up PayPal's platform so that other big players, like Facebook, can build upon its payments software has proved to be ▷▷

▲ PHOTOGRAPH BY ROBYN TWOMEY

DAN SCHULMAN

▷▷ a savvy move, enabling more consumers to make PayPal their default payment option. And acquisitions that predate Schulman's arrival are also showing impressive growth under his guidance. In particular, Venmo, a peer-to-peer payments app popular with millennials, is starting to deliver on its promise. Schulman recently announced plans to roll it out to millions of merchants. That's important because most of Venmo's estimated 10 million regular users don't pay transaction fees—but merchants will, so PayPal can convert its popularity into more revenue.

Schulman says all of these factors will help PayPal build on its already impressive growth: Last fiscal year, the company's revenue came in at $10.8 billion, up 17% from the year before. That's especially remarkable when you consider the crowd of new fintech players competing with this incumbent.

Fortune's **Michal Lev-Ram** caught up with Schulman (yes, he was wearing the boots) to find out more about what's driving PayPal's performance and what his plans are for the payments icon. An edited transcript follows:

"THERE'S A SPECIAL MAGIC TO VENMO. WE DO PRETTY MUCH NO ADVERTISING AROUND IT. I WANT TO BE VERY CAREFUL WITH THE EXPERIENCE."

Let's start with Venmo. I think a lot of people still wonder, "How does it make money?"

I'll give you the simplest analog: PayPal in its early days was a peer-to-peer service. Then it was bought by eBay, and it became a payment method for eBay. And then it started moving off eBay, and now 87% of our volume is merchant services outside of eBay.

Venmo [also] started as a peer-to-peer service, or really more of a social payments "experience," because everyone tags their stuff and puts in little notes and emojis—90% of [transactions] are shared [on Venmo's news feed].

Wow, did you just say 90% of Venmo transactions are public?

Yes, it's really a social experience. People open the app to see what their friends are doing, where they're going, who they're hanging out with. Most of the comments are pretty amusing and fun. I open the feed to do that myself.

The next step logically is to open up the application to more functionality. So if you use it today, you know that you can split things easily, you can pay your rent. But wouldn't it be nice to be able to use your Venmo to buy things, too, and then to split that purchase or to tell your friends about it?

So we have now opened the ability for 2 million merchants in the U.S. to accept Venmo. That's exactly how we monetized PayPal, and that's exactly what we're going to do with Venmo. And by the way, the merchants are so excited about it because the purchase gets to go into your feed, and you can say, "Hey, I bought this cool thing." They love that.

Does the social aspect of Venmo open the door to other revenue streams, like advertising?

Possibly. There's a special magic to Venmo. We do pretty much no advertising around it. Its growth is all viral. There's a network effect right now because it's so big that you just want people to be a part of it so you can send them money.

I want to be very careful with the experience. I think the experience needs to be in keeping with the Venmo philosophy, and it's got to be fully delightful for those who are using it. Monetizing by creating more value for a Venmo user makes a ton of sense to me. But other forms of monetization that are more intrusive, like in advertising or something like that, the jury is really still out for me.

Does the fact that so many of the transactions are shared surprise you? What does it say about Venmo's user base?

If you think about the millennial generation, they grew up in a very different era than I did. [Schulman is 59.] The boundaries between private and public are much more blurred. And it's not surprising to me that they want to share with all of their friends.

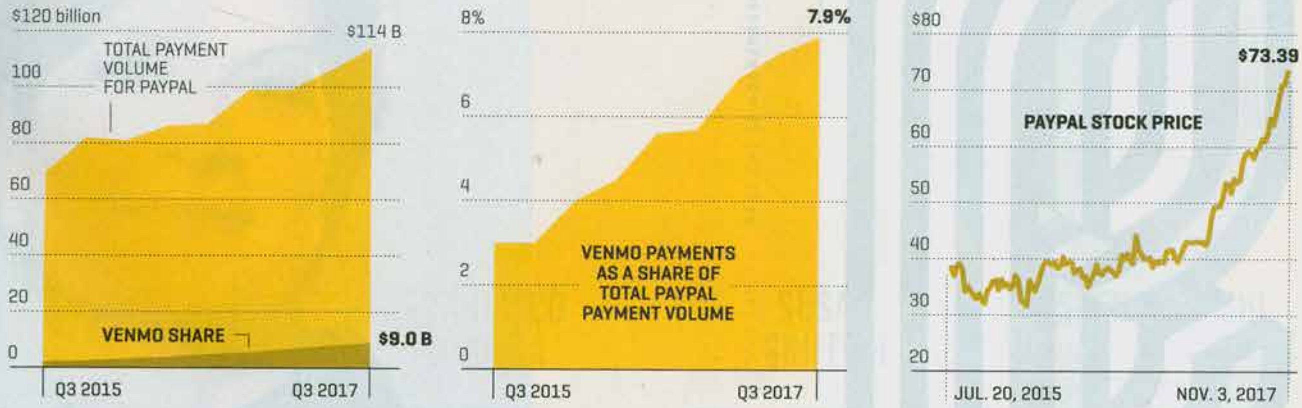
It is the secret sauce of Venmo that it isn't [just] a payment; it's more of an experience. A lot of people say, "Oh, there are a lot of peer-to-peer services out there." There are, and it's an exploding market. But Venmo is much more social in its nature. The app is opened more times to look at feeds than it is to do an actual payment.

How do you maintain your position, both with Venmo and PayPal, now that there are so many other players in payments?

I think there are three important things. One is that we're in the infancy of digital payments. Peer-to-peer is between $35 billion and $40 billion today, and in five or 10 years it's supposed to go to $350 bil-

SHAREHOLDERS SAY: 'JUST VENMO ME'

Venmo, PayPal's peer-to-peer payment app, has become a hit without generating much revenue. Investors are betting that will follow, now that the platform is opening up to merchants.



SOURCES: S&P GLOBAL; COMPANY FILINGS

lion. So this isn't going to be a winner-take-all market.

Second, we've opened up our platform to give both branded and unbranded services. And people who everyone thought would compete with us are now very close partners. Like Facebook—many of their payment initiatives are done through our platform, and 50% of Apple Pay comes through our platform. The big banks are marketing PayPal to their subscribers. So over time the competitive environment has become more benign for us than aggressive.

Third, payments are just really hard. First of all, you magically [need to] make a two-sided network to appear at scale, because no merchant's going to take the time to do integration and coding when there's only a couple million users, if that, on a service. And no consumer is going to learn a new payment methodology if only a million or so merchants are using that payment. So you need to have scale. And once you have scale, like Venmo and PayPal do, you get a network effect. We have 17 million merchants. We have 218 million consumers. Our net new accounts are growing by nearly 90% year over year.

Another piece of your business is Xoom, which enables people to send payments back home to other countries. How big of a market is that, and do you worry it could be impacted by the political climate?

It's a very large market: $600 billion. And it's an incredibly important part of the GDP of many developing countries. On average today, between 8% and 10% of the remittance is taken by various middlemen. If you can do it all electronically, you can do that at maybe 3% to 4%. And you could still make a great profit on it, but save $30 billion, which could lift tens of millions of people out of poverty.

So the reason we bought Xoom [in 2015] is, one, it's a very large market. But, two, we can do things much more efficiently, more secure, faster, less expensive. That's a great value proposition to a consumer. And we feel it's a market that's ripe for disruption.

And on the political part of the question, is there any reason for concern that there will be some kind of regulatory hurdles put in place for money flowing out to other countries?

It's so hard to predict the political environment. I think that business can't sit on the sidelines and just watch. I think we need to be a force for the values that we believe in. We need to partner with government and regulators. But we need to bring our resources to bear against issues and problems that the public sector won't be able to do by itself.

A lot of people say that I'm an activist CEO. I just think I'm a responsible leader of a business. When HB2 [a law that prevents transgender people from using bathrooms corresponding to the gender with which they identify] was introduced in North Carolina, we were the first business to pull out. I received a lot of personal threats as a result of it. So I think it's not easy to stand up, and the environment is very politically charged. But I don't think we can abdicate our responsibility.

Our mission is a very inclusive one. It's to democratize financial services. Managing and moving money should be a right for all citizens, not a privilege for the affluent. It's all citizens, all types. Which means that there should be no room in the world for discrimination against anybody for any reason. ■

9

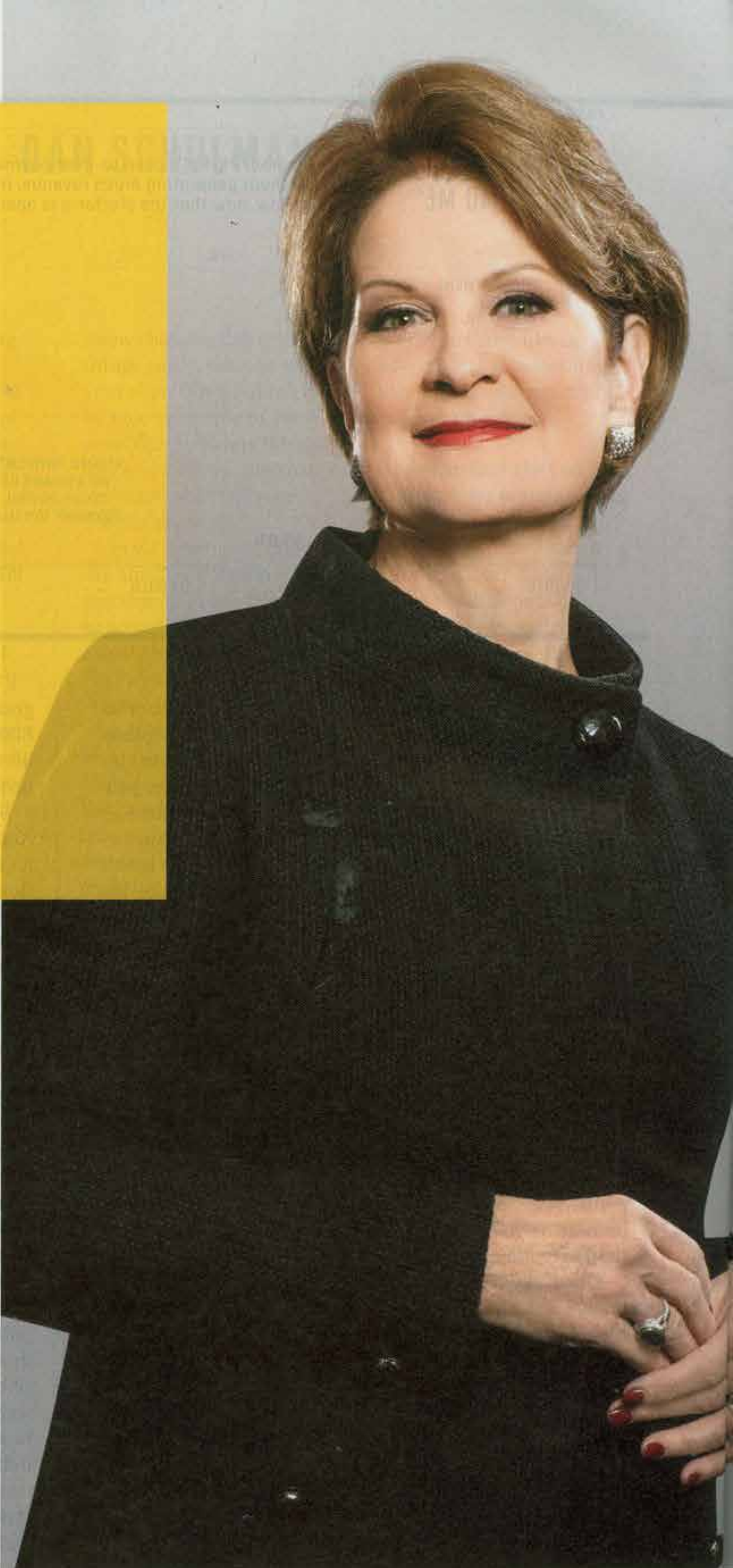
BUSINESSPERSON OF THE YEAR

THE LIST

NOS. 09-12

MARILLYN HEWSON

CEO	LOCKHEED MARTIN



IF THERE WAS ONE EXECUTIVE DETERMINED NOT to let politics get in the way of business this year, it was Lockheed Martin CEO Marillyn Hewson. She deftly deflected a string of tweet attacks from President Trump—the Commander-in-Chief of Lockheed's largest customer—by vowing to cut the cost of the company's new F-35 fighter jets and to create 1,800 U.S. jobs. Hewson then reaped the benefits of Trump's \$110 billion arms deal with Saudi Arabia, securing contracts worth a quarter of that total. The company's sales are on track to grow 7% in 2017. (Hewson also remained on Trump's now-disbanded manufacturing council when many of her peers resigned this summer.) Lockheed stockholders, meanwhile, have been well rewarded, earning an 81% total return over the past three years and 28% so far in 2017. *—Jen Wieczner*

9: FRANCO VOGT—THE FORBES COLLECTION/GETTY IMAGES; 10: MATTHEW EISMAN—GETTY IMAGES; 11: COURTESY OF PROGRESSIVE; 12: JESSICA HROMAS—BLOOMBERG VIA GETTY IMAGES

10

FRANCISCO D'SOUZA

CEO	COGNIZANT

THE $14.4 BILLION IT consulting and outsourcing shop D'Souza cofounded in 1994 is on a roll, averaging 15.1% annual sales growth over the past three years. That strong performance has been across multiple sectors and geographies—and has come in the middle of Cognizant's own transformation. A year ago, D'Souza rejiggered the company to prioritize services that help clients adapt and keep pace with the digital revolution (all the buzzwords—A.I., data analytics, etc.—apply). Those offerings now account for a quarter of Cognizant's revenue and help explain the stock's blistering 49% total return over the past 12 months. *—Erika Fry*

11

SUSAN GRIFFITH

CEO	PROGRESSIVE

A ONETIME PROGRESSIVE claims rep, Griffith took the helm of the insurer in 2016 with an eye toward convincing consumers to buy a wider range of policies from the company. Her strategy appears to be working: The number of premiums sold was up nearly 15% in 2016, with the company's new property insurance lines accounting for a growing share of sales. Not even one of the worst hurricane seasons in history has thrown the stock off course: Total revenue has grown more than 13%—and net income nearly 43%—over the past 12 months. As for Progressive shares, they have surged more than 60% over the same period.
—Kristen Bellstrom

12

SHENG YUE GUI

CEO	GEELY AUTOMOBILE HOLDINGS

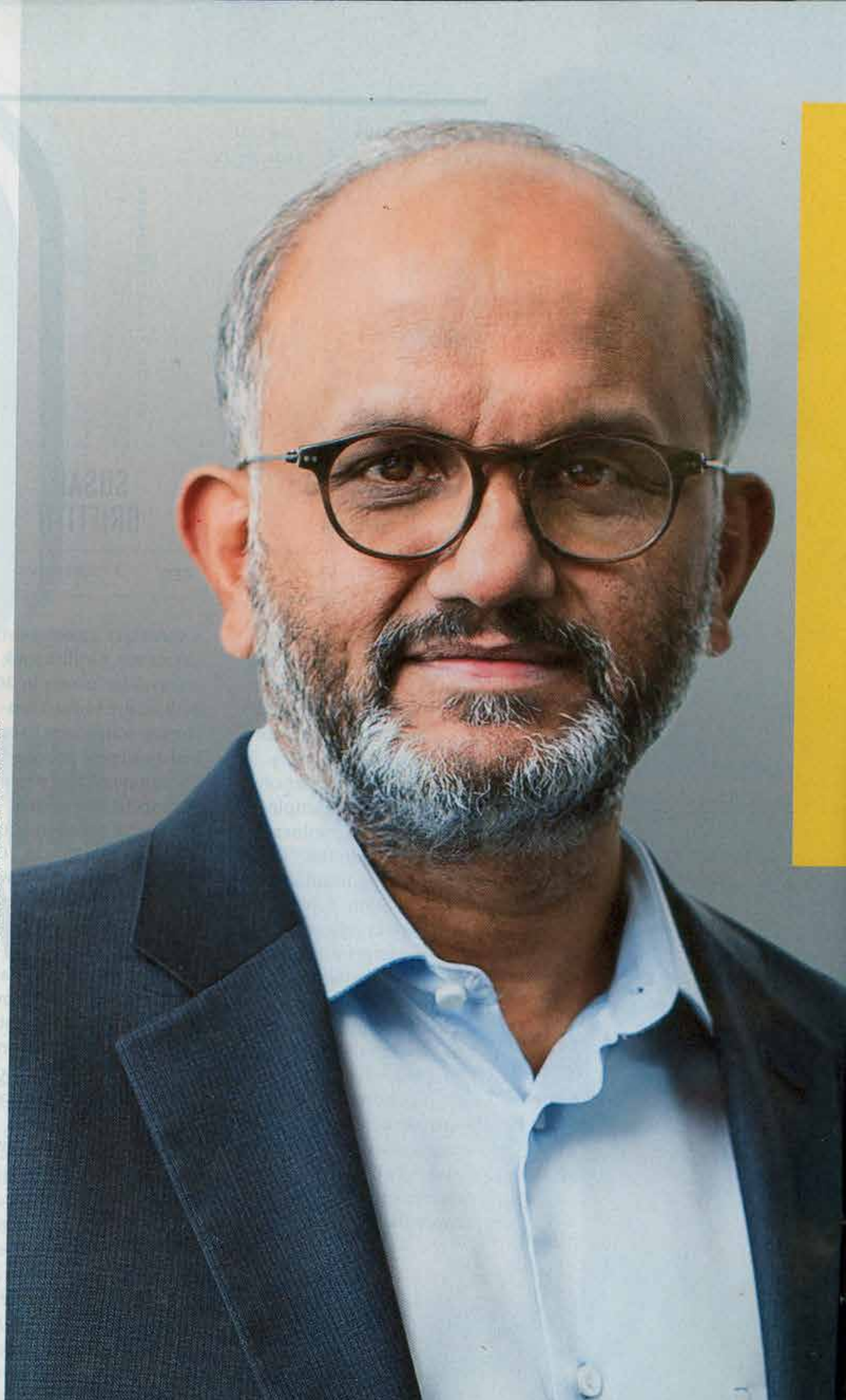
THERE WERE PLENTY OF skeptics when Geely, a modest Hangzhou, China–based brand and the majority owner of Geely Automotive, bought Volvo, the Swedish carmaker, in 2010. *Harvard Business Review* ticked off a few reasons for doubt back then, but all amounted to this: The Chinese company lacked the "management skills" to pull off such a large integration. Today, both brands are undeniably better off: Geely Automotive, under the leadership of Gui (in partnership with Geely CEO An Cong Hui), has masterfully adapted Volvo's technology and style. And over the past three years, shareholders have been rewarded with a total return of 691%. *—E.F.*

13

MARK ZUCKERBERG

CEO | FACEBOOK

RUNNING AN EPOCH-defining global company is tough work, as Mark Zuckerberg is finding out the hard way. Facebook didn't have a grip on its own publishing platform, allowing Russians and plain-old commercial scammers to take advantage of Facebook's users. Though initially dismissive, the CEO has promised to address the crisis. The reason this all matters is that the business he founded—now valued at more than a half-trillion dollars—continues to mint profits (a record $4.7 billion in the third quarter). It also continues to expand through its portfolio approach to virtual reality and all manner of digital advertising. *—A.L.*



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14

SHANTANU NARAYEN

CEO	ADOBE SYSTEMS

ADOBE HAS LONG HAD A KNACK FOR CHURNING out household-name products: It created the PDF, Photoshop, Adobe Flash, and Acrobat. But Shantanu Narayen has accomplished the rare feat of propelling an already successful tech company into the stratosphere. The India-born exec took the top job the year before the financial crisis and quickly shifted the company away from selling CDs in boxes toward a subscription model integrated with the cloud—a then-controversial move now considered to be one of the most successful cloud transformations to date. Adobe has also fashioned itself as a digital marketing powerhouse, doubling down on data analytics. The result? Revenue was up 25% through the first three quarters of 2017, and the stock is up 74% this year alone. *—Anne VanderMey*

15

PHEBE NOVAKOVIC

CEO	GENERAL DYNAMICS

THOUGH HER COMPANY is best known for making tanks and submarines, Novakovic has positioned General Dynamics to help the government beyond just the Pentagon modernize its technology. A case in point: GD just scored a massive $455 million contract to provide cloud computing and call-center services to the U.S. Department of Health and Human Services to help it run Obamacare and Medicare programs. An acquisition this year also bolstered the defense company's cybersecurity capabilities, helping it win new IT business with the military. Investors seem to like the direction: GD's stock has returned 18% year to date. *—J.W.*

16

WALT BETTINGER

CEO	CHARLES SCHWAB

WALT BETTINGER'S TIMING is either terrible or stupendous. Having taken over as CEO of Charles Schwab in late 2008, he guided the brokerage through the financial crisis by trimming Schwab's costs and keeping clients focused on the long term. Today Schwab boasts the least expensive mutual funds in the industry and a strong relationship with independent advisers (who keep their clients' money with Schwab). The combo is apparently working: As of September, customers have opened more than 100,000 new Schwab brokerage accounts a month for a record 10 straight months. And profits are up 28% over the trailing 12 months. *—A.L.*

17

MICHAEL NEIDORFF

CEO	CENTENE

UNDER NEIDORFF'S surefooted command, St. Louis–based insurer Centene has forged its own path, and prospered, in America's uncertain health care markets. Once a modest-size Medicaid provider, the managed-care company has expanded quickly—vaulting from No. 453 to 66 on the *Fortune* 500 in five years' time—and it has done so, in part, by entering markets that rivals have fled (Medicare Advantage, prison health care, the precarious Obamacare exchanges). Profits at Centene are up 109% for the past 12 months, and Centene's investors have prospered big-time. The company's total return for the past year: 69%. *—E.F.*

18

ADITYA PURI

CEO	HDFC BANK LIMITED

EARLIER THIS YEAR, the Reserve Bank of India labeled HDFC Bank, India's largest private bank by market capitalization, a "domestic systematically important bank"—in other words, "too big to fail." Remarkably, HDFC has gotten that big (amassing more than 40 million customers) in just 23 years of existence. CEO Aditya Puri, now 66, has been in charge for all of those years, and it's he who gets credit for turning HDFC into India's most reliably profitable retail banking powerhouse. While many of the bank's competitors have struggled, profits at HDFC have grown at a 20% annualized rate over the past three years. *—E.F.*

19

BARBARA RENTLER

CEO	ROSS STORES

ROSS STORES CEO Barbara Rentler may be press-averse (to the point, even, that she won't pose for a photo), but it's easy to see why she prefers to let the off-price retailer's numbers speak for themselves. In the face of intense competition from its upmarket rival T.J. Maxx and the expansion of off-price locations by Nordstrom Rack and Macy's Backstage, Ross Stores continues to report quarter after quarter of sales growth and new store openings. Rentler, with the company since 1986 (and CEO since June 2014), has focused on what brings shoppers in day after day: megadeals on big-name-brand items. In the three years since Rentler has been the chief executive, Ross Stores has hit annual records on revenue and profit each year—and the stock has delivered a 95% return to shareholders. And Ross has built that success staying clear of e-commerce too. It's now worth $25 billion—or four times Macy's. *—P.W.*

20

FRANÇOIS VAN HOUTEN

CEO	ROYAL PHILIPS

NOT MANY CEOS HAVE engineered the kind of transformation that van Houten has executed at Philips, steering the 126-year-old Dutch firm through a "radical pivot," as he calls it—transforming an Old World maker of electronics and lighting into a leader in health care technology. Under his stewardship, Philips has shed slower-growth businesses (it sold its television unit and spun off the lighting business) and invested heavily in R&D to focus on meeting the "world's unmet needs." Over the past 12 months, Philips has grown revenues by 30% and profits by 83%. Shareholders, for their part, have gotten a three-year total return of 67%. *—L.G.*

17: DILIP VISHWANAT—ST. LOUIS BUSINESS JOURNAL; 18: DHIRAJ SINGH—BLOOMBERG VIA GETTY IMAGES; 20: PETER DEJONG—AP/REX/SHUTTERSTOCK

WHEN GUANGZHOU MEETS FORTUNE

Guangzhou attracts global talents

2017 *Fortune Global Forum* to be held in Guangzhou from December 6-8.

The 2017 Convention on Exchange of Overseas Talents and the 19th session of the Guangzhou Convention of Overseas Chinese Scholars in Science and Technology (OCS) will be held in the city in December. The convention opened for registration in September to all the willing returned overseas talents and expats hoping to start businesses in China.

As one of Guangzhou's major platforms for inducting high-caliber talents, the convention has attracted more than 36,000 attendees and brought in 18,000 projects, of which some 6,100 high-end projects have found investors. Robin Li, founder of Baidu, caught the eye of IDG Capital during one of the previous conventions; the rendezvous sent Li's business into the fast lane of expansion with the invested venture capital.

Latest statistics show that Guangzhou is home to 3.26 million college graduates, six Nobel laureates, 77 academicians of Chinese Academy of Sciences and Chinese Academy of Engineering, 281 national "Thousand Talents Plan" scheme and 95 Guangdong provincial "10 Thousand Talents Plan" scheme experts. Another 754 candidates are eligible for the provincial special subsidies and 62 startup teams included in the "Pearl River Talents Plan."

The influx of high-level and innovative talents continuously fuels the city's growth. According to a recent report released by Globalization and World Cities, an academic think tank that focuses on cities in the global economy, Guangzhou was rated at Alpha-level and came only after Hong Kong, Beijing, Shanghai and Taipei among Chinese cities in 2016.

Over the years, Guangzhou has put forward one directive and four auxiliary measures, called "One Plus Four Policy" to encourage talents with the potential to become industry leaders to settle in the city. The policy calls for the city to subsidize 500 innovative leaders, 1,000 high-end talents and 2,000 in-demand talents in 12 key industries within five years. This talent induction initiative will enjoy a total subsidy of RMB 3.5 billion (US $530m) over a five-year period.

In 2016, more than 13,000 people applied for the subsidy. Eight Chinese and three expat of national-level academicians, as well as 23 of the nation's "Thousand Talents Plan" experts applied for subsidies given to leading innovative startup teams. Some 87 percent of the applicants work in strategic new industries such as next-generation information technology, intelligent equipment and robotics, biomedicine, new energy, energy-saving and environmental protection.

One of the adopted measures is a "talent green card" policy, which allows cardholders to be treated equally as its local citizens in real estate and vehicle purchasing, children's education, and other benefits. Li Wancheng, leader of a research team with Sun Yat-sen University's Ophthalmic Center, was among the first batch who successfully applied for the "talent green card." A lead scientist on several research programs that received U.S. National Institutes of Health (NIH) grants, Li also became the first Chinese to receive the outstanding cataract research award from the National Foundation for Eye Research.

"The green card allows me to enjoy the amenities of living in Guangzhou just like its citizens," Li said. "This policy will definitely attract more overseas talents to work and settle down here."

According to the 2016 blue book on employment of returned overseas talent published by the Ministry of Education, Guangzhou ranked as the second most preferred destination in China for returning overseas Chinese to start their careers. Statistics from the city's bureau of foreign experts affairs revealed that 672,000 returned overseas students chose to come to Guangzhou through the end of July 2017.

FORTUNE GLOBAL FORUM
SPECIAL REPORT

INNOVATION TAKES

Led by Internet giants such as Alibaba and Tencent and boosted by a surge in venture capital investment, China is

In this photo illustration, drones fly over the skyline of Guangzhou, China, where *Fortune* is holding its 2017 Global Forum conference.

OFF IN CHINA

BY CLAY CHANDLER

shedding its image as a copycat economy and emerging as a technology superpower to rival the United States.

▲ PHOTO ILLUSTRATION BY JUSTIN METZ

A DOGFIGHT IN THE WORLD of drones was about to begin. It was November 2016, and Da-Jiang Innovations Science and Technology, better known as DJI, was preparing to launch its killer new product: the Mavic Pro. Weighing just 1.6 pounds, the Mavic was compact enough to fit into a book bag and featured a four-mile flight range and a built-in camera capable of shooting pin-sharp 4K video from hundreds of feet up. Though priced below $1,000, the Mavic sported sophisticated gimbals to stabilize the camera and cutting-edge software enabling it to lock on subjects and follow them around, detect and avoid midair obstacles, and automatically return to its launch point before running out of power.

The executives at DJI knew they had a great product. But would it sell? DJI had little brand recognition even in China, and Mavic was its first product for mainstream consumers. Moreover, DJI was up against a formidable roster of U.S. and European competitors flocking to market with similar devices—including Parrot, a 22-year-old French electronics manufacturer; Lily Robotics, a Silicon Valley startup that raised $15 million on Kickstarter; and GoPro, the maker of portable action cameras. How would DJI's technology fare vs. the best in the West?

It wasn't even a close contest.

DJI president Roger Luo says he knew immediately they had a winner—and a huge production challenge. Within three days of release, DJI had received three times more orders for the Mavic than it had expected to sell the entire month.

Meanwhile, the drone contenders from the West fell back to earth one by one. Parrot was the first to surrender, announcing in January it was axing workers from its drone division. Then Lily revealed that, despite collecting more than $34 million in preorders, it had burned through all its cash and would close without shipping a single unit. The real surprise was GoPro. The San Mateo, Calif., company had established its brand by selling more than 20 million "wearable" cameras. And CEO Nick Woodman had vowed GoPro would return to profitability with the release of a heavily marketed drone called Karma. But the Karma, it turns out, was bad—heavier and slower than its Chinese rival, and lacking its tracking or detect-and-avoid capabilities. Worse, the first Karmas had an alarming tendency to

Impounded bicycles in Shanghai belonging to fast-growing bike-sharing startups like Mobike and Ofo.

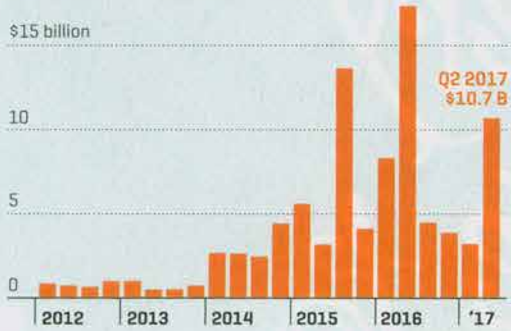
PREVIOUS SPREAD: IMAGINECHINA; JOHANNES EISELE—AFP/GETTY IMAGES


Ad Council
I am very sensitive to lights and sounds
Jacob Sanchez
Diagnosed with autism
Sensory sensitivity is a sign of autism.
Learn the others at autismspeaks.org/signs.
AUTISM SPEAKS

Venturing Into China

The amount of venture capital invested in Chinese startups has soared in recent years. The country's "unicorns" benefit from its huge and growing market of tech-friendly consumers.

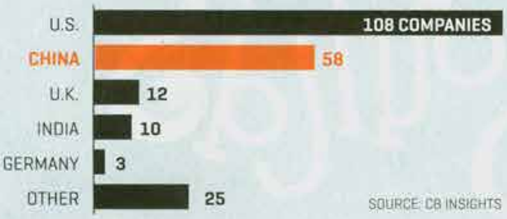
VENTURE CAPITAL INVESTMENT IN CHINA BY QUARTER



SOURCE: KPMG

NUMBER OF UNICORNS PER COUNTRY

Private companies valued at $1 billion or more.



SOURCE: CB INSIGHTS

lose power and drop from the sky. After an embarrassing recall, GoPro relaunched in February. By then, DJI had taken off.

Fast-forward to today, and DJI controls more than 70% of the commercial drone market, a category that could soar to $15 billion by 2022, according to global research firm Interact Analysis, up from $1.3 billion last year. With venture funding from Accel Partners and Sequoia Capital, DJI has a valuation of $10 billion. The company doesn't disclose financial results, but it has been widely estimated by analysts that sales this year will exceed $1.5 billion, with earnings approaching $500 million.

DJI has been hailed by many electronics industry analysts as the "Apple of consumer drones." But the comparison is misleading. Unlike Apple, which proudly proclaims its products are "Designed in California, Assembled in China," DJI products are designed and manufactured in the southern Chinese city of Shenzhen, which today has no equal for sourcing the rotors, transmitters, batteries, and other components in DJI products.

DJI'S SUCCESS HIGHLIGHTS one of the global economy's most momentous transformations: China, after a century of subordination to foreign nations, three decades of isolation under Mao Zedong, and three decades of "opening and reform" measures initiated by Deng Xiaoping, is returning to its historical position as one of the world's great centers of innovation and technological development.

Until only a few years ago, talk of China as an innovator would have elicited scorn from most Western business and government leaders. The country was widely derided as a haven for copycats and pirates, or grudgingly acknowledged as an efficient manufacturing platform whose factories depended on the uneasy union of cheap Chinese labor and foreign technology.

Business in China today, however, is being led by innovation-obsessed execs like Ren Zhengfei, founder of Huawei Technologies, which last year filed more patent applications than any other company in the world. And Allen Zhang, who led the team that developed Tencent's WeChat, the smartphone app that allows its 900 million users to chat, shop, pay, play, and do just about anything else. And Robin Li, CEO of Baidu, the Beijing-based search company, who has vowed to have autonomous vehicles ready for sale in China by next year.

Their success is fueling a virtuous cycle of innovative activity. The country's two largest Internet companies, Alibaba Group and Tencent Holdings, lead the world in e-commerce, mobile payments, social media, and online gaming. They and other Chinese tech giants are investing aggressively in new businesses, helping to transform China into a massive market for venture capital investments. Those ventures, in turn, are nourished by China's huge and growing market and its unique ecosystem of suppliers, logistics specialists, and manufacturers. The result: China has spawned a new generation of homegrown entrepreneurs who are creating world-class products, developing their own technologies, and rolling out new business models on a scale and with a speed the global economy has never seen. "The copycat era is behind us," says Kai-Fu Lee, CEO of Sinovation Ventures and the former head of Google China. "We are way beyond that."

Consider that between 2014 and 2016, China attracted $77 billion in venture capital investment, compared with just $12 billion in the preceding two years. China is now among the world's top three markets globally for venture capital in digital technologies including virtual reality, autonomous vehicles, 3D printing, drones, and artificial intelligence. And about a third of the world's 262 "unicorns" (startups valued at more than a billion dollars) hail from China, according to McKinsey & Co., and account for 43% of the global value of such companies.

To explore the implications of this high-speed economic evolution, *Fortune* will be convening business leaders from around the globe in Guangzhou, China, in early December at a pair of events: the *Fortune* Global Forum and the Brainstorm Tech International conference.

"China and the U.S. are the world's only true technology superpowers," says Richard Ji, managing director of Asia All-Stars Investment, a Hong Kong-based venture capital fund that has invested in some of China's most successful tech companies. "No other economies come even close."

CHINA'S RISING CLASS of innovators benefits from several built-in advantages. One is the vast scale of China's market, which drives powerful efficiencies as new products and services are rolled out to hundreds of millions of people. Another is that Chinese consumers are enthusiastic adapters of new technologies, and that entrepreneurs operate in a developing market unencumbered by legacy infrastructure. China's shoppers have taken quickly to online shopping and digital payments in part because they didn't have to unlearn habits of shopping at traditional brick-and-mortar stores.

China overtook the U.S. as the world's largest market for e-commerce in 2015. This year online sales are expected to top $1.1 trillion, according to eMarketer, a data research firm. McKinsey says China alone now accounts for nearly half of worldwide e-commerce—up from less than 1% only a decade ago. Goldman Sachs expects online retail sales in China to grow at an annual average of 23% over the next four years, topping $1.7 trillion by 2020.

While government meddling in the private sector may be a negative for China's overall growth, in many cases regulatory flexibility, or nonchalance, has encouraged innovation. China's banking officials turned a blind eye as Tencent, an online gaming company, experimented with an app that used QR codes to facilitate digital payments—and as Alibaba, an e-commerce company, developed Alipay, its own online payment system, and then Yu'e Bao, an online investment fund for Alipay users. The result is that China, the land where paper money was invented, is now rapidly going cashless. And Yu'e Bao, in little more than a year, has become the largest mutual fund in the world.

A final advantage is China's indifferent attitude toward privacy and antitrust rules. It enables Chinese tech giants to collect and analyze data not only from a huge number of consumers, but also in a way that allows the companies to know the minute details of their customers' lives: where they live, where they travel, where they shop, what they buy, what music they like, who they socialize with, what kind of health care they're receiving.

Well before the rollout of Apple's iPhone X, which features Face ID technology, Alibaba's financial services affiliate, Ant Financial, began allowing its 450 million users to log in to their online wallets by taking a selfie. Internet giant Baidu, China Construction Bank, and ride-hailing company Didi Chuxing use the technology to identify employees as well as customers. Ant is steadily extending the use of its "Sesame Credit" system, which assigns customers a "financial reliability" score according to criteria such as their online spending records and how regularly they pay their utility bills or credit cards. The ranking even factors in the scores of acquaintances.

"THE COPYCAT ERA IS BEHIND US," SAYS VENTURE CAPITALIST KAI-FU LEE, FORMER HEAD OF GOOGLE CHINA. "WE ARE WAY BEYOND THAT."

So far, however, Chinese customers don't seem worried about the loss of privacy, as long as such personalized technologies make their lives far more convenient.

WHILE VENTURE CAPITAL continues to pour into China, it is beginning to flow the other way too. The country's technology behemoths have global ambitions. And increasingly they are taking their battles with each other overseas—in the form of VC investments outside China. Alibaba's U.S. investments, for example, include Snap, Lyft, and the Florida augmented-reality startup Magic Leap. Alibaba spent $1 billion last year to secure a major stake in Singapore-based Lazada, the largest e-commerce company in Southeast Asia. Meanwhile, Ant Financial holds shares in PayTM, the largest ride-sharing venture in India, and has snapped up stakes in fintech companies in Korea, Thailand, the Philippines, and Indonesia.

Last month, Alibaba announced that in addition to those strategic investments, it plans to spend $15 billion over the next three years to strengthen its global research and development capabilities and will establish laboratories for deep research in seven locations including San Mateo; Bellevue, Wash.; Moscow; Tel Aviv; and Singapore.

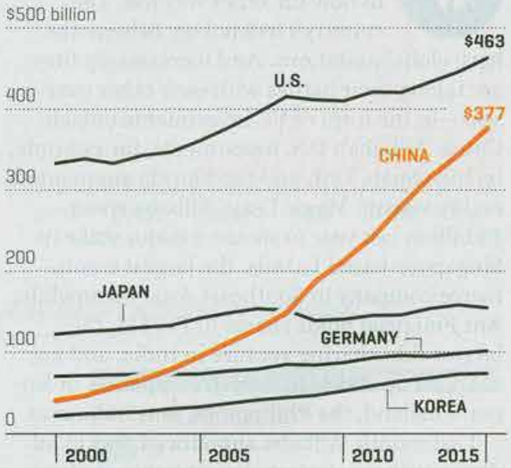
Rival Tencent, for its part, has snared stakes in Snap, Tesla, and an Indian message app called Hike Messenger. Last year, Tencent paid $8.6 billion to gain control of Finland's Supercell, bolstering Tencent's position as the world's leading provider of online games. In Southeast Asia, the company has invested in Sea, an online gaming, shopping, and mobile payment portal that is the region's most valuable startup, and Go-Jek, the biggest ride-sharing service in Indonesia.

Meanwhile, Alibaba and Tencent are bankrolling competing dockless bike-sharing companies that launched this year in scores of overseas cities including Washington, D.C.; San Francisco; Nagoya, Japan; Singapore; and Sydney. (In Shanghai, meanwhile, abandoned bicycles from Tencent-backed bike-sharing startup Mobike and Alibaba-backed Ofo have become so numerous that authorities impounded thousands of them earlier this year. Chalk it up to growing pains.) But the two have joined forces in ride sharing. Both are investors in Didi Chuxing,

Great Leap Forward in Tech

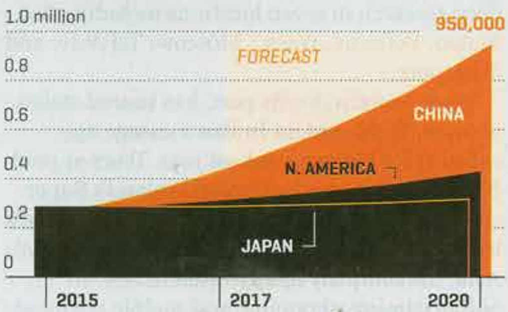
President Xi Jinping has called for a "robot revolution" in China, and the country is investing vast sums, both public and private, in R&D to develop everything from advanced semiconductors to artificial intelligence. Chinese companies, meanwhile, already lead the world in digital payments.

ANNUAL GROSS DOMESTIC SPENDING ON R&D



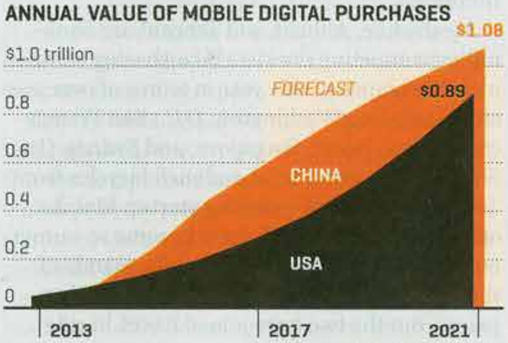
SOURCE: OECD

OPERATIONAL STOCK OF INDUSTRIAL ROBOTS



SOURCE: INTERNATIONAL FEDERATION OF ROBOTICS

ANNUAL VALUE OF MOBILE DIGITAL PURCHASES



SOURCE: EUROMONITOR INTERNATIONAL

which owns stakes in ride-sharing ventures in Europe, India, Southeast Asia, the Middle East, and Africa.

"China's tech companies are determined to expand globally, and that determination will only grow," says Connie Chan, partner at California venture capital firm Andreessen Horowitz. In years to come, she argues, "every company will need a China strategy," whether they do business in the Middle Kingdom or not.

AS SPECTACULAR AS China's progress in innovation may be, skeptics cite a long list of shortcomings. China, the world's most voracious consumer of semiconductors, has been trying to build a domestic chip industry since the 1970s, and yet the country still imports 10 times more microchips than it can produce. The nation's drugmakers lag far behind Western counterparts. And executives at Boeing and Airbus are hardly losing sleep over the prospect of competition from China's state-owned Commercial Aircraft Corporation of China (COMAC), which unveiled in May the C919, the nation's third attempt to build a commercial passenger jet.

In a detailed 2015 assessment of Chinese innovation, the McKinsey Global Institute identified four categories of innovation: consumer-led (such as e-commerce, mobile payments, or online financial services), manufacturing-led (the production of consumer electronics or automobiles), engineering-led (such as the construction of high-speed railways), and research-led (for example, breakthroughs in the manufacture of semiconductors or the development of pharmaceuticals). The report's conclusion: China is already a global innovation leader in the first two categories and "has the potential" to become a world leader in the latter two.

That mixed review remains broadly accurate. In the most daunting segments of the economy—semiconductors, pharmaceuticals, commercial aircraft, or high-speed railways—Beijing has held fast to a heavy-handed, statist approach to development that has done more to stymie innovation than stimulate it.

Consider semiconductors. Beijing has spent billions over the past four decades to promote development of an indigenous chip industry, which it sees as vital to national security and the success of China's technology industry. China's share of worldwide wafer fabrication capacity rose to 14% last year, up from virtually nothing in 2000. But China's chipmaking capabilities remain concentrated in the low- and mid-range of the industry. Last year China spent about $200 billion to import chips, which remains China's second-largest import category after crude oil.

Chinese President Xi Jinping, the country's most powerful leader in decades, is leading an ambitious effort to jump-start development of China's semiconductor industry. Under a plan announced in 2014, the government set a goal of raising the share of domestic production of China's chip consumption to 50% by 2020 and vowed Chinese firms would compete successfully with global industry leaders by 2030. To that end, Beijing is channeling $150 billion in public and private funds to domestic chipmakers through 2025.

In Washington, Republicans and Democrats have sounded the alarm. Commerce Secretary Wilbur Ross calls China's chip program "scary." And a presidential council on science and technology recently found that the U.S. must "respond forcefully" to China's lavish subsidies. But Dieter Ernst, a senior fellow at Hawaii's East-West Center, doesn't buy it. "Industrial policy may gradually enhance China's standing in the global semiconductor industry, but the U.S. in particular has little to fear," he argued in a recent issue of the *China Quarterly*. The U.S. semiconductor industry "remains by far the world's market and technology leader."

WILL CHINA DOMINATE the technologies of the future? Beijing has moved forcefully to promote development of artificial intelligence and encourage the use of industrial robots. For now China remains a laggard in "robot density." In 2016, it had only 68 robots per 10,000 manufacturing workers, according to the International Federation of Robotics, compared with 631 in South Korea, 309 in Germany, 303 in Japan, and 189 in the U.S. China has been the world's largest buyer of robots since 2013. Last year it bought about 87,000 robots—or about one in three of 294,000 robots sold in the entire global economy. China's planners have set a goal of raising the ratio of industrial robots to 100 per 10,000 workers by 2020. Xi Jinping, meanwhile, has called for a "robot revolution" in China.

A.I. is also a priority. In July the Chinese government laid out a plan to be the global leader in artificial intelligence by 2030 and to develop an industry worth some $150 billion. Billions in VC funding are already flowing into Chinese A.I. startups.

One of these promising young companies is Toutiao, a news aggregator launched in 2012 by 34-year-old former Microsoft employee Zhang Yiming. Toutiao's parent company, Beijing ByteDance Technology, already has raised over $1 billion from Sequoia Capital and others, and is seeking an additional $2 billion that would value it at $20 billion. (And in November it agreed to buy U.S. lip-syncing video app Musical.ly for a reported $800 million.) Toutiao uses A.I. to create personalized news feeds of short articles and videos from content generated by its network of 4,000 outside media companies. Analysts say its content-recommendation tech is among the most sophisticated in the world.

It's quite possible that Toutiao will soon be going head-to-head in the market with rivals from Silicon Valley. If so, remember DJI—and think twice before betting against the Chinese company. ■

IS IT TIME FOR

TO BREAK UP?

Under assault by activist Nelson Peltz, the 180-year-old consumer products giant is confronting its feeble growth. But only radical change can fix its problems.

By Geoff Colvin and Shawn Tully

Illustration by **Sean Freeman**

At the end of Procter & Gamble's historic annual shareholders' meeting in October, the climax of the biggest, most expensive proxy fight in corporate history, the two antagonists shook hands. "We'll talk," said CEO David Taylor, who had apparently won, though by such a slim margin that final results must await the counting of paper ballots. To which activist investor Nelson Peltz replied, "We'll talk, but we don't listen!" (the "we" referring to P&G's top leaders and directors). Taylor responded, "No, no, no, that's not true."

And there we have in microcosm the surprisingly inconclusive outcome of a bitter battle ostensibly over a single board seat, but in reality over the future of one of America's greatest companies. Nothing has been resolved.

Even assuming the apparent outcome stands, and Peltz fails in his attempt to join the board, he isn't going away or ending his campaign for major change at P&G. Owning $3.5 billion of company stock, Trian Fund Management's Peltz can't be ignored, as Taylor's "We'll talk" indicates. But their brief conversation suggests they can't exchange even a few words without disagreeing fundamentally—reflecting the larger conflict between their sharply different views of P&G's future. Peltz spent at least $25 million trying to get himself elected to the board, and P&G spent at least $35 million trying to keep him off. Now they'll resume the mostly unseen ground war they were engaged in before the proxy contest.

Truth be told, Taylor and Peltz agree on one big thing: P&G needs fixing. They spin it differently. Peltz rails about "P&G's decade-long history of underperformance." Taylor sells the upside—that "we're in a major transformation." But the underlying reality is that this company has been sputtering for years.

P&G isn't just a business in the doldrums. It's in a troubling situation we've seen before—an aristocrat of American enterprise seemingly past its prime, now facing the profound question of whether it can regain lost glory or continue into a long, slow decline. IBM, General Motors, Sears, and Kodak were at that same turning point about 25 years ago; some would put General Electric in that category today. A comeback isn't impossible—IBM did it, for a while at least—but history says the odds are heavily against it. David Taylor, 59, and Nelson Peltz, 75, both think they know what needs doing, though their strategies are radically different. All evidence suggests they'll both remain on this project for a long time to come, maybe several years. So who, if either, can save this company?

Consider the magnitude of the challenge. Since the U.S. economy's pre-recession peak, P&G stock (including dividends) has badly underperformed the S&P 500. As the whole consumer packaged goods business slows down, P&G, the industry's biggest player, has been falling behind major competitors—Unilever, Colgate-Palmolive, Henkel, and others. Dozens of major P&G brands, including Gillette, Crest, and Pantene, have been losing market share; all five of its product categories lost significant share in the past fiscal year (ended June 30). Organic growth, a company-calculated measure that strips out the effects of acquisitions, divestitures, and foreign currency translation, was just 2% last fiscal year, and the company forecasts 2% to 3% this year. Those numbers are below most competitors', and since they aren't adjusted for inflation, they mean P&G's actual organic growth is around zero.

The numbers are damning, and nonfinancial indicators are even more ominous. Today's best young people might never imagine that P&G was once as glamorous an employer as any company in the world. An alumnus, one of many distressed by its slide, recalls, "When I joined, it was the Google, the Amazon, the Goldman of its day. Its message was, 'We're the best company in the world. We create the best products, we improve people's lives, we export great leaders to the whole world.' It was hard to get into. They crushed you in the interviews. It was just great. They don't have that edge anymore."

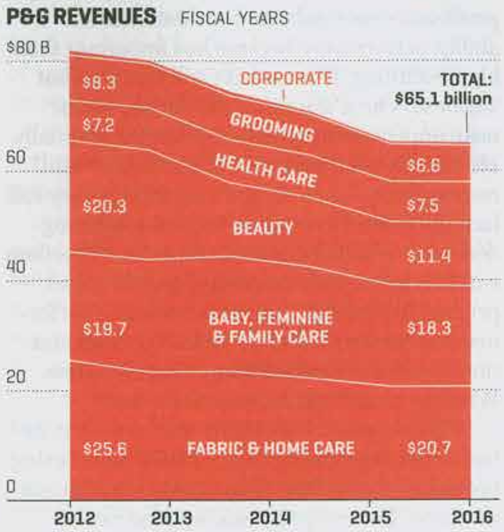
"WHEN I JOINED, IT WAS THE GOOGLE, THE AMAZON, THE GOLDMAN OF ITS DAY," SAYS ONE P&G ALUM. "THEY DON'T HAVE THAT EDGE ANYMORE."

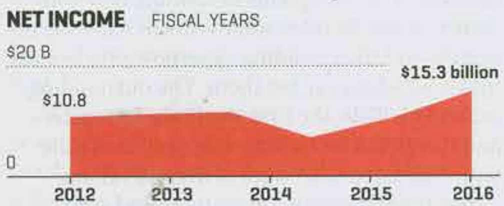
Data supports the assertion. Back in 1996, P&G was America's second-most-admired company (after Coca-Cola) in *Fortune*'s annual survey of corporate leaders, board members, and stock analysts. As recently as 2009, it was the sixth-most-admired company in the world. It has been falling steadily since, today ranking 19th based on a survey conducted before Peltz launched his proxy fight.

Of course most companies would be thrilled to rank 19th among the world's most admired, to boast a market cap of $220 billion, to be a Dow component. These are the marks of a champion—and that's a big problem, which can be summarized as follows: *P&G is not in crisis*. It can, if it succumbs to the temptation, console itself the way declining organizations have always consoled themselves, by focusing on its current state rather than on the trends.

P&G'S EBBING TIDE

In recent years, P&G has shrunk by selling off many of its smaller, less profitable brands. While profits are up, P&G continues to lose market share in all major categories.





SOURCE: S&P GLOBAL

It can point to a hundred ways in which it's doing well with various products in various countries. The fact remains, however, that the company missed most of the targets the board set for top executives in the just-ended three-year performance period. For the next three-year bonus period, the board declared an organic growth target of 2.8% a year, though Taylor has said he expects market growth of 3% to 3.5% a year. That's barely treading water. As one former P&G executive sums up, "They set a goal to lose market share."

Rescuing a big, old incumbent is never easy, but if it's to be done, the best place to start is with the culture. Inevitably it is first a blessing and eventually a curse. P&G's titanium-strong culture—rigorous, process-heavy, proud, favoring dedicated lifers—was essential to the company's success but doesn't adapt well when the environment changes. It becomes a brake, not an accelerator, in a world of digital disruption and broadly shifting consumer tastes.

P&G claims it recognized the challenge four years ago and has been transforming its culture since then. Taylor vows to turbocharge the change, in part by bringing in more outsiders at high levels. Makes sense, except for a perfect catch-22: The culture has a long history of rejecting outsiders brought in much above entry level—because they don't understand the culture. P&G has brought in hordes of outsiders over the years through acquisitions, especially its biggest one, Gillette, but few executives remain. "The Proctoids rejected them," recalls a former exec, using the term for thoroughly acculturated employees.

In fact, Peltz says Taylor told him at a meeting last spring that "we cannot bring in outside people at too senior a level or they will fail." P&G doesn't deny the quote but says it was taken out of context. A spokesman points to several senior staff executives who have been brought in from outside, though few high-level line managers are outsiders. Overall, P&G says it brought in 200 outsiders above entry level last year, up from 50 a few years ago.

Yet bringing them in below senior levels achieves little. "You don't change the culture by hiring salespeople," says Clayton Daley, the company's CFO from 1998 through 2008, who is now working with Peltz. "The company must hire senior line management from the outside. If your beauty line has been suffering for a decade, why wouldn't you want to get someone from L'Oréal or Unilever?"

Closely related, and just as important, is the organizational structure, which at P&G has long been impossibly Byzantine, a sprawling matrix of dotted lines that would look like a map of the Tokyo subway if anyone charted the whole

TIDE & PANTENE: COURTESY OF P&G; CREST TUBE: ... GETTY IMAGES; CREST: CAROLYN JENKINS—ALAMY STOCK; BOUNTY: ERIC ANTHONY JOHNSON—GETTY IMAGES

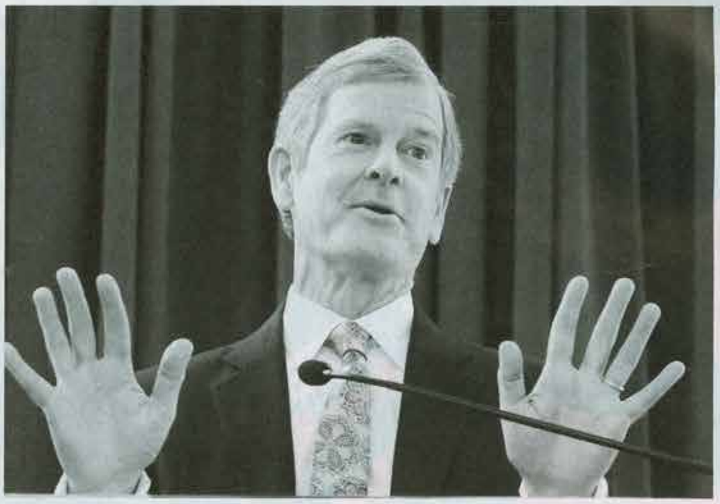
thing. For decades, virtually no one below the CEO held full control and responsibility for any profit-and-loss result. And without accountability, performance became less important than blame-shifting. Peltz says it's still that way, but Taylor says he is thinning "the thicket," as the near-impenetrable structure is known internally. He has given business unit heads "end-to-end" responsibility for profit and loss, though they still lack full control over spending and marketing decisions. In small markets, teams have "freedom within a framework" to control spending and pricing. Accordingly, Taylor is extending performance bonuses further down into the organization to enforce accountability. That's progress. Whether it's enough remains to be seen.

If Taylor can fix the culture and structure, he has a shot at reversing one of P&G's most vexing problems: the decline of its vaunted innovation machine. The company was long the world's greatest at the twin skills of creating new consumer products, often after years of scientific research, and then building superpowerful brands under which to market them. The outstanding example is Tide, the first synthetic detergent and the global bestselling detergent by a mile with estimated 2017 sales of over $6 billion.

But breakthrough innovations and new blockbuster brands have been getting rarer. P&G's last two major hits were the Swiffer line of mops, sweepers, dusters, and related products, and the Febreze brand of household odor eliminators, both introduced in 1998. (Tide Pods, introduced in 2012, have been a highly successful brand extension.) Taylor is responding in part by introducing the "lean innovation" system, which many companies are using enthusiastically. It's another good idea—if the culture doesn't reject it.

More broadly, Taylor acknowledges P&G's problems and says the company is fixing them. Exhibit A in his argument is the stock price. In the two years since he became CEO, P&G stock including dividends has returned 20.4%, not quite matching the S&P 500's 23%. Middling performance may not seem like much to crow about, but it's a great deal better than the stock had been doing over the previous two years.

The trouble with this argument is that at least some of the stock's recent vim is a response to Peltz's involvement and his reputation as an activist who spurs better performance. The stock price jumped in February when Peltz disclosed his stake, and it jumped even more in June when word leaked that Peltz had nominated himself for the P&G board. The company seems to be getting help from Peltz whether it wants it or not, then citing the stock's rise in its own defense.



Procter & Gamble CEO David Taylor [top] says the company is fixing its problems. Activist investor Nelson Peltz [bottom] disagrees and wants a seat on the board.

In addition, P&G has been performing financial acrobatics to buoy the stock. The company reported proudly in its latest earnings release that earnings per share from continuing operations had risen a respectable 5.8% in the most recent quarter. But a bit of digging shows that actual earnings from continuing operations hadn't risen at all. P&G simply bought back a large number of shares, so the per-share number increased. It's a similar story over the past four quarters: Earnings per share from continuing operations rose 6%, but virtually all of that increase merely reflects a shrunken share count; actual earnings from continuing operations rose just 0.6%.

Increasing EPS in this way does not make the company more valuable. It returns billions of dollars, much of it borrowed, to the shareholders, and the company's capital structure changes, but that

© KAREEM ELGAZZAR—THE CINCINNATI ENQUIRER VIA AP [2] change has no effect on operating performance. There's nothing improper about any of this. P&G has been buying back stock for many years. But a decade or two ago, when actual annual earnings growth reached 10% or more, buybacks added just a smidgen of extra EPS. Now they're virtually the only source of increased EPS from continuing operations.

That practice isn't sustainable, and the company plans to scale it back, saying it expects "core operating profit growth"—not share buybacks—"to be the primary driver of core EPS" this fiscal year. At the same time, it has promised to send even more cash back to shareholders in the form of dividends, to which it is almost religiously devoted. The dividend has been paid annually for 127 years and increased annually for 61 years. "Our first discretionary use of cash is dividend payments," P&G states in an SEC filing. That's fine unless it interferes with more productive uses of money, such as the acquisition of innovative new brands, a move that competitors are making and that Peltz advocates. Over the past four quarters, P&G has sent more than 100% of its free cash flow back to shareholders via share buybacks and dividends.

The truth is that Taylor's transformation plan is incremental, despite the bold language about creating "a profoundly different company." Like most insider CEOs of great, old companies in need of renovation, he seems concerned about breaking the organization by pushing too hard. That's understandable, but cultures like P&G's are astoundingly effective at repelling fundamental change. Peltz's plan certainly pushes harder, yet it's restrained, even by comparison with his own proposals at other companies, which have typically been more long-term-oriented than other activists'. He is not suggesting that Taylor be replaced or R&D be cut or debt be taken on.

"IF ONE DOES THE MATH," SAYS A WALL STREET ANALYST WHO ADVOCATES A BREAKUP, "P&G IS NOT MORE LEAN. IT'S MORE COMPLEX."

Some investors argue that neither Taylor nor Peltz understands how troubled P&G really is. They say the only solution is a remedy that activists (including Peltz) have often demanded elsewhere: breaking up the company.

Ali Dibadj, a star analyst at Sanford C. Bernstein who was recently named to *Institutional Investor*'s All-America Research Team, has been advocating a breakup for over two years. "I think David Taylor is doing his best to change the company," he says. "Unfortunately, he's been given a company that should have been changed 10 years ago. I believe breaking up is still the best option for shareholders."

Big companies argue that they achieve valuable synergies and economies of scale by combining many businesses, but Dibadj says those advantages "appear to be illusory." Brands that giant companies divest, such as the beauty brands (Clairol, Wella, Covergirl, and others) that P&G sold to Coty last year, do just as well in smaller organizations, he says. "If one does the math on their margins and costs, and compares with smaller competitors, P&G is not more lean. It's more complex. There are dissynergies of scale for P&G at this point."

P&G insiders suspect that while Peltz hasn't called for a breakup, he may secretly favor one. He wants P&G reorganized from 10 global business units into just three "standalone" businesses within "a lean holding company." From that structure to a breakup would be only a small step. A P&G competitor, U.K.-based Reckitt Benckiser, marketer of Lysol, Woolite, and other brands, recently announced it will adopt just such a structure (with two parts rather than three) as of Jan. 1, and analysts speculate the move was a prelude to full separation.

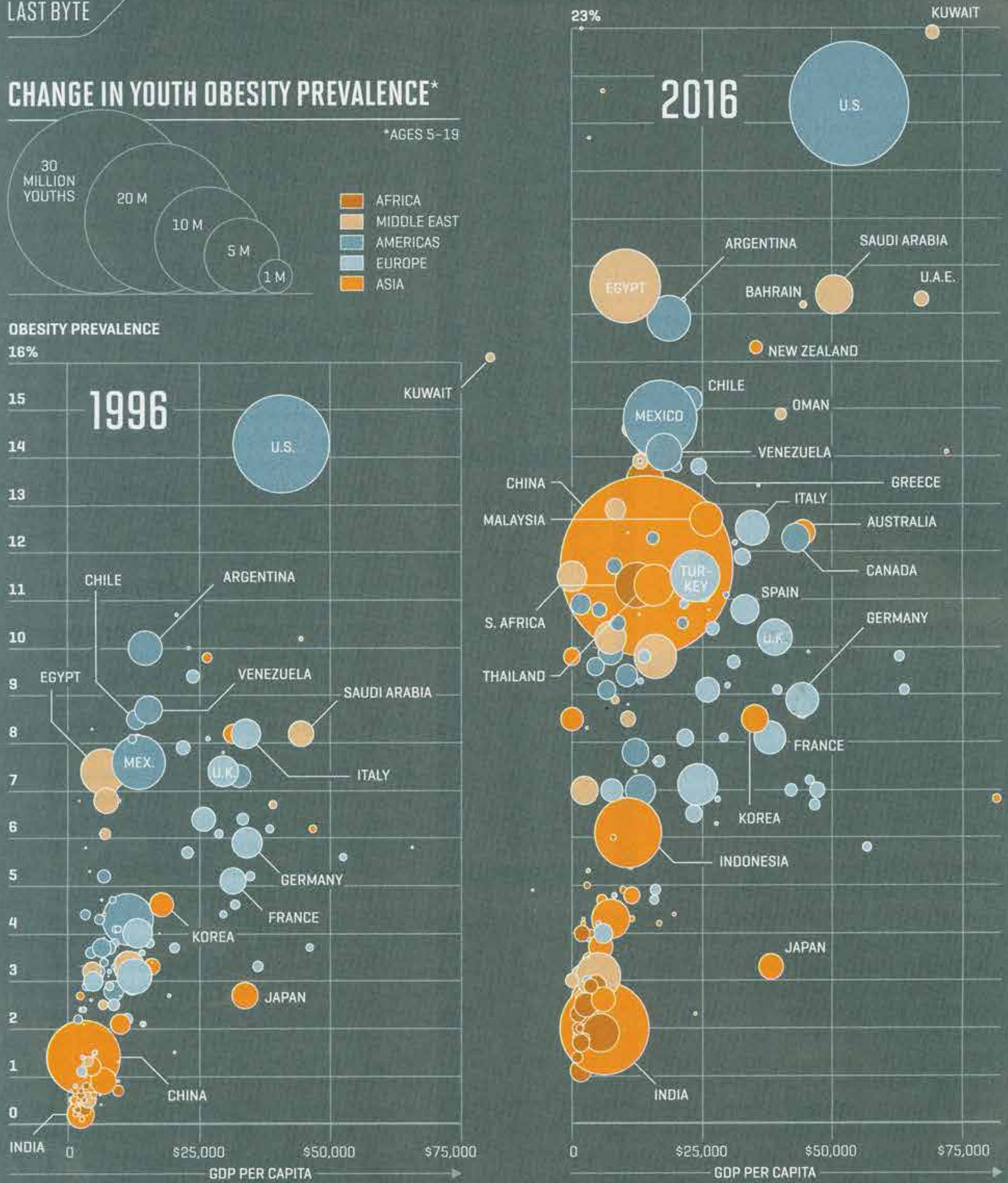
A breakup might well unleash waves of innovation and productivity. But for now, it looks unlikely to happen unless performance gets much worse. That's a problem regardless of what the best solution for P&G may be, because it supports the slow-decline scenario. Big, successful incumbents rarely flame out when they fail to adapt. More often they stagnate. They change, but not enough. They usually have a strategy for addressing their issues, but it isn't sufficient, or they can't execute it. "My biggest fear is that they'll get organic sales growth back to 3% and will declare victory," says one alum. P&G insists its ambitions are far greater than that.

At the annual shareholders' meeting two years ago, a few weeks before Taylor took over as CEO, a shareholder named Karen Meyer asked outgoing P&G chief A.G. Lafley, "What assurance can you give me, the shareholder, that the officers and directors who drove the company bus into the ditch are the ones to get us out?" At this year's meeting, her husband, Peter, reminded Taylor of that question and then gave his own response to it: "I think the answer has been made abundantly clear by the current data. They can't."

That answer may not be correct. Taylor, repeatedly acknowledging the company's travails of the past several years, assured Meyer that the leaders and directors are utterly committed to outstanding results. And Taylor can succeed even without returning P&G to its full former glory. "I don't think it can be the Google or Amazon of tomorrow," says Dibadj. "But it owes it to shareholders to get better."

Nonetheless, Karen Meyer's question is undoubtedly the right one, and the answer will become clear in just the next couple of years. Now, when P&G is treading water but not sinking—when the need for change is powerful but not desperate—is when this great institution's fate is being determined. Procter & Gamble is not in a crisis. We'll know soon whether it requires one in order to make the needed changes. If it does, it will be too late. ■

CHANGE IN YOUTH OBESITY PREVALENCE*

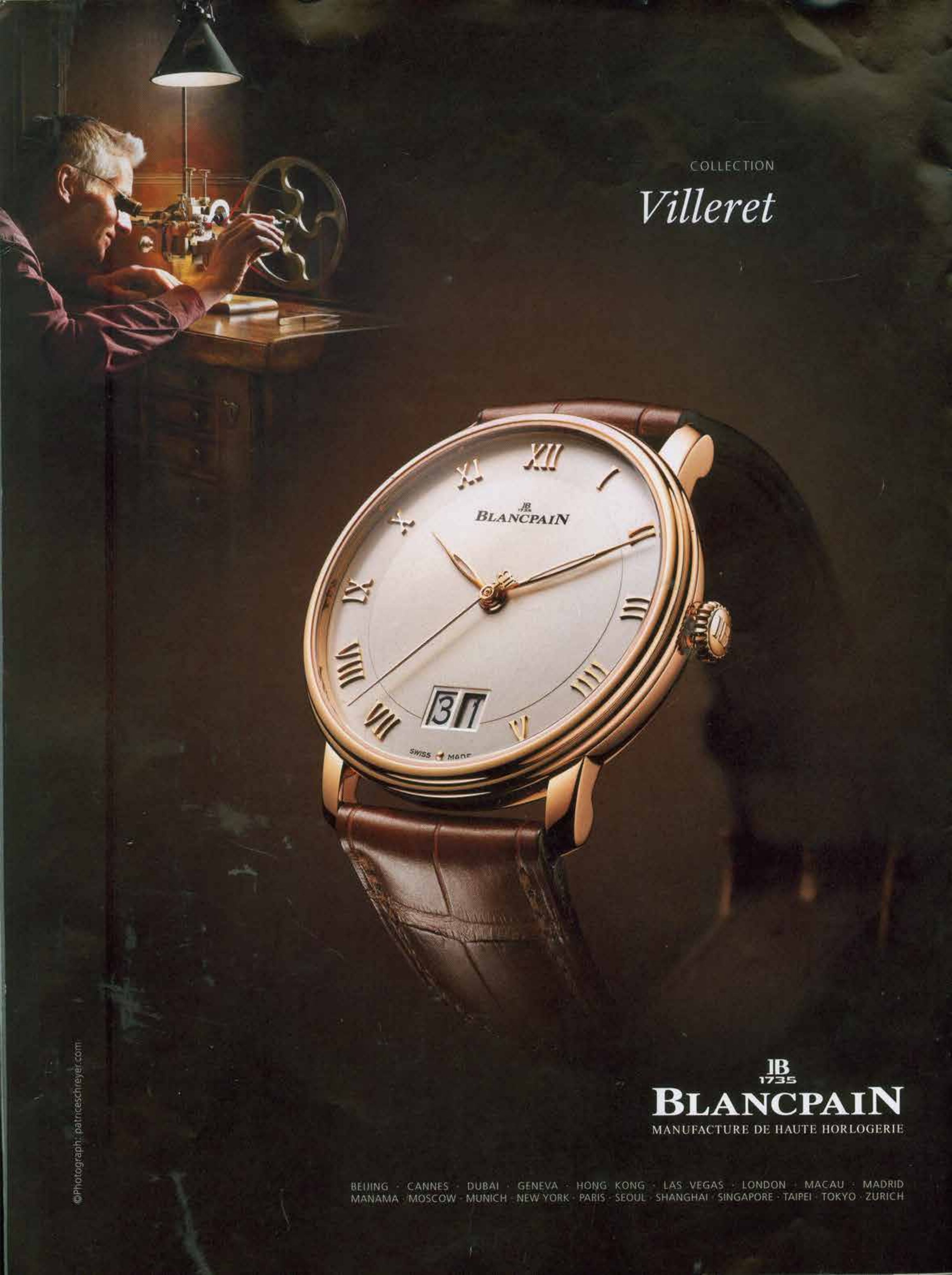


WEIGHT OF THE WORLD

THE WORLD IS GETTING much, much heavier. And we can expect a massive increase in obesity-related medical costs as a result. Obesity rates are at new highs in the U.S., according to the most recent data from the CDC, with 40% of adults qualifying as obese. But as the graphic above shows, obesity is increasingly a global problem—and one that affects a growing number of children. A new study by Imperial College London and the World Health Organization found that child and teen obesity has increased 10-fold worldwide over the past 40 years. The World Obesity Federation estimates that the global cost of treating obesity-related health problems will reach $1.2 trillion annually by 2025. —**BRIAN O'KEEFE**

NOTES: GDP PER CAPITA IN 2011 INTERNATIONAL DOLLARS (ADJUSTED FOR PURCHASING POWER PARITY). POPULATION AND GDP VALUES IN 2016 CHART ARE MOST RECENT AVAILABLE. SOURCES: WHO; U.N. POPULATION DIVISION; WORLD BANK

GRAPHIC BY **NICOLAS RAPP**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