TATA: THE BATTLE TO FIX INDIA'S BIGGEST COMPANY

FORTUNE

AUGUST 1, 2017
ASIA PACIFIC
EDITION
NUMBER 10

FORTUNE.COM

THE GLOBAL 500

THE WORLD'S LARGEST COMPANIES

2017 GLOBAL 500

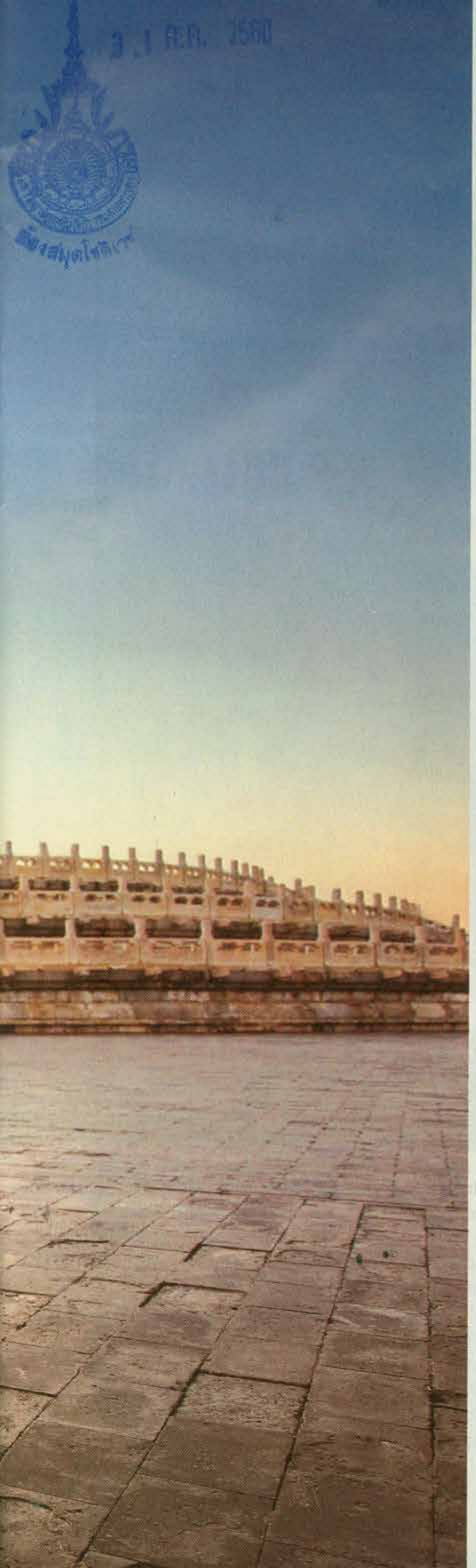
$28 TRILLION IN REVENUE
67 MILLION EMPLOYEES

+

FACEBOOK
ALIBABA

and 20 Brand-New Names


TOGETHER, WE BRING YOU
MORE OF CHINA
Experience award-winning service | Earn KrisFlyer miles | Enjoy 30kg baggage allowance
SINGAPORE AIRLINES



SILKAIR

SINGAPORE AIRLINES

A STAR ALLIANCE MEMBER

FLY TO THE PLACES YOU LOVE WITH SINGAPORE AIRLINES AND SILKAIR

It's now easier than ever to discover the wonders of China, with a seamless journey from start to end. Our combined network connects you from over 100 cities to 12 destinations in China – in one booking. Bringing you the joy of flying, it's just one of the lengths we go to.

WEST ASIA & AFRICA
- AHMEDABAD
- BENGALURU
- CAPE TOWN
- CHENNAI
- COIMBATORE
- COLOMBO
- DHAKA
- DUBAI
- HYDERABAD
- JOHANNESBURG
- KATHMANDU
- KOCHI
- KOLKATA
- MALÉ (MALDIVES)
- MUMBAI
- NEW DELHI
- THIRUVANANTHAPURAM
- VISAKHAPATNAM

EUROPE
- AMSTERDAM
- BARCELONA
- COPENHAGEN
- DÜSSELDORF
- FRANKFURT
- ISTANBUL
- LONDON
- MANCHESTER
- MILAN
- MOSCOW
- MUNICH
- PARIS
- ROME
- STOCKHOLM
- ZURICH

AMERICA
- HOUSTON
- LOS ANGELES
- NEW YORK (JFK)
- SAN FRANCISCO

SOUTHEAST ASIA
- BALIKPAPAN
- BANDAR SERI BEGAWAN
- BANDUNG
- BANGKOK (SUVARNABHUMI)
- CEBU
- CHIANG MAI
- DA NANG
- DAVAO
- DENPASAR (BALI)
- HANOI
- HO CHI MINH CITY
- JAKARTA
- KALIBO (BORACAY)
- KOH SAMUI
- KOTA KINABALU
- KUALA LUMPUR
- KUCHING
- LANGKAWI
- LOMBOK
- LUANG PRABANG
- MAKASSAR
- MANADO
- MANDALAY
- MANILA
- MEDAN
- PALEMBANG
- PEKANBARU
- PENANG
- PHNOM PENH
- PHUKET
- SEMARANG
- SIEM REAP
- SINGAPORE
- SURABAYA
- VIENTIANE
- YANGON
- YOGYAKARTA

NORTH ASIA
- BEIJING
- CHANGSHA
- CHENGDU
- CHONGQING
- FUKUOKA
- FUZHOU
- GUANGZHOU
- HIROSHIMA*
- HONG KONG
- KUNMING
- NAGOYA
- OSAKA
- SEOUL
- SHANGHAI
- SHENZHEN
- TAIPEI
- TOKYO
- WUHAN
- XIAMEN

SOUTHWEST PACIFIC
- ADELAIDE
- AUCKLAND
- BRISBANE
- CAIRNS
- CANBERRA
- CHRISTCHURCH
- DARWIN
- MELBOURNE
- PERTH
- SYDNEY
- WELLINGTON

*From 30 October 2017

● Singapore Airlines (SQ) ● SilkAir (MI) ● Singapore Airlines and SilkAir

singaporeair.com | silkair.com

A Consistent Winner in the Comprehensive Appraisal among All the National-level Development Zones—Ministry of Commerce, People's Republic of China

The Most Reputable Industrial Zone in China – FORTUNE® Magazine
One of the Six Most Dynamic Cities and Regions in China – UNIDO

- The First National-level Development Zone in China with Its GDP Exceeding 300 Billion Yuan ($44.1 Billion)
- A Trading Partner with 180 Countries and Regions Worldwide
- Accumulative Utilization of Foreign Capital: $56.4 Billion
- Import-Export Volume in 2016: $35 Billion
- 91 FORTUNE GLOBAL 500® companies have invested 282 projects here.
- One of China's Biggest Manufacturing Hubs of Cell Phones, Chips, Cars, Digital Audio & Video Players, Electronic Components, Instant Food, Insulins, Enzymes, and Wind Power Equipments

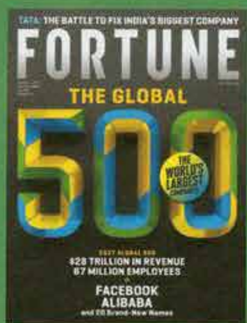
Website: WWW.TEDA.GOV.CN
Tel: +86-22-25201111

TEDA
天津经济技术开发区-泰达
Tianjin Economic-Technological Development Area

FORTUNE GLOBAL 500 is a registered trademark of the FORTUNE magazine division of Time Inc.

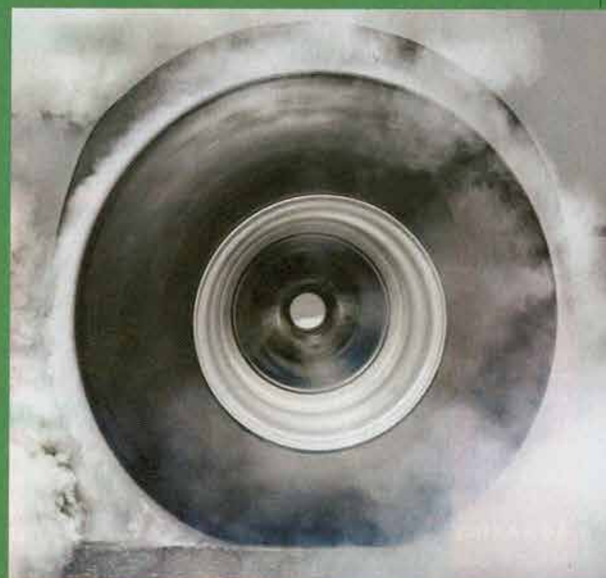
CONTENTS

AUGUST 1, 2017



▲ ON THE COVER: ILLUSTRATION BY MUOKKAA STUDIO

32



500

THE FORTUNE GLOBAL 500

VOLUME 176 /// NUMBER 2

CONTENTS

VOLUME 176 /// NUMBER 2

DEPARTMENTS

CORRECTIONS

"Tesla Makes a U-Turn in China" [June 15] incorrectly reported that Studebaker had entered bankruptcy in the 1960s; it also misidentified the date that Studebaker produced its last U.S.-made car. *Fortune* regrets the errors.

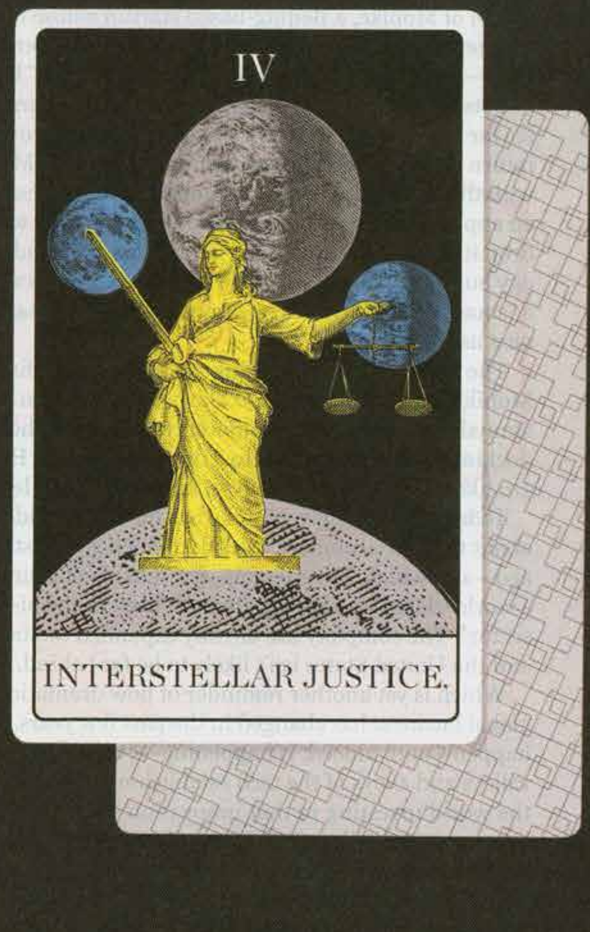
Fortune Asia [ISSN 0738-5587] is published monthly, with extra issues in March, June, September, and December, by Time Asia [Hong Kong] Limited. *Fortune* Asia may also publish occasional extra issues. Customer Service and Subscriptions: For 24/7 service, please use our website: fortune.com/customerserviceasia. 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. © 2017 Time Asia [Hong Kong] Limited. All rights reserved. *Fortune* is protected through trademark registration in the U.S. and in the countries where *Fortune* magazine circulates. *Fortune* Asia is printed in Singapore. Singapore MCI (P) 061/11/2016. Malaysia KKDN permit no. PPS1162/05/2013 (022950).

THE FUTURE OF EVERYTHING

What Laws Will Rule the Final Frontier?

Extraplanetary travel, resource extraction and even settlement are moving from the realm of science fiction to reality. But whose laws hold sway in space? Divine the future of galactic law and order in this special digital series.

Read now at WSJ.COM/FOE



THE WALL STREET JOURNAL.

Read ambitiously

© 2017 Dow Jones & Company, Inc. All rights reserved. 6DJ5706

IDEAS KNOW NO BORDERS

ON THE MORNING this issue went to press, I borrowed a stranger's silver-and-orange bicycle, rode it two kilometers, then left it leaning against a streetlamp at a city intersection. As I walked away from the bike—unchained and undocked in front of a hotel in Aspen—it was hard not to feel like a scofflaw. But I was benefiting from the remarkable business model of Mobike, a Beijing-based startup whose more than 100 million registered users do much the same thing—an average of 20 million times a day—with the company's 6 million "connected" bikes.

Lots of cities have bike-sharing systems, of course: Members, who pay a fee for the privilege, retrieve a two-wheeler from one docking station and return it to another within a certain time frame. Mobike has dispensed with the occasionally cumbersome docking process entirely. You download an app, find a bike near you, and scan a QR code to unlock it. Then you drop it off wherever you darn well please. GPS and other wireless technology built into the chassis allow the company to track its whereabouts; a "smart" locking system, meanwhile, bolts the rear tire in place until the next user shows up.

The old dock-based sharing systems are like first-generation PCs, Mobike cofounder and CEO Davis Wang told an audience at *Fortune*'s annual Brainstorm Tech conference in Aspen. They are as tethered to their docking stations as a PC is to a desktop, he said. His bikes, in contrast, are like smartphones—you can take them (and leave them) anywhere.

Today, astoundingly, Mobike has more daily riders than Uber. Think about that for a moment: Mobike, which got its start less than two years ago—and which, I'm guessing, few outside of China have heard of—is now a world-class ride-sharing giant (at least in the bi-wheeled transportation sector). The company has already expanded to Singapore and the U.K., and the United States isn't likely to be far behind.

Which is yet another reminder of how dramatically the landscape for global business has changed in the past few years. Real innovation can happen—and, indeed, is happening—everywhere, not just in the familiar valleys and alleys of the tech establishment. So, too, are companies all over the world investing in that innovation—and growing their businesses, in many cases, at breakneck speed because of it.

That message was sounded over and again in mid-July at Brainstorm Tech, a gathering of some 600 inventors, entrepreneurs, corporate chieftains, and investors. And it blasts loud and clear in this issue of *Fortune* as well. One has only to look at the geographic breakdown of the 2017 *Fortune* Global 500—the definitive list of the biggest companies (by revenue) in the world. The companies in this latest ranking are based in no fewer than 232 cities in 34 countries.

At the same time, the center of gravity of the global business enterprise continues to drift eastward. More than a fifth of those on the latest list—109 companies—call China home, up from only 29 companies a decade ago. That includes newcomers like Alibaba Group and Tencent, but also little-known giants like the conglomerate HNA Group, based in Hainan in southern China. As Vivienne Walt writes in her terrific profile of HNA (see page 60), the company now has—through "a labyrinth of subsidiaries in China and abroad"—ownership interests in everything from hotel chains like Hilton (which it bought from Blackstone in March for $6.5 billion) to Deutsche Bank, where HNA is now the biggest shareholder, with a $3.7 billion stake.

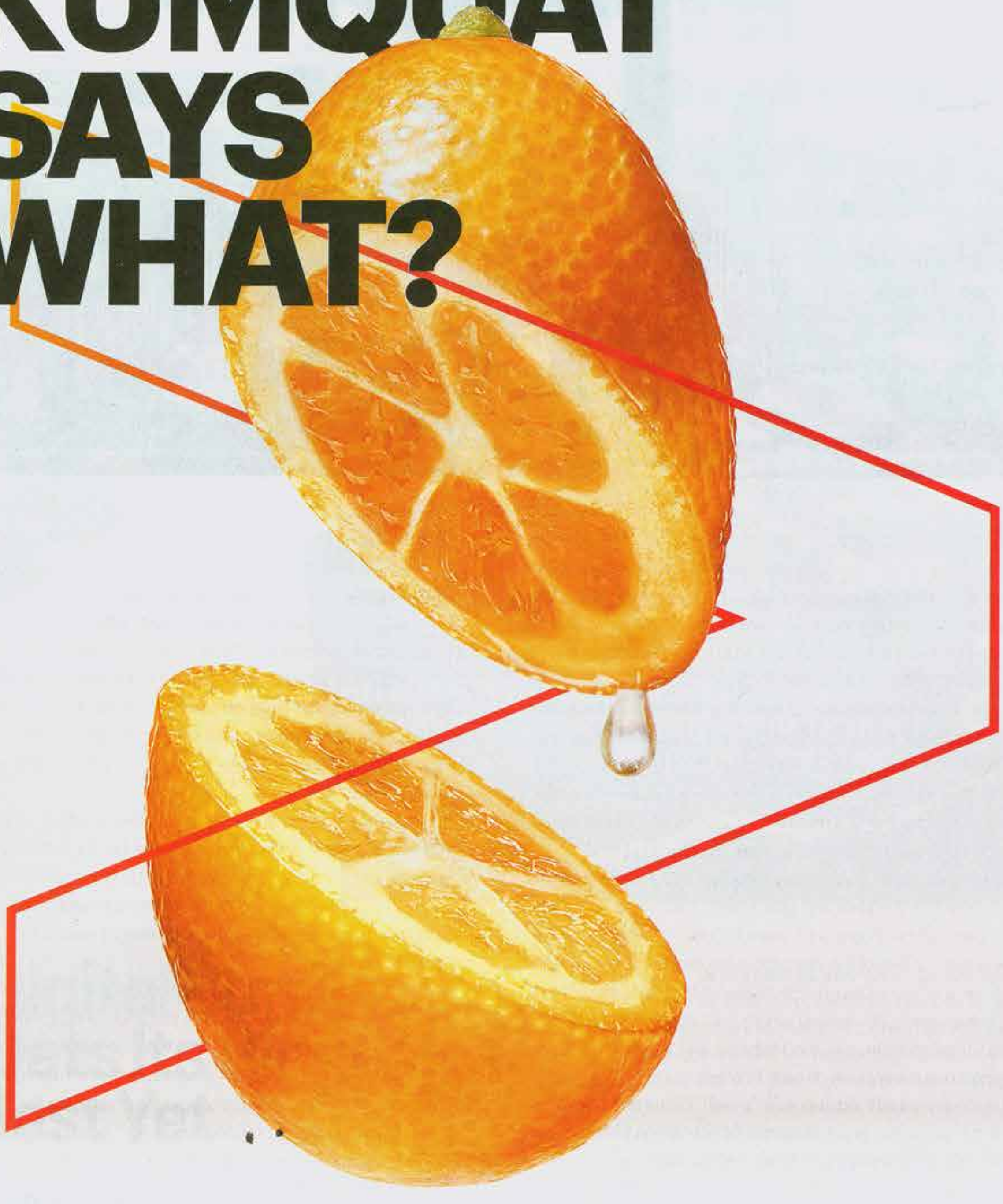
Great challenges remain for every company with a geographically expanding footprint, as Jeff John Roberts explains in "Globalization Bites Back" (page 57). But such cross-border spread is inevitable and essential—and yes, welcome. That's one reason we're holding the *Fortune* Global Forum in Guangzhou, China, in December—and coupling it with the first-ever Brainstorm Tech International in the same city.

Good ideas have never stopped at any border. And neither will those hoping to profit from them.

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

accenture
High performance. Delivered.

KUMQUAT SAYS WHAT?

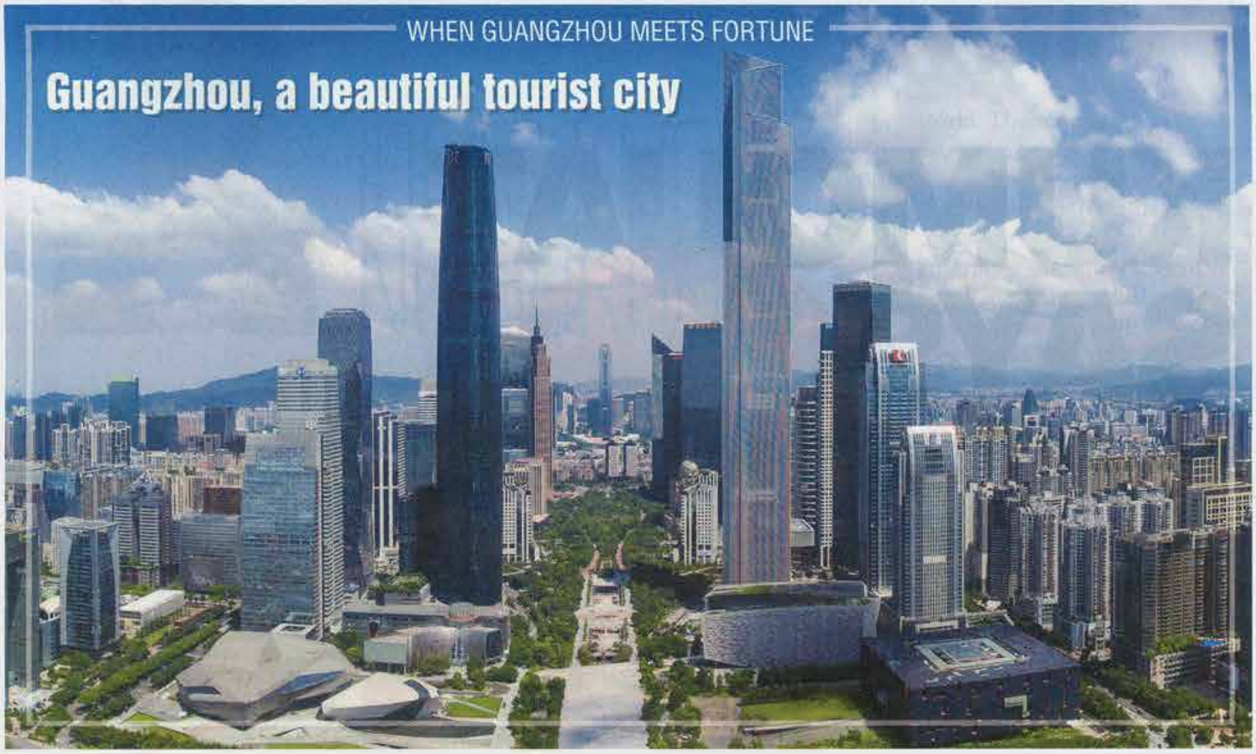


New is using apps, sensors and digital to help groceries speak to customers in real time, now. See how at **accenture.com**

NEW APPLIED NOW

strategy | consulting | digital | technology | operations

© 2017 Accenture. All rights reserved.



Guangzhou, a beautiful tourist city

In the city's posh central business district sits a 560,000-square-meter lush green park. The district is called *Zhujiang* New Town, and the park *Huacheng* Square. Also dubbed as the City Lounge, the park is home to more than 600 tall and precious trees lining a two-kilometer wood plank walkway and a lake covering a water area of 15,000 square meters.

What's more eye-catching is a cluster of world-renowned buildings around the square. Dominating the city's skyline are the Canton Tower in the south, across the city's Peal River, and East Tower and West Tower, literally standing on both sides of the square's southern end. Standing nearby are a number of award-winning architectural structures like the Guangzhou Opera House, Guangdong Museum and the city's New Guangzhou Library.

"I fly the Guangzhou route once every two months. Each time, I love to come to the square and take a stroll. It is indeed spotlessly clean," said Mehmet Bodur, a 61-year-old Turkish Airlines pilot.

The square is one of the city's most favored tourist spots. And the city as a whole received 185 million visitors from around the world in the year 2016, among whom 8.61 million were inbound visitors. Total tourism revenue reached $47.3 billion in 2016, recording a 12 percent year-on-year increase.

Enjoying a pleasant sub-tropical climate, Guangzhou features blooming flowers and good air quality all year around. Pictures of blue sky, beautiful flowers and smiling faces within are the most shared images across social media platforms like Twitter, Facebook, WeChat and Weibo. "Guangzhou blue" has even become a hot term online and offline, both to the local citizens and visitors.

During the 2017 Spring Festival holidays, 13 million people visited the city, with a 99.3 percent satisfaction rate and zero complaints for its hygiene and environment.

As one of China's most celebrated tourist cities, Guangzhou boasts a large number of historical, cultural and scenic spots, with great leisure and recreational facilities. The city has more than 50 world-class scenic areas, entertainment projects and theme parks, such as the Canton Tower, *Baiyun* Mountain scenic area, *Chimelong* Safari and the Pearl River night cruise. *Chimelong* Safari was once listed by the Themed Entertainment Association (TEA) among the top three on the Best Global Theme Parks list, and was the only one from Asia. *Chimelong* has also topped global water theme park lists for the past four consecutive years in terms of tourist numbers.

"Building a cleaner, tidier, safer and more orderly city" is the government's latest slogan and raises the bar for the city's urban management. The city government is planning within three to five years to further upgrade its urban environment, building itself into a first-class international city, and taking a lead in the nation's modernization drive.

Hong Kong Special Administrative Region chief executive Leung Chun-ying recently visited Guangzhou and praised the big changes in the city's environment. "I was most deeply impressed by Guangzhou's orderly, clean environment. The management is obviously different from the past," said the chief executive.

"Guangzhou is very beautiful," said Alan Murray, President of *Fortune* magazine. According to Murray, Guangzhou is an ideal city to host the *Fortune Global Forum*. He expects CEOs from around the globe to enjoy its favorable business and livable environment.

FORTUNE, FORTUNE GLOBAL FORUM, FORTUNE GLOBAL 500 and 财富 are trademarks of Time Inc., registered in the U.S. and other countries, and are used by permission.

THE WORLD IN 8 PAGES

BRIEFING

ORIGINAL IMAGES: STOCK EXCHANGE: CBS VIA GETTY IMAGES; PAPER: ASSALVE—GETTY IMAGES

Digital Currency Gets Its Biggest Test Yet . .

Advocates say it could change the way we use money and fund companies. Critics see a bubble. This year, we may find out who's right. by Robert Hackett

MONEY

IN THE COMING MONTHS a startup based in Waterloo, Ontario, is set to kick off a grand monetary experiment, one that will put to the test a new model for business that could prove to be either the web's next great economic engine, or a multibillion-dollar bubble that's as combustible as the Hindenburg.

The concept at stake is cryptocurrency, a form of digital money that exists independent of traditional banks or governments. Over the past few months, the market for cryptocurrencies ▷▷

BEFORE & AFTER PAPER

The way value has changed hands has frequently fluctuated over the course of civilization.

CATTLE AND GRAIN
9000 BC

Commodities were an easy-to-exchange early form of money. Cattle particularly so because they could walk by themselves.

COWRIE SHELLS
1200 BC

Shells were used as currency in many parts of the world, thanks to their durability.

BRONZE MINIATURES
1100 BC

The earliest bronze "coins" in China were constructed to look like cowrie shells, other shapes followed.

COINS
600 BC

The first actual coins were made in the kingdom of Lydia, near Mesopotamia, out of a mix of gold and silver.

PAPER BILLS
12th/13th century

Explorer Marco Polo returned from China in 1295, marveling at its paper currency, which caught on in Europe only in the 17th century.

E-MONEY
1850

Western Union built a telegraph network that would soon be used to transfer money across the country.

CREDIT CARDS
1950

Aimed at businessmen eating out, Diners Club made early charge cards from cardboard.

▷▷ has rocketed to more than $100 billion (and fallen back to $60 billion) amid extreme enthusiasm and volatility. So-called token sales, or "initial coin offerings," also known as ICOs, have raised hundreds of millions of dollars, creating substantial fortunes out of little more than ones, zeros, and pitches. The movement's critics compare it to the tulip-bulb manias of centuries past and say it will end the same way.

Advocates, however, believe cryptocurrencies could represent an important way for tech companies to raise cash. Instead of users trading their time, attention, and energy for free services, while a few supermassive landlord corporations reap all the profits (hello, Facebook), cryptocurrencies could enable participants to be remunerated for their contributions on the platforms, with yet-to-be-invented moneys. Imagine users getting paid by the "like."

So far, while their nominal value has soared, cryptocurrencies have mostly been a vehicle for speculators. But in the coming months, for the first time, a mainstream company with an established user base will try its hand at launching a crypto token to its 15 million monthly active users, potentially multiplying by a factor of five overnight the number of people using digital currency. The company is Kik, the maker of a chat app favored by American teens, which intends to mint tokens enabling users to transact through its network.

Kik will join more than a hundred early-stage projects—with names like Brave, Civic, and Tezos—in hosting token sales in order to fund themselves. But Kik hopes to be among the first to get people to use the tokens for something other than trading, flipping, or speculating.

Ted Livingston, founder and CEO of Kik, had the idea for a cryptocurrency in the back of his mind in 2014 when he launched Kik Points, a video-game-like in-app virtual money. The company shuttered the pilot program last year, but Livingston was pleased with it: The points traded hands an average of 300,000 times per day, more than three times the average number of transactions per *month* on Bitcoin's network during that time. Kik's customers mostly used the points to buy "stickers" and "smileys," but the company intends its new Kin tokens, the batch of to-be-released computer coins, to enable users to do everything from tipping peers, to ordering pizza, to paying for premium content.

Kik plans to mint a total of 10 trillion Kin tokens, selling a trillion to the public, holding on to 3 trillion for itself, and setting aside 6 trillion for a nonprofit that will manage a rewards program for loyal users. "It's a new way to compete, it's a new way to monetize, and it's potentially a new way to exit as well," Livingston says.

If past ICOs are any indication, Kik's will bring in a substantial sum no matter what. What industry watchers will be eyeing, however, is whether Kin will actually catch on, fueling a mini-economy within and outside the app. If it works, the experiment could signal to the world the viability of the much-hyped and, until now, mostly theoretical token-based business model.

Success will "pave the way for other traditional companies to do it," says Jake Brukhman, cofounder of CoinFund, which advises companies, including Kik, on blockchain tech. Indeed, crypto enthusiasts have proposed companies such as Twitter, Snap, and Reddit as leading candidates for eventual token sales.

Either that, or the movement—which depends on widespread adoption to justify multibillion-dollar valuations—could implode and leave many aspiring entrepreneurs and investors in the dust. For the Internet's next big thing, that would be a little more than Kin, and less than kind. ■

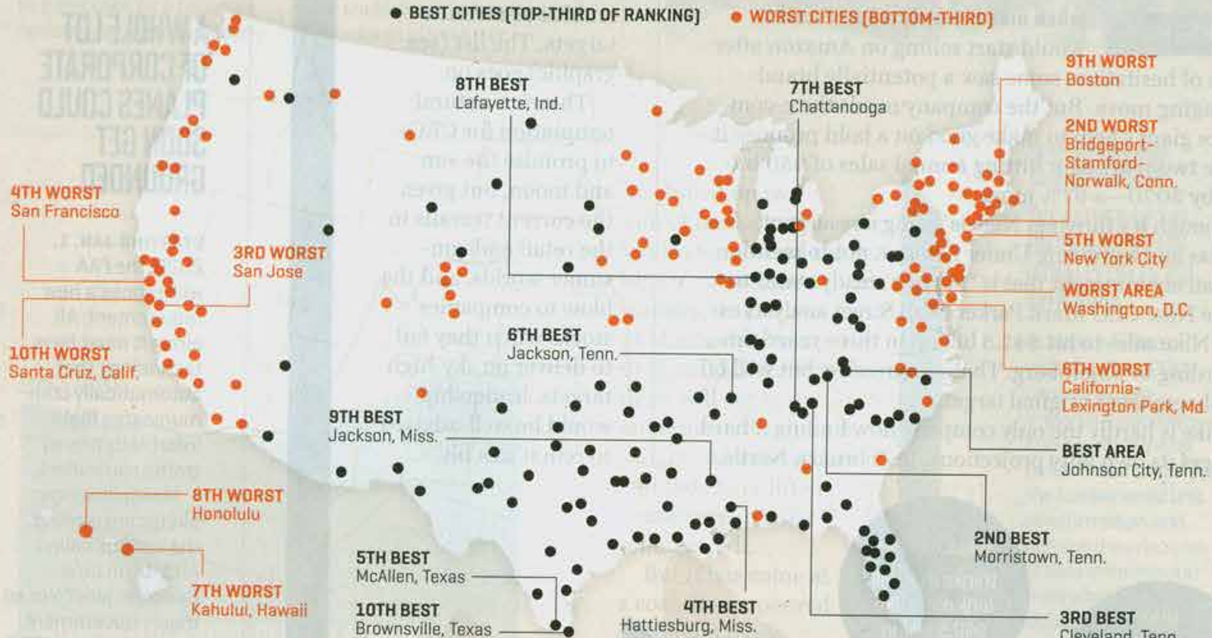
ICONS BY MARTIN LAKSMAN

ANALYTICS Seeing Trends in the Data

■ FRACTAL INEQUALITY

WHERE A $100K SALARY WILL TAKE YOU THE FARTHEST

Wealth is relative: In some rural American locales, a six-figure paycheck can buy a lavish lifestyle. In others, it doesn't cover expenses. Comparison loan-shopping site MagnifyMoney looked at the cost of living in 381 U.S. metropolitan areas to see where a $100,000 income for a family of three would leave the household with the most leftover cash. They found that in Johnson City, Tenn., routine expenses would eat up only 62% of that income. A family in D.C., however, would spend 105% on just the basics.



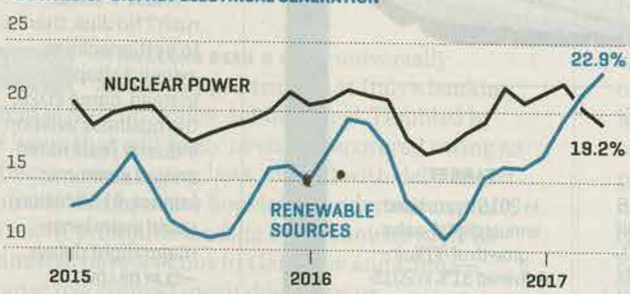
SOURCE: MAGNIFYMONEY
ANALYSIS OF TWO-EARNER HOUSEHOLD WITH ONE CHILD AND A GROSS ANNUAL INCOME OF $100,000 IN U.S. METRO AREAS. ESTIMATED MONTHLY EXPENSES (INCLUDES CHILDCARE, TRANSPORTATION, FOOD, HOUSING, STUDENT LOANS, SAVINGS, AND ENTERTAINMENT) WERE SUBTRACTED FROM AFTER-TAX INCOME.

■ NUCLEAR'S HALF-LIFE

Renewable Energy Hits a Milestone

This year for the first time, nuclear power generation (expensive to expand and politically unsavory) has been surpassed by renewable energy sources like wind, solar, and geothermal. This spring, renewable energy widened its lead and shows no signs of powering down.

SOURCES OF U.S. NET ELECTRICAL GENERATION



SOURCE: EIA

■ OPIOID CRISIS

Tracking an Epidemic

America's prescription drug epidemic is raging on. According to data from Blue Cross Blue Shield, the rate of "use disorder," a measure of opioid abuse, jumped 493% between 2010 and 2016 (though some of the increase in reported cases is likely owing to increased awareness). Over the same time period, U.S. drug overdose deaths climbed 63%.

RATE OF OPIOID USE DISORDER (PER 1,000)

SOURCE: BLUE CROSS BLUE SHIELD

Setting Big Hairy Goals—and Missing

Even successful CEOs succumb to the temptation of shooting for unreachable targets.

By Phil Wahba

AIMING HIGH

WHEN NIKE recently announced it would start selling on Amazon after years of hesitation, some saw a potentially brand-damaging move. But the company needs the e-commerce giant's help to make good on a bold promise it made two years ago: hitting annual sales of $50 billion by 2020—a 67% jump.

Though it's thriving, Nike is facing a resurgent Adidas and a growing Under Armour, not to mention a retail environment that is "not in a steady state," to quote Nike CEO Mark Parker. Wall Street analysts expect Nike sales to hit $42.5 billion in three years' time, according to Bloomberg. That's impressive, but well off the shoemaker's original target.

Nike is hardly the only company now finding it hard to meet its own lofty projections. In February, Nestlé, now grappling with an activist investor, said it was taking a "timeout" from its long-term goal of raising organic sales 5% to 6% a year. J.C. Penney has twice in the past three years had to walk back ambitious revenue targets. The list (see graphic) goes on.

There's a natural temptation for CEOs to promise the sun and moon, but given the current travails in the retail and consumer worlds, and the blow to companies' stocks when they fail to deliver on sky-high targets, leadership would be well-advised to rein it in a bit.

SALES GOALS, A FEW SIZES TOO LARGE

KOHL'S	UNDER ARMOUR	LULULEMON	TARGET
In 2015, it adopted (and later abandoned) a 2017 sales target of $21 billion. The Street now expects closer to $18.6 billion.	It dropped a 2018 goal of $7.5 billion (analysts expect $6 billion) in favor of a $10 billion target—but gave no time frame.	Leadership in 2016 said sales would hit $4 billion by 2020. Wall Street expects that will land closer to $3 billion.	In 2015 it promised annual digital-sales growth of 40%; it delivered 31% in 2015 (off a small base), and 27% in 2016.

WHOOPS!

A WHOLE LOT OF CORPORATE PLANES COULD SOON GET GROUNDED

STARTING JAN. 1, 2020, the FAA will impose a new requirement: All aircraft must have technology that automatically communicates flight information to air traffic controllers.

Most passenger planes are making the update, called ADS-B, on time. Business jets? Not so much. Government research shop MITRE says 20,731 out of 26,700 total U.S. business aircraft still don't have ADS-B. At the current install rate, Duncan Aviation says 50% won't be ready in time. MITRE's estimates indicate it could be even more.

A last-minute rush? No dice, thanks to bottlenecks at avionics shops. Instead, come 2020, the business aviation industry (estimated annual economic impact: $150 billion) could experience major flight delays.

—CLAY DILLOW

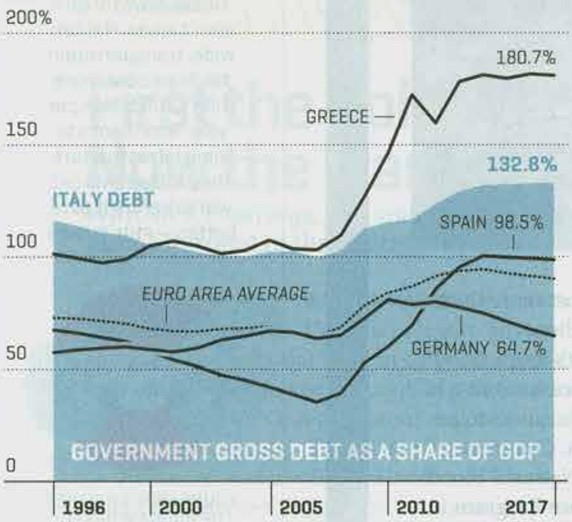
SHOE: COURTESY OF NIKE; PLANE: JONATHAN ALCORN—BLOOMBERG VIA GETTY IMAGES

WAGE WARS

IN THE "FIGHT FOR 15," LABOR MAY LAND A PYRRHIC VICTORY

WHEN CITY officials voted to gradually raise Seattle's minimum wage to $15 an hour in 2014, it was lauded as a test case for a potential nationwide rollout. Now early results are in, and they're not pretty. A University of Washington study found that the hikes *decreased* low-wage workers' pay by $125 a month on average, as payrolls shrank. The evidence is not conclusive, and critics question the methodology (for example, national chains were not included), but the findings could slow this bandwagon.
—ANNE VANDERMEY

© PROTEST: ELAINE THOMPSON—AP



SOURCE: IMF

It's Time to Worry About Italian Debt

Italy's gargantuan bank bailout raises the stakes for an overburdened state. By Geoffrey Smith

EUROPE **IT HAS LONG BEEN** a near-universally acknowledged truth that Italy's banking system is the eurozone's Achilles' heel. Hobbled by bad loans that will likely never be recovered owing to ineffective bankruptcy laws, stuffed with debt issued by a state that appears hopelessly under water, and starved of profitable lending opportunities after its businesses have lost out to Germany and China—collapse has seemed inevitable for years.

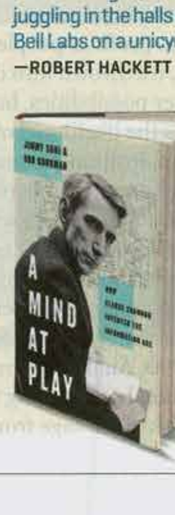
And yet the show stumbles on. This summer, Rome has tidied up two failing banks in the Venice region and the bigger and longer-running headache of Monte dei Paschi di Siena (MPS). The deals will cut large amounts of dead weight from the sector, and they have lifted confidence in what remains of it.

But it has come at a cost. Rome poured 5.4 billion euros ($6.1 billion) into MPS and is on the hook for up to 19 billion euros more at the Venetian banks. These new state liabilities are piled on to a debt that's already 133% of GDP (the comparable figure for Greece on the eve of its 2010 bailout was 127%). By allowing this sleight of hand, the eurozone has effectively solved one moral hazard problem by increasing another. Italian banks may no longer be "Too big to fail," but Italy stands a greater chance of it than ever.

BOOK VALUE

THE FATHER OF THE INFORMATION AGE (FINALLY) GETS HIS OWN BOOK

CLAUDE SHANNON was one of the 20th century's most important scientists—conceiving of the bit (a.k.a. "binary digit") as the fundamental unit of information, and divining the principles of data transmission from whence our digital age zapped into being. This charming new biography, *A Mind at Play*, chronicles the large and small achievements of a lesser-known modern-day Da Vinci, from his incredible early-career breakthroughs, to juggling in the halls of Bell Labs on a unicycle.
—ROBERT HACKETT



Floods caused widespread damage in Turkey, one of many costly weather events last year.

As Oceans Rise, Insurers Flee

Natural disasters, increasingly common, are causing economic ones too.

By Beth Kowitt

CLIMATE

MOST BUSINESSES know that eventually, they could be profoundly affected by climate change. What's surprising is how quickly the shifts, threats, and costs are materializing.

Take the insurance industry, which might be expected to profit as people seek to ward off losses. But instead, it's thrown into disarray when those losses are no longer possibilities, but inevitabilities. At a certain point, as the likelihood of extreme weather events increases, insurance companies are "not selling a risk aversion remedy to people," says Dan Kahan, a professor at Yale Law School who specializes in risk perception. "[They're] getting taken to the cleaners."

A recent industry study found that last year there were 750 major "loss events" like earthquakes, storms, and heat waves, well above the 10-year annual average of 590. Analytics firm CoreLogic has found that 6.9 million homes along the Atlantic and Gulf coasts are at risk of damage from hurricane storm surge that could cost more than $1.5 trillion.

What's more, flood insurance was not a lucrative business to begin with. Congress set up the National Flood Insurance Program in 1968 as it became clear that private companies couldn't profitably provide coverage. Now, nearly half a century later, the program is—ahem—under water by $24.6 billion. As a result, there's a push to move flood insurance toward the private market. That could mean less building in flood-prone areas, as they become effectively uninsurable thanks to sky-high rates. Says Morningstar's Brett Horn: "Frankly, that's not a bad outcome."

SPECS

$14.5 MILLION

The economic cost of one hour of delays on New Jersey Transit and the Long Island Railroad

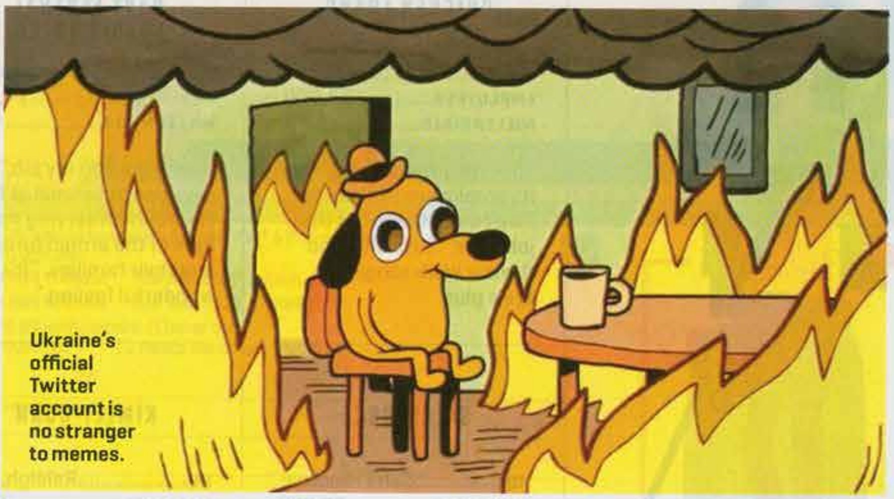
NEW YORK PAPERS have dubbed it the "summer from hell": Sweeping repairs at commuter hub Penn Station are causing train delays for thousands. New Yorkers aren't alone: Nationwide, transportation backups cost more than $100 billion per year. And thanks to aging infrastructure, the problem will get worse before it gets better. —PHIL WAHBA

YOUNG MEN'S NUMBER OF HOURS WORKED 2000–2015: -12%

VIDEO-GAME TIME 2004–2015: +45%

A WORKING paper from the National Bureau of Economic Research found a link between the decreasing hours worked by men ages 21 to 30 and an increase in gaming. One explanation: Wage stagnation has devalued labor, but video games are better than ever. —ANNE VANDERMEY

FLOODING: SEZGIN PANCAR—ANADOLU AGENCY/GETTY IMAGES; CONTROLLER: GLOBAL STOCK/GETTY IMAGES; TRANSIT DATA SOURCE: PARTNERSHIP FOR NYC



Ukraine's official Twitter account is no stranger to memes.

First the Cold War, Now the Flame War

With GIFs, hashtags, and snark, @Ukraine brings the heat to the Internet. By Linda Kinstler

REAL POLITWEET

WHEN A MASSIVE cyberattack hit Ukraine's airport, government agencies, and national bank in early June, the country's official Twitter account, @Ukraine, responded with a GIF of KC Green's famous dog, sipping coffee amid flames, saying, "This is fine."

Twitter arched a collective eyebrow: "Guys you're doing this meme thing wrong," one user responded.

But for the young bureaucrats behind the account, the Tweet had the intended effect. It garnered 7,800 retweets and 10,600 likes, and brought the account's follower tally up to 42,000 (it was 43,600 as of this writing). Since last spring, @Ukraine has been engaging in "twiplomacy" in a tone that's surprisingly sardonic for a country's official account. The feed often highlights Ukraine's natural beauty and national holidays ("#BeautifulUkraine"), but also enters the diplomatic fray, trolling official Russian accounts ("#DecommunizationBenefits") and @ing friendlier nations ("Hey @Nigeria!").

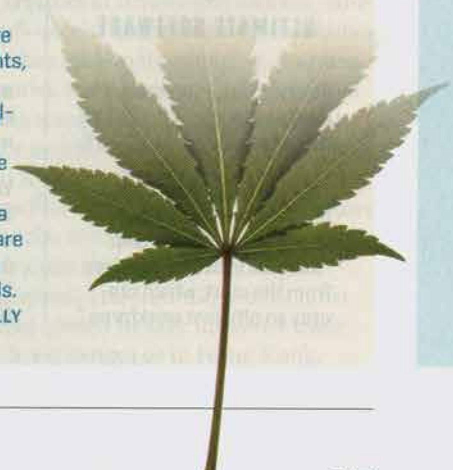
The effort to turn a faceless institution—be it a country or company—into a personable online presence will be familiar to anyone who follows U.S. corporate accounts—see Wendy's, Square, and Delta. But here, the stakes are higher. Russia is waging an undeclared war in parts of Ukraine. In the spring, @Ukraine tweeted a GIF to @Russia with a name tag flipping from "Russia" to the "Soviet Union," adding, "You never change, do you?"

Yarema Dukh, 30, a Ukrainian presidential spokesman, runs the account along with two colleagues. Dukh says their intention is not solely to troll Russia, but also to put "the country on the map of [the] English-speaking world—even if you need to use a few memes and Simpsons GIFs to do so."

REGULATION

IN NEVADA, WEED IS NEWLY LEGAL, BUT HARD TO COME BY

IN JULY, Nevada issued a "statement of emergency." The crisis: not enough weed. Four days after cannabis was legalized in the state, sales hit $3 million, but dispensaries struggled to restock. State law allows only alcohol wholesalers to distribute marijuana, but by the time the law took effect none had been issued licenses [the state has since granted two]. The stakes are high: While the alcohol industry fights to keep exclusive distribution rights, most of the expected $100 million in weed tax revenue over the next two years will go to Nevada schools, which are currently facing budget shortfalls. **—GRACE DONNELLY**



"THIS IS FINE": COURTESY OF ADULT SWIM; LEAF: GARY MORRISON—GETTY IMAGES

The 10 Best Workplaces for Millennials

Training and retaining millennials, now the largest generation in the workforce, has become essential to the health of nearly every organization. Which companies are doing it best? *Fortune* partner Great Place to Work surveyed tens of thousands of millennial employees across the country to compile this list of their favorite places to work. To see the full list of 100 winning companies, go to *Fortune.com*. **By Christina Austin**

01

ULTIMATE SOFTWARE

HQ....................Weston, Fla.
EMPLOYEES..................3,126
MILLENNIALS.................33%

Training opportunities get props at the HR software maker, where leadership "believes in every employee from the start, which creates an efficient workforce."

02

SAS

HQ........................Cary, N.C.
EMPLOYEES..............14,254
MILLENNIALS.................17%

Young workers at the software firm praise its "sense of community" and say its management "fully believes millennials are the future of the company."

03

QUICKEN LOANS

HQ............................Detroit
EMPLOYEES..............13,690
MILLENNIALS.................67%

The home lender treats its employees like adults. "We're trusted to get the job done," says one. And flexible work schedules are a plus.

04

SALESFORCE

HQ................San Francisco
EMPLOYEES...............26,000
MILLENNIALS.................46%

Employees at the cloud-computing leader say that it "cares about work/life balance" and that "a great mix of work and play within teams" makes it a fun place to work.

05

ENCOMPASS HOME HEALTH & HOSPICE

HQ..............................Dallas
EMPLOYEES..................8,232
MILLENNIALS.................27%

Millennials at the health care provider say they're proud of its mission and its drive to "give back to the community."

06

POINT B

HQ............................Seattle
EMPLOYEES.....................651
MILLENNIALS.................15%

Feedback and freedom make young employees at this consulting firm say they want to stick around: "Point B will be the last employer I will ever work for."

07

NAVY FEDERAL CREDIT UNION

HQ.......................Vienna, Va.
EMPLOYEES................14,037
MILLENNIALS.................46%

"I take pride in my job," says one millennial at this credit union serving members of the armed forces and their families. "It's a wonderful feeling."

08

KIMLEY-HORN

HQ...................Raleigh, N.C.
EMPLOYEES..................2,822
MILLENNIALS.................54%

Young workers at this design consultancy like that they're "encouraged to take leadership roles." The firm also pays for senior staff to take newbies out to lunch.

09

VETERANS UNITED HOME LOANS

HQ.................Columbia, Mo.
EMPLOYEES..................1,991
MILLENNIALS.................66%

Employees feel they "have each other's backs" at the VA lender and say management's "generosity ... absolutely trickles down."

10

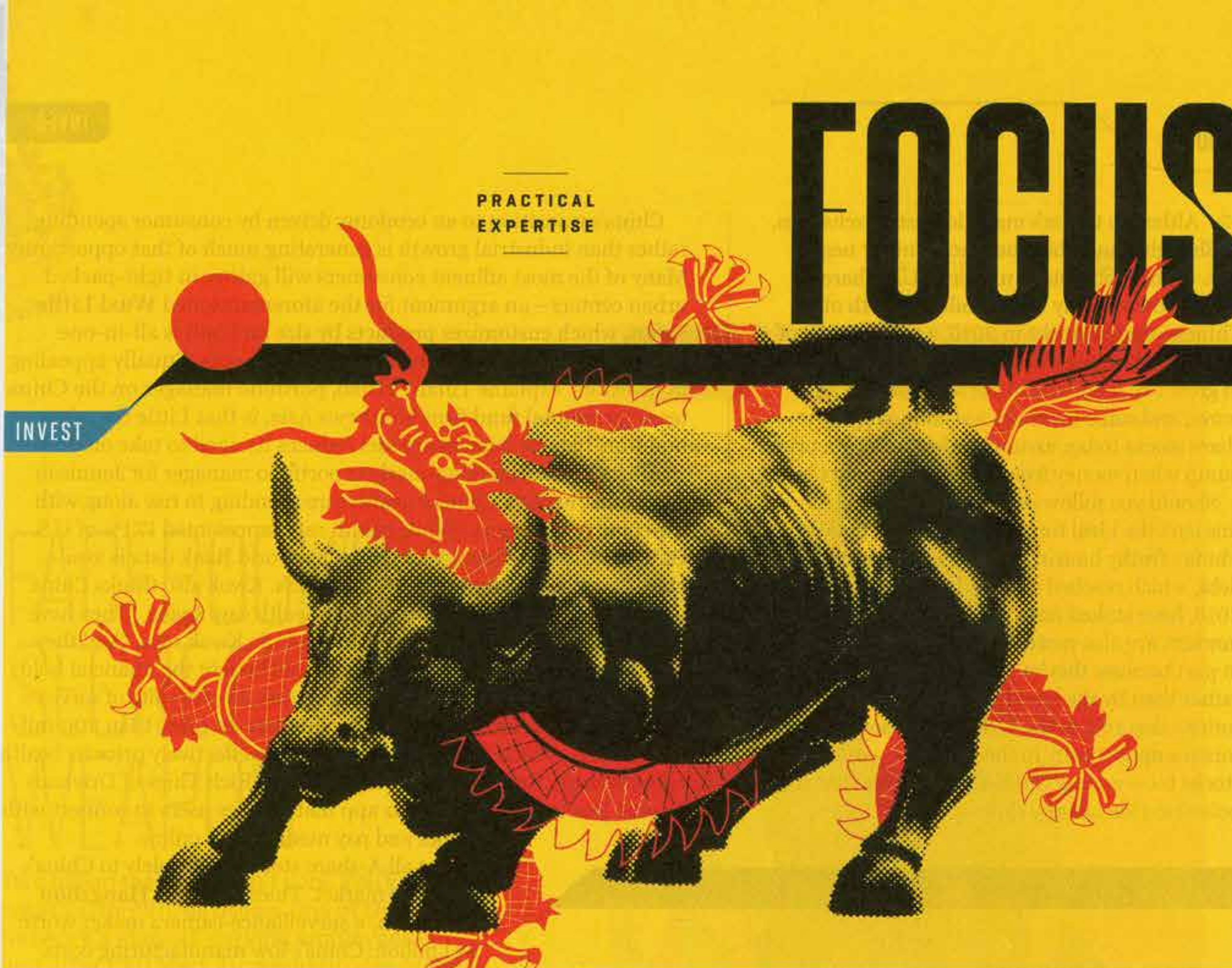
ZILLOW GROUP

HQ.............................Seattle
EMPLOYEES..................2,616
MILLENNIALS.................69%

The online real estate marketplace wins plaudits from millennials for being "personal" and "agile." Says one: "I could never imagine working anywhere else."

*EMPLOYEE COUNTS ARE GLOBAL TOTALS. PERCENTAGE OF MILLENNIALS IS U.S.-ONLY. FIND THE FULL LIST AT FORTUNE.COM/BEST-WORKPLACES-MILLENNIALS.

ILLUSTRATIONS BY JONATHAN CALUGI



WHERE BULLS ARE CHINA-SHOPPING

Hundreds of domestic Chinese stocks are becoming more easily accessible to U.S. investors. But which ones have the momentum to weather a potential slowdown? **By Lucinda Shen**

IN MOST AMERICAN households, the washing machine keeps a low profile. Consumers may want their washer to be energy-efficient, water-saving, or even "smart," but they don't care how it looks. Not so in China, where a washer is a sign that you've arrived economically—especially if it's *stylish.* That explains the aesthetic of Wuxi Little Swan. The appliance company sells a gold washing machine dubbed "Killer" that looks like a retro robot, along with a portable Mickey Mouse washer for new parents. It has ridden its apartment-friendly designs to become China's second-biggest seller of washing machines, with sales of about $2.4 billion in 2016.

Before long, many more U.S. investors will get a chance to clean up on companies like Little Swan. This summer, MSCI, one of the most prominent creators of investment indexes, added "A-shares"—stocks that trade only on China's domestic exchanges—to its emerging-markets index. The move was an acknowledgment that more Chinese companies meet international standards for accounting transparency and liquidity. And it means that, beginning next May, 222 A-shares like Little Swan will join investors' portfolios for the first time, via their emerging-markets index and exchange-traded funds.

That's a gravitational shift. Currently, most Chinese stocks owned by U.S. investors trade either on U.S. exchanges or in Hong Kong.

▲ ILLUSTRATION BY **OLIVER MUNDAY**

▷▷ Although China's main domestic exchanges, in Shanghai and Shenzhen, account for nearly 10% of the global stock universe, U.S. shareholders owned only $103.6 billion worth of Chinese-traded stocks in 2016, a tiny fraction of their total holdings. But that number is expected to grow exponentially in the wake of MSCI's move, and some investors are pouncing on A-share stocks today, assuming they'll enjoy a price bump when money from index funds pours in.

Should you follow suit? Skeptics note that this isn't the ideal time to buy Chinese equities. China's frothy housing market and its escalating debt, which reached 260% of GDP at the end of 2016, have stoked fears of a looming slump. Its markets are also more volatile than America's, in part because they're dominated by individuals rather than by the banks, funds, and other institutions that rule in the U.S. Still, seasoned investors see opportunity in the A-shares—and other stocks too—among Chinese companies that are poised to ride out any short-term rockiness.

A GALAXY INVISIBLE FROM AMERICA

China's domestic exchanges account for almost 10% of the global market, but very few U.S. investors own stocks traded there.

SOURCES: S&P GLOBAL; WFE

China's transition to an economy driven by consumer spending rather than industrial growth is generating much of that opportunity. Many of the most affluent consumers will gather in tight-packed urban centers—an argument for the aforementioned **Wuxi Little Swan,** which customizes products by size and builds all-in-one washer-dryers that fit nicely in small apartments. Equally appealing to investors, explains Tiffany Hsiao, portfolio manager on the China team for mutual fund firm Matthews Asia, is that Little Swan's build-on-request business model reduces its need to take on debt.

Albert Kwok, emerging-markets portfolio manager for Jennison Associates, expects Chinese health care spending to rise along with the country's affluence. While health care represented 17.1% of U.S. GDP in 2014—the latest year for which World Bank data is available—it accounted for just 5.5% of China's. Kwok also thinks China will be successful at innovating in the health care space. "They have [seen] the mess we have created" in the U.S., Kwok says. "And they don't want to follow us." Such trends could benefit the financial holding company **Ping An Insurance.** Ping An's diverse suite of services has helped it gather financial and health data on more than 800 million people—which should enable it to more effectively price its health care coverage. Among its innovations, notes Rich Thies of Driehaus Capital Investments: a popular app that enables users to connect with clinics and pay medical bills online.

Not all A-share stocks cater solely to China's domestic market. Thies also likes **Hangzhou Hikvision,** a surveillance-camera maker worth $41 billion. China's low manufacturing costs give the company an edge internationally, and its revenue from outside China rose eightfold between 2012 and 2016, to $1.4 billion. And Hikvision dedicates an impressive 8% of revenue to research and development.

Investors can also bet on Chinese consumers through stocks that already trade globally. The Internet giants **Alibaba** and **Tencent** dominate China's online ecosystems, offering multipurpose apps for shopping, gaming, and e-payments. Tencent has some 900 million active users, while Alibaba controls 70% of the country's e-commerce market. But each could do much more to monetize its reach through advertising, says Nick Beecroft, equity portfolio specialist for T. Rowe Price in Hong Kong—meaning each has potential for huge new revenue gains.

Jennison's Kwok thinks that kind of lucrative leap is inevitable for China's tech giants. Chinese consumers are ahead of the technological curve, he argues, because the country jumped into the Digital Age just as they were gaining spending power. "China is now used to fast adopters in e-commerce, e-payments, and more," he says. And fast adoption can mean rapid growth for the companies that tap into it. ■

31 ก.ค. 2560

FACEBOOK'S SECRET WEAPON

Two billion members isn't cool. You know what's cool? Three billion. One of the social network's longest-serving employees—just after CEO Mark Zuckerberg—leads the charge in signing up the next billion.

By Valentina Zarya

TECH **FACEBOOK MADE** two seemingly unrelated announcements in June. The first was that the social network now has 2 billion monthly users, or more than half of Internet users globally. The second was that it was changing its mission statement for the first time since Facebook was founded 13 years ago.

The social network has endured a firestorm of criticism in the past year, between the proliferation of fake news and unexpected consequences from its new streaming service, Facebook Live, including but not limited to the live-streaming of sexual assaults, murders, and police brutality.

The company, joining the ranks of *Fortune*'s Global 500 for the first time this year at No. 393, recently declared that its focus would shift from making "the world more open and connected" to giving "people the power to build community and bring the world closer together."

Gleit in Santa Cruz, Calif., not far from her alma mater, Stanford University. After she graduated, her persistence landed her a job at the then-startup.

These two landmark moments have one woman in common: Naomi Gleit, whose official title is Facebook's vice president of social good, but whom CEO Mark Zuckerberg recently described as "the woman in charge of growing our community."

Gleit has worn many hats at Facebook since she joined in 2005. She visited Facebook's Silicon Valley offices every week after graduation from Stanford University until she became the company's 29th employee. ▷▷

© JENNA ALCALA

"I know that sounds a bit weird, but I was adamant, and I had extreme clarity that Mark was going to be an important person," Gleit says. "I almost had a spiritual belief."

Today she's Facebook's longest-tenured employee—after its CEO, of course.

While vice president of social good, Gleit has also served as a member of the company's eight-person core growth team. For the past decade, the team has been focused on getting more people to join Facebook. In 2006 this was as simple as opening up the college-only site to high school students. Then to the U.S. population at large. As the site expanded, so did her duties at the company.

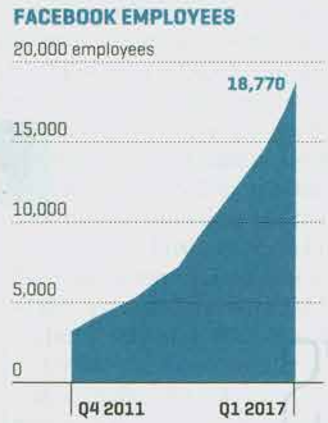
To acquire users, the team turned to data, dissecting the pain points of the registration process and daily use at the most granular level. Armed with hard numbers, they were able to dedicate resources to translating the site into 180 languages and to creating a "Facebook Lite" for users in developing countries, who have to contend with slow Internet speeds and basic mobile devices.

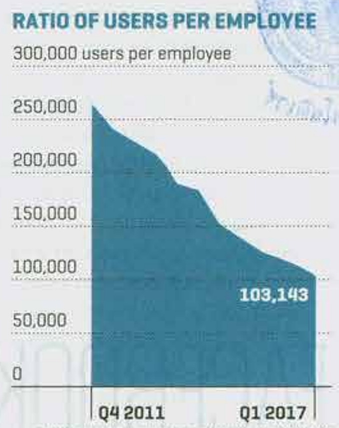
In corporate speak, Gleit's role is to "do good and build tools for people to do more good." For everyday users, this can be seen with features like Safety Check, a tool that lets people in an affected area check in as safe (and notify their networks). She also led the charge in creating Facebook's fundraising tool, making it easier for nonprofits and individuals to raise money on the platform.

Tapping Gleit—who previously has been tasked with high-priority projects like revamping privacy settings—to lead the social good team is illustrative of Zuckerberg's priorities. In addition to publicly pledging in 2015 to give away 99% of his wealth, he has been trying to position Facebook as a medium for making the world a better place—now explicit in the new mission statement.

"We have to build a world where everyone has a sense of purpose and community," he said in June at Facebook's Communities Summit. "We have to build a world where we care about a person in India or China or Nigeria or Mexico as much as a person here."

For many Facebook users, this kind of talk is at odds with the headstrong reputation Zuckerberg acquired in the 2010 film *The Social Network*. Gleit says she's seen Zuckerberg's altruistic side since joining Facebook. "I already





* MONTHLY ACTIVE USERS; SOURCE: BLOOMBERG

Facebook has dramatically scaled up its workforce in the past four years to better balance the number of users worldwide per employee.

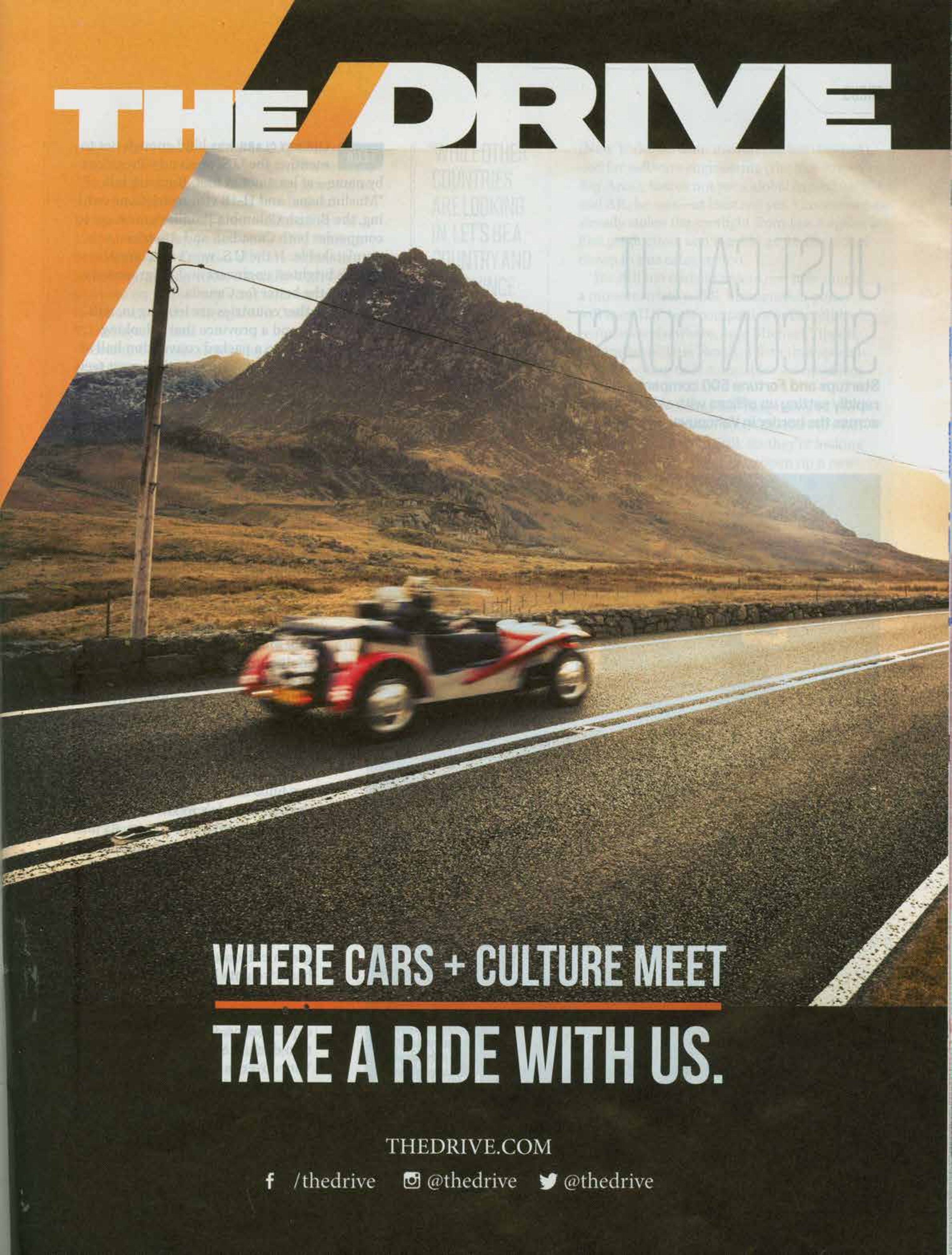
saw this intention," she says. "I don't why, but at 21, Mark felt that he needed to save the world."

Zuckerberg might be starting closer to home first. After criticism flew that Facebook didn't do enough to curb fake news during the 2016 U.S. presidential election, the CEO announced he would tour all 50 states to take a pulse on the current political climate. Popping up at small businesses and town halls seemingly without notice, his trip has sparked speculation about a future presidential run.

Back at Facebook, Gleit has her work cut out for her. The biggest challenge now is reaching the next billion users—and the way to do that will look nothing like the way Facebook recruited its first or even second billion, likely because of one barrier: Internet access. Less than half the world's population can currently get online. To that end, the company launched Internet.org in 2013, an initiative to provide low-cost, high-bandwidth Internet in developing countries. But critics quickly argued on net neutrality grounds that the connections might prioritize Facebook's services.

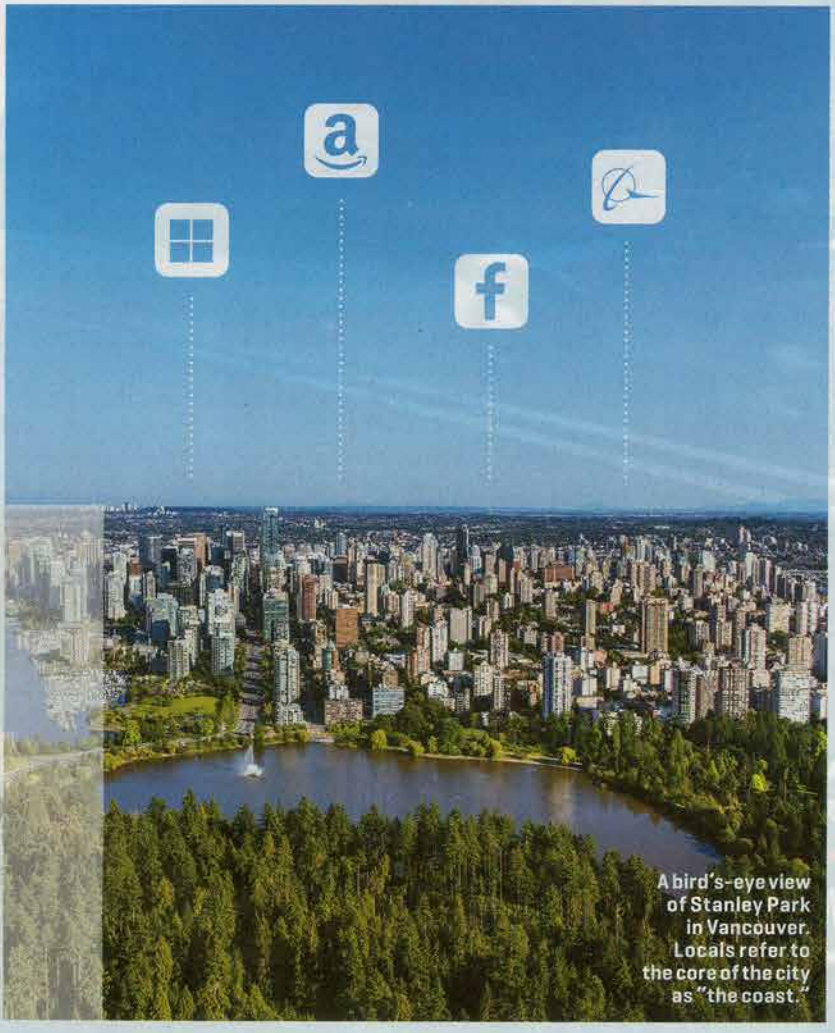
Meanwhile, a major focus of the social good team is figuring out how Facebook Live can best be used for good. Gleit says she has already seen success. Viewers of the One Love Manchester benefit concert, for example, in the aftermath of a terror attack on the U.K. city, collectively donated nearly half a million dollars via Facebook.

"Tech is not inherently good or bad," Gleit says. "We want to maximize the good and minimize the bad."


THE DRIVE
WHERE CARS + CULTURE MEET
TAKE A RIDE WITH US.
THEDRIVE.COM
/thedrive
@thedrive
@thedrive

JUST CALL IT SILICON COAST

Startups and *Fortune* 500 companies alike are rapidly setting up offices with skilled employees just across the border in Vancouver. **By Clay Dillow**



A bird's-eye view of Stanley Park in Vancouver. Locals refer to the core of the city as "the coast."

TECH **CHRISTY CLARK** was kind enough not to mention the U.S. or its new President by name—at least not at first. But with talk of "Muslim bans" and H-1B visa restrictions swirling, the British Columbia Premier's message to companies both Canadian and American was unmistakable: If the U.S. won't welcome the world's brightest engineers and programmers, so much the better for Canada.

"While other countries are looking in, let's be a country and a province that is looking out," Clark said to a packed convention hall at the BC Tech Summit, Vancouver's biggest tech industry confab, held in March. "[One] that is reaching out to the world, that is building bridges to the world, that is welcoming people in—the best and the brightest from every corner around the globe."

The Trump administration's rigid stance on immigration policy—in particular its tightening of restrictions around H-1B visas for skilled foreign workers—has created a unique opportunity for countries to lure away top technology talent that would otherwise seek employment in Silicon Valley or elsewhere in the U.S. Many of those workers now field competing overtures from countries like China, Mexico, France, and India, in some cases finding themselves pushed toward the very countries Trump has accused of stealing American jobs.

But with its proximity to technology hubs like San Francisco and Seattle, Canada's western province—and in particular Vancouver, its picturesque urban center—could have the most to gain from its national neighbor's newfound isolationism. Both government and industry are moving to seize the moment.

BC's advantage is more than geographic. Homegrown Canadian tech heavyweights like Shopify, Kik, and Hootsuite anchor what is already a robust technology and venture capital scene. (Workplace collaboration darling Slack was founded in Vancouver in 2009 before migrating to Silicon Valley.)

Coupled with Canada's com-

BUSINESS IN THE CLOUD

© ALL CANADA PHOTOS/GETTY IMAGES

paratively relaxed immigration policies, the country's tech sector has long drawn interest from major American technology giants that need foreign talent but are constrained by the historically unpredictable nature of U.S. immigration policy. Facebook, Boeing, Microsoft, and Amazon all have offices in Vancouver, filling them partially with foreign workers on temporary visas who can then collaborate with colleagues in California and Washington State.

British Columbia's wooing of foreign tech workers turned away by the U.S. is nothing new. Over the past decade, employment of skilled technology workers in BC has grown 27%, driven partly by U.S. companies frustrated with their own government's limit on visas for skilled workers. (Microsoft, headquartered not far to the south in Redmond, Wash., has been in Vancouver since 2007.) BC's provincial government has made a concerted effort to make it easy for U.S. tech companies to open offices in Canada, providing financial incentives and working with the federal government to expedite visas for skilled foreign workers.

It's a model that Canada is now codifying at the federal level. In June the Canadian government implemented a package of immigration reforms, known as the Global Skills Strategy, aimed at fast-tracking visas for skilled foreign workers—some can get processed in as little as two weeks—and providing a concierge service that will walk companies through the process of opening an office on Canadian soil.

Still, BC is finding ways to differentiate itself. Clark has floated the idea of a "doctorate-for-citizenship" program, which would guarantee Canadian citizenship to individuals on the very day they receive a Ph.D. Earlier this year, the province expanded a tax credit for virtual and augmented reality companies that move to the province. The added incentives for VR and AR companies is no accident, says Amrik Virk, BC's former minister of technology, innovation, and citizens' services. While there's already a global capital for finance (New York), for auto manufacturing (Detroit), and for software engineering (the San Francisco Bay Area), there's not yet a global capital for VR and AR, he says—at least not yet. Vancouver has already stolen the spotlight from Los Angeles in film production, and it could go for the global crown in this category too.

"WHILE OTHER COUNTRIES ARE LOOKING IN, LET'S BE A COUNTRY AND A PROVINCE THAT IS LOOKING OUT."

It's still too early to assess just how much a more restrictive U.S. immigration policy will hurt U.S. tech companies or benefit tech economies elsewhere, says Michael Tippett, cofounder of True North, a firm that specializes in helping tech companies set up offices in Canada.

"These discussions are happening in the boardroom," he says. "Your investors are not content for you to sit still. So they're looking strategically: If I'm going to open up a new office with a hundred people, where's it going to be?"

Canada is betting that companies will look beyond Silicon Valley for places where they know their talent pipeline won't be curtailed. While Canada's immigration system isn't perfect, Clark noted in her BC Tech address, it does create space for tech firms to acquire talent. That could prove a key advantage not just for businesses but for Canada's tech industry itself, which has already seen so many of its own brightest minds gravitate south toward Silicon Valley for years. F

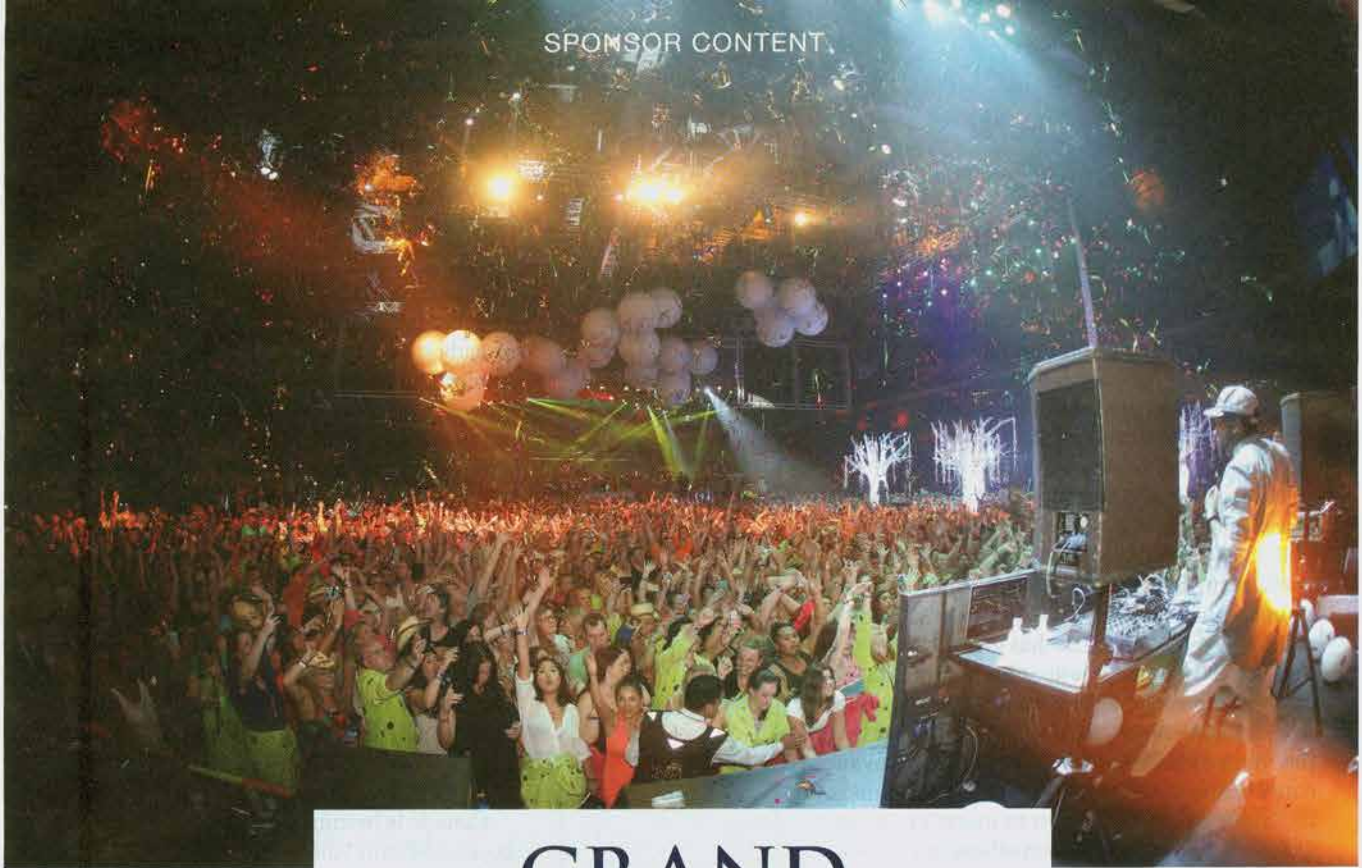
MEANWHILE, ELSEWHERE IN CANADA . . .

VANCOUVER ISN'T THE ONLY METROPOLIS NORTH OF THE BORDER BUZZING WITH TECH.

MONTREAL: Quebec's largest city is becoming internationally renowned as a research hub for artificial intelligence. Google last November established a new A.I. research group in its Montreal office, pledging to invest $4.5 million over three years in the Montreal Institute for Learning Algorithms, an A.I. research lab at the University of Montreal. And earlier this year, Microsoft doubled the size of its local A.I. research group. The tech giant also pledged $6 million to the University of Montreal and $1 million to McGill University over the next five years. Outside of A.I., Amazon houses massive cloud data centers nearby.

TORONTO: As if it doesn't have a footprint everywhere already, Google is planting roots in Canada's most populous city. Sidewalk Labs, a unit of Google's parent company, Alphabet, recently applied to develop a 12-acre parcel of land downtown, promising a brand-new high-tech city "from the Internet up," deciding against U.S. candidates like Detroit and Denver. Uber is also expanding self-driving car research into foreign markets, making Toronto its first outpost.

—RACHEL KING



GRAND TAKE-OFF AT SANDS RESORTS MACAO

Flight Centre global gathering annual incentive trip to Sands Resorts Macao

Asia's leading meetings and events destination was the obvious choice for the Flight Centre Travel Group as they headed to Macau for a colossal event.

Guests came from different corners of the world: Australia, India, Hong Kong, China, the UK, Canada, New Zealand and South Africa. As Asia's leading meetings and events destination, Sands Resorts Macao readily welcomed the 3,200 delegates of Flight Centre Travel Group's annual Global Gathering who arrived on several high-speed ferries from Hong Kong and on five charter aircraft.

With world-class infrastructure and facilities, Macau rightly deserves its reputation as a spectacular destination for meetings and conferences. Working with Sands Resorts, cievents, organizer of the Flight Centre extravaganza, leveraged the city's array of venues, luxury accommodation, professional event management support and local creativity to realize an exceptional experience.

"Monster! Macau," themed welcome reception at the 15,000-seat Cotai Arena

The brief called for the Global Gathering to be executed flawlessly amid memorable settings. Having successfully delivered several international events involving thousands of people, Sands Resorts proved to be the perfect collaborator for cievents. Most of the guests were billeted at the elegant Sheraton Grand Macao Hotel, Cotai Central, where special check-in services officially started off their stay.

THE DEFINITIVE CHOICE—SANDS RESORTS MACAO

With a full spectrum of facilities and well-equipped event spaces, Sands Resorts offers 150,000 square meters of flexible and versatile special event, meeting and exhibition space, including 334 breakout rooms and an unbeatable range of over 13,000 quality guestrooms across seven international hotel brands:

The Venetian® Macao
The Parisian Macao
Four Seasons Hotel Macao, Cotai Strip
The St. Regis Macao, Cotai Central
Conrad® Macao, Cotai Central
Sheraton Grand Macao Hotel, Cotai Central
Holiday Inn® Macao Cotai Central

Sands Resorts catered to fun and excitement every minute of the day. Delegates could choose from over 150 international restaurants, 850 luxury duty-free shopping outlets, spa and entertainment – all under one roof.

COTAI ARENA - CREATIVE AND FLEXIBLE EVENT SPACE

To open the Global Gathering, most guests strolled from their hotel rooms to the fun-filled welcome reception and gala dinner at The Venetian Macao, via the undercover walkway Bridge of Stars. The versatile Cotai Arena was transformed into a party venue with the theme "Monster! Macau." The 3,200 revelers dressed in their monster best had a grand time. The night's entertainment, inclusive of live DJ sets and international superstar Will.i.am, was an unequivocal success in part due to the arena, which was built for the ultimate in entertainment experiences.

COTAI EXPO—FROM HALL TO BALLROOM

Created to host events of different scales, Cotai Expo was just the right space for the prestigious Flight Centre Travel Group Global Gathering. With its adaptable configuration and state-of-the-art technologies, the exhibition hall served as a fine venue. At one point, cievents and the Sands Resorts team transformed the space into a chic black-and-white room for a gala dinner.

Gene Capuano, senior vice president of convention and Venetian operations of Sands Resorts Macao said: "For the black-and-white themed gala, another unique experience is having the dinner inside an exhibition hall as opposed to the ballroom. The great thing about using the hall is that you can transform raw space. The final look was amazing—from the black carpeting to mirrored support pillars." And with excellent facilities and equipment, the kitchen and banquet teams served culinary delights without a hitch.

Hot food was served hot, and service was on par with that in more traditional dining within the complex. The festivities also spilled over into Sheraton Grand Macao Hotel, where Italian restaurant Bene was turned into an after-party venue as an overnight bar. For the survivors of the big night out, a specially crafted "Recovery Breakfast" awaited them at the Tikki Pool—with customized menus, engaging entertainment and even a signature drink.

THE OUTSTANDING QUALITIES OF SANDS RESORTS MACAO

The professional convention and exhibition facilities at Sands Resorts allowed the team to create solutions tailored to the clients' needs. Dee Kelly, cievents senior project director, said: "So much of this event was unique and required flexibility, creativity and hard work. We found that The Venetian Macao and Sheraton Grand Macao Hotel communicated extensively. Seeing that we were using both properties it was so fantastic that the venues worked together to ensure the smoothness and success of the event."

Looking back at the event, Kelly underscored the value of the exceptional staff and service at Sands Resorts. To the delegates and senior management of Flight Centre Travel Group, the gathering was the "best event ever."

Let Sands Resorts organize your next event to perfection, please visit meetings.sandsresortsmacao.com, call +853 2882 8800 or email sales@sands.com.mo for more information including attractive meeting packages.

澳门金沙度假区
Sands
RESORTS MACAO

Sands Resorts Macao – Asia's leading meetings and events destination

SANDS RESORTS MACAO
AT-A-GLANCE

7 international hotel brands

THE VENETIAN MACAO
THE PARISIAN MACAO
FOUR SEASONS HOTEL MACAO, COTAI STRIP
THE ST. REGIS MACAO, COTAI CENTRAL
CONRAD MACAO, COTAI CENTRAL
SHERATON GRAND MACAO HOTEL, COTAI CENTRAL
HOLIDAY INN MACAO COTAI CENTRAL

13,000 guestrooms

150,000-sqm of event, meeting and exhibition space

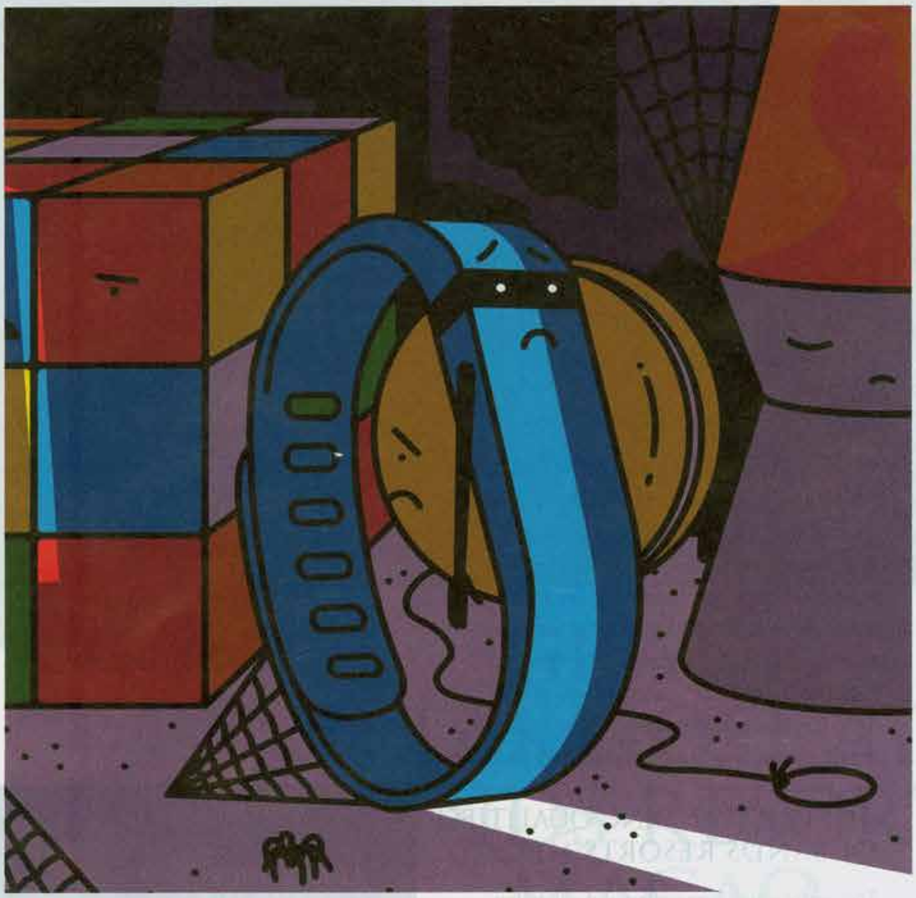
334 breakout rooms

150 international restaurants

850 luxury duty-free stores

Aqua World, spas, golf, gyms, swimming pools and many more

Call +853 2882 8800 or email sales@sands.com.mo
Website: meetings.sandsresortsmacao.com



in 2015, to just over $5 today. Its most recent quarterly sales were 40% lower than the equivalent period a year ago. Meanwhile, in July, Jawbone, maker of the Up wrist tracker and a onetime startup darling flush with VC funding and a $3 billion valuation, is liquidating its assets.

Does that mean the trackers were mere fad gizmos, somewhere between a GoPro and a fidget spinner, destined to live out their lives in the bottom of a drawer? Certainly, there's more than a dollop of truth to that notion: Of Fitbit's more than 50.2 million registered users, only 23.2 million remain active. The first generation of fitness trackers has largely run its course, it seems.

Now the race is on to come up with the next breakthrough. And this time, players much bigger than Fitbit may enter the fray. Google, Apple, and a number of pharmaceutical companies are trying to develop the next generation of wearables, which can track medical metrics in addition to fitness data. If any of those companies can achieve their ambitious goals—monitoring blood sugar for diabetes without piercing the skin, for example—the tracking industry will get a shot in the arm. But the prognosis is uncertain, and the time frame likely a lengthy one.

DATA WON'T MAKE YOU FIT

But that doesn't mean the dream of the "quantified self" is over. By Laura Entis

VENTURE

IF YOU WERE monitoring the activity-tracking industry lately, you'd detect a condition somewhere between a weak pulse and full cardiac arrest. The stock price of market leader Fitbit—known for wristbands that count users' steps, hours of sleep, and more—tumbled from a peak of about $48, reached shortly after the company went public

FEW PRODUCTS have experienced a takeoff as dramatic as fitness trackers enjoyed beginning in 2008. In less than a decade, Fitbit has sold more than 63 million devices.

Thus was born the "quantified self," the belief that if people could collect and analyze their individual biometrics, they would make better decisions about food and exercise. "Our primary motivation is to help everyday Americans to get up off the couch, exercise more, eat better, and live a healthier life," Fitbit CEO

© GUTTER DUMMY CREDIT GOES HERE

▲ ILLUSTRATION BY **SAM ISLAND**

James Park said at the time.

Next thing you knew, millions of people were wearing wristbands and informing their friends and spouses how many steps they had taken that day. Yet even as the technology improved to track more advanced metrics, excitement about it waned.

To some degree, Fitbit and its brethren are victims of their own success, in much the way that GPS-device makers once were. Tracking is now popular enough that smartphones and smartwatches include nearly all the functionalities of stand-alone fitness trackers.

At the same time, the device makers have never fully assuaged concerns about the accuracy of their data. For example, a recent study, published in the *Journal of Personalized Medicine,* found seven popular activity trackers all significantly miscalculated the number of calories participants burned.

And so the industry's future seems to depend on amping up its core technology. Fitbit is exploring how to harness the data it already collects so users can monitor conditions such as hypertension, atrial fibrillation, and sleep apnea, a disorder that affects 18 million adults in the U.S. That would enable its products to go from nice-to-have items to "must-have devices," says Fitbit's Park. The timeline for these developments, which would require regulatory approval, remains uncertain.

With 29 million Americans having diabetes and another 86 million estimated to be prediabetic, a noninvasive blood-sugar tracker is the industry's holy grail. But finding it won't be easy.

It's unclear whether it's possible to detect accurate glucose measurements from fluids other than blood, says Mark Rice, a diabetes expert at Vanderbilt University. The body tightly regulates glucose, and it leaves the blood—via tears, urine, and sweat—only when levels spike above the normal range. That means a device could potentially communicate abnormally high, but not low, blood sugar from perspiration. Measuring glucose via infrared light is another option, but this method presents its own challenges, as glucose levels are relatively low, colorless, and hard to detect. "There's a huge amount of noise, and a very small signal," says Rice.

Such obstacles haven't prevented companies from pouring hundreds of millions into the hunt. While a handful of startups are publicly attacking the problem, the larger tech and pharmaceutical players are more secretive in their pursuits. Apple has been quietly working on a glucose-measuring device for years, according to two CNBC reports. (Apple declined to comment.)

Last year Google partnered with Sanofi to form Onduo, a company that is scheduled to launch coaching and support services for people with diabetes next year. Onduo is "bullish" that a clinical-grade, noninvasive, continuous glucose monitor is possible; the company is in talks with several pharmaceutical companies that are working on such a device.

If the industry can surmount those daunting barriers, then comes an additional challenge: combining these biometrics with artificial intelligence able to process, analyze, and communicate them in a way that gets people to take action. Eventually, wearables might become emotionally intelligent enough to act as a coach and doctor. "For chronic diseases, you need a service. You can't just have technology," says Onduo CEO Joshua Riff.

"The first 10 years was all about, 'How do we build these devices to track and collect data?'" says Fitbit's Park. "The next 10 years will be about the insights and guidance."

The industry, it seems, is in for a long rehabilitation period.

NO MAGIC BULLET

In a 2016 study published in *JAMA*, 470 overweight participants were put on an exercise plan as well as a low-calorie diet. They were divided into two groups: One self-reported their diet and exercise, while the second was given fitness trackers to measure their activity. After two years, the group that had been given the fitness trackers lost, on average, around five fewer pounds than the group without the devices (7.7 pounds vs. 13).

For John Jakicic, a professor of health and physical activity at the University of Pittsburgh and the study's lead author, the results were surprising. He's currently working on new research exploring why fitness-tracking data doesn't necessarily translate to health results. (His personal hunch is that the device spat out lots of data without providing the support and context to incur a response.)

If you have a device and it works for you, "by all means, keep using it," says Jakicic. But "let's not make this too complicated." Weight loss is about moving more and eating less.

LEARNING NOT TO LEAD

Foursquare's Dennis Crowley recounts the moment he realized he was no longer the right person to lead the company he cofounded. **As told to Polina Marinova**

VENTURE

WHEN NICK BILTON'S book *Hatching Twitter* came out, I couldn't put it down. It was early December of 2013, and I had reached the part where Twitter's board replaces cofounder Evan Williams as CEO.

A few days later, I checked my email to see a meeting on my calendar. It read: "Dennis meets with Ben and Albert." In other words, Foursquare board members Ben Horowitz and Albert Wenger wanted to meet with me, the cofounder and CEO of Foursquare. "Oh, my God! I'm going to be fired, like in the book," I thought.

That Thursday, I walked into Foursquare's New York office to find Ben and Albert already sitting at the table in the boardroom. They were on the far side, so I sat directly across from them on the near side. I remember thinking, "I might not have a job after I walk out of here." They started making small talk about the company and asking me about my holiday plans.

"Gentlemen, if you have something to say to me, just say it. Just break the news," I said. They looked confused and asked me what "news" I was talking about. "You guys aren't here to fire me right now?" I said. To which they responded, "What's wrong with you? We just wanted to check in before the holidays."

And then I had to explain that I was reading the Twitter book when this meeting showed up on my calendar. After we laughed about it, there came this very serious moment of, "Well, what's going on? Why did you think we were going to fire you?"

I wasn't quite sure how to respond. The company was doing well, but I wasn't. I began telling them all of my self-doubts. I told them about the challenges of the job and the difficulties of transitioning from a consumer-focused company to an enterprise one. But then I dropped this bombshell: "I don't know if I'm the right person to lead Foursquare anymore." I was the right person to get it to this point, but I needed help.

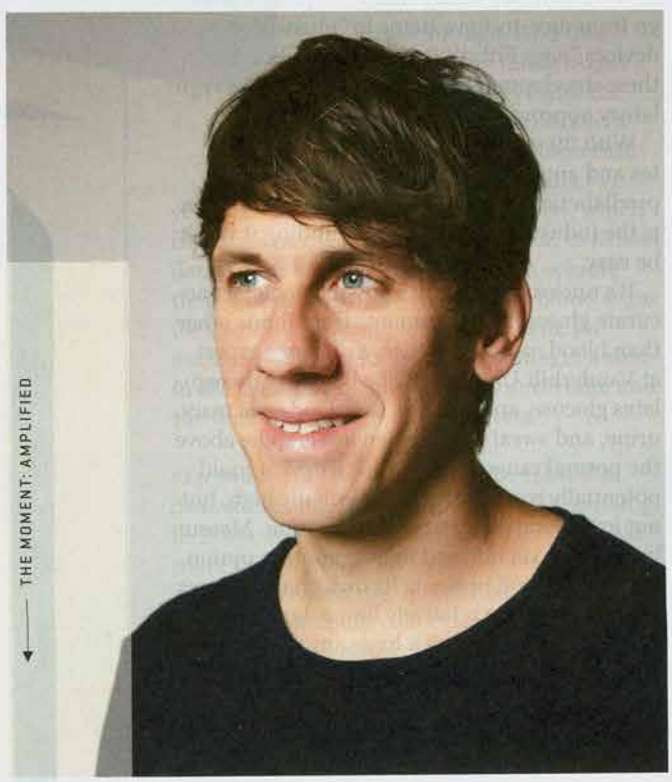
That moment of anxiety was the catalyst for us to have a frank conversation about how I envisioned my role at Foursquare.

For the next two years, I executed a plan that involved hiring an operator, expanding the management team, selecting my successor, and transitioning into an executive chairman role. In January of 2016, I stepped down as the CEO of Foursquare.

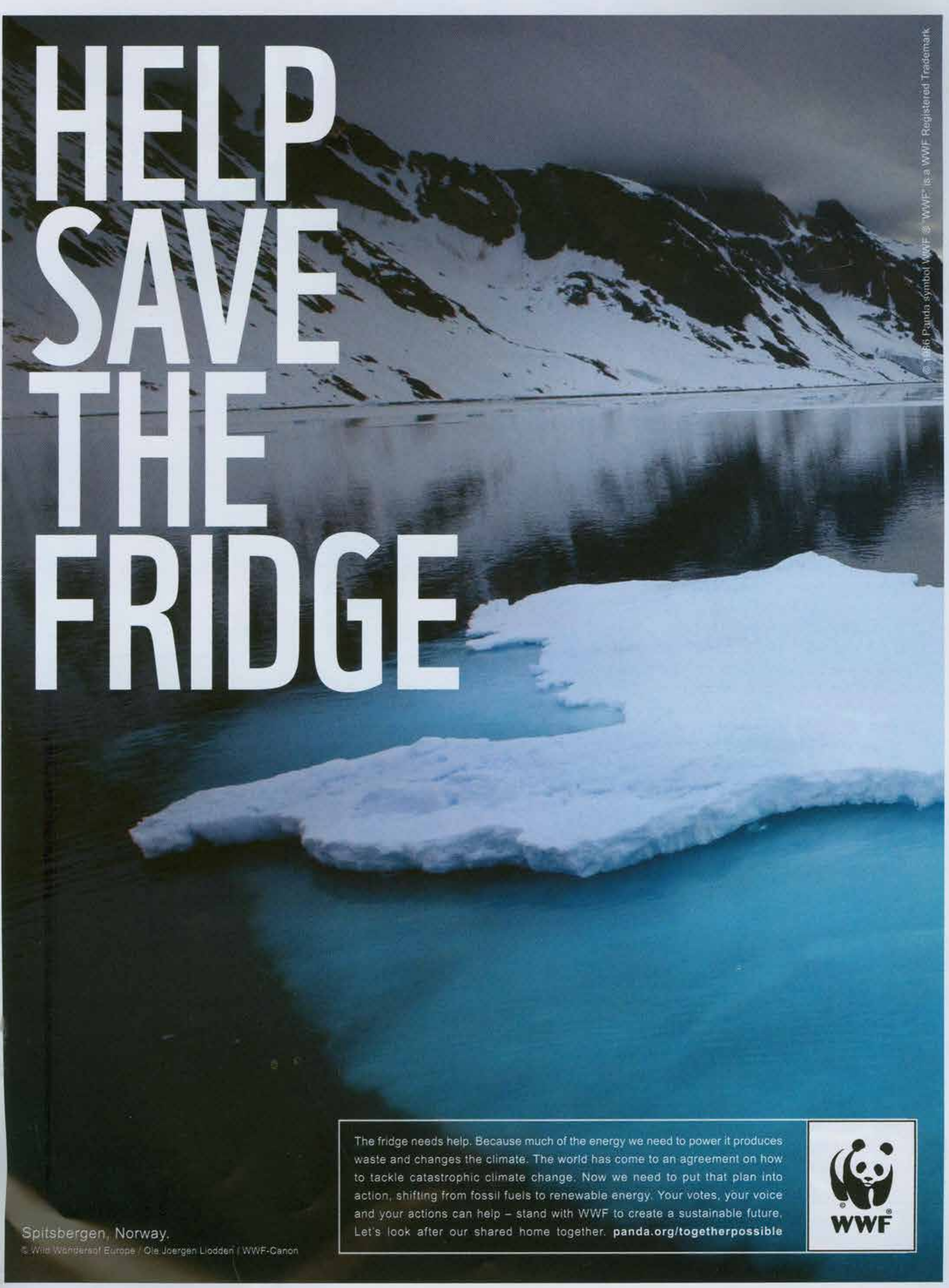
I hadn't thought of switching my role until I got out of that meeting. Before that, all I thought was, "This is a hard job, and being an operator doesn't come naturally to me." That Thursday morning was the first time I had considered the company would be better off with a more experienced leader. I was self-aware enough to know that I'm good at a lot of things, like building products, but this was not one of them. ■

Crowley cofounded location-based social network Foursquare in 2009. He stood down as CEO in January 2016.

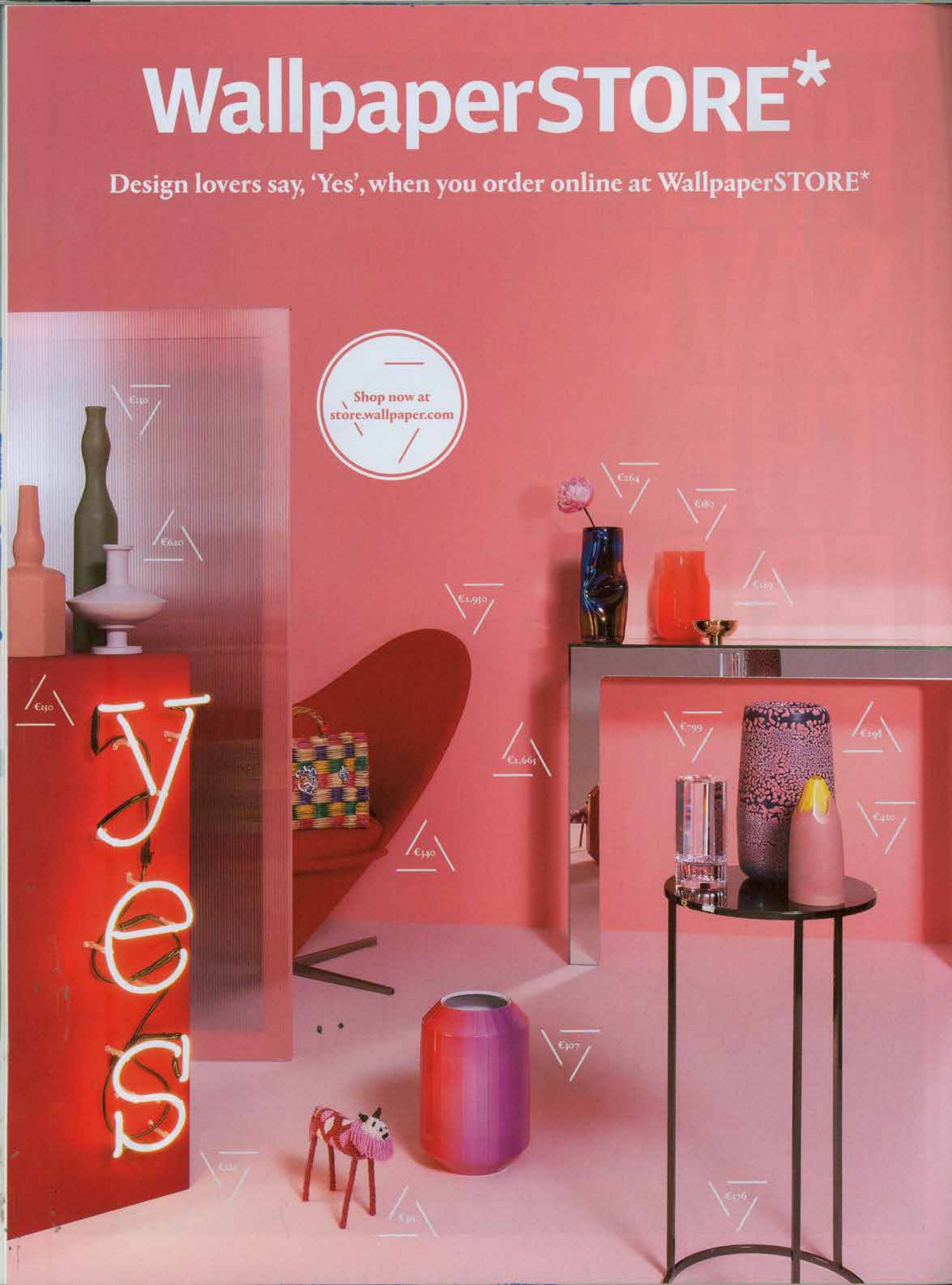
THE MOMENT: AMPLIFIED



PHOTOGRAPH BY BEN KULO



HELP SAVE THE FRIDGE
© 1986 Panda symbol WWF ® "WWF" is a WWF Registered Trademark
Spitsbergen, Norway.
© Wild Wonders of Europe / Ole Joergen Liodden / WWF-Canon
The fridge needs help. Because much of the energy we need to power it produces waste and changes the climate. The world has come to an agreement on how to tackle catastrophic climate change. Now we need to put that plan into action, shifting from fossil fuels to renewable energy. Your votes, your voice and your actions can help – stand with WWF to create a sustainable future. Let's look after our shared home together. panda.org/togetherpossible
WWF


WallpaperSTORE*
Design lovers say, 'Yes', when you order online at WallpaperSTORE*
Shop now at
store.wallpaper.com
yes
€2,950
€1,665
€340
€150
€799
€298
€307

PASSIONS

HOTELS

A SANCTUARY FROM TERROR

Paris's luxury tourism industry is rebounding after years of disruption from terrorism, fractious politics, and increased competition. By Lindsey Tramuta

YOU DIDN'T NEED to see the red carpet to know the inauguration of the Hôtel de Crillon last month was a VIP affair. More than 400 longtime clients, press members, competitors, and personalities packed inside—Duval-Leroy champagne in one hand, fine smoked salmon blini in the other—for a preview of the grande dame's multimillion-euro makeover before the official opening on July 5. Punctuating live jazz and the chorus of oohs and aahs, there was a quiet chatter, *"Enfin!* Paris is back."

Housekeepers prepare a room in the Vendôme Suite of the newly renovated Ritz Paris.

Occupying regal real estate on the Place de la Concorde, Hôtel de Crillon has been a Parisian landmark since 1909, drawing in the likes of Orson Welles and Madonna, who have stayed for weeks at a time over the years. The anticipated four-year renovation of this now Rosewood Hotel—encompassing a newly constructed lower-level skylighted pool, three restaurants, two Karl Lagerfeld–designed apartment suites, a spa and men's grooming space, and the sixth-floor Bernstein suite that starts at 25,000 euros—comes only a year after the city's other most talked about costly overhaul, the Ritz Paris. Overlapping clientele aside, it's their mutual reentry into a radically transformed market, both in terms of competition and context, that connects them.

With 77 five-star properties, of which 10 have Palace status—a prestigious distinction created by the French Ministry of Tourism in ▷▷

© ERIC MARTIN—FIGAROPHOTO/REDUX

Hôtel de Crillon's Jardin d'Hiver, where diners can taste fine patisserie from chef Jérôme Chaucesse.

▷▷ 2010—Paris's luxury hotels have never been denser. By 2018 seven luxury hotels will have opened and six will have considerably upgraded their services since 2000, including established leaders like the Four Seasons Hotel George V, Le Bristol, and the Hôtel Plaza Athénée. According to the Economic Observatory of Parisian Tourism, that's a 47% increase in offerings and a 300% increase in rooms selling for over 800 euros per night: a significant capacity to fill, particularly in a travel climate that is fresh off two years of hardship.

"In 20 years of working in Paris, I've never seen a more disastrous year for hotels," says La Réserve Paris general manager Didier Le Calvez. The impact of cancellations following the *Charlie Hebdo* attacks in January 2015 were modest for many hotels—nothing a few bankable private events couldn't resolve. At the time, the incident appeared retaliatory and not necessarily indicative of sustained trouble. But by the end of 2015, following the Nov. 13 attacks on six sites in the city, it was clear there was an abiding threat that would deter tourists well through 2016.

For Le Bristol, business held out until June 2016 when the succession of the Nov. 13 attacks, the spring's Seine-river flooding, and heavily publicized airline and taxi strikes pushed it into decline. What saved the hotel, says Catherine Hodoul-Baudry, director of sales and marketing, was a strong European client base (about 40%), a predominantly local clientele for their restaurants, and brisk business in events including film premieres and fashion shows, which compensated for a drop in leisure guests, including 30% fewer Americans. Le Meurice, a Dorchester Collection hotel, has offset a slump in occupancy by ramping up its teatime service, which is helmed by 31-year-old pastry chef Cédric Grolet (recently photographed with Katy Perry, who commissioned bespoke pastries for a private concert held on the hotel's rooftop terrace).

Terrorism aside, other factors have hit Paris's luxury tourism industry. "Friction between Qatar and other Middle Eastern nations—there are Palace properties owned by Qatar; some travelers won't reserve there," says Ivan Lartisien, cofounder of the upscale travel agency Grand Luxury. "And we have a socialist city government that doesn't want to be seen defending the luxury industry. Instead it promotes mid-sector tourism."

Recent troubles, however, like police shootings on the Champs-Élysées, have had only moderate consequences for bookings. "It's sad, but people have resigned themselves to this new reality and keep traveling," says Grand Luxury cofounder Rouslan Lartisien.

The 20- to 30-point decline in occupancy for five-star hotels in 2016 can be explained by capacity, the effects of which the industry is only just beginning to see, says Four Seasons Hotel George V general manager José Silva. "When one property would open, another would close for renovations. This is the first time the majority of us are simultaneously open for business." That hasn't deterred him from pumping 50 million euros into a brand-new spa (opening in 2018) and ongoing updates to suites: "The properties that do well don't cut room rates; they reinvest."

Whether it's the reopening of legendary properties or the stymied expansion of populism with the election of President Emmanuel Macron, the capital's image and tourism are rebounding. Competition may be tougher than ever, but affection for Paris is unequivocally a boon for business. "France is a country capable of rising up from the ashes," says La Réserve's Le Calvez. "If the 'Macron effect' continues, and Paris wins the bid to host the 2024 Summer Olympics, the city will be back on top by next year." ■

THE BEST OF PARIS

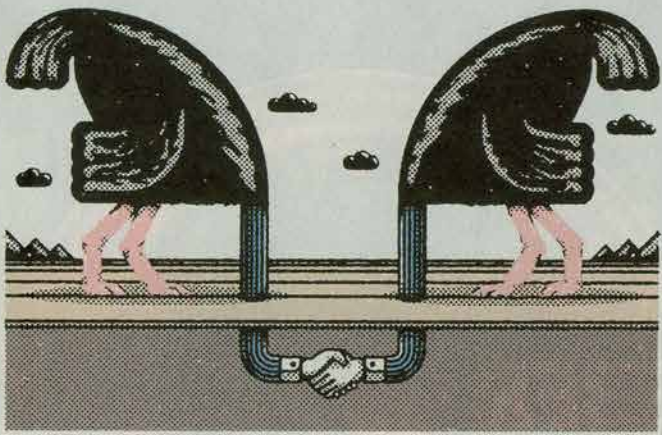
AS RANKED BY READERS OF *TRAVEL + LEISURE*

LE BRISTOL: Occupying a 19th-century building near the Élysée Palace, Hôtel Le Bristol has been a favorite of everyone from Grace Kelly to Leonardo DiCaprio since 1925.

LA RÉSERVE: Michel Reybier's 40-room Parisian escape feels like a hidden private mansion.

THE RITZ: Paris's most iconic property features Michelin-star dining and Bar Hemingway, led by English barman Colin Field.

© COURTESY OF ROSEWOOD HOTELS & RESORTS



A BLIND EYE TO THE TRUTH

Unconditional support contributed to Silicon Valley's success—and some of its worst missteps. By Erin Griffith

NO INDUSTRY is immune to criticism, but the dominant players in startup land believe theirs should be. A recent exchange with a venture capitalist reminded me of that when he argued that all venture capital investors are generally required to support every startup. "Starting up is hard enough," the investor argued. "Those in the industry should support the industry."

He's not alone in that sentiment. Startup land expects, and receives, constant hype and adoration. When things don't go as planned? *Shhhhhh. We're doing God's work here.* That's why when a startup fails and sells its assets in a fire-sale deal, even the investors who lost all their money will chime in with perky congratulations on Twitter. #CrushingIt!

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

It's hard to imagine that kind of forced camaraderie in, say, the timber industry or the apparel biz, but that's what makes Silicons Valley, Alley, Beach, and Slopes so special. It's not an industry; it's a community. These aren't colleagues; they're friends. This isn't a job; it's a calling. And everyone is interconnected. When one startup succeeds, an entire ecosystem of people—employees, customers, partners, investors, investors' investors, even competitors—benefits. That's why they protect their own. They get defensive. They forgive sins.

But a no-haters rule looks misguided as the biggest and most valuable startup of this cycle, Uber, withers under the weight of its own toxic culture. And a no-haters rule looks downright backward amid recent reports exposing a number of prominent investors who sexually harassed their female colleagues.

News of these accusations, made on the record by nine women, ignited an explosion of public outrage. Fellow investors took to Medium to condemn the behavior of the accused, propose pledges, and suggest reforms. But plenty of industry cheerleaders already knew about the incidents. Some had chances to expose (and thus put an end to) the unwanted touching, propositions, and inappropriate comments. Instead, they averted their eyes. Meanwhile the targets of that harassment kept quiet, risking ostracism for speaking up.

That's how Justin Caldbeck, Dave McClure, and other prominent venture capitalists accused of sexual harassment continued their behavior for years before anyone spoke up, according to reports. Caldbeck was able to raise his own VC fund despite an alleged incident with a female founder at his prior employer, Lightspeed. (Lightspeed did not respond to a request for comment but tweeted: "We regret we did not take stronger action. It is clear now we should have done more." Caldbeck, who resigned from his firm and apologized, declined to comment.)

It took seven years for one of Caldbeck's accusers to expose him. Why? Because this is an industry that closes ranks rather than blows whistles, especially when business is as good as it's been in recent years. The no-haters rule is fading, thanks in part to those who risk their careers to speak up. For lasting change, though, the industry needs to realize that it's not above self-criticism. ■

▲ ILLUSTRATION BY MICHAEL HADDAD

#DEFEATUBER

JUST ABOUT EVERYONE who has ever read a children's book knows the fable of the tortoise and the hare. That's the one about the footrace in which the cocky hare sprints ahead, leaving his reptilian rival behind in a cloud of dust and trash talk—and then takes an overconfident nap before reaching the finish line, allowing the plodding tortoise to win in a blaze of slow-but-steady glory.

Now imagine the story with a few modern twists. The bunny-proxy is Uber, the brash front-runner that dominates the world of ride sharing—but has hamstrung itself with debilitating distractions like executive firings and allegations of systemic sexism and patent infringement. The tortoise? That'd be Lyft—which, if it isn't exactly plodding, is at least less braggadocious and more cautious than its competitor.

For now, the hare—er, Uber—remains very much in the lead, and any fairy-tale ending is years away. Still, if ever there was a chance for Lyft, the perennially distant No. 2 in the ride-sharing duopoly, to pull

SCANDALS AND MISSTEPS AT UBER HAVE GIVEN LYFT A CHANCE TO CATCH UP IN THE RIDE-SHARING RACE. COULD A BOLD BET ON DRIVERLESS CARS HELP THE PINK-MUSTACHE STARTUP TAKE THE LEAD?

BY MICHAL LEV-RAM

ahead of Uber, this would be it.

Uber's stumbles have been a can't-look-away train wreck this year. They've ranged from a former engineer going public with claims of a sexist work environment, to the proceedings in a lawsuit filed by Waymo, the driverless-tech arm of Google parent Alphabet, accusing Uber of infringing on its intellectual property. And they culminated with the stunning resignation of cofounder and chief executive officer Travis Kalanick in late June. (Kalanick remains on the board; as of mid-July Uber had yet to appoint a new CEO.)

All this has played out against a backdrop in which Uber has been depicted as ruthless with employees and customers and contemptuous of local laws.

The stormy news has put a wind at the tortoise's back. Since June 2015, Uber's share of the U.S. ride-hailing market has declined from 90% to 75%, according to TXN Solutions, a firm that uses credit card data to track consumer trends. The steepest decline came in January, when, just after New York taxi drivers stopped taking passengers to protest President Trump's original travel ban, Uber announced it was increasing the price of local rides because of high demand. Uber has said that its communication was misunderstood, but its market share dropped four percentage points that month alone. (Lyft's response to the ban? Its founders pledged to donate $1 million to the American Civil Liberties Union.) Meanwhile, since February, Lyft's market share has increased to 25% from 21%.

The underdog's growth and Uber's deceleration have massive potential ramifications in and out of Silicon Valley. And for the front-runner, the timing could hardly be worse.

Pretty much every tech investor and their mother has put money in one or the other service. Uber has raised about $14 billion in equity and debt financing from more than 70 venture capital firms, private equity funds, and high-net-worth individuals, attaining a valuation of $69 billion that makes it the most valuable tech startup ever. Lyft, meanwhile, is no slouch: It has raised $2.6 billion from an equally impressive "who's who" list, including $600 million in May in a funding round that gave it a valuation of $7.5 billion.

Investors on both sides will soon be itching for a return—and for Uber, recent events may have pushed that finish line farther away. "The amount of dislocation at Uber is almost unprecedented," says Mark Mahaney, an analyst with RBC Capital Markets. "I would assume that Uber has materially pushed back whatever IPO date they had." Others believe that Uber's dysfunction may deprive it of the future investors and corporate partners it needs to keep growing. "All it takes is one more issue before momentum is completely shifted," says one automotive executive, who did not want himself or his company to be identified. "We've had internal discussions, and we don't think Uber is a major player after 2020."

And yet investor financing isn't even the biggest prize at stake. The shift from car ownership to car sharing already represents one of the biggest business-model disruptions in the auto industry's history. But whoever has the lead in ride sharing will also play a central role in an even more consequential transformation: the pivot toward autonomous vehicles. Technological advances, economic imperatives, and safety and environmental concerns are converging to push driverless cars into the mainstream—and ride-sharing services may be the way much of the public gets introduced to them. The winner of the Uber-Lyft contest could help redefine the blueprints of our cities, our transportation policies, and even our modes of interacting with one another—and become a truly huge, ubiquitous consumer brand.

Both Lyft and Uber have invested in autonomous vehicles development. But until recently, Uber had a significant head start in building its own technology, partnering with others and launching self-driving pilots. More recently, though, Lyft has started to catch up. The company inked its first driverless-car partnership, with General Motors, in early 2016, and more recently announced another deal, with MIT spinoff NuTonomy (pilots with both companies are expected to start launching this year and the next). Then in May, it came out that Lyft had another partner—none other than Waymo, the litigious thorn in Uber's side. "It was an easy and straightforward partnership to make," says John Krafcik, CEO of Waymo.

This summer, Lyft announced its biggest leap yet toward an autonomous future—the development of a suite of technologies, both hardware and software, that will allow any manufacturer to turn its vehicles into driverless machines and to easily integrate with Lyft's network of passengers. Lyft is offering a new pitch to potential partners: We're in it to win it, and we'll give you tools that'll make it easier for you to win too.

Uber is quick to note that self-driving is core to its mission as well, and that it is still growing at a more-than-healthy clip despite the recent controversies. "Our business is stronger than ever, and we're keeping our heads down to build the best and most innovative products out there," a spokesperson said in an email to *Fortune*. (Uber declined to allow an on-the-record interview with an executive.)

Leapfrogging Uber won't be easy. But driverless tech could elevate Lyft to parity, or better—not to mention finally make it profitable. (Lyft reportedly lost about $600 million in 2016 on revenue of about $700 million; Uber says it lost $2.8 billion on revenue of about $6.5 billion.) Can two giants coexist in a driverless future? Perhaps. But in this high-pressure race, the winner gets far more than bragging rights.

LOGAN GREEN, Lyft's CEO, and its president, John Zimmer, have worked together for more than a decade. The soft-spoken Green oversees Lyft's product and engineering ranks; the more spirited Zimmer is the public face of the company (he also drives divisions like marketing and government relations). Says one Lyft colleague, vice president of customer experience Mary Winfield: "I like to think of them as the head and the heart."

On a midsummer afternoon, I get to see the whole corpus in action. Green and Zimmer sit across from me in a conference room at Lyft's San Francisco headquarters. The two give the impression of being almost inseparable. They live just two blocks from each other in nearby Berkeley, and carpool in most days. (On a recent flight back from a business trip to China, they watched the musical comedy *Pitch Perfect* together.) Both are 33 years old, and married with young children. And while they were born on different coasts, their lives have been on parallel tracks for a long time.

Green grew up in Los Angeles, snared in its web of continually gridlocked freeways. "I spent a lot of time sitting in traffic, seeing one person in every car," he says. He spent a lot of time pondering how to change that—and went on to launch a Zipcar-like, by-the-hour car-rental service on his college campus in nearby Santa Barbara. During school, Green and a friend took a trip to Zimbabwe, where he encountered his next inspiration: Kombis, the myriad minibuses that make up much of that country's informal "ride-hailing" network. He came back home and began plans for a carpool-matching service, aimed at students driving back home.

Zimmer, a New York native, studied at Cornell's School of Hotel Administration. A class called Green Cities got him pondering transportation infrastructure, and his hotel-management coursework informed his thinking: What if you built a transportation strategy around hospitality-like efficiencies, a.k.a. occupancy rates, and great service? The average American car is used only 4% of the time, Zimmer notes, typically with only one seat occupied. "It's a horrible occupancy rate at a high cost," he says. "I wanted to create a better 'transportation hotel.'"

After college, Zimmer became an analyst at Lehman Brothers, where he started working on a marketing plan for that idea. One day, while perusing Facebook, he ran across a post by a guy named Logan Green on a mutual friend's page. "It said, 'Check out this website I'm starting, Zimride.com,'" says Zimmer. "I was like, 'Where did he come up with this name?'"

"Zim" was short for Zimbabwe, it turned out, and Zimride was Green's carpool service. The two met and bonded over their mutual passion, and in the fall of 2008, about a month before Lehman's collapse, both moved to Silicon Valley to devote their time to Zimride. To spread the word, the duo would sometimes dress as frogs or beavers and parade around universities. The guerrilla marketing worked—upwards of 150 clients signed up—but focusing on colleges and mostly long-distance trips limited the startup's prospects. At a company "hackathon," Green and Zimmer came up with a spinoff idea with greater growth potential: Lyft, an urban, short-rides variation on the carpool. Lyft could target all kinds of rides, including the shorter trips most people make more frequently.

By 2012 the duo had sold Zimride to Enterprise Holdings for an undisclosed amount. After five years of working together, they turned their full attention to Lyft.

BY THEN, Uber had been in business for four years—though it wasn't the Uber most know today. The company's original mission was to connect passengers with "premium black cars." If Lyft's philosophy was colored by Zimride's communal idealism, Uber's was more tech-bro libertarian: Using technology to optimize transportation is better not because it will get cars off the street, but because the status quo offered to the masses inherently sucks.

Indeed, while Uber users rode in relatively luxurious vehicles behind professional drivers, Lyft utilized drivers' existing cars from the get-go—whether high-end or hoopty. Lyft encouraged riders to sit up front and exchange fist bumps with their driver, and gave car owners pink, fuzzy mustaches to attach to their bumpers. (Last year, the company ditched the goofy decor elements in favor of multicolored-LED gadgets that attach to dashboards.)

It turned out car sharing was the model more consumers wanted. Lyft launched in 2012; Uber announced its own car-sharing function—letting anyone with a car become a driver—shortly after. That version quickly became Uber's dominant service, and a fierce rivalry was born.

It's a rivalry that has been largely lopsided. Well-connected and well-capitalized, Uber aggressively launched in multiple cities and countries, opting for a "move fast, apologize later" strategy. Uber, not Lyft, became the default verb in ride-sharing lingo. ("I'll just Uber over.") While Uber's reach now encompasses more than 600 cities worldwide, Lyft is available in just 350 and only in the U.S. Since its launch, Lyft has completed 400 million total rides; in roughly the same time period Uber has given 5 *billion* rides.

TRAFFIC FOES
A childhood spent on Los Angeles freeways led CEO Logan Green (left) to dream of building a company that would take cars *off* the road.

John Zimmer, Lyft's president, came to believe that cars, like hotel rooms, work better when they're occupied most of the time.

To be sure, No. 2s have been known to pull ahead of No. 1s. And public sentiment has been tilting Lyft's way since long before Uber's scandal-filled 2017. In adding new markets, Uber employed a scorched-earth strategy: Local governments were an impediment, not an entity to partner with or seek approval from. That approach has kept Uber's lawyers gainfully employed—and generated almost as much work for angry activists and editorial writers. And while Uber expanded its empire to 77 countries, broadening its revenue opportunities, it also exposed itself to high-profile spats and setbacks. The company has wound up essentially giving up on penetrating the markets in both Russia and China, for example, merging its operations with bigger and more successful rivals.

Lyft, meanwhile, has picked fewer battles with regulators and local governments—and with its 700,000 drivers. Like Uber, Lyft has been the subject of class-action lawsuits brought by drivers who sought to be classified as employees, not independent contractors. But recent surveys show that Lyft's drivers are happier with their experience than Uber's. It's not surprising. While Uber's Kalanick was caught on camera berating a driver in a video that went viral, Lyft's fist-bump ethos has nudged customers to see drivers as peers rather than chauffeurs. Notably, Lyft drivers also make more money, on average, and the company has enabled "in-app" tipping since its launch. Uber, meanwhile, only got around to offering a gratuity-giving feature this summer.

TO THE EXTENT that Lyft stands for good driver relationships, that identity may soon be challenged. Most Lyft and Uber drivers are part-timers, bringing in an average of just \$377 and \$364 a month, respectively, according to consumer-lending startup Earnest. But you know who's cheaper? Robots.

Uber and Lyft each pay drivers between 75% and 80% of the total fee for each ride. Autonomous vehicles require no such cut, not to mention that they can be utilized nearly 100% of the time. This is the direction in which Uber and Lyft are being pushed by forces too numerous to count—not least the idea that businesses should, you know, earn profits.

Characteristically, Uber raced toward this reality faster and more aggressively. In 2015 the company struck a research pact with Carnegie Mellon's robotics department, then made the controversial move of poaching 40 of its top

PREVIOUS SPREAD: TOASS—GETTY IMAGES

▲ PHOTOGRAPHS BY WINNI WINTERMEYER

researchers, setting up an Advanced Technologies Center with the looted talent in Pittsburgh. Rather than simply partner with researchers, Uber wanted to develop the building blocks of autonomous systems, from cameras and sensors to software and mapping, by itself.

In 2016, Uber made another big move, buying a self-driving truck startup called Otto. That acquisition wound up throwing a big-rig-sized wrench in Uber's plans. Otto's cofounder, Anthony Levandowski, is a former Waymo engineer, and has been at the center of the high-profile lawsuit. Waymo alleges that he stole IP and took it to Uber—a particularly incendiary allegation, because Uber had put Levandowski in charge of its driverless-car research efforts. In pretrial proceedings, Levandowski has stayed mum, invoking his Fifth Amendment rights against self-incrimination. In May, Uber fired him, saying it had done so for his failing to cooperate with investigators. The brouhaha, as you'd expect, has created dysfunction and distraction in Uber's autonomous-vehicle ranks. (An Uber spokesperson tells *Fortune* that while there have been departures, there hasn't been an exodus, and the lawsuit hasn't impacted pilot programs with its automaker partners, Volvo and Daimler.)

Lyft, in contrast, was late to the autonomous party—it inked its first driverless-car partnership, with GM, almost a year after Uber broke ground in Pittsburgh. But today, it sees its opportunity and the need to move fast. To that end, the company has just announced what it thinks could be its killer app: the development of a "full stack" of technology that will enable any auto manufacturer to roll out self-driving fleets on Lyft's ride-sharing network. While Lyft's contribution to its partnerships, until now, has mostly involved connecting other companies' tech to its network of drivers, this ambitious undertaking aims to develop and supply the guts and brains (and face, or interface) of future vehicles. Think of it as a self-driving car in a box that contains everything but the actual car.

"Lyft has never built a car, and we never will," says Taggart Matthiesen, Lyft's director of product. But it is exploring all other areas of autonomous development. And it hopes its pitch to partners will be an enticing one: It will offer mapping software, physical interfaces for drivers and passengers, and other key components of autonomous driving, so manufacturers don't have to create all those building blocks themselves.

Lyft isn't yet disclosing exactly when the stack will be available, or exactly what its components will look like. But one compelling ingredient they do discuss is the technological equivalent of its pink mustache—a user interface aimed at making the experience of being "robo-driven" friendlier, by showing passengers what the car's sensors are "seeing" and "thinking." In addition to a screen that will show real-time footage from the car's cameras, the system will include a voice function that explains what the vehicle is doing and why. (Imagine a soothing, conversational voice telling you, "Hey, I see a bike.") Obvious as that may sound, Lyft's hope is that it can humanize the car and let passengers peer inside its mind.

Lyft execs believe this focus on user experience could help it push ahead of Uber. All things considered, Uber and Lyft are equally reliable and charge customers identical prices, Zimmer notes, "So now it's all about the brand and experience." Put in terms Zimmer loves best: Imagine you're on a sidewalk in New York and two hotels are the same distance from you and the same price. Which do you choose? Maybe the one that gives you fist bumps?

If Lyft's bet is right, customers dabbling in driverless ride hailing will care more about seeing a trusted brand than about who makes the sensors or software—and that trust, in turn, could help Lyft attract more automaking partners.

Its drivers might be less enthused. Progress on the autonomous side will make it harder for Lyft to play the nice guy. According to a report from Goldman Sachs, once it matures, driverless technology will eliminate upwards of 300,000 jobs a year. And drivers fear that the tech will cut a swath through ride sharing, where even a part-time gig without benefits is beneficial to many.

Lyft's founders contend that driver growth will continue for the foreseeable future: The ride-sharing industry is expected to grow eightfold by 2030, so the need for drivers will keep ballooning with it. If and when it tapers off? As the founders discuss the possibility, their utopianism surfaces. Self-driving cars will be "rooms on wheels," says Zimmer. "You'll actually need folks as hosts. Is it a movie theater on wheels? Or an office on wheels, or a Starbucks on wheels? Passengers could pay a premium for these types of services, and our hope is that we can create many more jobs."

Already, cars are driving themselves in California, Arizona, and Pennsylvania, in some of the earliest pilot launches. Autonomous vehicles are restricted to specific test areas, and regulators require that they have actual human drivers in them—to take the wheel if things go wrong. But most insiders agree that fully self-driving vehicles will be in wide use much sooner than the public expects.

For Lyft and Uber, this evolution represents a massive turning point. Kalanick, Uber's former CEO, famously called the move to autonomous crucial to his company's ability to survive. Of course, that was last year, before he was faced with an even bigger existential quandary: rescuing his company's reputation.

Lyft's challenge is different. Long the underdog, it has thrived on a tactic that other No. 2s have used over the years: being the nice guys and the do-gooders. But if the company rides its current momentum to sustained, faster-than-before growth—growth that's, well, Uber-like—its halo may be harder to maintain.

That doesn't faze Lyft's idealistic duo. Says Zimmer: "I don't think that wanting to win is at all in contradiction with our mission." And in a world where cars drive themselves, a tortoise beating a hare doesn't seem all that far-fetched. ■

JAPAN

ONE STEP AHEAD

AS COMPANIES RESTRUCTURE TO FOCUS ON AREAS OF GROWTH, GOVERNMENT IS PROPOSING BOLD STRATEGIES TO FOSTER EVERYTHING FROM CLEAN ENERGY USE TO GREATER SOCIAL INCLUSIVENESS. **JAPAN** IS CHANGING—FOR THE BETTER.

JAPAN NEXT-LEVEL NATION

For **Japan,** the 2020 Tokyo Olympics and Paralympics are an opportunity to road-test new technologies and systems. The central government, Tokyo municipal government, and private-sector companies are working together to develop a kinder, richer society that addresses the challenges of the 21st century.

FROM THE BULLET TRAINS THAT SPEED across the country to the network of expressways that snake above Tokyo, the legacy of the 1964 Tokyo Olympic and Paralympic Games is still visible in Japan today. That infrastructure went on to pave the way for Japan's spectacular economic growth in the 1960s and 1970s, but, as Yasuhiro Maeda, Deputy Director-General of the Commerce and Information Policy Bureau at the Ministry of Economy, Trade, and Industry (METI), points out, Japan is aiming for a quite different legacy from the 2020 Games. "The focus this time will be on software and humanware, rather than physical hardware. Our goal is a mature society with a growth element, rather than economic growth per se," he says.

By a mature society, Maeda quite literally means a society with more—many more—older people. While Japan had just 191 people over age 100 at the time of the 1964 Olympics, that figure will hit almost 130,000 by 2020 and more than 1 million by 2050. When such levels of longevity become routine, it's time to completely rethink the shape of human life itself. "The old cycle was 20 years of study followed by 40 years of work, then a brief retirement," says Maeda. "Now that last segment can extend to 40 years. Going forward, the cycle will be 20-40-40. We'll need to adjust our approach to learning and the way we work to take account of that."

"The focus for the 2020 legacy will be software and humanware, rather than physical hardware."

YASUHIRO MAEDA
Ministry of Economy, Trade and Industry

The 2020 Games will give Japan an opportunity to show the world how it intends to address this massive demographic shift. Senior citizens are expected to take an outsize role as Olympic volunteers, the people who help the Games run smoothly by providing everything from customer service to operational support for sports events. In so doing, they will provide the world with a preview of the "vintage society," METI's term for a society where older people play a vibrant role in the community.

But this "vintage society" concept is only one of 11 project areas—from mobility, smart communities, and cybersecurity to regional revitalization—where the Development Committee for 2020 and Beyond, a group of 28 academics, businesspeople, and creatives assembled under METI's auspices, is exploring how Japan can leverage the Olympics to create an eco-friendly and economically dynamic society that enables every individual to realize their potential. Japan, in fact, is determined to be at the forefront in addressing the challenges confronting developed societies as the 21st century unrolls.

FUELING CHANGE

One of the gravest of those challeng-

ONE OF 35 HYDROGEN FILLING STATIONS PLANNED FOR TOKYO BY 2020. BELOW: A HYDROGEN BUS IN TOKYO.

es? Global warming. Host city Tokyo is responding here by encouraging the use of hydrogen for energy as a big step toward a carbon-free society. Hydrogen's merits are clear enough: The most abundant element in the universe, it emits only water (and no CO_2) when burned and can be made from a range of primary energy sources.

Tokyo Metropolitan Government (TMG) has set itself bold hydrogen-related targets for 2020. These include building 35 hydrogen filling stations in downtown Tokyo and getting 6,000 hydrogen-powered cars and 100 buses on the road. The first two such buses started running in March 2017, taking visitors from Tokyo Station to Big Sight, an international exhibition center on Tokyo Bay. Of course, this switchover will not be cheap. A hydrogen filling station, for example, costs around five times more to build than an ordinary gas station mainly because of safety issues. That's why TMG has established a ¥40 billion (US$359.6 million) hydrogen-infrastructure fund that, together with subsidies from the national government, will help the private sector cover a large portion of the upfront costs involved—and build momentum for the new fuel.

The Olympic Village will act as the focus of this hydrogen push, featuring the first fully realized hydrogen supply system. As well as hydrogen filling stations for the vehicles to ferry the athletes around, there will be hydrogen pipelines and next-generation hydrogen fuel cells for housing.

Japan already stands ahead of the rest of the world in hydrogen-related technology. Automaker Toyota was the first company to launch a commercial fuel cell vehicle, the Toyota FCHV, in 2002, and Toyota and Honda now manufacture two of the three hydrogen passenger cars on the market.

If the dream of the hydrogen society takes off, the hope is that it will bring a wave of new jobs in its wake. The technology does, however, have its share of naysayers. Tesla CEO Elon Musk is a vocal opponent of hydrogen, pointing out that it is "an energy storage mechanism ... not a source of energy." Meanwhile, an April 2014 article in *Automotive News* warned that Japan's "massive bet" could be "an expensive dead end" resulting in a technology that no one overseas will be interested in.

THE SANDBOX APPROACH

But innovation wouldn't be innovation without an element of risk. "The Japanese government is taking what's called a sandbox approach," explains Yuichiro Kohno, director of the Urban Policy Planning Office at property developer Mori Building Co. and a member of the Development Committee for 2020 and Beyond. "They're orchestrating a whole range of demonstration trials in Japan's National Strategic Special Zones designed to promote the uptake of new technologies. No single technology stands in isolation. There's a knock-on effect. If you introduce one innovation, it will inevitably lead to others."

Mori Building may well end up constructing a terminal for hydrogen buses on a ring road it is involved in developing, but hydrogen is just

CONTINUED ON PAGE S7 >>>

HISAYOSHI OSAWA

Envisioning A Transformation

IN 2016, **CANON** ESTABLISHED THE LAST OF FOUR NEW CORE BUSINESSES DESIGNED TO DRIVE THE COMPANY'S NEXT PHASE OF EXPANSION. THE COMPANY EXPECTS ANNUAL GROWTH OF 6%.

FUJIO MITARAI BECAME THE PRESIDENT OF CANON, the camera and printer company, in 1995. In the 22 years since, markets and Canon's own business portfolio have both changed a great deal. One thing that remains the same? "A company must grow or it will cease to exist," Mitarai says. "Growth is a must."

When Mitarai took the reins at Canon, for example, he found an indebted company whose major business lines—analog cameras and office products—faced market saturation. Mitarai promptly withdrew from unprofitable business areas and aggressively cut production costs by switching from a conveyor-belt system to a cell-production one, thereby boosting profitability.

As a result, Canon was financially robust when the great market switchover from analog to digital devices began gathering steam in the late 1990s. "Digitization set off a wave of buying as people traded up," Mitarai explains. "Thanks to the 'replacement demand' boom, we recorded eight consecutive years of rising sales and profits, from 2000 to 2007."

In the years leading up to the financial crisis, however, Mitarai could sense that the market was about to turn again—by their nature, after all, upgrade cycles peak and decline—and he went on the lookout for new businesses to drive Canon's future growth. He decided that what made the most sense strategically was for Canon to expand laterally into fast-growing areas that had an affinity with the company's existing technologies, thus enabling it to exploit synergies.

ASSEMBLING FOUR GROWTH ENGINES

Mitarai's first lateral move was the acquisition of Océ, a Netherlands-based production printing company, in 2010. Océ is well-positioned to benefit as digital disruption shakes up the printing industry. "The large-lot commercial printing market was traditionally dominated by offset printing," explains Mitarai, "but now, digital printing has caught up with offset in terms of image quality, plus it gives you the ability to do small-lot, customized orders at high speed—something that offset cannot do."

No wonder demand is growing. The commercial printing market is reckoned to be worth around ¥80 trillion per year. Within that, digital printing is growing at an incredible rate. In 2016, digital's share of the total was 16%, but that figure is expected to rise to 21% by 2020. Canon is now looking to go beyond document printing and make inroads into package printing too.

Another area where digital technology is visibly transforming our lives is electronic touchscreen devices like smartphones and tablets. Here, by his own admission, Mitarai got lucky. In 2007, Canon acquired Tokki, a Japanese company that specializes in the manufacture of vacuum evaporation equipment used in the application of organic light-emitting diodes, or OLEDs.

"We originally acquired Tokki to manufacture OLED screens for our cameras," Mitarai notes, adding that OLED is superior to liquid crystal display (LCD) because it is easily visible, even in bright daylight. "The purchase just happened to coincide perfectly with the start of the smartphone boom. We are successfully riding that wave." The OLED market is expected to surpass the LCD market in size in 2018, and Canon Tokki (as the company is now called) is currently doubling produc-

FUJIO MITARAI, *Chairman and CEO, Canon* tion capacity to reinforce an already dominant position.

Canon's strength in industrial equipment also goes behind the screen and down into the heart of devices. The company has a long history of manufacturing steppers, devices that use light to create microscopic circuit elements on silicon chips. Yet, with integrated circuit (IC) chips becoming ever smaller, traditional manufacturing equipment is hitting a technological ceiling as it grows bulkier and costlier.

That impasse inspired Canon's April 2014 acquisition of Texas-based Molecular Imprints and its imprint lithography technology. Molecular Imprints—now Canon Nanotechnologies—possesses world-class nano-imprint technology that realizes cost-effective, ultrafine and precise patterning. "The company will be shipping its first machines this year," Mitarai notes. As IC chips become increasingly ubiquitous thanks to the Internet of Things, Canon Nanotechnologies is well-placed to serve a fast-growing market.

CANON HAS BECOME A MAJOR PLAYER IN HEALTH CARE WITH THE ACQUISITION OF TOSHIBA MEDICAL.

ADDRESSING MEGATRENDS

In order to find the next avenues of growth for the company, Mitarai took a step back and pondered the state of the world. "The global population is growing, and societies everywhere are becoming more complex. What do people want more of in these circumstances?" he asks rhetorically. "More safety and security in their everyday lives."

One logical way for Canon to address this need was to leverage its optical and sensor technology and know-how and move laterally into network cameras—the cameras used for things like surveillance, market research, and factory automation. The secret to success here, Mitarai sensed, would be the ability to offer a total package: camera hardware plus software, analytics, and a global sales network.

That insight prompted two rapid acquisitions, first of Denmark-based Milestone Systems, the global leader in video-management software, in 2014, then of Sweden-based Axis Communications, the global frontrunner in network cameras, in 2015. Canon's resulting network camera business is now the largest in the world and the market is growing at a rate of 10% a year.

"OUR FOUR NEW CORE BUSINESSES ACCOUNTED FOR 26% OF TOTAL REVENUES LAST YEAR."

Mitarai reserved his boldest lateral move for his "safety and security" theme for the health care business. Health care, he points out, is a business that Canon has been involved in since its inception. The company's first president was an obstetrician and Canon developed Japan's first indirect X-ray camera in 1940, before going on to build a relatively modest business in digital radiography and ophthalmic diagnostic equipment.

This meant that acquiring Toshiba Medical Systems Corp., a leading manufacturer of medical imaging devices, in 2016 for US$5.47 billion (¥665.5 billion) was a natural fit. "Health care addresses a fundamental human need," Mitarai notes. "Demand is never going to go away. In fact, expected increases in global population should lead to the market getting bigger."

BREAKING INTO THE TOP THREE

Founded in 1930, Toshiba Medical is a world-class manufacturer renowned for its R&D capabilities that dominates the Japanese domestic market for X-ray, CT (computed tomography), MRI (magnetic resonance imaging), and ultrasound devices. However, its biggest opportunities lie overseas. "Globally, Toshiba Medical is the No. 4 player for medical devices," says Mitarai. "Our challenge is to get into the top three."

How is Canon going to make that happen? Mitarai outlines a clear, three-pronged strategy. First, he wants to bring Toshiba's R&D capabilities to bear on Canon's proprietary technologies. "Image processing technology is one obvious area of synergy," he points out. "MRI and ultrasound images are generally still quite hard to decipher. Canon's technologies could help change that." Other Canon technologies that Toshiba Medical can leverage include dynamic X-ray imaging sensors, photoacoustic tomography, medical robotic systems, and minimally invasive surgical technologies.

Second, Canon's proven expertise in microfabrication, precision design, and production equipment optimization should help raise the quality and price-competitiveness of Toshiba Medical's devices. A joint task force is currently examining every aspect of Toshiba Medical's production process to see where improvements can be made.

Finally, Mitarai means to leverage Canon's expertise in strategic investment and M&A to expand the group's combined presence in promising new fields, from hospital IT networks to in vitro diagnostics and DNA diagnostics.

"HEALTH CARE ADDRESSES A FUNDAMENTAL HUMAN NEED. DEMAND IS NEVER GOING TO GO AWAY."

"Toshiba Medical will officially be renamed 'Canon Medical Systems Corporation' in early 2018," explains Mitarai. "With its superb product development capabilities, the firm opens up new possibilities to us." The long-term plan is to make health care one of Canon's core businesses. To that end, experts from both companies are discussing how to capitalize on synergies as a combined entity, while a new division, Medical Systems Operations, was set up within Canon this April. Says Mitarai: "We're pushing ahead with concrete policies to drive our health care business forward. My expectations are high."

GOALS FOR 2020

In 1996, one year after being appointed president, Mitarai launched Phase I of his Excellent Global Corporation Plan, a series of rolling five-year plans designed to make Canon "a truly excellent company admired and respected around the world." The goal of the current phase—Phase V, which kicked off in 2016—is to "embrace the challenge of new growth through a grand strategic transformation." Mitarai has successfully assembled his four transformative new businesses—commercial printing, industrial equipment, network cameras, and health care—but can he deliver on the financial side, too?

CANON MOVED INTO PRODUCTION PRINTING IN 2010 WITH THE ACQUISITION OF OCÉ.

THE NETWORK CAMERA MARKET IS GROWING AT 10% A YEAR.

Canon's results for FY2016—profits of US$1.3 billion (¥150 billion) on sales of US$29.3 billion (¥3.4 trillion)—were the worst in a decade, excluding only FY2009, when the financial crisis was at its height. This was primarily due to the dramatic appreciation of the yen against other currencies.

But Mitarai points out that sales only dipped a few percentage points, calculated on a local currency basis, and that most Canon products remain in the top three in their categories, with cameras firmly in the No. 1 slot. And now, with his new growth engines in place, Mitarai is upbeat about Canon's prospects.

"Last year we completed the strategic changes to our business portfolio," he declares. "This year we are going to start expanding based on those changes. Our four new core businesses accounted for 26% of total revenues last year. This share will rise to 35% by 2020 and higher in the years beyond. I expect our existing businesses to grow at around 3% annually and the new ones at an average of 15%. Overall, that means that Canon can expand at 6% a year."

Mitarai's aim is to achieve group revenues of ¥5 trillion by 2020, with operating profit margins of 15% and net profit margins of 10%. That will be a grand transformation indeed.

CONTINUED FROM PAGE S3 >>>

one of many smart community- and mobility-related projects the company is exploring. Having pioneered the vertical garden city concept—assembling large parcels of land, then building high to free up land at ground level for greenery and human interaction—Mori Building was also the first company in Japan to bring in innovations from card-activated security gates for rental office buildings to power co-generation. "We are deeply curious about new technologies, about how they are being deployed and how we can use them," comments Kohno.

Case in point: Mori Building employees acted as "test pilots" for Toyota's iRoad, a highly maneuverable, easy-to-park EV that, positioned halfway between a car and a motorbike, is designed to bring a sense of freedom and fun back to driving. "The single pattern of people buying and owning their own cars is undergoing a transformation," notes METI's Maeda. "In the future, there will be a diverse range of mobility options."

With the global rise in terrorist-related incidents, one area that will clearly be crucial during the Olympics is keeping the public safe. While heavy-handed and obtrusive security can certainly achieve that, it can also stifle enjoyment. The best-of-both-worlds solution should thus combine efficacy with discretion. Here Kohno expects artificial intelligence to play a role. "A lot of surveillance-camera footage only ends up being used as evidence *after* a crime has been committed; we want it to play more of a crime-prevention role," he says. "Let's say that a suspicious object is left in a place where it should not be. Our network cameras could autonomously detect that and raise the alarm. That's one area of research for us."

Of course, this kind of technological innovation can only come about in the right framework, and Mori Building is also doing its part to help to create novel environments that enable innovation. At Ark Hills, one of the company's flagship mixed-use developments in central Tokyo, TechShop Tokyo will offer a workshop where you can design things on computers and print them out on 3-D printers—plus, there's the possibility of getting financial backing from KaleidoWorks, a space for VC companies and entrepreneurs right next door. "Things like conceiving an idea, designing something, and then making it used to be done in different places by different people. Now the whole process can all be done in one place," says Kohno. He anticipates a future where startups will exist cheek-by-jowl with established companies, each side stimulating from the other.

"A range of demonstration trials in Japan's National Strategic Special Zones are promoting the uptake of new technologies."

YUICHIRO KOHNO
Mori Building Co., with a diorama of Tokyo

Being willing to turn convention on its head like this is a crucial ingredient in Japan's drive toward innovation. For instance, while a lot of work is being done in and around the Olympic facilities to improve access for the physically challenged through barrier-free and universal design, Kohno contends that this is no longer good enough. Why? Because in the "vintage society," with ever more people living to 100, physical difficulties will be far more widespread. As a result, the physically challenged minority will become the majority and everything, everywhere should be modified for their convenience. "Barrier-free design should be everywhere," he declares. "It should be a national movement."

Precisely how Japan's numerous ideas on the society of the future will manifest themselves at the Tokyo 2020 Olympics and Paralymplics remains to some extent up in the air. As METI's Maeda points out, technological evolution is now so fast and product life cycles so short that it makes far more sense to build the foundations for the future now rather than try to set things in stone based on present-day technologies, which will already be out of date by then. One thing, though, that he is confident about: Propelled by debates between the country's best minds and the innovation capabilities of the world's top companies, the Tokyo Games will be both a showcase for new technologies and a blueprint for a new society.

HISAYOSHI OSAWA

Making Life Better

ASAHI KASEI IS ENHANCING THE LINKS AMONG ITS VARIOUS BUSINESSES TO CREATE A HIGH-VALUE-ADDED PORTFOLIO THAT ADDRESSES THE NEEDS OF THE FUTURE.

FACING A HIGH YEN AND A WEAK CHINESE ECONOMY, fiscal 2016 proved challenging for most Japanese manufacturers. But it was a different story for diversified chemical manufacturer Asahi Kasei, which recorded its highest-ever net profits: US$1.03 billion (¥115 billion) on revenues of US$16.78 billion (¥1.88 trillion).

For Hideki Kobori, Asahi Kasei's president, these results represent a "solid start," he says, on the way to a goal that's years away. Between FY2016 and FY2018, he is building a foundation from which to launch the company's next growth spurt, with a view to then lifting revenues and operating income 36% and 56%, respectively, by FY2025.

To do that, Kobori is deepening connections across the business portfolio's three sectors of material, homes, and health care. The drive covers external connections (alliances and M&A), internal connections (deeper horizontal links across domains), and human resources connections (moving talent to where it does the most good).

Asahi Kasei's $2.2 billion acquisition of Polypore International, a U.S. manufacturer of battery separators, in 2015 is an example of successful external connecting. Because the two companies' technologies and markets are complementary, Asahi Kasei–made separators are now found in batteries powering everything from PCs and smartphones to conventional and electric vehicles (EVs). "By combining our strengths, we secured the No. 1 position," Kobori states.

The successful connecting of people is evident in the recent appointment of Richard Packer, former CEO of group company ZOLL Medical, to co-head Asahi Kasei's health care sector. Having spearheaded the rapid international growth of ZOLL, the acute critical care specialist that Asahi Kasei acquired in 2012, Packer is ideally qualified to manage the global expansion of Asahi Kasei's broader health care portfolio, from medical devices to pharmaceuticals and materials.

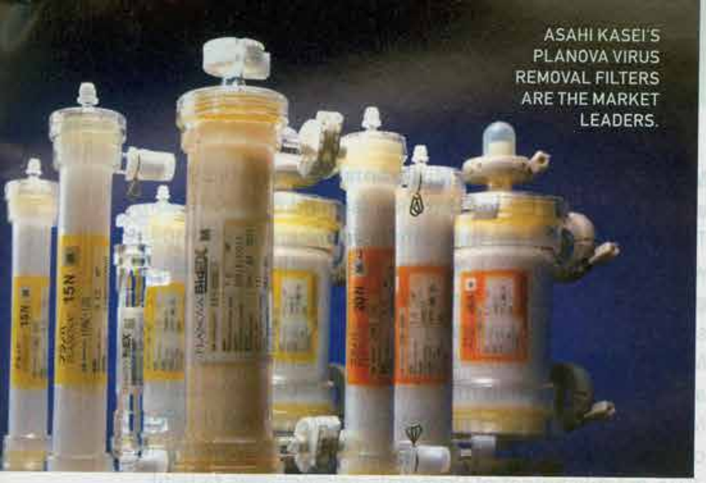
Meanwhile, changes underway at Asahi Kasei's automotive business are about building better connections inside the company. Although the firm made a wide range of products for the auto industry, its marketing efforts lacked coordination. "We set up the Automotive Marketing Department in April 2016," explains Kobori. "By bringing chemicals, textiles, electronic materials, and components under one roof, it's enabled us to approach car manufacturers and their suppliers more coherently."

Other chemical companies supply materials to the auto industry; what sets Asahi Kasei apart is that it supplies sensors, too. "In ten years, cars will be safer, more comfortable, and more fuel-efficient. Sensors will play a crucial role in that," Kobori explains. "Because we make materials *and* sensors, we're uniquely attuned to auto manufacturing trends. We want to partner with car manufacturers to create next-generation vehicles."

Kobori predicts that auto-related revenues (excluding battery separators) will triple to ¥300 billion by 2025. He's also aggressively boosting production capacity for lithium-ion battery separators in anticipation of EV sales taking off in 2019. The premium that auto manufacturers place on safety and low cost in batteries acts as a moat to keep new market entrants at bay.

HIDEKI KOBORI, *President, Asahi Kasei*

HISAYOSHI OSAWA



ASAHI KASEI'S PLANOVA VIRUS REMOVAL FILTERS ARE THE MARKET LEADERS.

HEALTHY GROWTH

Kobori's targets for health care are almost as bullish as those for the auto business: He's aiming to more than double sales, from US$2.41 billion (¥270.1 billion) in FY2016 to US$5.5 billion (¥600 billion) by FY2025.

The company is active in three areas: acute critical care, medical care, and pharmaceuticals. Acute critical care specialist ZOLL has been growing at a torrid 15% annual pace for the past 10 years, but Kobori means to add another core business to the current wearable defibrillators and other resuscitation devices. In medical care, he is boosting production capacity for Asahi Kasei's virus removal filters, which play a key role in the biopharmaceutical and plasma derivatives manufacturing process and lead the market. Finally, in pharmaceuticals, he is working on boosting domestic profitability and global reach in a bid to make Asahi Kasei a "global specialized pharmaceutical company with strengths in orthopedics and critical care."

When it comes to formulating and implementing strategy, Asahi Kasei has an impressive track record. The secret? Having a clear vision and sticking to it. "We're committed to providing solutions to two pressing challenges: creating a clean energy society and making people's lives longer and healthier," Kobori explains.

Everything the company does is directed to these two goals: Products such as insulating foam for houses and synthetic rubber for car tires increase energy efficiency, reduce harmful emissions, and make the world a cleaner place. Ultraviolet LEDs for medical sterilization simultaneously replace environmentally harmful mercury lamps and help support human health.

"We're building a portfolio of profitable, high-value-added businesses," Kobori concludes, "but we're also contributing to people's lives."

TECHNOLOGY THAT MOVES YOU

Asahi Kasei unveiled AKXY, a three-seater SUV concept, in May 2017. President Hideki Kobori explains the thinking behind it.

Why did you make this concept car?
We produce a range of materials and technologies for the auto industry. AKXY showcases our products in an appealing way. The car symbolizes our desire to connect with customers.

Why "AKXY"?
It stands for "Asahi Kasei multiplied by you." "You" means the automobile and component makers with whom we want to partner on developing next-generation automobiles.

What makes AKXY different?
Other chemical companies have produced concept cars, but AKXY is an EV that's actually drivable—plus it combines materials and electronics, because we make both.

Tell us about the car's technologies.
In all, AKXY showcases 27 different products. They range from synthetic rubber in the tires and lightweight engineering plastics around the engine to the separator in the battery and microfiber suede on the seats. We've also included new safety systems like a contactless vital-sign sensor to monitor the driver's pulse rate and a CO_2 sensor to keep the air fresh and the driver awake.

How will AKXY be used for marketing?
We'll display it at motor shows and private exhibitions for manufacturers and suppliers around the world.

THE AKXY CONCEPT CAR

ASAHI KASEI

The Power To Change

AS NEW TECHNOLOGIES SHAKE UP OLD MANUFACTURING MODELS, *FORTUNE* GLOBAL 500 MAINSTAY **MITSUBISHI HEAVY INDUSTRIES** IS GETTING READY FOR THE NEXT INDUSTRIAL REVOLUTION.

WE ALL GOT THE MEMO ABOUT DISRUPTION. We tend to associate the word with the service industry, where the Internet transformed familiar fields like retail, entertainment, and transportation before our eyes. Now, a similar wave of disruptive change is poised to hit the manufacturing industry.

"Twentieth-century industrial society was all about rationalized mass production and global supply chains built around core mass production centers," explains Shunichi Miyanaga, president and CEO of Mitsubishi Heavy Industries (MHI). "What's coming next is distributed manufacturing, shared factories and shared service centers controlled autonomously by artificial intelligence and the Internet of Things."

The challenge Miyanaga faces is reshaping the engineering giant he heads to ensure that it emerges a winner from this new industrial revolution. How is he setting about the task? Basically, through a process of reforming and transforming—looking dispassionately at the facts and numbers, then making the necessary changes, from minor tweaks to radical restructurings.

LESS IS MORE

Since he took charge in April 2013, Miyanaga has certainly transformed MHI's company structure, streamlining nine business divisions into just three—Power Systems, Industry & Infrastructure, and Aircraft, Defense & Space—in a quest for greater clarity. "We've also been reducing the number of product lines to concentrate more on our customers' and society's actual needs," he adds. In fiscal 2016 alone, the company downscaled or withdrew from fields as diverse as injection molding machines, X-ray equipment, and marine diesel engines.

This sharpening of focus is accompanied by parallel efforts to bulk up in other areas. In the medium term, Miyanaga's goal is to lift MHI's annual revenues by around one-quarter to ¥5 trillion (around $US50 billion). The reason? Because that's the level where the company will gain the heft it needs to compete against global giants like GE. To that end, Miyanaga has orchestrated several transformative mergers and alliances around MHI's core competencies of power generation and steel and metal production machinery. The 2014 creation of Mitsubishi Hitachi Power Systems (the merged thermal power generation divisions of MHI and Hitachi) and the 2015 establishment of Primetals Technologies (a joint venture with Siemens AG providing plants, products, and services for the metals industries) are both examples of adding scale to increase competitiveness.

But scale alone is not the answer. Miyanaga is also seeking to reform MHI's core businesses to match the new realities of the 21st century. That means innovating fast, marketing creatively, and leveraging the power of information technology. Mitsubishi Hitachi Power Systems, for instance, is doing all the above. To fend off competition, it has accelerated the launch of its next-generation gas turbine by a full 18 months. Human resources are being shifted to growth markets like Asia and the Americas, and ties are being built with trading companies and export credit agencies to develop more avenues of customer approach. Meanwhile, to lock in long-term income streams, the company is reinforcing its ability to remotely monitor and manage power-generation

SHUNICHI MIYANAGA, *president and CEO of Mitsubishi Heavy Industries* facilities by deploying artificial intelligence, Big Data, and the Internet of Things.

If how industry works is changing, so are industrial materials themselves. "Aircraft fuselages and wings were almost all metal in the 20th century. The recent tendency is to use composite materials," says Miyanaga, by way of an example.

Of course, manufacturing new materials requires new kinds of machinery and technological expertise. As the manufacturer of various components of Boeing's 787 Dreamliner, MHI certainly has the know-how. Indeed, Miyanaga is using it as the springboard to establish commercial aircraft manufacturing as a new core business. Scheduled for 2020, the commercial launch of the Mitsubishi Regional Jet (MRJ), Japan's first wholly made passenger jet, will meet the demand for a small, comfortable, and cost- and energy-efficient aircraft for shorter routes. At the same time, Miyanaga sees the MRJ as a stepping stone into related IT-centric fields such as airline cybersecurity and air traffic control systems.

GLOBALIZING THE MINDSET

Founded in 1884, MHI played a key role in Japan's modernization. Perhaps one downside of that proud legacy is an excessive focus on the home market. "From the 1960s to the 1990s, Japan's economy grew steadily. We were so fortunate in the environment that we got over-accustomed to the Japanese way of doing things," says Miyanaga.

As the share of domestic sales from Japan declines, MHI, as a global company, is moving beyond the Japanese way of doing things and getting better at addressing the needs, practices, and service styles of different regions, while fostering a shared core culture based on group-wide collaboration and communication.

Amid this globalization push, Miyanaga sees the United States as a uniquely promising country. Although some sectors of the U.S. manufacturing industry wasted away with the over-eager embrace of global supply chains in the 1980s, the conditions are now in place for a major manufacturing rebound. The population—and thus demand—is growing; the social and industrial infrastructure is in need of renewal; and the vast landmass is a perfect fit for the distributed-manufacturing paradigm.

MHI currently employs over 7,000 people in the United States. It is working with blue-chip partners from Caterpillar (forklift trucks) to Boeing (aircraft) and it manufactures everything from gas turbines in Florida and Georgia to compressors in Houston. "The attractiveness of the U.S. as a market will only grow," declares Miyanaga bullishly. "Expanding and investing there is the natural thing for us to do."

In 2016, MHI Group adopted "Move the World Forward" as its tagline, a reference to movement as the common theme of all the company's products in land, sea, sky, and space. It also expresses the commitment of MHI Group's 83,000 employees worldwide to keep innovating, globalizing, and doing their best to serve customers. For more than 130 years MHI Group has channeled big thinking into innovative solutions—whether building power plants or launching space rockets. The world is always changing, and MHI—a staple on the *Fortune* Global 500 list since its inception—is responding to that change in positive and creative ways. ●

ON LAND: Largest market share for advanced-class gas turbines.

AT SEA: The world's biggest and most powerful offshore wind turbines.

IN THE SKY: MRJ is Japan's first commercial passenger jet.

IN SPACE: The H-II rocket boasts a launch success rate of over 97%.

PHOTO CREDITS: IN SPACE: © MITSUBISHI HEAVY INDUSTRIES, LTD./JAXA; IN THE SKY: © MITSUBISHI AIRCRAFT CORPORATION; AT SEA: © MHI VESTAS OFFSHORE WIND A/S

Riding The Currents

NGK INSULATORS HAS EXPANDED FROM ITS ORIGINAL BUSINESS OF MAKING INSULATORS TO HIGH-GROWTH DOMAINS LIKE CERAMIC COMPONENTS FOR THE AUTOMOBILE AND SEMICONDUCTOR INDUSTRIES.

ARE YOU FUTURE PROOF? For Japanese ceramics maker NGK Insulators, the answer to that existential question is a resounding yes. Founded in 1919 to manufacture high-voltage ceramic insulators for the country's emergent power-generation industry and now global No. 1 in that field, the company has evolved to the point that the power business accounted for a modest 13% share of overall revenues of US$3.58 billion (¥401.3 billion) in fiscal 2016.

"OUR SEMICONDUCTOR PRODUCTION EQUIPMENT BUSINESS DOUBLED IN THE LAST FIVE YEARS."

So where do the rest of NGK's sales come from? At around 61%, ceramics products for the automotive industry—things like particulate filters for gasoline and diesel vehicles and ceramics for catalytic converters—account for the lion's share. The remaining 26%, meanwhile, comes from electronics-related ceramics, ranging from semiconductor production equipment to electronic components.

The market environment for automotive ceramics is highly favorable. Globally, around 90 million cars are sold every year, and the figure is rising at a brisk 3% to 4% annually. With emission regulations becoming ever more stringent in both the developed world and in emerging economies like India and China, the number of models requiring to be fitted with exhaust-purification devices is rising rapidly. "We have a global share of 50% for automotive ceramics," says president Taku Oshima. "We plan to invest ¥170 billion—roughly US$1.5 billion—in new manufacturing capacity over the coming three years and are working hard to meet ever-increasing demand."

But could this market vanish if electric vehicles (EVs) swoop in and replace internal combustion engine vehicles overnight? Not according to Oshima. He expects EV sales to rise from an annual level of several hundred thousand now to somewhere below 10 million by the mid-2030s. As total global auto sales will also increase to the 130 million range, the market for conventional vehicles will remain far bigger, particularly the large vehicle segment, the buses, trucks, and construction equipment that have a particular need for exhaust purification.

SERVING THE DIGITAL ECONOMY

It's a similar story of future-proofing in the electronics-related ceramics business, where global megatrends are again providing a powerful tailwind. Almost half of NGK's sales in this segment come from semiconductor production equipment (SPE). "These days, you hear a lot about the Internet of Things, artificial intelligence, and autonomous vehicles," says Oshima. "What do all those technologies have in common? They all need semiconductors."

Ceramic materials have twin merits: While offering precision, they're also tough enough to withstand the brutal atmosphere of the vacuum chambers full of hot, corrosive gas in which semiconductors are made. NGK

TAKU OSHIMA, *President of NGK Insulators*

HISAYOSHI OSAWA

NGK MANUFACTURES KEY COMPONENTS FOR SEMICONDUCTOR PRODUCTION EQUIPMENT.

manufactures key components like electrostatic chucks (which hold silicon wafers still during etching) and ceramic heaters (which keep silicon wafers at a uniform temperature during membrane formation).

"We're one of a handful of companies that can make equipment precise and durable enough for these tasks," says Oshima. "Our SPE business doubled in size the last five years and is growing at a double-digit rate." In a sign of confidence in the future, NGK will break ground on a third SPE ceramics plant in Japan in April 2018, and is currently expanding the capacity of its metal SPE component factory in California.

This relentless focus on discovering new avenues for growth is also on show in NGK's power business. The original insulator business might be mature, but the global switchover to renewable energy is creating demand for entirely new kinds of infrastructure. Case in point: NGK's large-capacity sodium-sulfur (NaS) batteries—sold under the NAS® trademark—which are mainly used for stabilizing the energy output from renewable sources like wind and solar. Already in use in 200 locations worldwide, NAS batteries are currently part of a multiyear demonstration project in Lower Saxony, Germany. Potential needs are high, and such demonstration projects will stimulate demand.

INNOVATE, COMMERCIALIZE, REPEAT

This ability to continuously innovate, however, is something that NGK has to work at. With the company on track to achieve its goal of generating 30% of revenues from new products in FY2017, Oshima's target now is maintaining that challenging ratio. He attributes the firm's success in innovation to two things: spending 4% to 6% of sales on R&D and investing aggressively in pilot plants to turn out new products at scale fast. "Our ¥300 billion capital investment over the next three years is triple what's normal for a firm our size," he points out.

New products coming on stream soon include microlenses for ultraviolet LED for medical sterilization and gallium nitride wafers that serve as substrates for high-brightness light sources like laser diodes in automotive headlights and business projectors. "With our materials technology expertise, we can modify materials to bring out their inherent qualities and create products that other companies simply cannot copy," Oshima concludes emphatically.

RECHARGING GROWTH

***President Taku Oshima** explains how NGK is leveraging its expertise in ceramic materials to develop innovative batteries and fuel cells.*

Where do you see opportunity in batteries?

Trends like wearable devices and the Internet of Things [IoT] are driving demand for smaller, safer, and more durable batteries. We've developed high-energy-density rechargeable lithium-ion chip-type ceramic batteries just 0.2 millimeters thick. They're small and heat-resistant enough to be mounted directly on circuit boards beside semiconductors.

Where will these tiny batteries be used?

Smartwatches and fitness trackers are an obvious market, as are smartcards with security features like built-in fingerprint recognition. They can also serve as the power source for IoT modules that will enable different devices to communicate with one another. That's where our expectations are highest.

What else is under development?

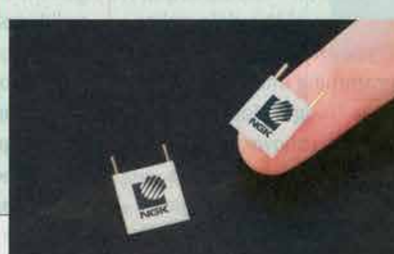
Zinc rechargeable batteries with unique ceramic separators of solid electrolyte and an aqueous electrolyte. They're safe and inexpensive, so perfect for indoor use in homes and small buildings.

What about fuel cells?

Home-use fuel cell systems are getting popular in Japan because they cut energy bills by generating both heat and electricity from gas fuel. We've created a solid oxide fuel cell module design that's durable, more efficient, and very compact.

When will these new products come out?

Field tests and certification are underway. Production in pilot plants will start in stages from FY2017.



CHIP-TYPE CERAMIC BATTERIES AS SMALL AS A POSTAGE STAMP

JAPAN

LOOKING PAST THE SURFACE

A designer is coming up with fun new ways for people to perceive and interact with Tokyo in the run-up to the 2020 Games and beyond.

SEIICHI SAITO, *Media and Spatial Design Specialist*

WHEN TOKYO'S BIG OLYMPIC YEAR rolls up in 2020, the Japanese government hopes to be hosting 40 million visitors a year—and 50% more than that just a decade on. How can this megacity show outsiders its best face, become an urban paradise for citizens, and power into the era beyond?

Seiichi Saito, a specialist in media and spatial design, has some ideas. First, he says, we've got to stop viewing cities in 2-D, like on a map, especially densely packed ones like Tokyo filled with high-rise buildings, underground shopping malls, and subway stations. What he envisions is a Tokyo fully mapped in 3-D above ground and below, with all its hidden connections and possibilities revealed for play and profit.

Saito is used to visualizing things on a massive scale. He co-founded Rhizomatiks, a creative collective that helped produce the 2016 Rio Olympics closing ceremony and devised software to generate simulations of the elaborate performances that bookended the Games. He decided to scan the entire metropolis, persuading the Tokyo Metropolitan Government and the land development and transportation companies that collectively oversee Tokyo's space above and below the surface to let his team do it.

Scanning underground at Shibuya Station—the world's second-busiest hub—took four nights using an infrared scanner and RGB camera, and it produced more than 200GB of data, equivalent to 100 feature films. "We're not using this data for construction—it's more about realizing the city's structure and potential, and all the intricate, indirect relationships," he says.

Saito foresees 3-D city maps spurring better city planning, steering traffic correctly during major events like the Olympics, and promoting smoother evacuations during disasters. Working with *Wired* and METI (Japan's Ministry of Economy, Trade, and Industry), he has already published portions of this data online and hopes to create an API (application programming interface) to share it. Unlike Google Maps, the data gathered also shows thousands of restaurants, offices, landmarks, stores, schools, and more, all color coded by category. "There's big potential for Japanese startups to create new services based on our data," Saito notes, "like mapping and showing real-time prices of properties at a glance."

He's also searching for ways to make Tokyo a "playable city," putting on workshops to brainstorm wacky ideas like installing flashing LED tiles in road surfaces or having stairways play sounds when walked on, like the giant keyboard in the Tom Hanks movie *Big*.

"A city that's safe, functional, and efficient is great, but that's the default," Saito notes. "The city also has to be entertaining enough to make you look up from your smartphone screen and even start running around excitedly like a kid."

A major challenge for Japan's government is to determine a coherent theme that unites the nation behind the upcoming Games. Japan is famously tribal, with disparate groups of people so focused on their particular interest (fashion, technology, and so on) that they seldom overlap or interact with other groups. According to Saito, the country needs someone like Danny Ocean, the mastermind in the *Ocean's* heist movies, who can pull together professionals with the creative, technological, financial, and legal know-how to devise projects that inspire and involve everybody.

Perhaps Saito, with his magic maps and playful concepts, should be one of them.

A Vision For Growth

TOPPAN IS DEVELOPING INNOVATIVE SERVICES FOR TOURISTS WITHIN JAPAN WHILE EXPANDING ITS GLOBAL FOOTPRINT IN PACKAGING MATERIALS AND INTERIOR DECORATION PRODUCTS.

JAPANESE PRIME MINISTER SHINZO ABE'S GROWTH strategy is proving a runaway success in one area: tourism. Having surpassed its original goal of attracting 20 million tourists a year by 2020 four years early, the government recently doubled its 2020 target to 40 million people. For printing company Toppan, which has positioned education and cultural exchange as a key growth area, the booming sector represents opportunity.

"Japan wants to become a tourism superpower by the 2020 Olympics," explains Shingo Kaneko, Toppan president and representative director. "Virtual reality, or VR, is the focus of our efforts here. We leveraged our print-technology expertise to enter the field in 1997 with a VR re-creation of the Sistine Chapel. We've now produced 50 VR titles and are creating a digital archive of the cultural assets of Japan and other countries."

One example: Every town in Japan used to have its own castle, but with most reduced to ruins, few people know what their local castle looked like, while the former castle grounds have often become parks. "Many local authorities have asked us to re-create their castles using VR," says Kaneko. "Starting with Edo Castle in Tokyo, we've done eight so far."

This VR content can be enjoyed in high resolution on a big screen or via Street Museum, a GPS-linked app which enables people touring historic sites to "see" castles in their original glory while listening to a multi-language commentary.

Bringing the past back to life through VR is the sort of value-added experience likely to not only boost Japan's overall tourist numbers but also convert first-time visitors into repeaters eager to explore further afield. "Japan has 13,000 officially designated National Treasures and Important Cultural Properties, plenty of which are in regional areas," Kaneko explains. "At the same time as attracting tourists, our VR technology helps revitalize local areas and preserve culture for posterity. We're getting lots of orders and have numerous projects in the works."

The number of tourists coming to Japan might be booming, but a declining birth rate and aging population make the country's own demographics less rosy. That's why Kaneko is also looking abroad for new sources of growth. The 1,568,000-square-foot manufacturing plant for transparent barrier film that Toppan opened in Georgia last year symbolizes this drive.

As the world's population rises, Kaneko reasons, demand for food—and the packaging materials for that food—will necessarily rise. Toppan's lightweight GL FILM boasts barrier performance equal to aluminum foil, while also being non-metallic (meaning microwaveable) and transparent (enabling consumers to peek inside). Kaneko, who expects GL FILM to capture around one-fifth of the market for cans and bottles in the coming years, sees potential in multiple areas.

Decorative materials for the construction market represent another field where Toppan is growing its global footprint. The company already has two factories in Pennsylvania and Georgia, but is looking to expand outside the U.S. Says Kaneko: "Good design is key in this area. When we exhibit at Fuorisalone during Milan Design Week, name designers praise us and design magazines give us awards."

Varied efforts like these should help Toppan hit its own target of raising overseas revenues to 30% of its total—while helping Japan meet its own ambitious tourist targets.

SHINGO KANEKO, *President and Representative Director, Toppan with VR Edo Castle*

The keep of Edo Castle
Production / Copyright Toppan Printing

HISAYOSHI OSAWA

CHAMPIONING A CAUSE

Alpine skier and five-time Paralympian **Kuniko Obinata** raced to 10 medals, including gold in 1998 and 2006. With the 2020 Games approaching, she's lobbying hard on behalf of Japan's disabled citizens to create a society that accepts and respects diversity.

HISAYOSHI OSAWA

What benefits did the 1964 Tokyo Paralympics bring to Japan's disabled community?

Older para-athletes say that many Japanese Paralympians went to the 1964 Games directly from the hospitals where they had to live. They didn't have home lives or links with their communities, and it was unthinkable for them to have occupations. Foreign Paralympians lived in the Olympic Village, but they would go have drinks in town, and they had jobs and careers. The Japanese people—including the disabled—were surprised that they could lead active, useful lives in public. The 1964 Paralympics gave people with disabilities visibility.

So things got better after 1964?

Up until the 1998 Winter Paralympics in Nagano here in Japan, there were still many societal barriers and places we couldn't go. Even after my first Paralympics in 1994, I found it tough to find a training ground for sit skiing. They'd say, "It's dangerous, you'll cause other skiers trouble." We had to visit every major ski resort and ask whether they would accept us as athletes in training. People with disabilities were still reluctant to go out in public and enjoy their lives. We were regarded as something of a rare species, but that's no longer the case. That was the change 1998 brought about.

"WE WANT TO CREATE AN ENVIRONMENT WHERE EVERYBODY CAN ENJOY SPORTS."

KUNIKO OBINATA

What are your goals as the deputy chair of the Paralympians Association of Japan?

One is to convey the differences in the competitive environment between Olympic and Paralympic athletes to the public—like a general lack of training facilities for us—and the out-of-pocket money Paralympians have to pay to continue competing. Another key mission is to educate young people about the wonder and greatness of the Paralympic Games and have the athletes speak for themselves and become role models. We want to create an environment where everybody, whether they have disabilities or not, can enjoy sports, and through sports create a society that accepts and respects diversity.

You're on a government panel focused on the Olympic and Paralympic Games and beyond. What's your role?

METI [the Ministry of Economy, Trade, and Industry] wants to transform society in a big way. I've talked to them about assistive devices that pro-

OBINATA WINNING GOLD IN THE 2006 TURIN WINTER PARALYMPICS GIANT SLALOM.

vide greater accessibility and mobility for disabled people, such as buses with automatic ramps, which I've seen in London and cities in Canada. Driverless vehicles as well, which can include technology that would extend an automatic ramp and make positioning on the street or on a train platform seamless and exact. It's essential to have the basic infrastructure in place, though—you've got to manufacture the ramps and equip buses and other vehicles with autonomous driving technology, which METI is working on. Japan has the technology. I'm hoping that 2020 will be a trigger point and that such technologies can be introduced to the public. That may lead to groundbreaking developments.

Why isn't this assistive technology being used yet?

Businesses usually view these devices only from a cost point of view. They believe there's not much point in developing items that serve only a small number of users. But it's not as if we don't have a lot of people with disabilities. They also say that such automatic systems break down easily and cause a lot of trouble. Without these devices, though, potential users find it hard to be part of the community because they can't go out into society and work. I've told METI that we need a mechanism for introducing such new technologies and ideas. We also need to alter the mindset of the public.

Wouldn't these devices aid Japan's aging citizens as well?

Yes, and I want to pursue that line of thinking. Eyeglasses were once rare; now they're common, and fewer people have difficulty seeing things. It's the same thing with accessibility and mobility: If there's ease of access for those in wheelchairs and using crutches, it'll be a good environment for others with mobility issues, like the elderly and pregnant women.

How should a "smart community" make life easier for the disabled?

A smart community should have a highly evolved degree of mobility for disabled individuals—a next-generation transportation system that allows easy access—and make better use of information and communication technology. If you can see your route on a smartphone screen, it would make being in a wheelchair or on crutches so much easier, especially in underground malls.

Are there any promising technologies that will improve mobility and accessibility?

One development I like is NEC's facial recognition software, called NeoFace, which can open doors and turnstiles automatically. Another is precision docking control technology that accurately aligns buses at bus stops and will provide easier access for wheelchair and elderly passengers.

What diversity issues does Japan need to solve?

Japanese society has a strong inclination toward homogeneity. There's almost a sense of fear about being different from others; it's often regarded as a negative rather than a positive. I'm not saying that we don't have any problems with differences in religion, cultural background, or ethnicity, but, relatively speaking, those differences are not as visible in Japanese society. There is a major gap, though, between people with and without disabilities.

Being different from other people shouldn't be interpreted as a weakness or flaw. Instead, I'd like our differences to be treated and interpreted as our unique strength. This is the change in attitude we are really hoping for, both in people with disabilities and those around them. I hope that in 2020 we can show the world a Japan that provides greater opportunities for a greater number of people and connects us all.

ISAO HORIKIRI

Great taste to your table

Everything we do at Kikkoman is grounded in a history of more than 300 years of brewing soy sauce to a traditional recipe, using only the finest ingredients. As we grew into a global brand, we developed an open stance and a clear awareness of our social responsibilities, a philosophy that has helped us become known for establishing standards of good taste. Everyday we work to realize this philosophy around the world, through contributions to local communities, environmental protection and cultural exchanges. These include our membership in the UN Global Compact to support human rights, labor and the environment, and the World Business Council for Sustainable Development. The success of this philosophy is appreciated around the world for its original taste and contribution to the enjoyment of good food. Production facilities in Japan, the U.S.A., Europe and Asia help support sales in more than 100 countries, and spread our message to every person who appreciates the special qualities of our products.

Kikkoman Corporation
2-1-1, Nishi-Shinbashi, Minato-ku, Tokyo 105-8428, Japan
https://www.kikkoman.com

kikkoman®
seasoning your life

A Taste For Everyone

AS A GLOBALIZATION PIONEER, SOY SAUCE MAKER **KIKKOMAN** ALWAYS BECOMES PART OF THE ECONOMIC AND CULINARY LIFE OF THE COUNTRIES WHERE IT OPERATES.

THE SOY SAUCE MANUFACTURER KIKKOMAN CELEBRATES its 100th anniversary since incorporation this year, but the company's roots stretch back to the early 1600s, when soy sauce production began in Noda, then a village about 30 miles from Tokyo.

The location proved to be a key competitive advantage. "Noda stands on the Edo River, which provided a direct shipping route to Japan's biggest market: Tokyo," explains Yuzaburo Mogi, honorary CEO and chairman of the board of Kikkoman. "Noda also provided us with easy access to wheat, soybeans, and salt—the ingredients of soy sauce—from the surrounding area."

Fast-forward three centuries and the 1917 incorporation reinforced these strengths. By merging eight existing family businesses, it increased the scale of production and availability of new technologies, and encouraged the adoption of modern management methods.

Indeed, by the mid-1950s the company was so successful domestically that venturing overseas was seen as one way to grow revenues more quickly. While prewar international sales had been targeted at Japanese immigrants and expatriates, Kikkoman was now ready to get serious about globalization. "We set up a sales office in San Francisco in 1957 and started marketing not only to overseas Japanese or Japanese-Americans, but also to mainstream American consumers," Mogi says.

The strategy worked. In fiscal 2017 the company generated over half of its sales and more than 70% of profits from overseas markets, and is hailed as a pioneer of globalized production. According to Mogi, Kikkoman's long history of making positive contributions to local communities in Japan made it acutely aware of the importance of good relationships and mutual economic benefit when expanding into new markets overseas.

By way of illustration, Mogi points to Kikkoman's two U.S. plants in Wisconsin and California, which opened in 1972 and 1998, respectively. "Our products in the United States are made using American raw materials by American workers and are sold to American consumers," he explains.

Whether through creating jobs or supporting healthy lifestyles, Kikkoman is committed to being a good corporate citizen that adapts and contributes wherever it goes. Indeed, this philosophy is encapsulated by the way Kikkoman presents its soy sauce in overseas markets: as a versatile, all-purpose seasoning that has a place in *all* the world's cuisines, not just Asian cuisine.

Back in the 1950s, Kikkoman built up initial awareness among American consumers step by step through in-store demonstrations giving home cooks the chance to taste pieces of meat prepared with soy sauce and by creating recipes together with home economists for everyday American dishes using soy sauce.

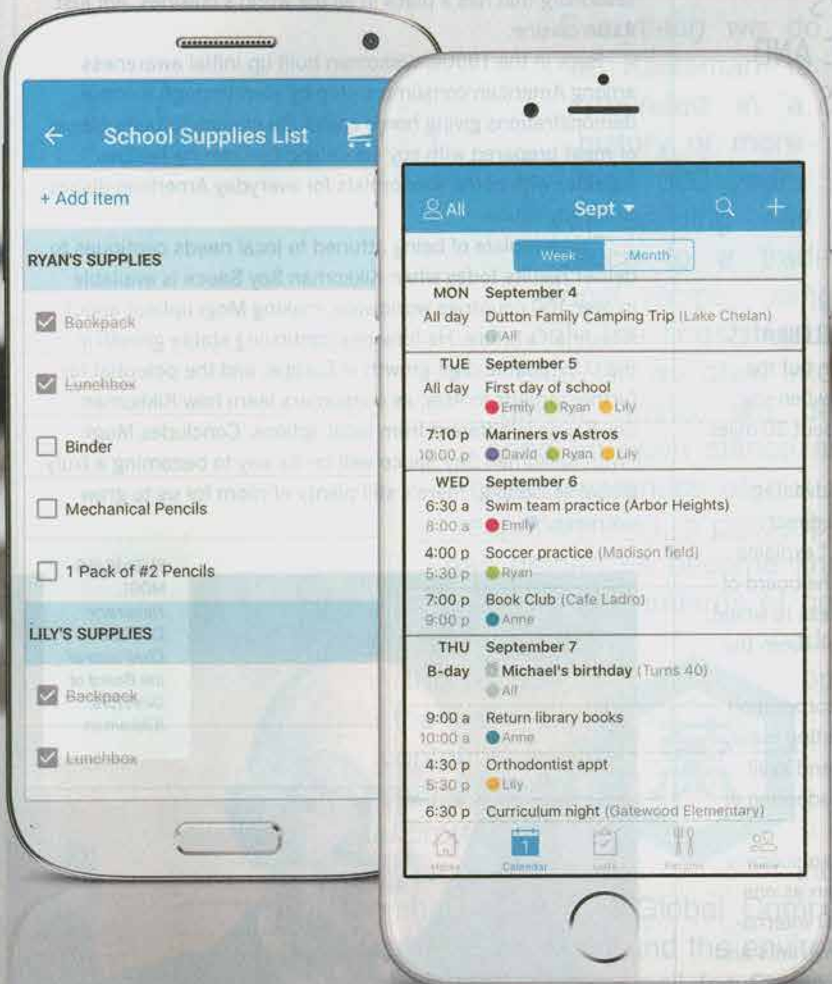
This template of being attuned to local needs continues to deliver results today when Kikkoman Soy Sauce is available in over 100 countries worldwide, making Mogi upbeat about Kikkoman's future. He foresees continuing stable growth in the U.S., double-digit growth in Europe, and the potential for further inroads in Asia, as consumers learn how Kikkoman Soy Sauce is different from local options. Concludes Mogi: "With Kikkoman Soy Sauce well on its way to becoming a truly global seasoning, there's still plenty of room for us to grow overseas."

YUZABURO MOGI, *Honorary CEO and Chairman of the Board of Directors, Kikkoman*

HISAYOSHI OSAWA

Cozi Family Organizer

One simple app that calms the chaos of back to school.



Join 20 million others who have simplified family life with Cozi!

- ✓ Track your family's schedules in one place
- ✓ Send reminders to others in the family
- ✓ Share the grocery list, chores and meal plan
- ✓ Easy to use from any mobile device, tablet or computer

Get Cozi today –
free in the app store.

Download on the App Store

GET IT ON Google Play

WORLD'S LARGEST CORPORATIONS

FORTUNE

FOR MORE DATA ON THESE COMPANIES, VISIT FORTUNE.COM.

GLOBAL

INSIDE

ILLUSTRATION BY **MUOKKAA STUDIO**

GLOBALIZATION BITES BACK

U.S. tech companies have soared to the top ranks of the *Fortune* Global 500 in recent years. Foreign regulators say they did it by cheating. Could their crackdown put an end to a great growth story? **BY JEFF JOHN ROBERTS**

DUE FOR A SLOWDOWN? Revenue growth since 2011 for top U.S. tech companies. [Global 500 rank in parentheses.]

IT WAS NO ORDINARY FINE. After the European Commission hit Google with a $2.7 billion antitrust penalty in June, in a case related to its shopping results, the search giant scrambled legal teams on two continents to seek redress—while the rest of the U.S. tech industry swallowed hard.

The money wasn't the issue: $2.7 billion would barely dent Google's $92 billion cash reserve. But there is genuine fear the EC fine could be the opening salvo in a grisly shoot-out, as regulators in Europe and elsewhere grow emboldened to punish American tech firms, and even meddle in their decision-making, in the name of fairness, privacy, or security.

For years, the most successful U.S. tech giants have ridden their innovations to rapid global growth, leaving observers and some shareholders with the impression that they can conduct business as they see fit, wherever they want. Over the past year, though, national governments have shown they can bend mighty firms like Apple and Facebook to their laws. Ironically enough, amid fears that the Trump administration would spook global markets with a wave of protectionism, foreign regulators are the ones landing the first cross-border blows.

"Legislators, administrative bodies, and courts around the world are starting to take on giants like Google, Facebook, and Amazon," says Ivo Entchev, a transnational lawyer at Holwell Shuster & Goldberg in New York. What's less clear is whether their recent bold decisions are just a temporary burst of activity, or whether they amount to a long-term, existential threat to the tech behemoths. The fundamental worry, Entchev adds, is that regulators could use local laws to intrude in unprecedented ways into the firms' operations—potentially putting an end to a remarkable streak of revenue growth.

THE VANGUARD OF action is Europe, where national capitals and the EC, the European Union's executive arm, are putting the screws to U.S. tech firms. Some on the U.S. side of the Atlantic see the Google ruling, and others like it, as examples of Eurocrats behaving like sore losers. As then-President Barack Obama put it in 2015, "Their service providers—who, you know, can't compete with ours—are essentially trying to set up some roadblocks."

Google is hardly the only U.S. tech firm getting a rough ride abroad, of course. Over the past year, Apple was hit by the EC with an order to pay more than $13 billion in back taxes, while Europe's top court is set to bless a decision by French authorities to hit Uber managers with criminal charges for unlicensed taxi operations. Outside of Europe, tech giants are also taking lumps. In June, an intellectual property decision by the Supreme Court of Canada forced Google to delete certain search results, not just in Canada but everywhere in the world. Russia and China routinely invoke national security to require American tech innovators to share intellectual property.

Europe's strict data and privacy laws, meanwhile, are showing their bite. Facebook has been dinged for privacy infractions related to its WhatsApp acquisition, while other companies have run up bills scrubbing information under "right to be forgotten" laws. The General Data Protection Regulation, a new legal regime intended to give EU citizens more control over their data, could create still more heartburn for U.S. general counsels when it goes into effect next year. Noncompliance could incur eye-popping penalties of up to 4% of a company's *global* revenues. Such laws are not just a nuisance but a barrier to growth: For the likes of Facebook and Google, they could choke off the user data that turbocharges their advertising businesses.

For Google, though, the most troubling part of the recent EC antitrust ruling was its requirement that the company rearrange its home page to accommodate competing shopping services. Ted Ullyot, a partner at venture capital firm Andreessen Horowitz who worked on antitrust issues for the George W. Bush administration, points out that tech firms in particular resent governments ordering them to change their product designs. Such orders, they believe, amount to governments behaving as de facto software developers, even though they lack knowledge of the challenges this may entail—or of the business models that depend on the status quo.

THE SHOPPING DECISION, which Google may still appeal, is only one part of the company's antitrust trouble. As of July, the EC was also conducting two other major investigations, including one that looks at whether contracts that oblige Android device makers to preload Google's apps are anticompetitive. But Google and other tech leaders also face a bigger problem: the tension between their culture and those of national-interest-minded lawmakers.

"Silicon Valley titans have at times exhibited an evangelical and single-minded devotion to the logic of disruption," says Entchev, the transnational lawyer. "The corollary has been an insensitivity and a perceived, if not actual, hostility to local values and traditions." Indeed, the idea of Amazon punching holes in England's beloved high streets or Uber invading France with Ayn Rand–style capitalism rankles ordinary European citizens as much as shuttered factories gall U.S. populists.

European officials, unsurprisingly, frame their conflicts with Silicon Valley as a cut-and-dried matter of law. Margrethe Vestager, the EU antitrust chief who became the tech industry's prime tormentor after taking up her post in 2014, has disavowed any political agenda. In the Google case, she told CNBC in mid-July, "the fine is a reflection of the abuse and how long the abuse has taken place."

The Google decision seems harsh to American lawyers in part because, unlike U.S. antitrust law, European competition policy focuses on harm to companies as well as to consumers. Meanwhile, EU regulators aren't the only ones accused of playing politics—some Europeans are asking whether the U.S. federal and state penalties raining down on Volkswagen for its emissions scandal would be as severe if the automaker was American.

Ironically, while the enforcement actions might trip up U.S. tech companies, they are unlikely to do much to help European consumers. In last month's Google decision, the EC flexed its muscles to defend an Internet product—vertical search shopping engines—that has become obsolete for many in the age of Amazon and apps. (The Eurocrats, incidentally, are pecking at Amazon too, forcing a recent antitrust settlement over book sales and probing the company's Luxembourg tax arrangements.)

"Antitrust regulation usually comes way too late in the day. It's chasing yesterday's problems and controversies," says Ullyot. Unfortunately for U.S. companies and their shareholders, even if the current regulatory outburst proves futile on the policy front, it will cost them a lot of money and headaches. ■

POPULAR, AND PILLORIED Apple's phones and tablets generate as much consumer buzz in Europe as they do stateside, but the company's tax maneuvers have drawn legal fire from EU regulators.

© CHESNOT/GETTY IMAGES

G/
500

→ COMPANY: **HNA GROUP** | COUNTRY: **CHINA** | CEO: **ADAM TAN** | RANK: **170**

海航

YOU'VE NEVER HEARD OF *HNA GROUP.

集团*

HERE'S WHY YOU WILL.

The $53 billion Chinese conglomerate already owns a company near you.

BY VIVIENNE WALT

O N A WARM SUMMER NIGHT in Paris, hundreds of executives, bankers, diplomats, and French officials walk the red carpet snaking up the steps of the Petit Palais museum—a sumptuous Beaux Arts building in the heart of the French capital, with sculptures and paintings set around a manicured garden. Under 200-year-old frescoes, the guests dine on lobster, duck, and white-chocolate mousse, prepared by a top French chef, washed down with grand cru Bordeaux, and topped off with entertainment from the Peking Opera. Three large red letters affixed to the ornate gates offer a clue about who's throwing the invitation-only affair: HNA.

To the hundreds of people passing by, the name HNA probably means nothing. But to the business world at large, the presence of those three letters is another sign—if any is needed—that a little-known Chinese conglomerate with provincial roots has, in just a few years, transformed into a powerful global player with tentacles stretching across the planet.

HNA Group, headquartered in Hainan in southern China, still lacks the brand-name status it eagerly seeks. That's despite the fact that it has plowed tens of billions of dollars into buying up foreign assets since 2015, on every continent—including $5.66 billion in just the past six months, according to the tracking firm Dealogic. By the company's estimation, its investments in the U.S. alone have reached $35 billion.

Over the past two years, about $1 trillion has flowed out of China, as Chinese individuals and companies, having made fortunes at home and with state-owned banks willing to lend, invested elsewhere. Among those companies, one of the most aggressive has been HNA. Its dealmaking in some ways highlights how a mere handful of Chinese groups have snapped up dozens of Western assets, especially since the 2008 economic crisis, while at the same time leaving unanswered questions over ownership and transparency.

In the case of HNA, its executives have crisscrossed the globe in a frenetic buying spree, making deals through a labyrinth of subsidiaries in China and abroad. The purchases have included household names for Americans and Europeans. Among them are Minnesota-based Carlson Hotels—owner of the Radisson and Park Plaza hotels—which HNA bought outright last December for an undisclosed sum. In March of this year, it bought 25% of Hilton Worldwide Holdings, the hotel group, from Blackstone for $6.5 billion. And in May it increased its stake in Deutsche Bank to become its biggest shareholder, with its stake worth about $3.7 billion.

The list goes on: HNA owns the airline catering giant Gategroup and the aviation servicing giant Swissport. In April of this year, HNA's Dublin-based aircraft leasing subsidiary, Avolon Holdings—which HNA bought in 2016—acquired the aircraft leasing arm of the New York financial firm CIT Group for $10 billion, turning HNA into the world's third-largest lessor of planes. And its U.S. real estate holdings include 245 Park Avenue in Midtown Manhattan, which it bought in March this year for $2.2 billion.

In December, HNA went to California and bought Ingram Micro, the Irvine-based company that is the world's biggest distributor of technology products, with operations in about 160 countries. The price: $6 billion—in cash.

There are plenty of other purchases that, by HNA's outsize standard, seem almost forgettable: eight golf courses purchased in Washington State for $137.5 million last October, for instance. In January, HNA Capital, one of the group's subsidiaries, spent about $200 million for a majority stake in the New York hedge fund SkyBridge Capital, according to HNA. That deal might have gone unnoticed had the seller not been Anthony Scaramucci, a key financial backer of President Donald Trump. In the blaze of coverage over Scaramucci's windfall from China—after Trump's acerbic anti-China talk—the President shelved plans to appoint Scaramucci to a White House post. (In late June, Scaramucci was named chief strategy officer of the U.S. Export-Import Bank.)

As it swallows new businesses and properties, HNA is making a rapid ascent up *Fortune*'s Global 500 rankings. The company first appeared on the list in 2015, at No. 464. Last year it jumped to No. 353. And this year it's No. 170, with some $53 billion in revenue—a nearly 80% gain over the previous 12 months. Add in a full year of Ingram Micro, which last year had some $42 billion in sales, and HNA Group should easily crack the top 100 of the Global 500 in 2018.

But HNA's thirst for growth seems far from sated. That was clear when the company's top executives met *Fortune* over several days in late June. It was a rare window into the privately held (and private) company. The execs described goals that seemed wildly ambitious, until one considers that HNA started from scratch just 24 years ago—making it younger than Apple, for example, by a full 17 years.

Indeed, the man who runs HNA today is set on its becoming one of the world's biggest companies, period. "We have a target to be in the top 10," says HNA's CEO Adam Tan (his Chinese name is Tan Xiangdong), sitting in his hotel suite in Paris the morning after the company's spectacular dinner, a charity event that takes place in a different city every year, on the birthday of the company's billionaire founder and chairman, Chen Feng.

The Paris dinner kicked off HNA's "International Week" in Paris, in which major clients, bankers (including from Goldman Sachs and J.P. Morgan), and business partners converged on the city over several days for meetings. At the National Golf

LEANING IN TO AMBITION
HNA Group CEO Adam Tan, photographed in Paris in late June, says his goal is to make HNA one of the world's 10 biggest companies.

course near Versailles, outside Paris, HNA launched the first HNA Open de France, a European PGA tour it now sponsors. All of that is valuable branding for a company grasping for the top. Tan, known universally in the company simply as Adam, says he doesn't know how long it will take for HNA to become one of the world's biggest companies. But he's confident that it will get there. It helps, he admits, that business is booming at the moment. "Earning money is so easy," he says, laughing. "We are now the geniuses."

TAN COULD SCARCELY have conceived such ambition when he first visited the U.S. in 1993, as a young HNA employee. Now 50, he still remembers gazing out of the plane window, feeling like a hick from the boondocks of Hainan, a tropical island whose capital city, Haikou, barely had traffic lights at the time. "All the lights were on, even two hours from New York City. I was shocked," Tan says.

▲ PHOTOGRAPH BY **JULIE GLASSBERG**

BIG-MONEY BELIEVER
When HNA was founded in 1993, its sole operation was Hainan Airlines, which had just two airplanes. An early backer was hedge fund manager George Soros, who invested $25 million for a 25% stake.

His immediate thought: "This is something. I have to live here."

And he did. Tan spent years in New York, courting investors and helping to grow the company internationally. When he began, HNA's sole operation was Hainan Airlines, a startup carrier which had exactly two airplanes. (HNA is a rough acronym for Hainan Airlines.) It was funded by the province's government in an effort to lure tourists. One crucial early backer was hedge fund legend George Soros, who took a 25% stake for $25 million, which he later raised to $50 million. (Soros, who originally met some HNA executives at a summit in Beijing, cashed in his stake a few years ago for a big profit.) Having such a prominent investor helped give HNA the credibility to raise significant capital abroad—and so pave the way for its ultimate rise. "I think Mr. Soros has great vision, because he thought we would be successful," HNA chairman Chen tells me.

The Hainan government's investment paid off hugely too, turning the island into a major destination for Chinese tourists. Today the carrier's 179 airplanes act like global billboards for the province, flying across China and to dozens of cities in the U.S., Asia, and Europe. It's now China's fourth-biggest airline, and HNA also has stakes in 16 other airlines, including in Brazil and South Africa. "They could never have transformed HNA into a global company without Adam," says an investment banker for a U.S. firm in Hong Kong, who asked not to be named. "He is the face of the group. The dealmaker."

FOR HNA, the dealmaking often begins long before Tan ever appears in person—perhaps even before its targets know of HNA's existence. That was the case with Ingram Micro. In September 2015, HNA's financial adviser, CICC, told Ingram's Beijing representative that its client was "interested in making an investment," suggesting it wanted to buy a 20% stake, according to the 185-page SEC filing on the deal, which reads like a study into HNA's corporate tactics.

In California, the response was mixed. "My first gut instinct was, Why?" Ingram Micro CEO Alain Monié says, over sodas in Paris. "We were not looking at all." Born and raised in the South of France, Monié had spent years in Asia for Honeywell and had done deals in China. Even so, he says, "I had not even heard of HNA, frankly."

He soon would. In November 2015, Tan and top HNA officials flew to California to meet Monié at Ingram Micro's advanced logistics center in Mira Loma. Tan, a voluble and fluent English speaker with a deadpan wit, swapped personal histories with Monié and discussed their companies' strategies. Monié says he realized Tan had been following Ingram Micro's expansion from afar. The two men kept talking that night over a long dinner at the Pelican Hill golf resort in Newport Beach. There, Tan told Monié his true intention: to buy Ingram outright. Tan said he wanted the company to continue operating as it was, from California under Monié's leadership. In return, HNA—bankrolled in part by China's state-owned banks—was willing to pay a healthy premium. When HNA finally acquired Ingram and took it private last December, shareholders received 31% over the stock price the day the deal was announced. The offer had been too good to refuse.

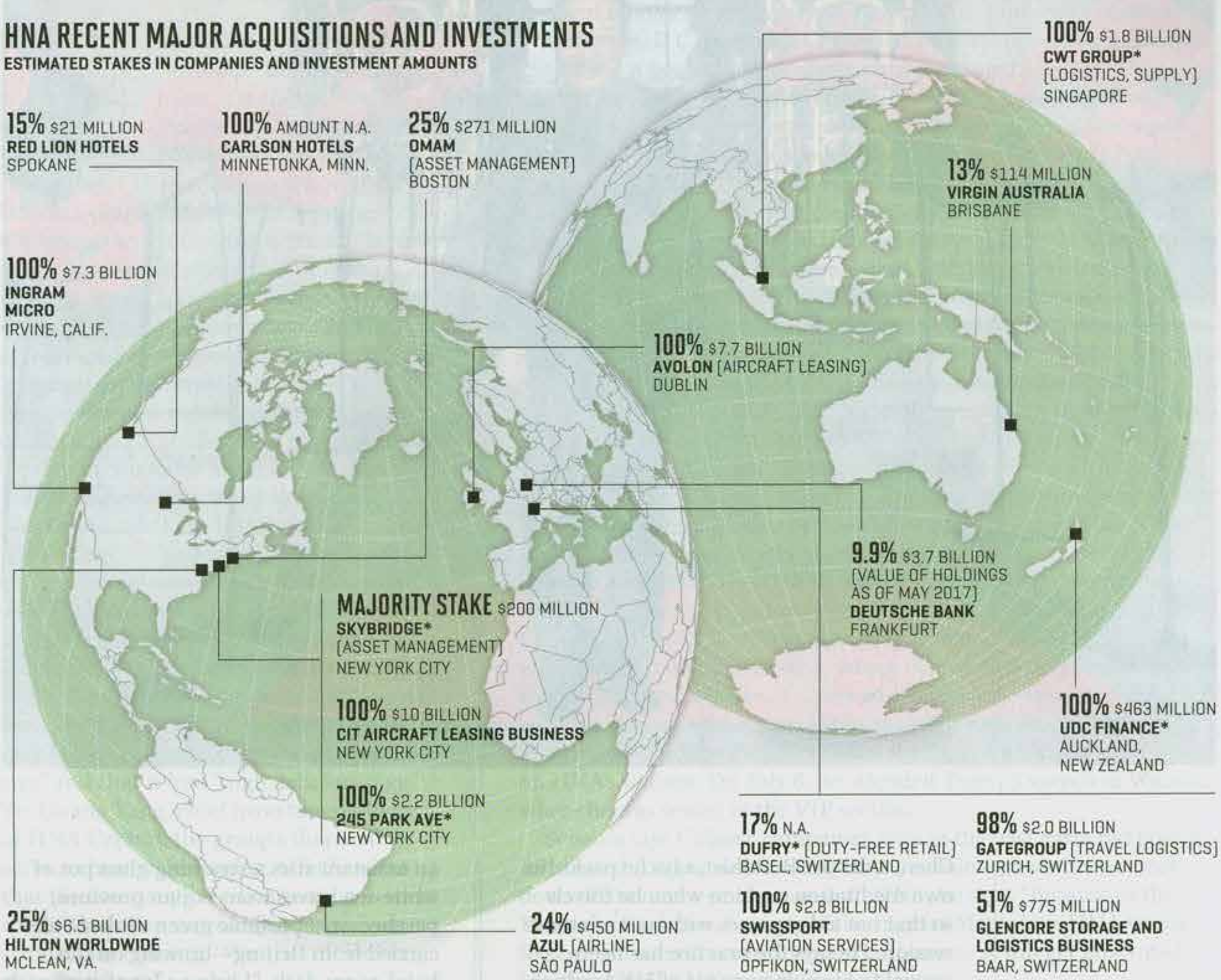
But money was not the only draw. Similar to other HNA acquisitions, there was another crucial enticement: ready access to China's vast market. Monié says Ingram Micro had struggled to make headway in China, even though the company had operated there for more than 20 years; last year China generated only about 3% of Ingram's global business. And while Ingram Micro invested heavily in cloud technology, obtaining a license for that in China required majority Chinese ownership. "The market is very tough, with very strong local competitors," Monié says. "You can see how many non-Chinese companies have been successful in China without a Chinese partnership. There are very, very few."

Under HNA ownership, Ingram's business in China has already surged, says Monié. He predicts it will quadruple in the next five years. For HNA's part, Tan says buying into a global tech-distribution network is part of HNA's expansion into infrastructure and commodities industries, including door-to-door shipping and cargo. (In March, HNA bought 51% of the oil-storage business of Glencore, the Swiss commodities giant, for $775 million.)

SOROS: JASPER JUINEN—BLOOMBERG VIA GETTY IMAGES; HAINAN PLANE: REUTERS

A GLOBAL BUYING BINGE

HNA Group has embarked on an aggressive spending spree outside China in recent years, investing in everything from airline services to asset managers to hotels.



SOURCE: HNA (EST. STAKES); S&P GLOBAL (TRANSACTION AMOUNTS); BLOOMBERG *TRANSACTION ANNOUNCED, NOT YET CLOSED

Monié sees potential for Ingram to grow in the other direction too. Chinese companies can now use Ingram's distribution network in 160 countries to export globally. "There are many companies that are huge in China, but not outside," Monié says. "They say to us, 'Help us get out of China.' That is a tremendous opportunity."

So far, Monié seems delighted with his Chinese owners—especially since, outwardly, his company still appears to be all-American. Tan, an avowed Americanophile, says he has no desire to change that perception; in fact, it's part of his strategy for HNA. "This is a global company," he says. "It happens to have Chinese roots. But two-thirds of the revenue is outside China. There are 45,000 employees in the United States."

IN INTERVIEWS, HNA executives say their company has become an East-West fusion. But the East is dominant in HNA's 64-year-old founder and chairman, Chen Feng. When I meet him in his Paris hotel, he tells me that he arose at 5.30 a.m. to meditate for 90 minutes.

BUDDHIST BUSINESS PRACTIONER HNA founder Chen Feng outside the Petit Palais museum in Paris, where HNA hosted a charity gala in June to celebrate Chen's 64th birthday. A devout Buddhist, Chen says daily meditation has been crucial to his management of the company's growth.

Chen, a devout Buddhist, says he packs his own meditation cushion when he travels so that not a day passes without an intense session. He says the practice has been crucial to his management of HNA, which he founded in 1993. "According to Buddhism, you become very calm and your wisdom will come out from you," Chen says. Besides, he jokes, it keeps him young. "Look, no wrinkles!" he says, stroking his forehead.

Among employees, Chen is revered as the company's visionary, whose faith infuses its culture. He has also been a delegate to the National Congress of China's ruling Communist Party, which HNA execs describe to me as an "honorary title," rather than signifying links to the government. While Chen and I speak, an assistant stirs a steaming glass pot of white-tea leaves from Fujian province, perched on a portable green cooker—all carried from Beijing—brewing on the hotel-room desk. "I bring a lot of stuff with me," Chen says. "This hotel doesn't know that kind of teapot."

Thanks to HNA's success, Chen is now a billionaire. The company would not answer questions about his exact worth or how big a stake he holds in the company. But his wealth made news in New York this year, over reports that he and his brother had each paid $47 million for apartments in Manhattan's One57 tower. HNA would not confirm the details. Chen, meanwhile, says HNA's driving philosophy is to be a Buddhist-style "practitioner of compassion, wisdom,

COURTESY OF HNA GROUP

and altruism." Chen, Tan, and four other HNA founders have pledged their shares upon death to HNA's charity, the Hainan Province Cihang Foundation, which owns 22.75% of the group's shares. HNA says the remaining 77.25% of shares are held by Hainan Airlines Holding and 18 individuals, whom it would not identify.

WHILE CEO TAN says HNA just "happens" to have Chinese roots, it is those ties that may be key to determining HNA's next moves. Last November, China announced it was imposing capital controls on Chinese companies and individuals, reining in how much money they can send out of the country. It was an effort to shore up the depreciating yuan and protect China's cash reserves, which dipped below $3 trillion in February for the first time since 2011. Among the new controls are restrictions on deals over $1 billion that are not part of a company's core business.

HNA's executives insist the government's controls have little effect on them. They say that more than half of the group's revenues now come from the sprawling assets outside China, allowing them to easily seek financing abroad. As long as they don't overextend themselves, that is. In a written comment last November, S&P Global Ratings in Hong Kong said HNA's financial policy was "aggressive" and that it had "high debt leverage." Yet Guang Yang, chief investment officer of HNA Capital, the group's financial services branch in Beijing, tells *Fortune* that the company's credit situation is rock solid. "Cash flow outside [China] is very strong," says Guang. "We are still looking at acquisitions."

Still, questions over HNA's finances linger. In May, the exiled Chinese billionaire Guo Wengui, from the comfy refuge of his $68 million Manhattan apartment, told the *New York Times* that politically powerful people in China secretly controlled blocks of HNA shares. Guo, who's launched numerous accusations against Chinese companies, has offered no concrete proof, and HNA chairman Chen dismisses his claims as a "pack of lies." In June, HNA sued Guo for defamation in the New York State Supreme Court for $88 million, saying his "baseless and meritless" accusations were damaging its reputation. Guo's response amounted to, bring it on. "Only their [HNA's] replies can prove the value and truth of the matter," he said in a live-streamed video quoted by Reuters.

Indeed HNA's outsize growth is an easy target for suspicion, including over whether possible political ties protect HNA from crackdowns against its expansion. "It has not stopped acquiring companies even in a period of capital controls," says Derek Scissors, resident scholar at the conservative American Enterprise Institute in Washington, D.C., and a leading expert on China's outbound capital. "So how is it possible that the company is doing this when other companies are not able to act? You deduce they have very strong ties to the [Chinese Communist] party." HNA execs dismiss that assertion, pointing again to the company's cash flow outside of China.

Scrutiny inside China, meanwhile, continues to grow. Just days before HNA's executives gathered in Paris, China's banking regulator, CBRC, ordered the banks to review their loans to HNA, as well as to Anbang Insurance Group, Dalian Wanda Group, and Fosun International, all of which have borrowed heavily to fund acquisitions abroad. The government is trying to determine the banks' risk exposure.

In interviews, Tan and HNA's other executives express little concern over the investigation, saying in a statement that the group "fully complies and cooperates" with regulators the world over, and that "the company is in a sound financial and operational situation." Still, it has to give them pause that in June the government detained Anbang chairman Wu Xiaohui, whose company—much like HNA—has been on a global acquisition spree.

Instead of lying low, HNA continues to cultivate its ties abroad—including high-level political ones. In June, Tan joined the board of the Atlantic Council, a Washington, D.C., organization comprising corporate and political leaders, whose chairman is Jon Huntsman, former U.S. ambassador to China and Trump's nominee for ambassador to Russia. At the council's formal dinner in Washington, D.C., Tan posed with Vice President Mike Pence, in a photo now posted on HNA's website. On July 6, he attended Trump's speech in Warsaw, where he was seated in the VIP section.

Scissors says Chinese companies have in the past garnered powerful allies abroad as insurance against a possible government crackdown. That might be the case with HNA, he says. "Because of the Deutsche Bank buy, because of the Ingram Micro buy, HNA wants to say, 'You cannot come down on us, because it will get unwanted headlines in the U.S. and Germany.'"

HNA executives might ultimately prove too well connected for China's government to target. But in interviews, they describe a far broader strategy than that. Rather than being a Chinese company, HNA seeks to be truly global. The ultimate goal—through brand-name hotels like Radisson and Hilton, and main street institutions like Deutsche Bank—is for its Chinese origins to fade from consciousness.

Onstage at the Paris dinner, Tan tells the guests he feels that HNA is "part of the European family," before offering to assist in France's bid to win the 2024 Summer Olympics. And when I meet him the next morning, he brings the focus back to America: "My goal in the coming five to 10 years is that people inside the U.S. view HNA as a local U.S. company." Indeed, if Tan has his way, HNA will soon be so big that those three letters will no longer be a mystery to anyone.

G/
500

→ COMPANY: **TATA SONS** | COUNTRY: **INDIA** | CHAIRMAN: **NATARAJAN CHANDRASEKARAN** | RANK: **N.A.**

INDIA'S MARATHON MAN

Can this distance-running fanatic whip **Tata,** India's biggest and most complicated company, into better shape?

BY CLAY CHANDLER

HEIR TO AN EMPIRE
Natarajan "Chandra" Chandrasekaran on the roof of the Taj Mahal Palace Hotel in Mumbai, with the Gateway of India monument in the background. As chairman of Tata Sons, he oversees a sprawling conglomerate with some 700,000 employees and more than $100 billion in revenue.

▲ PHOTOGRAPH BY **VIVEK SINGH**

S**HORTLY AFTER** Natarajan Chandrasekaran turned 44, his doctor diagnosed him with diabetes. As the chief operating officer of Tata Consultancy Services (TCS), India's largest IT firm, Chandrasekaran (who insists that everyone call him simply Chandra) led a hectic life consumed by long work hours, innumerable client meetings, and constant travel. But his doctor minced no words. "He said to me, 'You're an intelligent man. Don't be stupid about your health,'" Chandra recalls. "'You need to get some exercise.'"

The next morning, Chandra, a computer engineer and lifelong math geek with no prior penchant for athleticism, laced up his shoes, stepped into the sweltering heat of downtown Mumbai, and began to run. Months later, he stumbled across the finish line of his first marathon. In the years that followed he kept running, completing all six of the world's major marathons (Boston, Berlin, Chicago, London, New York, Tokyo). As his running times fell, Chandra's corporate star ascended. In 2009, two years after he began training, he was chosen as TCS's CEO, and he proceeded to transform the consultancy into one of India's most valuable companies, with a market capitalization of $71 billion. Now 54, he runs at least one full marathon and several half marathons a year, and he claims to have beaten diabetes without the help of medication. "Running has made a world of difference for me," he says. "It has made me calmer, more reflective, and given me more perseverance."

Chandra will need those qualities in his latest corporate assignment. In February he was installed as chairman of Tata Sons, the private holding company that controls TCS and hundreds of other businesses that make up the Tata Group, India's largest and most venerable conglomerate—one that owns Western brands such as Land Rover and Tetley Tea. His appointment as chairman (which at Tata is essentially the CEO role) followed an abrupt board decision last October to sack Tata Sons' previous chairman, Cyrus Mistry, a scion of the family that remains Tata's largest private shareholder.

Mistry's ouster sent shock waves through the Indian business community and erupted into a messy and ongoing legal dispute. And it left Tata adrift at a moment when overall revenues are shrinking and many of the group's largest businesses are losing market share and bleeding cash.

Colleagues and investors hope Chandra can transfer to the rest of Tata some of the digital magic he sprinkled on TCS, where he tripled sales and profits during his seven years as CEO. But, as one might expect of a relentless marathoner, Chandra himself suggests that whipping Tata into shape will involve some grueling workouts. "One of my key messages is that we're going to look at performance for every operating company—growth rates, profitability, return on capital,"

he says. "You can't perform if you're not fit. If you want to run a six-minute mile, you have to bring your weight down."

IT'S HARD TO overstate how large the Tata name looms in Indian life. The group was founded in 1868 by Jamsetji Nusserwanji Tata, a Parsi—a member of a small but commercially adept community whose Zoroastrian forebears fled Persia to escape religious persecution in the eighth century. Jamsetji began in his father's trading company, then struck out on his own with profits from outfitting British troops in Abyssinia. He invested in textile mills, built the grand Taj Mahal Palace Hotel across from Mumbai's Gateway of India, and, before his death in 1904, laid plans to construct India's first steel factory, in what is now the state of Jharkhand.

A 1944 *Fortune* profile of the "House of Tata," written decades after Jemsetji's death, described the founder as "bearded, beturbaned, almost Biblical in appearance" but "nevertheless India's most outstanding native industrialist."

Over its 149-year history, the Tata Group has metamorphosed into a sprawling conglomerate whose modern portfolio is often described as ranging "from salt to software." That's literally true: It owns India's largest packaged salt brand, TCS, and myriad companies in between. But the phrase only hints at the diversity of the Tata's empire. The group's biggest business by sales is Tata Motors, which ranks No. 247 on this year's Global 500, with revenues of $40.3 billion. Other holdings include India's second-largest steelmaker; the nation's largest power company; a leading chemical manufacturer; a chain of luxury jewelry boutiques; a gaggle of financial services firms; a leading aerospace and defense manufacturer; and investments in 51 tea plantations stretching across India and Sri Lanka.

Tata is among India's most cosmopolitan conglomerates. Its overseas acquisitions include Tetley Tea, the world's second-largest tea brand; Corus, a giant steelmaker formed by the 1999 merger of British Steel and Dutch rival Hoogovens; and Jaguar Land Rover (JLR), purchased from Ford Motor in 2008. Tata Group's Indian Hotels Co. owns luxury lodgings like the Pierre Hotel in New York and the Cipriani Hotel in Venice. In 2011, Tata Global Beverages struck a deal with Starbucks to bring the Seattle company's coffee shops to India.

DRINKABLES AND DURABLES Tata's sprawling web of businesses and investments includes 51 tea plantations [including this one in Kerala, India, above left] and Tata Steel, whose factories include this plant in Willenhall, England [right].

FROM LEFT: COURTESY OF TATA; BEN BIRCHALL—PRESS ASSOCIATION/AP IMAGES

In all, Tata Group companies employ nearly 700,000 people, and claim combined sales close to $104 billion. If bundled into a single listed entity, the group would almost crack the top 50 of the Global 500.

The group's star performers are TCS and Jaguar Land Rover. During Chandra's tenure, TCS—which derives 94% of its revenue from work for clients outside India—pulled far ahead of its two domestic rivals, Infosys and Wipro. The company reported net profits of nearly $4 billion on sales of $17.6 billion in the fiscal year ended in March.

Jaguar Land Rover has had an equally standout run. British ministers extol JLR as the poster child of their nation's industrial renaissance. Supported by Tata and steered by CEO Ralf Speth, a native German and former Ford and BMW executive, the once-troubled company has become the U.K.'s biggest car manufacturer and reported record sales of 604,000 vehicles in the year to March, up 16% from a year earlier. JLR now earns 80% of its sales outside the U.K., and sales are especially hot in China.

But such stars notwithstanding, much of the House of Tata is in urgent need of renovation. Some of its biggest businesses have grown sluggish and vulnerable to smaller, nimbler rivals. Some are too small to compete globally. Some compete with one another. And all its components operate under layers of managerial overlap that can create competing agendas and pose a challenge to any would-be reformer.

J**LR'S PARENT,** Tata Motors, may be the most visible symbol of the company's recent doldrums. The company once dominated the enormous Indian market for commercial trucks. But its share of that segment tumbled to 44% last year, down from a peak of over 60% in 2012.

At Tata Steel, domestic operations remain prosperous, thanks to continued high demand in India. But the company's European business is mired in debt and has posted losses in four of the past five years. Discussions about a possible joint venture between Tata Steel Europe and Germany's Thyssenkrupp are on hold pending resolution of a dispute with the British government about Tata's pension obligations. As of the end of 2015, Tata Steel's U.K. operations were losing a million British pounds per day. Tata Power, Tata Chemicals, Indian Hotels, and Tata Teleservices are all in trouble, earning poor returns or suffering losses.

In the financial year ended in March 2017, TCS and Tata Motors accounted for 59% of the group's combined revenue and 90% of its net profit, and generated 80% of dividends. In an email sent to directors days after he was removed, Mistry said the group faces $17 billion in write-downs from five unprofitable companies. (Tata Sons disputes that claim.)

Chandra must move quickly to stanch the bleeding. In an April town hall with executives from Tata companies, he stressed the importance of group unity and collaboration with a slide deck touting the virtues of "One Tata." But in other meetings, that message has been twinned with a warning that the group must have clearer lines of accountability, and that Chandra will establish detailed metrics to evaluate the performance of the various operating companies.

Chandra has vowed to reorganize the group to focus on growth and scale. Tata's corporate roster is rife with opportunities for consolidation, with multiple companies competing in the same segment. Even veteran Tata executives are hard-pressed to explain why Tata Finance, Tata Housing Finance, and Tata Capital Finance operate as separate companies.

In conversations with *Fortune*, Chandra seemed at times to channel Jack Welch, suggesting that he plans to remake Tata's portfolio to include only large businesses that lead their industry. "Tata is already a $100 billion group," he says. "To get to the next level we need scale. We can't do it with multiple small companies. We need top companies. I am not saying specifically that all companies need to be No. 1 or 2 [in their sectors], but we need to have top companies."

He's not ruling out selling off underperformers. "We won't exit a business just to get a headline. But we will exit if we aren't getting returns today and we don't think we'll get them tomorrow. I have thought a lot about this. We'll definitely prune the portfolio."

Chandra has sent a clear signal that he plans a major shake-up by hiring some of India's most respected corporate financiers, including Ankur Verma, formerly with the Bank of America Merrill Lynch; Nipun Aggarwal, from Standard Chartered Bank; and Saurabh Agrawal, head of corporate strategy at the Aditya Birla Group.

Agrawal, a former Merrill Lynch dealmaker who helped to broker TCS's 2004 IPO, will lead the charge as Tata Group's chief financial officer. He speaks frankly about his marching orders. Tata's holdings, he argues, should be reshuffled into four or five large groups. "No chairman can have more than a handful of executives reporting to him," he says. "You just can't be effective."

He also wants to clear away small ventures, whether through merger or sale. "We want to be in businesses where we can scale up, which can be large, which can deliver shareholder returns. There's a huge amount of rationalization which is going to take place in over the next 24 to 36 months."

Agrawal wants to take a razor to Tata's listed companies too. He says he'd like to shave the number in Tata's portfolio from the current 29 to a figure "down into the single digits." He promises a "huge streamlining" of Tata's portfolio. "I'll be surprised if we are not able to take at least a third of the companies out of the system," Agrawal tells *Fortune*.

For a group like Tata, all this is radical stuff. How long will it take to achieve?

TATA, FOR NOW

Tata Group's holdings include hundreds of companies—though new chairman Natarajan Chandrasekaran says he plans to "prune the portfolio." Here are some of the largest components.

MARKET CAPITALIZATION OF TATA COMPANIES (IN $ BILLION, AS OF JULY 14, 2017)

SOURCE: TATA

"If I were to tell you, 'Well, we'll get to it over the next five to 10 years,' I wouldn't be in this chair tomorrow morning," says Agrawal. "If you ask Chandra, he'll say, 'I want it done in 30 days.'"

• •

ANY EFFORT TO reorganize Tata's business portfolio must grapple with the group's byzantine organizational structure. Senior executives at Tata sometimes compare the group to diversified conglomerates like General Electric, private equity funds, or even investment companies like Berkshire Hathaway. The parallels are misleading. Whereas GE is ultimately a single company with a single stock price overseen by a single chief executive, the Tata Group encompasses hundreds of operating companies that are only loosely organized under the group's control.

Tata Sons, the private holding company, is typically the dominant shareholder of the operating companies, and supports them by appointing managers and board members, providing investment capital, and spreading best business practices among the group. All bask in the goodwill accorded the Tata brand. But under the current structure, it is practically impossible for the group chairman to track the performance of so many different ventures, let alone force them

GRAPHIC BY **NICOLAS RAPP**

A TROUBLED TRANSITION
Cyrus Mistry [left], scion of a family that is one of Tata Sons' largest shareholders, was ousted as the company's chairman in October 2016. Mistry's predecessor, Ratan Tata [at right, in blue suit, with Chandra] had groomed him for the post, but Mistry eventually lost his job after clashing with the company's board.

LEFT: BHUSHAN KOYANDE—HINDUSTAN TIMES/GETTY IMAGES; RIGHT: FABRICE COFFRINI—AFP/GETTY IMAGES

to execute a common strategy.

And unlike a private equity company, Tata doesn't invest in existing companies with an eye toward a profitable exit. Typically the companies Tata invests in have been created by the group in the first place. Most carry the Tata name and operate with the understanding that they are members of the Tata family and aren't at risk of getting auctioned off.

As if that's not tangled enough, Tata Sons, in turn, must answer to representatives from the Tata Trusts, which control 66% of the holding company. The trusts are nonprofit charities. Their mandate is to ensure Tata Group companies reflect the values of its founders and "give back" to Indian society as a whole. But they depend on Tata dividends to support their philanthropic activities—and those dividends could be imperiled if Tata keeps struggling.

THAT PHILANTHROPY is central to the Tata legacy. In the years before India cast off British rule, the "House of Tata" was a source of pride for many Indians who saw the group's industrial prowess as proof that homegrown businesses could prosper despite attempts by colonial masters to hold them back. Founder Jamsetji and his descendants burnished the group's reputation by cultivating an ethos of social responsibility, channeling their personal wealth into a network of trusts that remain among India's most generous philanthropic institutions to this day. Large bequests from Tata Trusts helped found the Indian Institute of Science, devoted to developing the technical skills of India's youth, and the Tata Memorial Hospital in Mumbai, the nation's leading center for cancer treatment and research.

That ethos shows in Jamshedpur, the built-from-scratch city where the family established the first Tata Steel plant, in the first decade of the 20th century. The Tatas invited socialist economists Sydney and Beatrice Webb to India to advise them on social services for workers. Outside the plant, Tata carved a suburban oasis complete with schools, hospitals, cricket pitches, and public gardens. Jamshedpur remains the only municipality in India where you can drink water directly from the tap.

Decades of this kind of industrial achievement and public munificence have cemented Tata's status as India's most-trusted company. The company gained global cachet under the leadership of Ratan Tata, who reigned as Tata Group chairman from 1991 to 2012.

Tall, ruggedly handsome, and taciturn, Ratan Naval Tata (often referred to by his initials, RNT) has long been seen as the Grand Old Man of Indian business—chairman not just of Tata but, in a figurative sense, of India Inc. RNT is not a direct descendant of Jamsetji, the group founder; rather, he is the great-grandson of a niece of Jamsetji's wife. His father, Naval (whose family name also happened to be Tata), was a poor orphan who was adopted by the widow of Jamsetji's second son, Ratan. Thus, though Naval came from a poor family, he and his son were raised as part of the wealthy Tata household. After earning an architecture degree at Cornell in 1962, Ratan returned to India and was dispatched to Jamshedpur for an apprenticeship amid the blast furnaces of Tata Steel. He was later taken under the wing of group chairman JRD Tata, his adoptive uncle, who in 1991 named Ratan as his successor.

As chairman, Tata cut a dashing figure, celebrated in the Indian press for his love of small planes (he is an accomplished pilot), expensive cars (he is often spotted cruising Mumbai's Marine Drive in his red Ferrari California), and stray dogs (at his behest, the city's mongrels are allowed to roam freely in the lobby of group headquarters in Bombay House).

RNT was the driving force behind Tata Group's global expansion after 2000. He championed the acquisitions of Tetley, Corus, JLR, and the Pierre. And yet he exuded a quiet humility that enabled him to blend images of ambitious global industrialist and modest man-of-the-people. At home, his signature initiative was the Nano, a car for low-income families that sold for as little as $2,000.

LEGAL DOCUMENTS filed in the courts by Cyrus Mistry paint a less flattering portrait of RNT. The Mistrys have a long history with Tata Group. The Mistry family business, one of India's largest construction and engineering conglomerates, helped to build factories for Tata Steel and Tata Motors, as well as the Taj Mahal Palace Hotel. There are differing accounts of how the Mistry family accumulated the 18.4% share in Tata Sons that made it the holding company's largest private shareholder. But by 1980, the family's influence was well established, and that year, Cyrus's father, Pallonji, took a seat on Tata Sons' board. There, his reputation as a quiet, behind-the-scenes power broker earned him the nickname "Phantom of Bombay House." Cyrus became a Tata director in 2006 after his father retired, and was regarded by other directors as intelligent and hardworking.

Mistry declined comment for this article, and Ratan Tata declined to make himself available for an interview. But in the aftermath of Mistry's defenestration, Tata Sons has sought to portray Mistry as a bumbling corporate naïf, dependent for ideas on a coterie of outside advisers and flummoxed by the complexities of running a large conglomerate. The company's official explanation is that Mistry had to go because he moved too slowly to turn around the group's money-losing businesses, failed to show sufficient respect for the group's culture, and lost the confidence of the rest of the board.

Mistry's version, reflected in a letter sent to Tata Sons' board days after his ouster, is that he was sacked because he pushed too hard to clean up messes left to him by his predecessor and raised too many questions about the Tata Group's dealings with Ratan Tata's friends and business partners. He claims that at every turn he was "severely constrained" by Trust-appointed directors beholden to RNT.

In Mistry's account, the idea that he take over as chairman was Ratan Tata's in the first place. He says that when Tata invited him in 2011 to be considered as a candidate, Mistry demurred, saying he was happy running his own business. But Ratan Tata was approaching the mandatory retirement age of 75, and the Tata Sons search committee failed to turn up acceptable alternatives. There were no obvious family candidates on the Tata side; Ratan had never married. It would not have been lost on Mistry that his father's stake in Tata Sons was now far more valuable than his own family businesses. And so, in 2012, when Tata approached him a second time, Mistry acquiesced.

In announcing Mistry as his successor, Tata was effusive and promised to give the new chair "space." But there were problems from the start. Tata had ruled the group with a free hand. He served as chairman of both Tata Sons and Tata Trusts, and over the years installed loyal allies on the boards of both.

But Tata balked at giving that much authority to Mistry. He surrendered his position as chairman of the holding company but stayed on as chairman of the trusts.

Shortly after Mistry's appointment, Tata pushed through a change in company bylaws granting greater power to trust-appointed directors on Tata Sons' board. In 2014 he won approval of a second change in Tata Sons' bylaws that gave trust-appointed directors "affirmative voting rights," which Mistry claims effectively granted them a pocket veto over any major board decisions. Mistry came to see the trust-appointed directors as "postmen" whose sole function was to deliver instructions from Tata himself.

In his letter to the board, Mistry charges that soon after his appointment as chairman, Tata pressured him to approve proposals for two joint ventures with Asian air carriers—one with Malaysia's AirAsia, and another with Singapore Airlines. Mistry saw these as a vanity projects, reflecting Tata's personal obsession with airplanes, rather than carefully considered business propositions. He says he protested both deals but felt compelled to accede. "My pushback was hard but futile," he wrote.

Mistry also claims Tata resisted his efforts to close Tata Steel's U.K. operations and kill off the Nano, the low-cost passenger car. Mistry thought the Nano had no hope of ever turning a profit. He claims Tata fought to preserve the car partly for "emotional reasons" and partly because the Nano was a crucial supplier for an electric vehicle company in which Tata had a personal stake. Tata and Tata Sons have denied those allegations.

Mistry also has charged that during Ratan Tata's final years as chairman, the Tata Group made more than $3 million in fraudulent payments to fictitious businesses in Singapore and India, granted uncompetitive contracts to one of RNT's friends, and allowed another, south Indian businessman C. Sivasankaran, to take a large stake in a Tata telecom venture at an artificially low price. (Tata Group says the claims are "baseless" and that the sale to Sivasankaran was a "matter of commercial negotiation" approved by the Tata board.) At Mistry's last board meeting a month before he was fired, he had successfully argued that action should be taken against Sivasankaran's Siva Group in relation to a 2008 agreement involving Tata, Siva, and Japan's NTT DoCoMo.

Tata Sons has denied those allegations, and so far Mistry has made little headway in India's courts. In April, the National Company Law Tribunal refused to grant a waiver to Mistry family firms from the minimum shareholding requirement for filing a petition alleging mismanagement and oppression of minority shareholders.

HIS SUCCESS IN turning TCS into a cash cow made Chandra a logical candidate to lead the group. In other ways he is an unlikely choice: In Tata's 149-year history, he is the first non-family member chosen to chair the group. And he is a Tamil, not a Parsi.

Chandra grew up in a rural village in the southeastern state of Tamil Nadu. His father was a farmer. Chandra excelled in math and computers at the regional engineering college where he earned his undergraduate and master's degree, and accepted an internship at TCS in 1987 that led to a job offer a few months later. Until February, he had never worked for any other company, and he jokes that he's never had to bother with a résumé.

Colleagues describe Chandra as disciplined and hardworking. Clients applaud him as an affable, attentive listener. Many ascribe TCS's success to Chandra's insistence on meeting face-to-face with customers to understand their needs. To get in front of clients as often as possible, he typically spent 200 days a year on the road in Europe, the U.S., and Asia, often sleeping many nights in a row on a plane.

At TCS, Chandra shared his passion for running, cajoling senior executives to join him at 5 a.m. for "team building" runs, and offering support for local running clubs. In India, Chandra's enthusiasm for marathons is widely credited for sparking a boom in the sport. His coach, Deepak Chandra (no relation), calls the executive "the father of running in India." Chandra has signed on TCS as a sponsor for marathons in Boston, Chicago, Amsterdam, and Berlin. And in 2014, the company became the title sponsor of the New York City Marathon.

What stands out in conversations about Chandra's leadership style, at his company and in his athletic passion, is his fascination with data. "Nearly every conversation I have with Chandra is about how we can advance things through technology," chuckles Michael Capiraso, president of New York Road Runners, the organization that manages the New York City Marathon.

With TCS's help, New York's marathon has become the most data-driven major race in the world. More than 300,000 people have downloaded a TCS-designed marathon app that helps spectators to track runners and monitor their performance. Ask Chandra about TCS's work to digitize the marathon, and his eyes light up: "We have records for the 200,000 people who have run the race over the last 40 years. Who struggles at the Queensboro Bridge? How many people hit the wall when they come to the Bronx? You can dissect by age, by gender. We can know so many things. There is so much we can do." Chandra says he wants bring that same focus to Tata. "Every company in the world can benefit from data," he declares.

Will Chandra have more latitude to call the shots than Mistry? Ratan Tata remains ensconced as chairman of the Tata Trusts. And RNT's former executive assistant, R. Venkataramanan, has been appointed managing trustee. But Chandra isn't pushing significant changes to the reporting relationship with the trusts: "I am not briefing [them] on what we're doing with every single company. But they are the primary shareholder for the group. I don't think there is a conflict in keeping them informed."

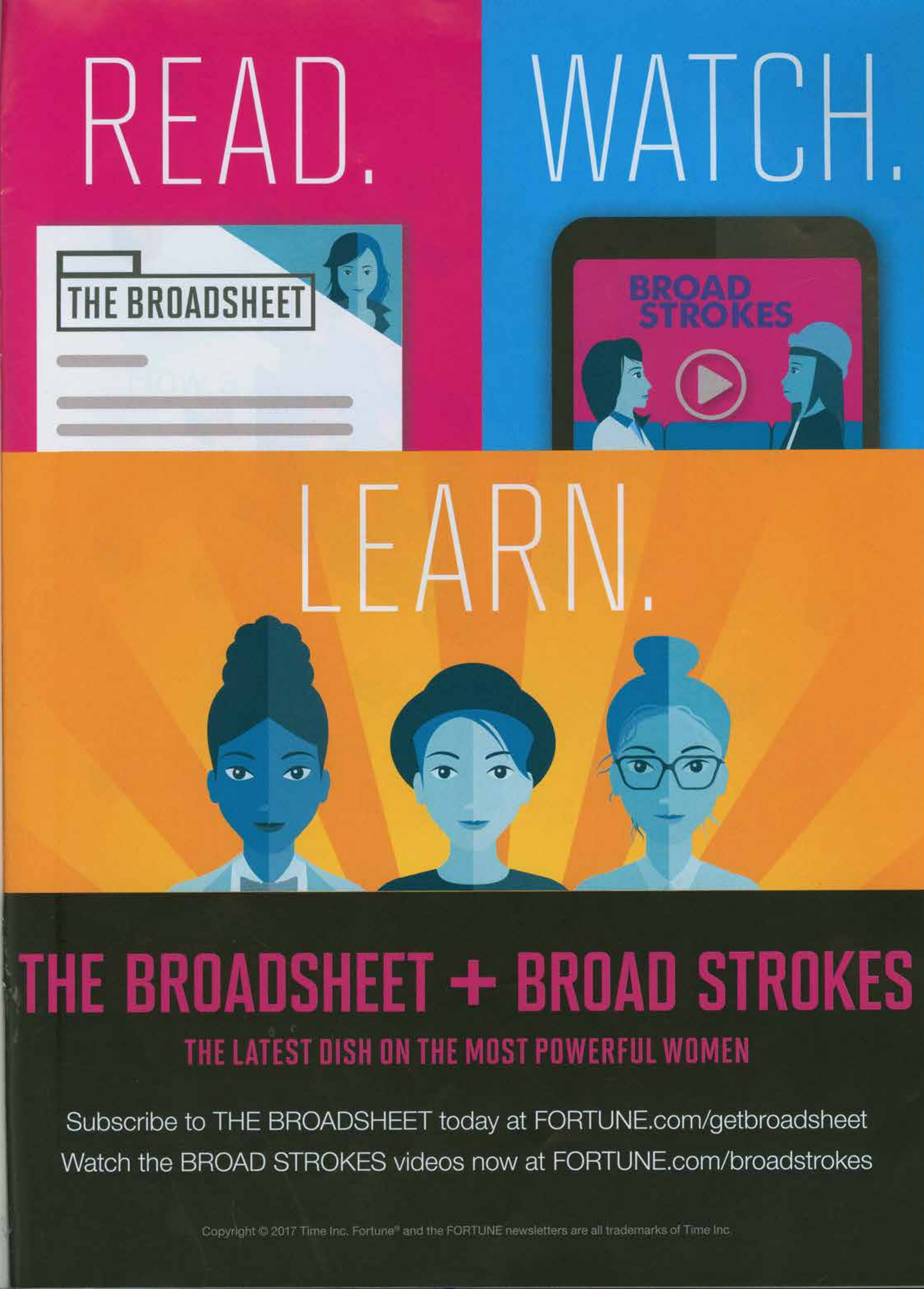
He's treading carefully with projects near and dear to RNT. On the Nano, for example, Chandra stresses that Tata Motors will have other priorities. "Passenger car sales are small, and within that the Nano is even smaller," he says, but adds, "I don't think shutting down the Nano plant is a decision the team will make."

He's philosophical about his role: "You know the corporate world. If you are asking if I feel like I have as much power as any other CEO, the answer is yes. But it's a process. It's not like I can get up in the morning and say, 'Hey, I want to exit financial services.' There's a discussion. I have a long conversation with the board. Every decision has to be thought through, explained to the management... I'm pretty happy with the amount of freedom I have."

Chandra sounds less sanguine about prospects for Tata Sons' relationship with the Mistry family: "It's in the courts. I can't talk about it... I don't know much about the history. We'll let the court case come to its conclusion." How will that relationship work in the future? Chandra has a three-word answer. "I don't know."

It's a lot to tackle. But Chandra is preparing for the challenge. He's also started training for the New York City Marathon. So far at least, Tata's new long-distance runner shows no signs of slowing down. ■

© EPA/GETTY IMAGES



© EPA/GETTY IMAGES

FORTUNE

TO SEE ALL DATA, AND TO SORT AND FILTER THE LIST, VISIT FORTUNE.COM.

THE LISTS

500

1-100 / 500

RANK 2016	2015	Company	Country	REVENUES $millions	REVENUES % change from 2015	PROFITS $millions	PROFITS Rank	PROFITS % change from 2015	ASSETS $millions	ASSETS Rank	EMPLOYEES Number	EMPLOYEES Rank
1	1	WAL-MART STORES[1]	U.S.	485,873.0	0.8	13,643.0	17	(7.2)	198,825.0	117	2,300,000	1
2	2	STATE GRID[G]	CHINA	315,198.6	(4.4)	9,571.3	33	(6.2)	489,837.5	65	926,067	4
3	4	SINOPEC GROUP[G]	CHINA	267,518.0[E]	(9.1)	1,257.9	292	(65.0)	310,726.2	87	713,288	6
4	3	CHINA NATIONAL PETROLEUM[G]	CHINA	262,572.6[¶,E]	(12.3)	1,867.5	238	(73.7)	585,619.0	55	1,512,048	2
5	8	TOYOTA MOTOR[S,2]	JAPAN	254,694.0	7.7	16,899.3	12	(12.3)	437,574.6	71	364,445	28
6	7	VOLKSWAGEN[†]	GERMANY	240,263.8	1.5	5,937.3	78	–	432,115.6	72	626,715	7
7	5	ROYAL DUTCH SHELL[†,3]	NETHERLANDS	240,033.0[E]	(11.8)	4,575.0	108	135.9	411,275.0	77	89,000	261
8	11	BERKSHIRE HATHAWAY	U.S.	223,604.0	6.1	24,074.0	7	(0.0)	620,854.0	53	367,700	27
9	9	APPLE[4]	U.S.	215,639.0	(7.7)	45,687.0	1	(14.4)	321,686.0	85	116,000	196
10	6	EXXON MOBIL	U.S.	205,004.0[E]	(16.7)	7,840.0	49	(51.5)	330,314.0	84	72,700	291
11	12	MCKESSON[2]	U.S.	198,533.0	3.1	5,070.0	93	124.5	60,969.0	283	64,500	312
12	10	BP[†]	BRITAIN	186,606.0[E]	(17.4)	115.0	440	–	263,316.0	94	74,500	285
13	17	UNITEDHEALTH GROUP	U.S.	184,840.0	17.7	7,017.0	59	20.7	122,810.0	172	230,000	77
14	18	CVS HEALTH	U.S.	177,526.0	15.8	5,317.0	89	1.5	94,462.0	212	204,000	94
15	13	SAMSUNG ELECTRONICS[†]	SOUTH KOREA	173,957.3	(2.0)	19,316.5	10	16.8	217,103.6	110	325,000	41
16	14	GLENCORE[†,5]	SWITZERLAND	173,883.0[¶]	2.0	1,379.0	282	–	124,600.0	171	93,123	250
17	16	DAIMLER[†]	GERMANY	169,483.0	2.2	9,428.4	34	0.9	256,262.4	98	282,488	54
18	20	GENERAL MOTORS	U.S.	166,380.0	9.2	9,427.0	35	(2.7)	221,690.0	107	225,000	79
19	23	AT&T	U.S.	163,786.0	11.6	12,976.0	21	(2.8)	403,821.0	78	268,540	60
20	19	EXOR GROUP[†]	NETHERLANDS	154,893.6	1.5	651.3	366	(21.1)	186,171.7	123	302,562	47
21	21	FORD MOTOR	U.S.	151,800.0	1.5	4,596.0	107	(37.7)	237,951.0	104	201,000	98
22	15	INDUSTRIAL & COMMERCIAL BANK OF CHINA[†,G]	CHINA	147,675.1	(11.7)	41,883.9	2	(5.0)	3,473,237.6	1	461,749	13
23	28	AMERISOURCEBERGEN[4]	U.S.	146,849.7	8.0	1,427.9	277	–	33,656.2	387	18,500	451
24	27	CHINA STATE CONSTRUCTION ENGINEERING[G]	CHINA	144,505.2	3.1	2,492.9	189	10.7	201,269.4	115	263,915	62
25	33	AXA[†]	FRANCE	143,722.3[¶]	11.2	6,446.0	69	3.5	941,555.6	26	97,707	236
26	44	AMAZON.COM	U.S.	135,987.0	27.1	2,371.0	197	297.8	83,402.0	230	341,400	35
27	25	HON HAI PRECISION INDUSTRY[†]	TAIWAN	135,128.8	(4.3)	4,608.8	106	(0.4)	80,435.8	236	726,772	5
28	22	CHINA CONSTRUCTION BANK[†,G]	CHINA	135,093.3	(8.7)	34,840.9	3	(4.0)	3,016,577.5	3	362,482	29
29	36	HONDA MOTOR[†,2]	JAPAN	129,198.4	6.2	5,690.3	82	98.3	170,165.4	130	211,915	87
30	24	TOTAL[†]	FRANCE	127,925.0[E]	(10.8)	6,196.0	71	21.8	230,978.0	106	102,168	223
31	26	GENERAL ELECTRIC	U.S.	126,661.0[¶]	(9.8)	8,831.0	40	–	365,183.0	81	295,000	51
32	30	VERIZON COMMUNICATIONS	U.S.	125,980.0	(4.3)	13,127.0	20	(26.6)	244,180.0	103	160,900	130
33	37	JAPAN POST HOLDINGS[S,2]	JAPAN	122,990.3	3.6	(267.4)	469	(107.5)	2,631,384.5	6	248,384	65
34	34	ALLIANZ[†]	GERMANY	122,195.9	(0.6)	7,611.5	53	3.7	932,091.3	28	140,253	154
35	50	CARDINAL HEALTH[6]	U.S.	121,546.0	18.5	1,427.0	278	17.4	34,122.0	384	37,300	391
36	38	COSTCO WHOLESALE[7]	U.S.	118,719.0	2.2	2,350.0	199	(1.1)	33,163.0	390	172,000	122
37	47	WALGREENS BOOTS ALLIANCE[7]	U.S.	117,351.0	13.4	4,173.0	118	(1.1)	72,688.0	253	300,000	49
38	29	AGRICULTURAL BANK OF CHINA[†,G]	CHINA	117,274.9	(12.1)	27,687.8	4	(3.6)	2,816,038.7	4	501,368	10
39	41	PING AN INSURANCE[†]	CHINA	116,581.1	5.7	9,392.0	36	8.9	802,489.8	42	318,588	43
40	42	KROGER[3]	U.S.	115,337.0	5.0	1,975.0	226	(3.1)	36,505.0	377	443,000	16
41	46	SAIC MOTOR[G]	CHINA	113,860.8	6.7	4,818.2	100	1.6	84,988.6	227	97,582	237
42	35	BANK OF CHINA[†,G]	CHINA	113,708.2	(7.1)	24,773.4	5	(8.9)	2,611,538.8	7	308,900	44
43	39	BNP PARIBAS[†]	FRANCE	109,026.4	(2.2)	8,517.2	44	14.7	2,190,422.9	10	184,839	114
44	53	NISSAN MOTOR[2]	JAPAN	108,164.1	6.5	6,123.4	73	40.3	165,344.3	135	137,250	158
45	31	CHEVRON	U.S.	107,567.0[E]	(18.0)	(497.0)	475	(110.8)	260,078.0	95	55,200	342
46	40	FANNIE MAE[8]	U.S.	107,162.0	(2.9)	12,313.0	22	12.4	3,287,968.0	2	7,000	488
47	45	CHINA MOBILE COMMUNICATIONS[G]	CHINA	107,116.5	0.3	9,614.3	32	(5.2)	246,445.6	102	463,712	12
48	55	JPMORGAN CHASE & CO.	U.S.	105,486.0	4.4	24,733.0	6	1.2	2,490,972.0	8	243,355	67
49	•	LEGAL & GENERAL GROUP[†]	BRITAIN	105,234.8	442.3	1,697.9	255	3.4	577,954.3	57	8,939	485
50	60	NIPPON TELEGRAPH & TELEPHONE[S,2]	JAPAN	105,127.5	9.4	7,384.4	56	20.2	190,739.8	121	274,844	56

DEFINITIONS, EXPLANATIONS, AND FOOTNOTES ARE ON PAGE F12.

→ NO. 26
AMAZON.COM

Amazon continued its march into every corner of consumer life with the news in June that it plans to acquire high-end supermarket chain Whole Foods. Driven by CEO Jeff Bezos, the company has rocketed up the Global 500 ranks since its debut at No. 485 in 2009. Profits are up nearly fourfold over the past five years. —*LISA FU*

Rank 2016	Rank 2015	Company	Country	Revenues $millions	Revenues % change from 2015	Profits $millions	Profits Rank	Profits % change from 2015	Assets $millions	Assets Rank	Employees Number	Employees Rank
51	54	CHINA LIFE INSURANCE[G]	CHINA	104,818.2	3.5	162.4	434	(96.1)	483,026.4	66	143,676	151
52	51	BMW GROUP[†]	GERMANY	104,129.7	1.8	7,589.4	54	7.4	198,834.6	116	124,729	181
53	52	EXPRESS SCRIPTS HOLDING	U.S.	100,287.5	(1.4)	3,404.4	144	37.5	51,744.9	308	25,600	436
54	59	TRAFIGURA GROUP[†,4]	SINGAPORE	98,097.8	0.9	750.8	352	(39.3)	41,230.1	345	4,107	497
55	57	CHINA RAILWAY ENGINEERING[G]	CHINA	96,978.5	(2.5)	924.1	329	(6.0)	108,863.7	192	292,215	52
56	126	PRUDENTIAL[†]	BRITAIN	96,965.2	53.7	2,592.8	181	(34.2)	581,220.5	56	23,673	442
57	49	ASSICURAZIONI GENERALI[†]	ITALY	95,216.6	(7.2)	2,301.3	201	2.2	549,656.2	58	73,727	286
58	62	CHINA RAILWAY CONSTRUCTION[G]	CHINA	94,876.5	(0.8)	1,192.4	305	7.8	109,967.9	190	336,872	36
59	69	HOME DEPOT[1]	U.S.	94,595.0	6.9	7,957.0	48	13.5	42,966.0	339	406,000	22
60	61	BOEING	U.S.	94,571.0	(1.6)	4,895.0	99	(5.4)	89,997.0	215	150,540	144
61	67	WELLS FARGO	U.S.	94,176.0	4.6	21,938.0	8	(4.2)	1,930,115.0	13	269,100	59
62	64	BANK OF AMERICA CORP.	U.S.	93,662.0	0.7	17,906.0	11	12.7	2,187,702.0	11	208,024	91
63	56	GAZPROM[†,G]	RUSSIA	91,382.4[E]	(8.1)	14,222.6	16	10.4	277,261.5	92	467,400	11
64	66	NESTLÉ[†]	SWITZERLAND	90,813.9	(1.6)	8,659.2	42	(8.1)	129,823.8	164	328,000	39
65	94	ALPHABET	U.S.	90,272.0	20.4	19,478.0	9	19.1	167,497.0	131	72,053	292
66	71	SIEMENS[†,4]	GERMANY	88,419.1	0.9	6,050.5	75	(27.4)	141,270.9	154	351,000	32
67	73	CARREFOUR[†]	FRANCE	87,111.9	(0.4)	825.0	340	(24.1)	51,513.4	311	384,151	24
68	81	DONGFENG MOTOR[G]	CHINA	86,193.5	4.1	1,415.0	279	(4.4)	59,531.8	286	189,795	110
69	63	MICROSOFT[6]	U.S.	85,320.0	(8.8)	16,798.0	13	37.8	193,694.0	120	114,000	202
70	85	ANTHEM	U.S.	84,863.0	7.2	2,469.8	192	(3.5)	65,083.1	270	53,000	345
71	79	HITACHI[†,2]	JAPAN	84,558.4	1.2	2,134.3	217	48.8	86,741.9	221	303,887	46
72	92	SOFTBANK GROUP[†,2]	JAPAN	82,892.3[¶]	8.4	13,163.4	19	233.3	221,113.1	108	68,402	303
73	75	BANCO SANTANDER[†]	SPAIN	82,801.3	(2.5)	6,860.7	61	3.7	1,412,281.2	21	185,606	113
74	70	CITIGROUP	U.S.	82,386.0	(6.7)	14,912.0	15	(13.5)	1,792,077.0	15	219,000	85
75	58	PETROBRAS[†,G]	BRAZIL	81,405.0[E]	(16.3)	(4,838.0)	492	—	246,983.0	101	68,829	301
76	87	ROBERT BOSCH[†]	GERMANY	80,869.4	3.3	2,155.3	212	(39.1)	86,347.8	224	389,281	23
77	90	DEUTSCHE TELEKOM[†]	GERMANY	80,831.8	5.3	2,958.1	161	(18.0)	156,596.7	143	221,000	81
78	84	HYUNDAI MOTOR[†]	SOUTH KOREA	80,701.4	(0.8)	4,659.0	104	(17.9)	148,092.0	147	129,315	170
79	96	COMCAST	U.S.	80,403.0	7.9	8,695.0	41	6.5	180,500.0	126	159,000	131
80	77	CRÉDIT AGRICOLE[†]	FRANCE	80,257.8	(4.6)	3,914.7	128	0.4	1,607,500.5	18	70,830	295
81	82	INTERNATIONAL BUSINESS MACHINES	U.S.	79,919.0	(3.1)	11,872.0	23	(10.0)	117,470.0	178	414,400	20
82	80	ELECTRICITÉ DE FRANCE[†,G]	FRANCE	78,739.5	(5.4)	3,152.8	153	139.4	297,025.9	89	154,808	139
83	129	HUAWEI INVESTMENT & HOLDING[†]	CHINA	78,510.8	24.9	5,579.4	83	(5.0)	63,836.8	274	180,000	118
84	78	ENEL[†]	ITALY	78,063.9	(7.0)	2,842.0	166	16.7	164,096.2	137	62,080	317
85	93	STATE FARM INSURANCE COS.	U.S.	76,131.8	0.6	350.3	408	(94.4)	256,029.9	99	68,234	304
86	91	CHINA RESOURCES NATIONAL[G]	CHINA	75,776.3	(1.0)	2,580.2	182	3.7	158,291.1	142	420,572	19
87	111	AEON[9]	JAPAN	75,772.0	11.8	103.9	444	108.6	78,223.4	240	274,760	57
88	68	HSBC HOLDINGS[†]	BRITAIN	75,329.0	(15.4)	2,479.0	191	(81.7)	2,374,986.0	9	241,000	68
89	99	PACIFIC CONSTRUCTION GROUP	CHINA	74,629.0	2.2	3,168.1	150	(1.2)	48,196.4	321	362,128	30
90	279	AVIVA[†]	BRITAIN	74,627.6	105.9	948.8	326	(32.3)	544,063.0	59	29,530	424
91	•	UNIPER[†,10]	GERMANY	74,406.8	—	(3,557.5)	490	—	51,540.8	310	12,890	472
92	72	TESCO[†,9]	BRITAIN	74,393.1[¶]	(15.1)	(52.7)	460	(125.3)	57,052.4	293	342,770	33
93	89	ENGIE[†]	FRANCE	73,692.4	(4.9)	(458.9)	474	—	167,157.8	132	153,090	141
94	100	AIRBUS GROUP[†]	NETHERLANDS	73,628.3	3.0	1,100.3	313	(63.2)	117,204.2	179	133,782	167
95	294	SK HOLDINGS[†]	SOUTH KOREA	72,579.1[¶,E]	107.4	659.7	364	(86.0)	85,332.3	225	84,000	269
96	74	PHILLIPS 66	U.S.	72,396.0[E]	(16.9)	1,555.0	263	(63.2)	51,653.0	309	14,800	464
97	103	JOHNSON & JOHNSON	U.S.	71,890.0	2.6	16,540.0	14	7.3	141,208.0	155	126,400	176
98	86	PROCTER & GAMBLE[6]	U.S.	71,726.0[¶]	(8.9)	10,508.0	25	49.3	127,136.0	167	105,000	219
99	107	U.S. POSTAL SERVICE[G,4]	U.S.	71,498.0	3.7	(5,591.0)	493	—	25,219.0	426	574,349	8
100	95	CHINA SOUTHERN POWER GRID[G]	CHINA	71,241.5	(4.6)	2,329.8	200	4.8	99,186.7	206	302,421	48

101-200 / 500

RANK 2016	2015		Country	REVENUES $ millions	% change from 2015	PROFITS $ millions	Rank	% change from 2015	ASSETS $ millions	Rank	EMPLOYEES Number	Rank
101	102	CHINA SOUTH INDUSTRIES GROUP[G]	CHINA	71,150.5	1.5	580.3	372	(61.0)	51,857.3	307	232,817	75
102	76	LUKOIL[†]	RUSSIA	70,896.8[E]	(16.3)	3,090.6	157	(35.1)	82,178.7	232	105,500	218
103	110	CHINA COMMUNICATIONS CONSTRUCTION[G]	CHINA	70,750.8	4.4	1,431.3	276	(16.2)	146,763.3	151	152,666	142
104	155	GROUPE BPCE[†,C]	FRANCE	70,516.5	25.5	4,410.1	111	22.6	1,302,720.9	22	102,827	221
105	113	SONY[†,2]	JAPAN	70,170.3	3.9	676.4	362	(45.1)	158,518.6	141	128,400	171
106	83	VALERO ENERGY	U.S.	70,166.0[E]	(14.2)	2,289.0	203	(42.6)	46,173.0	330	9,996	481
107	97	TARGET[3]	U.S.	69,495.0	(5.8)	2,737.0	173	(18.6)	37,431.0	368	323,000	42
108	43	SOCIÉTÉ GÉNÉRALE[†]	FRANCE	69,335.4	(1.1)	4,284.0	115	(3.5)	1,457,752.6	20	151,341	143
109	106	MUNICH RE GROUP[†]	GERMANY	68,699.6	(1.1)	2,853.1	165	(17.2)	282,435.1	91	43,428	373
110	128	PANASONIC[†,2]	JAPAN	67,774.9	6.7	1,378.4	283	0.2	53,702.2	301	257,533	63
111	114	NIPPON LIFE INSURANCE[2]	JAPAN	67,388.3	0.4	2,786.9	169	(17.1)	650,429.0	50	85,171	267
112	141	ZURICH INSURANCE GROUP[†]	SWITZERLAND	67,245.0	11.0	3,211.0	149	74.3	382,679.0	79	52,473	347
113	159	ITAÚ UNIBANCO HOLDING[†]	BRAZIL	66,876.3	21.4	6,666.4	64	(13.7)	415,972.3	75	94,779	246
114	119	PEOPLE'S INSURANCE CO. OF CHINA[†,G]	CHINA	66,731.9	3.3	2,144.3	214	(31.0)	134,131.8	158	188,570	111
115	109	CHINA NATIONAL OFFSHORE OIL[G]	CHINA	65,891.7	(2.8)	1,752.4	251	(62.0)	166,595.4	133	100,821	225
116	138	MARUBENI[†,2]	JAPAN	65,791.6	8.2	1,433.7	275	176.4	61,904.1	279	39,952	385
117	108	DEUTSCHE POST DHL GROUP[†]	GERMANY	65,786.8	(3.8)	2,918.3	163	70.8	40,387.0	348	459,262	14
118	124	FREDDIE MAC[8]	U.S.	65,665.0	3.4	7,815.0	51	22.6	2,023,376.0	12	5,982	492
119	105	CHINA POST GROUP[G]	CHINA	65,605.0	(5.8)	4,980.3	98	18.7	1,221,649.0	23	941,211	3
120	323	CHINA MINMETALS[G,11]	CHINA	65,546.9	105.6	(446.7)	473	–	109,334.2	191	212,406	86
121	193	LLOYDS BANKING GROUP[†]	BRITAIN	65,208.1	38.2	2,784.4	170	111.9	1,010,244.6	25	70,433	298
122	148	LOWE'S[3]	U.S.	65,017.0	10.1	3,093.0	156	21.5	34,408.0	383	240,000	70
123	101	METRO[†,4]	GERMANY	64,853.3	(9.0)	665.0	363	(13.6)	28,039.1	418	196,540	102
124	•	DELL TECHNOLOGIES[1,12]	U.S.	64,806.0[¶]	18.1	(1,672.0)	483	–	118,206.0	177	138,000	157
125	130	CHINA FAW GROUP[G]	CHINA	64,783.9	3.1	2,411.3	194	(25.9)	54,771.8	298	122,323	184
126	88	BASF[†]	GERMANY	63,641.4	(18.6)	4,485.3	109	1.4	80,675.0	234	109,543	209
127	131	JXTG HOLDINGS[2,13]	JAPAN	63,628.5[E]	1.8	1,477.3	270	–	59,766.9	284	26,247	434
128	104	METLIFE	U.S.	63,476.0	(9.3)	800.0	347	(84.9)	898,764.0	31	58,000	333
129	122	TEWOO GROUP[G]	CHINA	63,324.2	(1.4)	141.7	437	(11.6)	34,713.0	380	17,353	458
130	142	AETNA	U.S.	63,155.0	4.7	2,271.0	204	(5.0)	69,146.0	262	49,500	359
131	127	PEPSICO	U.S.	62,799.0	(0.4)	6,329.0	70	16.1	74,129.0	248	264,000	61
132	65	ENI[†]	ITALY	62,693.7[E]	(32.6)	(1,619.0)	482	–	131,348.9	160	33,536	405
133	132	CHINA TELECOMMUNICATIONS[G]	CHINA	62,387.0	1.0	1,764.6	249	2.9	115,818.8	180	413,536	21
134	112	ARCHER DANIELS MIDLAND	U.S.	62,346.0	(7.9)	1,279.0	288	(30.8)	39,769.0	357	31,800	410
135	134	CHINA NORTH INDUSTRIES GROUP[G]	CHINA	61,325.5	(0.5)	853.0	337	6.2	53,139.8	302	234,771	73
136	121	COFCO[G]	CHINA	61,265.3	(5.0)	204.5	430	(23.0)	72,071.9	254	101,708	224
137	160	BEIJING AUTOMOTIVE GROUP[G]	CHINA	61,129.5	11.3	1,260.6	291	14.9	57,783.1	291	134,765	165
138	149	UNITED PARCEL SERVICE	U.S.	60,906.0	4.4	3,431.0	143	(29.2)	40,377.0	349	335,520	38
139	•	ANBANG INSURANCE GROUP	CHINA	60,799.8	124.0	3,883.9	129	0.9	430,040.2	73	40,707	382
140	140	PEUGEOT[†]	FRANCE	59,748.8	(1.5)	1,913.1	233	91.8	47,619.7	323	175,341	120
141	•	ALBERTSONS COS.[9]	U.S.	59,678.2	1.6	(373.3)	471	–	23,755.0	434	273,000	58
142	135	DAI-ICHI LIFE HOLDINGS[2,14]	JAPAN	59,589.7	(2.5)	2,134.5	216	43.5	466,617.4	67	62,606	316
143	139	SINOCHEM GROUP[G]	CHINA	59,532.6	(1.9)	468.0	389	–	57,483.9	292	60,576	322
144	158	INTEL	U.S.	59,387.0	7.3	10,316.0	26	(9.7)	113,327.0	183	106,000	216
145	151	MITSUBISHI[†,2]	JAPAN	59,303.2	2.8	4,063.5	123	–	141,401.6	153	77,164	279
146	144	AUCHAN HOLDING[†]	FRANCE	58,861.9[¶]	(2.2)	652.4	365	13.5	38,537.2	363	342,709	34
147	253	AEGON[†]	NETHERLANDS	58,789.0	50.5	483.3	385	(38.7)	448,665.9	68	29,380	426
148	152	PRUDENTIAL FINANCIAL	U.S.	58,779.0	2.9	4,368.0	113	(22.6)	783,962.0	43	49,739	357
149	133	VODAFONE GROUP[†,2]	BRITAIN	58,611.4[¶]	(5.0)	(6,904.0)	496	–	165,419.7	134	111,556	205
150	147	UNILEVER[†]	BRITAIN/NETH.	58,292.4	(1.4)	5,732.7	80	5.3	59,511.7	287	168,832	126

DEFINITIONS, EXPLANATIONS, AND FOOTNOTES ARE ON PAGE F12.

→ NO. 150 **UNILEVER**

It's already been a tumultuous 2017 for Unilever. In February, Kraft Heinz made a $143 billion takeover bid for the consumer products giant, which has 2.5 billion customers globally. CEO Paul Polman and the Unilever board rejected the offer. But rumors persist that Kraft Heinz could come calling again. —*KRISHNA THAKKER*

RANK 2016	2015		Country	REVENUES $millions	% change from 2015	PROFITS $millions	Rank	% change from 2015	ASSETS $millions	Rank	EMPLOYEES Number	Rank
151	115	BANCO DO BRASIL [†,G]	BRAZIL	58,093.4	(13.4)	2,013.8	222	(52.3)	426,415.7	74	100,622	226
152	98	PEMEX [†,G]	MEXICO	57,773.9	(21.4)	(10,256.3)	498	–	113,115.0	184	125,689	177
153	137	TELEFÓNICA [†]	SPAIN	57,543.8	(5.5)	2,619.7	178	283.4	130,395.5	162	127,323	173
154	209	BANCO BRADESCO [†]	BRAZIL	57,442.7	31.3	5,127.9	92	(5.7)	366,417.6	80	94,541	247
155	136	UNITED TECHNOLOGIES	U.S.	57,244.0	(6.2)	5,055.0	94	(33.6)	89,706.0	217	201,600	96
156	123	ARCELORMITTAL [†]	LUXEMBOURG	56,791.0	(10.7)	1,779.0	246	–	75,142.0	244	198,517	100
157	178	RENAULT [†]	FRANCE	56,666.8	12.7	3,780.9	132	20.7	107,680.9	195	124,849	180
158	118	ROSNEFT OIL [†,G]	RUSSIA	56,553.3[E]	(12.7)	2,705.1	174	(53.4)	180,755.7	125	295,800	50
159	163	SHANDONG WEIQIAO PIONEERING GROUP	CHINA	56,174.0	5.9	1,217.2	301	8.6	31,640.9	398	135,393	163
160	120	MARATHON PETROLEUM	U.S.	55,858.0[E]	(13.5)	1,174.0	306	(58.8)	44,413.0	334	44,460	371
161	164	WALT DISNEY [4]	U.S.	55,632.0	6.0	9,391.0	37	12.0	92,033.0	214	195,000	104
162	143	AVIATION INDUSTRY CORP. OF CHINA [G]	CHINA	55,306.2	(8.2)	464.2	390	(47.4)	124,891.5	170	457,097	15
163	117	ING GROUP [†]	NETHERLANDS	55,282.3	(16.5)	5,501.6	85	0.7	888,226.1	32	51,943	349
164	191	MITSUBISHI UFJ FINANCIAL GROUP [2]	JAPAN	55,185.3	15.9	8,550.1	43	7.9	2,722,353.8	5	115,276	198
165	222	ROYAL AHOLD DELHAIZE [†,15]	NETHERLANDS	54,955.0	29.7	917.9	330	(2.9)	38,256.7	364	225,000	79
166	162	HUMANA	U.S.	54,379.0	0.2	614.0	370	(51.9)	25,396.0	425	51,600	351
167	179	SEVEN & I HOLDINGS [9]	JAPAN	53,858.0	7.5	892.9	331	(33.0)	49,243.7	315	54,712	343
168	161	INDIAN OIL [G,2]	INDIA	53,561.5[E]	(2.1)	2,960.0	160	72.7	42,131.7	343	34,999	399
169	167	ROCHE GROUP [†]	SWITZERLAND	53,427.2	2.0	9,719.9	31	5.5	75,609.3	243	94,052	249
170	353	HNA GROUP [16]	CHINA	53,035.3	79.4	278.9	421	18.7	173,095.4	127	220,258	82
171	153	BANK OF COMMUNICATIONS [†]	CHINA	52,989.6	(7.1)	10,116.9	30	(4.4)	1,209,175.6	24	95,160	245
172	156	CITIC GROUP [G]	CHINA	52,852.0[¶]	(5.5)	3,236.3	148	(14.0)	938,260.9	27	201,263	97
173	186	PFIZER	U.S.	52,824.0	8.1	7,215.0	57	3.7	171,615.0	129	96,500	241
174	165	BAYER [†]	GERMANY	52,568.6[¶]	0.3	5,010.6	97	9.9	86,730.6	222	115,170	199
175	150	AMERICAN INTERNATIONAL GROUP	U.S.	52,367.0	(10.2)	(849.0)	478	(138.7)	498,264.0	64	56,400	336
176	154	AMÉRICA MÓVIL [†]	MEXICO	52,201.0	(7.4)	462.9	391	(79.0)	73,554.7	249	194,193	107
177	172	KOREA ELECTRIC POWER [†,G]	SOUTH KOREA	51,500.4	(0.6)	6,074.1	74	(48.3)	147,264.9	149	43,688	372
178	197	LOCKHEED MARTIN	U.S.	50,658.0[¶]	9.8	5,302.0	90	47.1	47,806.0	322	97,000	240
179	188	SYSCO [6]	U.S.	50,366.9	3.5	949.6	325	38.3	16,721.8	463	51,900	350
180	192	FEDEX [17]	U.S.	50,365.0	6.1	1,820.0	242	73.3	46,064.0	332	335,767	37
181	•	HEWLETT PACKARD ENTERPRISE [18,19]	U.S.	50,123.0	–	3,161.0	152	–	79,679.0	237	195,000	104
182	157	LOUIS DREYFUS [†]	NETHERLANDS	49,838.0	(10.6)	305.0	417	44.5	19,843.0	452	17,407	457
183	190	AMER INTERNATIONAL GROUP	CHINA	49,676.7	3.9	1,199.9	303	5.2	18,404.9	456	17,852	455
184	125	PETRONAS [†,G]	MALAYSIA	49,478.7[E]	(22.0)	4,092.9	122	21.4	134,528.3	157	51,034	353
185	177	TOKYO ELECTRIC POWER [G,2]	JAPAN	49,446.4	(2.2)	1,225.7	299	4.5	110,202.0	189	42,060	378
186	175	NOVARTIS [†]	SWITZERLAND	49,436.0	(3.1)	6,712.0	63	(62.3)	130,124.0	163	118,393	192
187	183	CISCO SYSTEMS [20]	U.S.	49,247.0	0.2	10,739.0	24	19.6	121,652.0	173	73,700	287
188	231	MS&AD INSURANCE GROUP HOLDINGS [2]	JAPAN	49,238.8	17.9	1,942.2	229	28.5	190,596.0	122	40,641	383
189	166	DEUTSCHE BANK [†]	GERMANY	48,876.2	(6.8)	(1,550.4)	481	–	1,677,437.2	17	99,744	230
190	200	POWERCHINA [G]	CHINA	48,868.8	7.2	1,057.6	317	(9.6)	86,687.0	223	187,813	112
191	185	JBS [†]	BRAZIL	48,825.3	(0.1)	107.7	442	(92.3)	31,604.5	399	237,061	71
192	146	PTT [G]	THAILAND	48,719.1	(17.7)	2,681.6	175	360.6	62,348.7	278	24,934	440
193	261	TOKIO MARINE HOLDINGS [2]	JAPAN	48,291.6	26.6	2,527.4	184	19.2	202,922.6	114	38,842	387
194	48	HP [18,21]	U.S.	48,238.0	(53.3)	2,496.0	188	(45.2)	29,010.0	413	49,000	361
195	174	RWE [†]	GERMANY	48,203.8	(6.6)	(6,249.1)	494	–	80,575.8	235	58,652	331
196	187	DOW CHEMICAL	U.S.	48,158.0	(1.3)	4,318.0	114	(43.8)	79,511.0	238	56,000	339
197	170	FINATIS [†]	FRANCE	48,154.0[¶]	(7.3)	687.8	360	–	46,269.8	328	232,503	76
198	171	WESFARMERS [†,6]	AUSTRALIA	48,002.9	(7.6)	296.1	418	(85.4)	30,358.0	406	220,000	84
199	205	SINOPHARM [G]	CHINA	47,809.7	7.9	504.0	380	13.7	36,767.3	373	106,772	213
200	182	CNP ASSURANCES [†]	FRANCE	47,804.3	(3.0)	1,327.3	285	5.8	442,027.3	70	5,035	495

201-300 / 500

RANK 2016	2015		Country	REVENUES $millions	% change from 2015	PROFITS $millions	Rank	% change from 2015	ASSETS $millions	Rank	EMPLOYEES Number	Rank
201	180	LG ELECTRONICS[†]	SOUTH KOREA	47,712.2	(4.6)	66.2	447	(39.8)	31,347.5	400	75,000	284
202	243	SUMITOMO MITSUI FINANCIAL GROUP[2]	JAPAN	47,374.6	19.2	6,520.5	67	21.0	1,775,348.8	16	77,205	278
203	215	RELIANCE INDUSTRIES[2]	INDIA	46,930.7[E]	8.0	4,456.9	110	5.6	108,856.0	193	140,483	153
204	275	CHINA BAOWU STEEL GROUP[G,22]	CHINA	46,606.2	(11.5)	442.8	394	–	106,724.7	197	169,344	124
205	116	NOBLE GROUP[†,23]	CHINA	46,528.3	(30.3)	8.7	455	–	12,284.6	478	1,000	499
206	211	ANHEUSER-BUSCH INBEV[†]	BELGIUM	45,905.0[¶,E]	5.3	1,241.0	294	(85.0)	258,381.0	96	206,633	92
207	145	STATOIL[†,6]	NORWAY	45,873.0[E]	(23.4)	(2,902.0)	489	–	104,530.0	199	20,539	446
208	173	POSCO[†]	SOUTH KOREA	45,620.5	(11.8)	1,167.5	308	669.8	66,361.1	266	31,768	411
209	208	KIA MOTORS[†]	SOUTH KOREA	45,425.0	3.7	2,373.8	196	2.0	42,140.8	342	51,357	352
210	204	ORANGE[†]	FRANCE	45,249.0	1.3	3,245.7	147	10.3	99,839.7	204	155,202	137
211	234	CHEMCHINA[G]	CHINA	45,177.2	9.1	17.9	453	–	54,340.9	299	110,614	207
212	203	DEUTSCHE BAHN[†,G]	GERMANY	44,849.8	0.1	768.6	351	–	59,716.3	285	306,368	45
213	213	CONTINENTAL[†]	GERMANY	44,841.5	3.0	3,099.1	155	2.4	38,151.1	365	220,137	83
214	212	HCA HOLDINGS	U.S.	44,747.0	2.7	2,890.0	164	35.7	33,758.0	386	210,500	88
215	223	ITOCHU[†,2]	JAPAN	44,654.1	5.5	3,250.6	146	62.3	72,902.2	252	110,207	208
216	189	CHINA MERCHANTS BANK[†]	CHINA	44,551.8	(8.1)	9,344.8	38	1.8	855,070.3	37	70,461	297
217	232	STATE BANK OF INDIA[G,2]	INDIA	44,533.4	6.8	36.0	449	(98.1)	530,590.1	62	278,872	55
218	176	WOOLWORTHS[†,6]	AUSTRALIA	43,924.9[¶]	(13.2)	(898.3)	480	(150.3)	17,494.6	459	205,000	93
219	271	KDDI[†,2]	JAPAN	43,821.6	17.8	5,045.1	96	22.5	56,223.2	296	35,032	397
220	282	SWISS RE[§]	SWITZERLAND	43,786.0	22.6	3,558.0	136	(22.6)	215,065.0	111	14,053	465
221	201	HBIS GROUP[G,24]	CHINA	43,768.9	(3.3)	(146.8)	465	–	51,858.1	306	125,552	178
222	229	CEFC CHINA ENERGY[†]	CHINA	43,743.3	4.5	740.9	356	22.8	22,577.7	440	29,637	423
223	219	BANCO BILBAO VIZCAYA ARGENTARIA[†]	SPAIN	43,697.5	1.7	3,842.8	130	31.1	771,837.2	44	134,792	164
224	184	THYSSENKRUPP[†,4]	GERMANY	43,589.0	(11.0)	328.6	412	(7.1)	39,411.2	359	156,487	133
225	196	SAINT-GOBAIN[†]	FRANCE	43,230.8	(6.4)	1,449.8	272	0.9	46,158.0	331	172,696	121
226	202	LENOVO GROUP[2]	CHINA	43,034.7	(4.2)	535.1	376	–	27,186.0	420	52,000	348
227	210	VINCI[†]	FRANCE	42,770.8	(1.9)	2,770.1	171	22.1	71,642.1	255	183,487	115
228	238	NIPPON STEEL & SUMITOMO METAL[2]	JAPAN	42,756.9	4.6	1,208.5	302	(0.2)	65,182.0	269	100,169	228
229	214	BUNGE[§,25]	U.S.	42,679.0	(1.8)	745.0	353	(5.8)	19,188.0	454	32,000	409
230	195	INDUSTRIAL BANK	CHINA	42,621.6	(8.2)	8,105.9	45	1.5	875,731.3	35	56,236	338
231	32	E.ON[†,26]	GERMANY	42,213.4	(67.3)	(9,344.4)	497	–	67,178.9	265	43,138	375
232	199	SBERBANK[†,G]	RUSSIA	42,159.4	(7.6)	8,078.0	46	121.0	415,729.8	76	325,075	40
233	281	CHINA SHIPBUILDING INDUSTRY[G]	CHINA	42,149.2	17.0	485.8	384	(62.9)	69,620.9	261	182,129	117
234	228	CHRISTIAN DIOR[†,6]	FRANCE	42,112.8	0.5	1,740.3	252	(38.7)	69,870.0	259	120,479	189
235	206	COCA-COLA	U.S.	41,863.0	(5.5)	6,527.0	66	(11.2)	87,270.0	220	100,300	227
236	268	DENSO[†,2]	JAPAN	41,781.0	10.9	2,377.6	195	16.9	46,232.5	329	154,493	140
237	248	FUJITSU[†,2]	JAPAN	41,619.9	5.4	816.7	343	13.0	28,646.4	415	155,069	138
238	303	GUANGZHOU AUTOMOBILE INDUSTRY GROUP[G]	CHINA	41,560.4	20.7	551.9	375	10.8	30,267.0	407	75,908	282
239	254	WILMAR INTERNATIONAL	SINGAPORE	41,401.7	6.8	972.2	323	(7.9)	37,032.4	369	90,000	255
240	233	SANOFI[†]	FRANCE	41,376.3[¶]	(0.2)	5,207.4	91	9.5	110,390.2	188	113,816	204
241	207	CHINA UNITED NETWORK COMMUNICATIONS[G]	CHINA	41,273.9	(6.4)	23.2	451	(95.8)	88,626.1	219	253,724	64
242	335	SUMITOMO LIFE INSURANCE[2]	JAPAN	40,920.8	31.6	517.5	378	(6.1)	308,346.4	88	42,245	377
243	198	NEW YORK LIFE INSURANCE	U.S.	40,786.6	(11.1)	1,088.1	314	324.1	287,196.0	90	11,320	477
244	470	CENTENE	U.S.	40,721.0	78.6	562.0	374	58.3	20,197.0	450	30,500	418
245	227	SHANGHAI PUDONG DEVELOPMENT BANK[†]	CHINA	40,688.7	(3.2)	7,992.8	47	(0.7)	842,832.3	39	52,832	346
246	277	HANWHA[†]	SOUTH KOREA	40,605.5	11.0	423.7	398	–	128,247.0	166	49,000	361
247	226	TATA MOTORS[2]	INDIA	40,329.2[E]	(4.2)	1,111.6	312	(34.0)	42,161.5	341	79,558	274
248	262	ALUMINUM CORP. OF CHINA[G]	CHINA	40,278.0	6.0	(282.5)	470	–	75,089.0	245	121,146	186
249	245	MITSUI[†,2]	JAPAN	40,275.0	1.6	2,825.3	167	–	103,231.4	200	42,316	376
250	394	MANULIFE FINANCIAL[†]	CANADA	40,238.1	49.4	2,209.7	209	28.9	537,460.7	60	34,500	400

DEFINITIONS, EXPLANATIONS, AND FOOTNOTES ARE ON PAGE F12.

NO. 298
MAERSK GROUP

Forget pirates. The new threat facing the world's largest shipping company? Hackers. In late June, Maersk said that a cyberattack had disrupted its computer systems worldwide. That was just the latest headache for the Danish company, which lost some $2 billion last year amid a glut of new supply in global shipping capacity. —*L.F.*

RANK 2016	2015		Country	REVENUES $millions	REVENUES % change from 2015	PROFITS $millions	PROFITS Rank	PROFITS % change from 2015	ASSETS $millions	ASSETS Rank	EMPLOYEES Number	EMPLOYEES Rank
251	221	CHINA MINSHENG BANKING[†]	CHINA	40,234.3	(5.2)	7,201.6	58	(1.8)	848,388.7	38	58,720	330
252	251	CHINA PACIFIC INSURANCE (GROUP)	CHINA	40,192.7	2.2	1,814.9	244	(35.7)	146,872.7	150	97,032	239
253	236	AMERICAN AIRLINES GROUP	U.S.	40,180.0	(2.0)	2,676.0	176	(64.8)	51,274.0	312	122,300	185
254	241	NATIONWIDE	U.S.	40,074.1	(0.4)	334.3	410	(42.4)	197,789.7	118	34,320	403
255	246	MERCK	U.S.	39,807.0	0.8	3,920.0	127	(11.8)	95,377.0	210	68,000	306
256	264	CIGNA	U.S.	39,668.0	4.7	1,867.0	239	(10.8)	59,360.0	288	41,000	380
257	239	DELTA AIR LINES	U.S.	39,639.0	(2.6)	4,373.0	112	(3.4)	51,261.0	313	83,756	270
258	244	BEST BUY[1]	U.S.	39,403.0	(0.9)	1,228.0	298	36.9	13,856.0	470	125,000	179
259	327	CHINA NATIONAL BUILDING MATERIAL GROUP[G]	CHINA	39,322.6	24.0	74.5	446	–	81,223.8	233	228,448	78
260	256	HONEYWELL INTERNATIONAL	U.S.	39,302.0	1.9	4,809.0	101	0.9	54,146.0	300	131,000	169
261	366	JD.COM[§,27]	CHINA	39,155.3	35.7	(573.0)	476	–	23,077.0	438	120,622	188
262	276	MITSUBISHI ELECTRIC[§,2]	JAPAN	39,118.6	6.9	1,942.6	228	2.1	37,519.3	367	138,700	156
263	320	ZF FRIEDRICHSHAFEN[†]	GERMANY	38,888.2	20.2	949.9	324	(12.1)	30,719.3	405	136,820	159
264	194	CATERPILLAR	U.S.	38,537.0	(18.0)	(67.0)	461	(103.2)	74,704.0	246	95,400	244
265	249	LIBERTY MUTUAL INSURANCE GROUP[28]	U.S.	38,308.0	(2.9)	1,006.0	319	95.7	125,592.0	169	50,000	356
266	351	POWER CORP. OF CANADA[†]	CANADA	38,286.4	27.9	855.5	336	(40.5)	315,387.4	86	30,259	420
267	263	MORGAN STANLEY	U.S.	37,949.0	0.1	5,979.0	76	(2.4)	814,949.0	40	55,311	341
268	•	HENGLI GROUP	CHINA	37,879.7	12.2	821.7	341	43.7	14,838.3	468	61,400	318
269	216	SSE[†,2]	BRITAIN	37,813.0	(12.7)	2,082.9	218	200.3	29,899.2	410	21,157	445
270	258	MASSACHUSETTS MUTUAL LIFE INSURANCE	U.S.	37,788.0	(1.2)	1,273.5	289	(10.6)	271,039.8	93	11,737	476
271	252	GOLDMAN SACHS GROUP	U.S.	37,712.0	(3.8)	7,398.0	55	21.6	860,165.0	36	34,400	401
272	•	JOHNSON CONTROLS INTERNATIONAL[§,4,29]	IRELAND	37,674.0	(6.3)	(868.0)	479	(155.5)	63,253.0	275	209,000	90
273	278	GLAXOSMITHKLINE[†]	BRITAIN	37,641.8	3.0	1,230.9	296	(90.4)	72,984.6	251	99,300	232
274	217	CHINA HUANENG GROUP[G]	CHINA	37,542.6[¶]	(13.1)	(85.9)	462	(111.1)	144,305.6	152	143,691	150
275	225	ENERGY TRANSFER EQUITY[P]	U.S.	37,504.0	(11.0)	995.0	321	(16.3)	79,011.0	239	30,992	414
276	270	SHENHUA GROUP[G]	CHINA	37,321.5	(0.8)	1,916.9	232	37.9	140,910.8	156	202,200	95
277	311	GREENLAND HOLDING GROUP	CHINA	37,240.3	12.8	1,085.2	315	(1.0)	105,494.8	198	39,887	386
278	291	TIAA[30]	U.S.	37,105.4	5.5	1,492.3	267	22.9	523,194.0	63	12,997	471
279	273	JARDINE MATHESON[†,23]	CHINA	37,051.0	0.1	2,503.0	187	39.3	71,523.0	257	430,000	17
280	260	ORACLE[17]	U.S.	37,047.0	(3.1)	8,901.0	39	(10.4)	112,180.0	186	136,000	161
281	255	ACS[†]	SPAIN	36,992.2[¶]	(4.5)	830.5	338	3.2	35,196.4	379	117,542	195
282	308	SUMITOMO[†,2]	JAPAN	36,888.0	10.4	1,577.1	261	154.0	69,668.7	260	70,900	294
283	235	TYSON FOODS[4]	U.S.	36,881.0	(10.9)	1,768.0	248	44.9	22,373.0	442	114,000	202
284	181	BARCLAYS[†]	BRITAIN	36,788.8	(25.7)	2,807.4	168	–	1,498,611.5	19	119,300	190
285	305	POSTE ITALIANE[†,G]	ITALY	36,616.8	7.4	687.8	360	12.3	203,759.8	113	136,739	160
286	220	CENTRICA[†]	BRITAIN	36,579.6	(14.4)	2,256.7	206	–	27,046.3	421	38,278	390
287	265	UNITED CONTINENTAL HOLDINGS	U.S.	36,556.0	(3.5)	2,263.0	205	(69.2)	40,140.0	350	88,000	263
288	283	ALLSTATE	U.S.	36,534.0	2.5	1,877.0	237	(13.5)	108,610.0	194	43,275	374
289	230	PERTAMINA[G]	INDONESIA	36,486.7[E]	(12.6)	3,147.0	154	121.6	47,233.2	325	27,227	430
290	306	MAGNA INTERNATIONAL[§]	CANADA	36,445.0	7.6	2,031.0	220	0.9	22,566.0	441	155,450	136
291	257	UBS GROUP[†]	SWITZERLAND	36,229.5	(5.9)	3,252.2	145	(49.6)	920,291.3	29	59,387	328
292	224	INTESA SANPAOLO[†]	ITALY	36,225.3	(14.2)	3,440.3	141	13.2	764,712.1	45	89,126	260
293	274	GEORGE WESTON[†]	CANADA	36,211.1	(1.3)	414.9	401	0.6	28,298.9	417	195,000	104
294	307	MITSUBISHI HEAVY INDUSTRIES[2]	JAPAN	36,122.4	7.2	809.6	345	52.3	49,205.0	316	82,728	271
295	423	RAJESH EXPORTS[2]	INDIA	36,113.9	43.1	185.8	433	13.8	3,716.6	500	328	500
296	259	PEGATRON[†]	TAIWAN	35,891.2	(6.1)	599.6	371	(20.1)	13,776.4	471	196,251	103
297	284	MEIJI YASUDA LIFE INSURANCE[2]	JAPAN	35,766.6	0.4	2,064.8	219	15.8	362,739.2	82	41,872	379
298	240	MAERSK GROUP[†]	DENMARK	35,464.0	(12.0)	(1,939.0)	486	(345.1)	61,118.0	282	87,736	264
299	247	SABIC[G]	SAUDI ARABIA	35,421.0	(10.3)	4,757.1	102	(4.9)	84,489.0	229	35,000	398
300	280	BOUYGUES[†]	FRANCE	35,276.5	(2.2)	809.5	346	81.1	36,758.1	374	117,997	193

WORLD'S LARGEST CORPORATIONS

301-400 / 500

RANK 2016	2015		Country	REVENUES $millions	% change from 2015	PROFITS $millions	Rank	% change from 2015	ASSETS $millions	Rank	EMPLOYEES Number	Rank
301	272	VOLVO[†]	SWEDEN	35,268.6	(4.8)	1,535.8	264	(14.0)	43,924.3	338	89,477	257
302	289	TALANX[†]	GERMANY	35,100.6	(0.8)	1,003.0	320	23.2	165,124.4	136	20,039	447
303	285	LUFTHANSA GROUP[†]	GERMANY	35,011.1	(1.5)	1,964.0	227	4.3	36,592.5	375	107,276	211
304	297	ROYAL BANK OF CANADA[†,18]	CANADA	34,903.9	0.3	7,839.6	50	(1.8)	880,723.8	33	75,510	283
305	312	ACCENTURE[5,7]	IRELAND	34,797.7	5.7	4,111.9	121	34.7	20,609.0	447	384,000	25
306	250	REPSOL[†]	SPAIN	34,484.7[F]	(12.5)	1,919.7	231	—	68,391.7	264	24,396	441
307	356	CHINA VANKE[†]	CHINA	34,458.0	17.5	3,164.5	151	9.8	119,555.3	175	58,280	332
308	317	PUBLIX SUPER MARKETS	U.S.	34,274.1	5.1	2,025.7	221	3.1	17,464.0	460	191,000	109
309	321	EDEKA ZENTRALE[C,31]	GERMANY	34,193.0	6.8	356.0	406	28.3	6,920.9	496	351,500	31
310	288	J. SAINSBURY[†,2]	BRITAIN	34,148.8	(3.5)	490.9	383	(30.8)	24,674.3	429	118,700	191
311	301	ALIMENTATION COUCHE-TARD[†,32]	CANADA	34,144.6[E]	(1.1)	1,193.5	304	27.9	12,303.9	477	105,000	219
312	309	CHINA ENERGY ENGINEERING GROUP[G]	CHINA	33,929.8	2.1	421.0	400	(22.0)	44,180.7	335	169,173	125
313	237	HYUNDAI HEAVY INDUSTRIES[†]	SOUTH KOREA	33,881.4	(17.1)	469.8	387	—	40,782.7	346	30,767	416
314	286	ABB[§]	SWITZERLAND	33,828.0	(4.7)	1,899.0	235	(1.8)	39,499.0	358	132,300	168
315	302	AMERICAN EXPRESS	U.S.	33,823.0	(1.8)	5,408.0	87	4.7	158,893.0	140	56,400	336
316	296	RIO TINTO GROUP[†]	BRITAIN	33,781.0	(3.0)	4,617.0	105	—	89,263.0	218	51,029	354
317	319	SNCF MOBILITÉS[†,G]	FRANCE	33,747.1	3.8	565.1	373	—	39,992.6	354	193,718	108
318	266	CRRC[†,G]	CHINA	33,738.7	(10.8)	1,700.3	254	(9.6)	48,681.3	318	183,061	116
319	473	CK HUTCHISON HOLDINGS[†,33]	CHINA	33,475.0	47.4	4,252.4	116	(72.2)	130,720.8	161	290,000	53
320	267	JIZHONG ENERGY GROUP[G]	CHINA	33,365.5	(11.8)	(153.9)	466	—	30,818.6	403	127,298	174
321	338	TJX[1]	U.S.	33,183.7	7.2	2,298.2	202	0.9	12,883.8	474	235,000	72
322	318	XINXING CATHAY INTERNATIONAL GROUP[G]	CHINA	33,173.8	1.9	448.2	392	(1.6)	18,705.0	455	59,429	327
323	310	HYUNDAI MOBIS[†]	SOUTH KOREA	32,971.8	(0.7)	2,617.8	179	(3.1)	34,540.9	382	29,499	425
324	393	AISIN SEIKI[†,2]	JAPAN	32,879.4	21.6	1,168.9	307	39.9	29,964.4	409	99,389	231
325	340	RITE AID[9]	U.S.	32,845.1	6.9	4.1	456	(97.6)	11,593.8	482	70,430	299
326	325	SHAANXI YANCHANG PETROLEUM (GROUP)[G]	CHINA	32,652.3[E]	2.8	(22.6)	459	—	45,551.6	333	134,134	166
327	334	DZ BANK[†,C]	GERMANY	32,635.7	4.6	1,623.4	258	3.4	537,278.0	61	28,264	429
328	300	UNICREDIT GROUP[†]	ITALY	32,538.9[¶]	(5.9)	(13,038.0)	499	(793.7)	906,488.9	30	117,659	194
329	313	CHINA EVERBRIGHT GROUP[G]	CHINA	32,460.5	(1.3)	1,877.8	236	(11.2)	627,701.4	52	61,400	318
330	402	DAIWA HOUSE INDUSTRY[2]	JAPAN	32,420.6	21.9	1,861.5	240	115.8	31,917.1	396	60,539	323
331	343	NIKE[17]	U.S.	32,376.0	5.8	3,760.0	133	14.9	21,396.0	444	70,700	296
332	295	IBERDROLA[†]	SPAIN	32,307.7	(7.3)	2,991.3	159	11.4	112,535.6	185	28,389	428
333	269	COMMONWEALTH BANK OF AUSTRALIA[†,6]	AUSTRALIA	32,286.9	(14.3)	6,712.9	62	(10.9)	694,564.5	48	45,129	370
334	293	SINOMACH[G]	CHINA	32,237.0	(8.2)	502.0	381	(34.5)	39,141.8	361	115,390	197
335	341	FRESENIUS[S,P]	GERMANY	32,161.3	4.9	1,761.6	250	16.9	48,984.4	317	232,873	74
336	344	CHINA AEROSPACE SCIENCE & TECHNOLOGY[G]	CHINA	32,093.8	5.0	1,996.2	225	7.7	55,720.8	297	170,357	123
337	347	SHAANXI COAL & CHEMICAL INDUSTRY[G]	CHINA	31,926.0	5.3	(254.4)	468	—	64,151.4	272	123,559	183
338	496	CHINA EVERGRANDE GROUP[†,27,34]	CHINA	31,828.0	50.2	2,368.8	198	(4.3)	194,383.5	119	89,250	259
339	328	JIANGXI COPPER[G]	CHINA	31,679.8	0.4	20.4	452	—	16,108.3	465	25,460	437
340	388	SOMPO HOLDINGS[2,35]	JAPAN	31,558.8	16.4	1,535.7	265	15.5	107,092.1	196	47,430	364
341	401	CHINA POLY GROUP[G]	CHINA	31,508.3	18.1	744.1	354	(11.4)	95,657.4	209	76,425	280
342	•	CHUBB[§]	SWITZERLAND	31,469.0	65.7	4,135.0	120	45.9	159,786.0	139	31,000	413
343	410	ZHEJIANG GEELY HOLDING GROUP	CHINA	31,429.8	19.5	1,265.7	290	341.6	29,749.0	411	60,712	321
344	355	EXELON	U.S.	31,360.0	6.5	1,134.0	311	(50.0)	114,904.0	181	34,396	402
345	330	GENERAL DYNAMICS	U.S.	31,353.0	(0.4)	2,955.0	162	(0.3)	32,872.0	394	98,800	234
346	369	BT GROUP[†,2]	BRITAIN	31,333.4	9.3	2,484.6	190	(36.2)	52,971.6	303	106,400	215
347	332	CANON[§]	JAPAN	31,271.0	(0.4)	1,385.0	281	(23.9)	44,062.2	337	197,673	101
348	359	WUCHAN ZHONGDA GROUP[G]	CHINA	31,185.0	7.3	324.3	413	47.2	11,018.2	485	18,150	454
349	324	MITSUBISHI CHEMICAL HOLDINGS[†,2]	JAPAN	31,157.6	5.6	1,442.1	274	237.1	40,064.2	351	69,291	300
350	168	BHP BILLITON[†,8]	AUSTRALIA	30,912.0	(40.9)	(6,385.0)	495	(434.3)	118,953.0	176	26,827	431

DEFINITIONS, EXPLANATIONS, AND FOOTNOTES ARE ON PAGE F12.

→ NO. 393
FACEBOOK

The social network keeps reaching new milestones. In late June, CEO Mark Zuckerberg announced that Facebook now has 2 billion users. More good news: Just 13 years after its founding, Zuck's company is making its debut on the Global 500. Last year it racked up $27 billion in sales and $10 billion in profits. —*K.T.*

RANK 2016	2015		Country	REVENUES $ millions	% change from 2015	PROFITS $ millions	Rank	% change from 2015	ASSETS $ millions	Rank	EMPLOYEES Number	Rank
351	350	TORONTO-DOMINION BANK [†,18]	CANADA	30,854.9	2.3	6,646.1	65	4.5	878,268.0	34	81,233	273
352	395	SUBARU [2,36]	JAPAN	30,695.5	14.0	2,605.8	180	(28.4)	24,794.2	428	36,668	393
353	333	BRIDGESTONE	JAPAN	30,678.3	(2.0)	2,441.3	193	3.9	31,900.5	397	143,616	152
354	292	CREDIT SUISSE GROUP [§]	SWITZERLAND	30,588.0	(13.0)	(2,750.7)	488	–	806,949.8	41	47,170	366
355	381	CHINA AEROSPACE SCIENCE & INDUSTRY [G]	CHINA	30,581.9	9.7	1,443.7	273	(1.8)	36,998.8	370	148,682	145
356	371	JFE HOLDINGS [2]	JAPAN	30,538.6	6.8	627.0	368	123.6	38,919.9	362	60,439	324
357	399	MIZUHO FINANCIAL GROUP [2]	JAPAN	30,390.1	13.5	5,570.1	84	(0.3)	1,799,736.2	14	59,179	329
358	316	GILEAD SCIENCES	U.S.	30,390.0	(6.9)	13,501.0	18	(25.4)	56,977.0	294	9,000	484
359	299	CHS [C,7]	U.S.	30,347.2	(12.2)	424.2	397	(45.7)	17,317.7	461	12,157	474
360	358	BHARAT PETROLEUM [G,2]	INDIA	30,316.0[E]	4.2	1,300.5	286	6.7	16,800.6	462	13,395	467
361	348	3M	U.S.	30,109.0	(0.5)	5,050.0	95	4.5	32,906.0	393	91,584	252
362	329	CHINA ELECTRONICS [G]	CHINA	30,009.7	(4.8)	321.9	414	82.6	36,574.9	376	144,659	148
363	411	CRH [†]	IRELAND	29,972.8	14.3	1,374.6	284	71.2	33,320.0	389	86,778	265
364	349	CHINA STATE SHIPBUILDING [G]	CHINA	29,876.8	(1.0)	367.6	404	(16.1)	40,773.3	347	68,025	305
365	314	JIANGSU SHAGANG GROUP	CHINA	29,862.2	(8.8)	352.1	407	148.5	23,719.7	435	35,133	396
366	465	CHINA COSCO SHIPPING [G]	CHINA	29,743.1	29.5	1,489.0	269	30.1	94,792.0	211	106,478	214
367	373	MAZDA MOTOR [2]	JAPAN	29,665.3	4.5	865.5	333	(22.7)	22,660.0	439	48,849	363
368	342	STATE POWER INVESTMENT [G]	CHINA	29,493.4	(3.7)	436.6	395	50.9	126,067.6	168	127,343	172
369	403	TAIWAN SEMICONDUCTOR MANUFACTURING [†]	TAIWAN	29,387.9	10.6	10,283.7	27	7.8	58,535.2	289	46,968	367
370	417	VALE [†]	BRAZIL	29,363.0[¶]	14.7	3,982.0	125	–	99,014.0	207	73,062	290
371	376	TIME WARNER	U.S.	29,318.0	4.3	3,926.0	126	2.4	65,966.0	268	25,000	438
372	426	SHANDONG ENERGY GROUP [G]	CHINA	29,298.6	16.6	39.2	448	–	39,886.5	356	179,689	119
373	405	SUZUKI MOTOR [2]	JAPAN	29,251.6	10.4	1,476.2	271	51.9	27,968.6	419	62,992	315
374	315	LYONDELLBASELL INDUSTRIES [§]	NETHERLANDS	29,183.0	(10.9)	3,836.0	131	(14.3)	23,442.0	437	13,000	470
375	368	ROYAL PHILIPS [†]	NETHERLANDS	29,003.0[¶]	1.1	1,601.3	260	123.8	34,067.7	385	114,731	200
376	•	CHARTER COMMUNICATIONS	U.S.	29,003.0	197.3	3,522.0	138	–	149,067.0	145	91,500	253
377	•	MEDTRONIC [§,32]	IRELAND	28,833.0	42.3	3,538.0	137	32.3	99,782.0	205	98,017	235
378	377	NORTHWESTERN MUTUAL	U.S.	28,799.0	2.4	818.0	342	0.4	250,441.0	100	5,646	493
379	378	L'ORÉAL [†]	FRANCE	28,571.8	2.0	3,434.5	142	(6.1)	37,576.7	366	89,331	258
380	385	DALIAN WANDA GROUP	CHINA	28,482.8	4.0	110.3	441	(95.5)	152,700.7	144	155,905	135
381	424	MEDIPAL HOLDINGS [2]	JAPAN	28,276.7	12.1	267.7	423	4.5	13,696.4	472	15,745	461
382	331	CHINA HUADIAN [G]	CHINA	28,204.3	(10.3)	360.6	405	(70.3)	112,115.3	187	107,000	212
383	456	AIA GROUP [*,37]	CHINA	28,196.0	21.1	4,164.0	119	54.7	185,074.0	124	20,000	448
384	367	HINDUSTAN PETROLEUM [G,2]	INDIA	28,165.5[E]	(2.3)	1,228.1	297	63.4	12,370.1	476	10,422	478
385	372	MIGROS GROUP [C]	SWITZERLAND	28,154.9	(1.2)	693.3	359	(16.7)	62,536.4	276	77,704	276
386	363	AIR FRANCE-KLM GROUP [†]	FRANCE	27,920.4[¶]	(3.4)	875.8	332	569.1	24,184.8	432	82,175	272
387	387	COMPASS GROUP [†,9]	BRITAIN	27,837.3	2.5	1,408.5	280	5.0	13,692.7	473	527,180	9
388	287	SCHLUMBERGER [§,38]	U.S.	27,810.0	(21.6)	(1,687.0)	484	(181.4)	77,956.0	241	100,000	229
389	391	KANSAI ELECTRIC POWER [2]	JAPAN	27,791.6	2.8	1,299.3	287	10.8	61,513.2	281	32,666	407
390	326	QUANTA COMPUTER [†]	TAIWAN	27,715.1	(12.7)	469.3	388	(16.4)	18,229.0	458	92,698	251
391	336	WESTPAC BANKING [†,4]	AUSTRALIA	27,704.4	(10.8)	5,477.0	86	(12.7)	642,082.6	51	35,280	395
392	396	COOP GROUP [C]	SWITZERLAND	27,668.7	2.8	482.1	386	11.5	18,369.1	457	73,451	289
393	•	FACEBOOK	U.S.	27,638.0	54.2	10,217.0	28	177.0	64,961.0	271	17,048	460
394	397	TRAVELERS COS.	U.S.	27,625.0	3.1	3,014.0	158	(12.4)	100,245.0	203	30,900	415
395	430	CAPITAL ONE FINANCIAL	U.S.	27,519.0	9.6	3,751.0	134	(7.4)	357,033.0	83	47,300	365
396	360	TWENTY-FIRST CENTURY FOX [§]	U.S.	27,326.0	(5.7)	2,755.0	172	(66.8)	48,365.0	320	21,500	444
397	345	CHINA GUODIAN [G]	CHINA	27,315.1	(10.5)	268.7	422	(67.2)	114,610.8	182	124,056	182
398	438	LAFARGEHOLCIM [†]	SWITZERLAND	27,308.4	11.4	1,817.9	243	–	68,520.7	263	90,903	254
399	354	SCHNEIDER ELECTRIC [†]	FRANCE	27,306.6	(7.6)	1,935.2	230	24.0	44,137.3	336	143,901	149
400	408	CHINA ELECTRONICS TECHNOLOGY GROUP [G]	CHINA	27,291.7	3.3	1,611.6	259	(1.5)	35,897.5	378	158,064	132

Meet 5-year-old Amena.* Seeing her safe inside a hospital, you wouldn't know that she's a child refugee from Syria, recently rescued at sea from certain death.

At Save the Children, we do whatever it takes – every day and in times of crisis – to ensure children like Amena grow up healthy, learning and safe. No matter who they are or where they're born.

Because every child deserves a future. **Every last child.**

SavetheChildren.org/Amena

Watch Amena's dramatic rescue and recovery.

*Child's name changed for protection. ©2017, Save the Children. All rights reserved. Photo: Louis Leeson.

401-500 /500

RANK 2016	2015		Country	REVENUES $ millions	% change from 2015	PROFITS $ millions	Rank	% change from 2015	ASSETS $ millions	Rank	EMPLOYEES Number	Rank
401	444	UNITED SERVICES AUTOMOBILE ASSN.[28]	U.S.	27,131.1	11.4	1,779.1	245	(21.7)	147,289.7	148	29,943	422
402	346	WORLD FUEL SERVICES	U.S.	27,015.8	(11.1)	126.5	439	(27.5)	5,412.6	498	5,000	496
403	416	PHOENIX PHARMAHANDEL[†,1]	GERMANY	26,976.1	5.2	135.4	438	(39.5)	9,291.5	492	26,611	432
404	382	VEOLIA ENVIRONNEMENT[†]	FRANCE	26,971.8	(2.6)	423.6	399	(15.2)	40,022.4	352	156,225	134
405	304	NATIONAL AUSTRALIA BANK[†,9]	AUSTRALIA	26,957.7	(21.1)	259.0	424	(94.8)	594,967.1	54	34,263	404
406	398	PHILIP MORRIS INTERNATIONAL	U.S.	26,685.0[E]	(0.4)	6,967.0	60	1.4	36,851.0	371	79,500	275
407	364	DEERE[18]	U.S.	26,644.0	(7.7)	1,523.9	266	(21.4)	57,981.4	290	56,767	335
408	447	EAST JAPAN RAILWAY[2]	JAPAN	26,586.9	11.3	2,565.0	183	25.5	71,009.0	258	85,834	266
409	413	ACHMEA[†]	NETHERLANDS	26,493.8	2.8	(423.5)	472	(199.7)	98,096.4	208	14,921	463
410	•	KRAFT HEINZ	U.S.	26,487.0	44.4	3,632.0	135	472.9	120,480.0	174	41,000	380
411	468	CATHAY LIFE INSURANCE[†]	TAIWAN	26,291.7	14.9	934.0	328	(22.5)	172,442.2	128	36,578	394
412	409	TECH DATA[1]	U.S.	26,234.9	(0.5)	195.1	432	(26.6)	7,931.9	494	9,500	482
413	439	SAMSUNG LIFE INSURANCE[†]	SOUTH KOREA	26,221.7	7.0	1,770.3	247	65.3	219,156.8	109	5,284	494
414	380	AVNET[6]	U.S.	26,219.3	(6.1)	506.5	379	(11.4)	11,239.8	484	17,700	456
415	•	NOKIA[†]	FINLAND	26,113.4	73.4	(847.1)	477	(131.0)	47,353.9	324	102,687	222
416	407	ENBRIDGE[5]	CANADA	26,072.5	(1.4)	1,560.9	262	695.0	64,010.7	273	7,733	487
417	365	GAS NATURAL FENOSA[†]	SPAIN	26,070.3[¶]	(11.5)	1,489.6	268	(10.6)	49,687.8	314	17,229	459
418	362	AUSTRALIA & NEW ZEALAND BANKING GROUP[†,4]	AUSTRALIA	26,031.5	(10.1)	4,199.9	117	(28.4)	699,976.3	46	46,554	368
419	357	LM ERICSSON[†]	SWEDEN	26,004.4	(11.2)	200.5	431	(87.5)	31,199.1	401	111,464	206
420	440	SUMITOMO ELECTRIC INDUSTRIES[2]	JAPAN	25,974.8	6.3	992.7	322	31.0	26,062.1	423	248,330	66
421	352	MONDELEZ INTERNATIONAL	U.S.	25,923.0	(12.5)	1,659.0	256	(77.2)	61,538.0	280	90,000	255
422	500	OLD MUTUAL[†]	BRITAIN	25,912.9[¶]	23.8	769.3	350	(18.0)	211,943.2	112	68,527	302
423	412	IDEMITSU KOSAN[2]	JAPAN	25,887.6[E]	(1.0)	813.7	344	–	23,710.9	436	9,139	483
424	428	BANK OF NOVA SCOTIA[†,18]	CANADA	25,817.4	2.8	5,362.2	88	(4.9)	668,805.3	49	88,901	262
425	389	MACY'S[1]	U.S.	25,778.0	(4.8)	619.0	369	(42.3)	19,851.0	451	148,300	146
426	434	MAPFRE GROUP[†]	SPAIN	25,774.5	3.9	857.5	335	9.1	71,590.1	256	37,020	392
427	418	LA POSTE[†,6]	FRANCE	25,759.6	0.8	938.9	327	33.3	257,525.8	97	240,407	69
428	463	INDITEX[†,1]	SPAIN	25,732.9	11.6	3,485.0	140	9.9	21,203.2	445	162,450	128
429	469	ABBVIE	U.S.	25,638.0	12.2	5,953.0	77	15.7	66,099.0	267	30,000	421
430	322	DATONG COAL MINE GROUP[6]	CHINA	25,630.0	(19.8)	(214.8)	467	–	40,012.1	353	162,542	127
431	414	LOTTE SHOPPING[†]	SOUTH KOREA	25,444.2	(1.2)	144.9	436	–	34,710.1	381	26,357	433
432	•	STANDARD LIFE[†]	BRITAIN	25,278.5	46.9	496.7	382	(77.2)	235,324.3	105	6,302	491
433	337	SHANXI COKING COAL GROUP[6]	CHINA	25,122.5	(19.1)	(10.0)	458	(113.1)	39,206.1	360	209,817	89
434	442	ADECCO GROUP[5]	SWITZERLAND	25,111.5	2.9	799.5	348	8,909.5	10,650.7	488	33,000	406
435	421	INTERNATIONAL AIRLINES GROUP[†,39]	BRITAIN	24,955.6	(1.6)	2,135.4	215	28.8	28,868.4	414	63,387	313
436	420	MCDONALD'S	U.S.	24,621.9	(3.1)	4,686.5	103	3.5	31,023.9	402	375,000	26
437	452	NEC[†,2]	JAPAN	24,595.6	4.5	252.0	426	(60.1)	24,091.2	433	107,729	210
438	379	DUPONT	U.S.	24,594.0	(12.0)	2,513.0	186	28.7	39,964.0	355	46,000	369
439	484	CHINA NATIONAL AVIATION FUEL GROUP[6]	CHINA	24,588.1	11.3	320.0	415	(4.3)	6,092.7	497	11,739	475
440	450	NORTHROP GRUMMAN	U.S.	24,508.0	4.2	2,200.0	210	10.6	25,614.0	424	67,000	307
441	•	BROOKFIELD ASSET MANAGEMENT[†]	CANADA	24,411.0	22.6	1,651.0	257	(29.5)	159,826.0	138	55,700	340
442	•	MERCANTIL SERVICIOS FINANCIEROS	VENEZUELA	24,402.6	50.3	2,004.2	223	(10.5)	148,659.0	146	8,370	486
443	462	SAP[†]	GERMANY	24,397.2	5.8	4,031.9	124	18.6	46,695.8	326	84,183	268
444	339	CONOCOPHILLIPS	U.S.	24,360.0	(21.3)	(3,615.0)	491	–	89,772.0	216	13,300	468
445	374	YANGQUAN COAL INDUSTRY GROUP[6]	CHINA	24,284.1	(14.2)	11.1	454	–	30,793.2	404	146,236	147
446	433	DANONE[†]	FRANCE	24,266.7	(2.4)	1,902.1	234	33.8	46,349.9	327	99,187	233
447	•	SAMSUNG C&T[†]	SOUTH KOREA	24,217.3	105.2	92.5	445	(96.2)	36,815.6	372	13,898	466
448	370	SHANXI LUAN MINING GROUP[6]	CHINA	24,087.3	(15.9)	(106.9)	463	–	29,026.0	412	95,666	242
449	457	RAYTHEON	U.S.	24,069.0	3.5	2,211.0	207	6.6	30,052.0	408	63,000	314
450	481	MIDEA GROUP	CHINA	24,060.4	8.5	2,210.4	208	9.3	24,548.6	430	126,418	175

DEFINITIONS, EXPLANATIONS, AND FOOTNOTES ARE ON PAGE F12.

→ NO. 462
ALIBABA GROUP HOLDING

Alibaba has been on a market tear of late. As of early July, the Chinese e-commerce behemoth's stock was up some 70% year to date. Those returns are supported by explosive growth. Alibaba's revenues leaped nearly 50% last year to $23.5 billion—enough to land the company on the Global 500 this year for the first time. —*K.T.*

RANK 2016	2015		Country	REVENUES $ millions	% change from 2015	PROFITS $ millions	Rank	% change from 2015	ASSETS $ millions	Rank	EMPLOYEES Number	Rank
451	448	CHUBU ELECTRIC POWER[2]	JAPAN	24,028.0	1.1	1,058.2	316	(25.2)	48,580.1	319	30,635	417
452	415	BAE SYSTEMS[†]	BRITAIN	24,011.2	(6.4)	1,232.3	295	(12.1)	28,383.0	416	76,000	281
453	375	TESORO	U.S.	24,005.0[E]	(14.7)	734.0	357	(52.3)	20,398.0	449	6,308	490
454	406	CHINA DATANG[G]	CHINA	23,871.0	(9.7)	243.9	428	32.9	101,631.3	201	97,091	238
455	441	FLEX[§,2,40]	SINGAPORE	23,862.9	(2.3)	319.6	416	(28.0)	12,593.4	475	200,000	99
456	455	ARROW ELECTRONICS	U.S.	23,825.3	2.3	522.8	377	5.0	14,206.4	469	18,700	450
457	•	HERAEUS HOLDING[†,41]	GERMANY	23,793.4	65.9	–	–	–	4,982.1	499	12,369	473
458	400	COMPAL ELECTRONICS[†]	TAIWAN	23,772.5	(10.9)	252.1	425	(7.9)	10,768.5	486	64,728	311
459	•	YANGO FINANCIAL HOLDING	CHINA	23,657.0	11.5	159.2	435	(59.0)	24,231.2	431	10,234	479
460	422	QUALCOMM[4]	U.S.	23,554.0	(6.8)	5,705.0	81	8.2	52,359.0	304	30,500	418
461	492	ALFRESA HOLDINGS[2]	JAPAN	23,550.5	9.7	285.1	419	(2.1)	11,273.0	483	13,217	469
462	•	ALIBABA GROUP HOLDING[§,2,27]	CHINA	23,517.3	47.9	6,489.5	68	(42.2)	73,538.4	250	50,097	355
463	419	KOÇ HOLDING[†]	TURKEY	23,456.2	(8.1)	1,144.2	310	(12.7)	25,046.5	427	95,456	243
464	•	PROGRESSIVE	U.S.	23,441.4	12.4	1,031.0	318	(18.7)	33,427.5	388	31,721	412
465	446	DUKE ENERGY	U.S.	23,369.0[¶,E]	(1.0)	2,152.0	213	(23.6)	132,761.0	159	28,798	427
466	451	MICHELIN[†]	FRANCE	23,119.9	(1.7)	1,853.4	241	43.0	26,705.3	422	105,654	217
467	•	COUNTRY GARDEN HOLDINGS[†,27]	CHINA	23,043.7	27.9	1,733.6	253	17.4	85,124.3	226	94,450	248
468	459	HEINEKEN HOLDING[†]	NETHERLANDS	23,043.6[E]	(0.7)	861.5	334	(18.9)	41,469.1	344	73,525	288
469	392	ENTERPRISE PRODUCTS PARTNERS[P]	U.S.	23,022.3	(14.8)	2,513.1	185	(0.3)	52,194.0	305	6,800	489
470	435	ASTRAZENECA[†]	BRITAIN	23,002.0	(6.9)	3,499.0	139	23.9	62,526.0	277	59,700	326
471	487	AMGEN	U.S.	22,991.0	6.1	7,722.0	52	11.3	77,626.0	242	19,200	449
472	445	RABOBANK GROUP[†,C]	NETHERLANDS	22,956.2	(4.4)	828.3	339	(15.1)	698,790.3	47	40,029	384
473	•	ALTICE[†]	NETHERLANDS	22,952.6	42.2	(1,722.5)	485	–	84,805.2	228	49,732	358
474	483	ONEX[†]	CANADA	22,943.0[¶]	3.8	(130.0)	464	–	42,913.0	340	161,000	129
475	461	US FOODS HOLDING[42]	U.S.	22,918.8	(0.9)	209.8	429	25.2	8,944.5	493	25,000	438
476	384	SHANXI JINCHENG ANTHRACITE COAL MINING[G]	CHINA	22,874.6	(17.0)	3.0	457	–	32,953.7	392	135,691	162
477	494	RANDSTAD HOLDING[†]	NETHERLANDS	22,873.4	7.3	650.2	367	13.0	9,624.4	490	32,280	408
478	•	TENCENT HOLDINGS[†,27]	CHINA	22,870.7	39.7	6,185.9	72	35.0	56,968.0	295	38,775	388
479	429	LG DISPLAY[†]	SOUTH KOREA	22,839.7	(9.0)	781.4	349	(8.6)	20,606.4	448	49,094	360
480	472	EMIRATES GROUP[†,6,2]	U.A.E.	22,798.9	0.3	340.3	409	(82.5)	33,095.9	391	64,768	310
481	490	U.S. BANCORP	U.S.	22,744.0	5.8	5,888.0	79	0.2	445,964.0	69	71,191	293
482	488	H&M HENNES & MAURITZ[†,37]	SWEDEN	22,617.8	4.6	2,192.3	211	(12.3)	10,680.6	487	114,586	201
483	•	AFLAC	U.S.	22,559.0	8.1	2,659.0	177	5.0	129,819.0	165	10,212	480
484	466	SODEXO[†,7]	FRANCE	22,476.6	(2.0)	707.2	358	(12.7)	15,766.1	467	425,594	18
485	•	SUNING COMMERCE GROUP	CHINA	22,366.1	3.7	106.0	443	(23.6)	19,737.7	453	60,354	325
486	431	GS CALTEX[†]	SOUTH KOREA	22,207.3[E]	(11.4)	1,221.1	300	42.1	15,968.8	466	2,949	498
487	474	ULTRAPAR HOLDINGS[†]	BRAZIL	22,166.8	(2.3)	447.5	393	(0.8)	7,426.4	495	15,173	462
488	•	XIAMEN C&D[G]	CHINA	22,145.0	6.6	280.2	420	15.6	21,728.8	443	18,381	453
489	425	SEARS HOLDINGS[1]	U.S.	22,138.0	(12.0)	(2,221.0)	487	–	9,362.0	491	140,000	155
490	383	CHINA GENERAL TECHNOLOGY[G]	CHINA	22,113.1	(20.1)	413.6	402	(20.8)	20,860.3	446	38,589	389
491	471	NATIONAL GRID[†,2]	BRITAIN	22,035.8[¶]	(3.2)	10,150.6	29	160.2	82,310.3	231	22,132	443
492	•	DOLLAR GENERAL[1]	U.S.	21,986.6	7.9	1,251.1	293	7.4	11,672.3	480	121,000	187
493	404	TELECOM ITALIA[†]	ITALY	21,941.1[¶]	(17.4)	1,999.4	224	–	74,294.5	247	61,227	320
494	•	XIAMEN ITG HOLDING GROUP[G]	CHINA	21,929.6	34.3	35.6	450	(25.1)	12,161.3	479	18,454	452
495	•	XINJIANG GUANGHUI INDUSTRY INVESTMENT	CHINA	21,919.3	31.1	251.8	427	49.9	31,956.8	395	65,616	309
496	•	TEVA PHARMACEUTICAL INDUSTRIES[§]	ISRAEL	21,903.0	11.5	329.0	411	(79.3)	92,890.0	213	56,960	334
497	427	NEW CHINA LIFE INSURANCE[†]	CHINA	21,795.7	(13.3)	743.9	355	(45.6)	100,608.8	202	54,378	344
498	437	WM. MORRISON SUPERMARKETS[†,1]	BRITAIN	21,741.4	(11.3)	406.4	403	20.4	11,630.2	481	77,210	277
499	467	TUI[†,9]	GERMANY	21,655.4[¶]	(5.5)	1,151.7	309	195.5	16,246.7	464	66,779	308
500	•	AUTONATION	U.S.	21,609.0	3.6	430.5	398	(2.7)	10,060.0	489	26,000	435
		TOTALS		27,708,158.0		1,524,546.3			121,816,121.8		66,999,158	

WINNERS AND LOSERS

NEWCOMERS AND RETURNEES

		500 rank 2016
1	AFLAC*	483
2	ALBERTSONS COS.*	141
3	ALIBABA GROUP HOLDING	462
4	ALTICE	473
5	ANBANG INSURANCE GROUP	139
6	AUTONATION*	500
7	BROOKFIELD ASSET MANAGEMENT	441
8	CHARTER COMMUNICATIONS	376
9	CHUBB	342
10	COUNTRY GARDEN HOLDINGS	467
11	DELL TECHNOLOGIES*	124
12	DOLLAR GENERAL	492
13	FACEBOOK	393
14	HENGLI GROUP	268
15	HERAEUS HOLDING*	457
16	HEWLETT PACKARD ENTERPRISE	181
17	JOHNSON CONTROLS INTERNATIONAL*	272
18	KRAFT HEINZ*	410
19	LEGAL & GENERAL GROUP*	49
20	MEDTRONIC	377
21	MERCANTIL SERVICIOS FINANCIEROS	442
22	NOKIA*	415
23	PROGRESSIVE*	464
24	SAMSUNG C&T	447
25	STANDARD LIFE*	432
26	SUNING COMMERCE GROUP	485
27	TENCENT HOLDINGS	478
28	TEVA PHARMACEUTICAL INDUSTRIES	496
29	UNIPER	91
30	XIAMEN C&D	488
31	XIAMEN ITG HOLDING GROUP	494
32	XINJIANG GUANGHUI INDUSTRY INVESTMENT	495
33	YANGO FINANCIAL HOLDING	459

* A RETURNEE TO THE *FORTUNE* GLOBAL 500 LIST.

DISPLACED FROM LIST

		500 rank 2015
1	ALCOA	476
2	CHINA METALLURGICAL GROUP	290
3	CHINA NONFERROUS METAL MINING (GROUP)	386
4	COMMUNITY HEALTH SYSTEMS	475
5	CPC	443
6	DELHAIZE GROUP	390
7	EMC	436
8	EMERSON ELECTRIC	480
9	ENERGIE BADEN-WÜRTTEMBERG	453
10	GREENERGY FUELS HOLDINGS	477
11	HALLIBURTON	449
12	INGRAM MICRO	218
13	INTERNATIONAL PAPER	479
14	INTL FCSTONE	298
15	JOHNSON CONTROLS, INC.	242
16	KOREA GAS	464
17	OMV GROUP	432
18	PKN ORLEN GROUP	454
19	PLAINS GP HOLDINGS	460
20	ROLLS-ROYCE HOLDINGS	499
21	ROYAL BANK OF SCOTLAND GROUP	361
22	SHOUGANG GROUP	489
23	STANDARD CHARTERED	498
24	STAPLES	497
25	SUNCOR ENERGY	458
26	SWISS LIFE	493
27	TELSTRA	482
28	TOSHIBA	169
29	UNION PACIFIC	485
30	UNIPOL GROUP	491
31	VTB BANK	478
32	WH GROUP	495
33	WOLSELEY	486

TOP 35 MONEY LOSERS

	500 rank	Loss $ millions
UNICREDIT GROUP	328	13,038.0
PEMEX	152	10,256.3*
E.ON	231	9,344.4*
VODAFONE GROUP	149	6,904.0*
BHP BILLITON	350	6,385.0
RWE	195	6,249.1*
U.S. POSTAL SERVICE	99	5,591.0*
PETROBRAS	75	4,838.0*
CONOCOPHILLIPS	444	3,615.0*
UNIPER	91	3,557.5
STATOIL	207	2,902.0*
CREDIT SUISSE GROUP	354	2,750.7*
SEARS HOLDINGS	489	2,221.0*
MAERSK GROUP	298	1,939.0
ALTICE	473	1,722.5*
SCHLUMBERGER	388	1,687.0
DELL TECHNOLOGIES	124	1,672.0*
ENI	132	1,619.0*
DEUTSCHE BANK	189	1,550.4*
WOOLWORTHS	218	898.3
JOHNSON CONTROLS INTERNATIONAL	272	868.0
AMERICAN INTERNATIONAL GROUP	175	849.0
NOKIA	415	847.1
JD.COM	261	573.0*
CHEVRON	45	497.0
ENGIE	93	458.9*
CHINA MINMETALS	120	446.7*
ACHMEA	409	423.5
ALBERTSONS COS.	141	373.3*
ALUMINUM CORP. OF CHINA	248	282.5*
JAPAN POST HOLDINGS	33	267.4
SHAANXI COAL & CHEMICAL INDUSTRY	337	254.4*
DATONG COAL MINE GROUP	430	214.8*
JIZHONG ENERGY GROUP	320	153.9*
HBIS GROUP	221	146.8*
TOTAL LOSS FOR THE 42 COMPANIES WITH LOSSES		95,871.6
MEDIAN LOSS		858.5

*ALSO LOST MONEY IN 2015.

UPS AND DOWNS

20 THAT CLIMBED

Company	2016 rank	Rank gain from 2015
CENTENE	244	226
CHINA MINMETALS	120	203
SK HOLDINGS	95	199
AVIVA	90	189
HNA GROUP	170	183
CHINA EVERGRANDE GROUP	338	158
CK HUTCHISON HOLDINGS	319	154
MANULIFE FINANCIAL	250	144
RAJESH EXPORTS	295	128
AEGON	147	106
JD.COM	261	105
CHINA COSCO SHIPPING	366	99
SUMITOMO LIFE INSURANCE	242	93
POWER CORP. OF CANADA	266	85
OLD MUTUAL	422	78
AIA GROUP	383	73
DAIWA HOUSE INDUSTRY	330	72
LLOYDS BANKING GROUP	121	72
CHINA BAOWU STEEL GROUP	204	71
PRUDENTIAL	56	70

20 THAT STUMBLED

Company	2016 rank	Rank loss from 2015
E.ON	231	-199
BHP BILLITON	350	-182
HP	194	-146
DATONG COAL MINE GROUP	430	-108
CHINA GENERAL TECHNOLOGY	490	-107
CONOCOPHILLIPS	444	-105
BARCLAYS	284	-103
NATIONAL AUSTRALIA BANK	405	-101
SCHLUMBERGER	388	-101
SHANXI COKING COAL GROUP	433	-96
SHANXI JINCHENG ANTHRACITE	476	-92
NOBLE GROUP	205	-89
TELECOM ITALIA	493	-89
SHANXI LUAN MINING GROUP	448	-78
TESORO	453	-78
ENTERPRISE PRODUCTS PARTNERS	469	-77
HYUNDAI HEAVY INDUSTRIES	313	-76
YANGQUAN COAL INDUSTRY GROUP	445	-71
CATERPILLAR	264	-70
NEW CHINA LIFE INSURANCE	497	-70

NOTES

DEFINITIONS AND EXPLANATIONS

METHODOLOGY

Companies are ranked by total revenues for their respective fiscal years ended on or before March 31, 2017. All companies on the list must publish financial data and report part or all of their figures to a government agency. Figures are as reported, and comparisons are with the prior year's figures as originally reported for that year. *Fortune* does not restate the prior year's figures for changes in accounting.

REVENUES

Revenue figures include consolidated subsidiaries and reported revenues from discontinued operations, but exclude excise taxes. For banks, revenue is the sum of gross interest income and gross noninterest income. For insurance companies, revenue includes premium and annuity income, investment income, realized capital gains or losses, and other income, but excludes deposits.

PROFITS

Profits are shown after taxes, extraordinary credits or charges, cumulative effects of accounting changes, and noncontrolling (minority) interests, but before preferred dividends. Figures in parentheses indicate a loss. Profit declines of more than 100% reflect swings from 2015 profits to 2016 losses. Profits for partnerships and cooperatives are reported but are not comparable with those of the other companies on the list because they are not taxed on a comparable basis. Profits for mutual insurance companies are based on statutory accounting. Revenue and profit figures for non-U.S. companies have been converted to U.S. dollars at the average exchange rate during each company's fiscal year (ended Dec. 31, 2016, unless otherwise noted).

BALANCE SHEET

Assets shown are those at the company's fiscal year-end. Stockholders' equity is the sum of capital stock, paid-in capital, and retained earnings on the same date. Noncontrolling (minority) interest is not included. Figures for non-U.S. companies have been converted to U.S. dollars at the exchange rate at each company's fiscal year-end.

EMPLOYEES

The figure shown is either a fiscal year-end or yearly average number, as published by the company. Where the breakdown between full- and part-time employees is supplied, a part-time employee is counted as one half of a full-time employee.

MEDIANS

The medians for profit changes from 2015 do not include companies that lost money in 2015 or lost money in both 2015 and 2016, because no meaningful percentage changes can be calculated in such cases.

CREDITS

This year's *Fortune* Global 500 was prepared under the direction of list editor Scott DeCarlo. Financial statements and annual reports were reviewed by reporter Douglas Elam, accounting specialists Rhona Altschuler and Cappy Lyons, and markets editor Kathleen Smyth. Beijing bureau's Zhang Dan provided figures for Chinese companies. *Fortune's* Business Information Database administrator, Santhosh Varghese, supplied technical support. The data verification process was aided substantially by Lexis Securities Mosaic, S&P Global Market Intelligence, and Thomson Reuters.

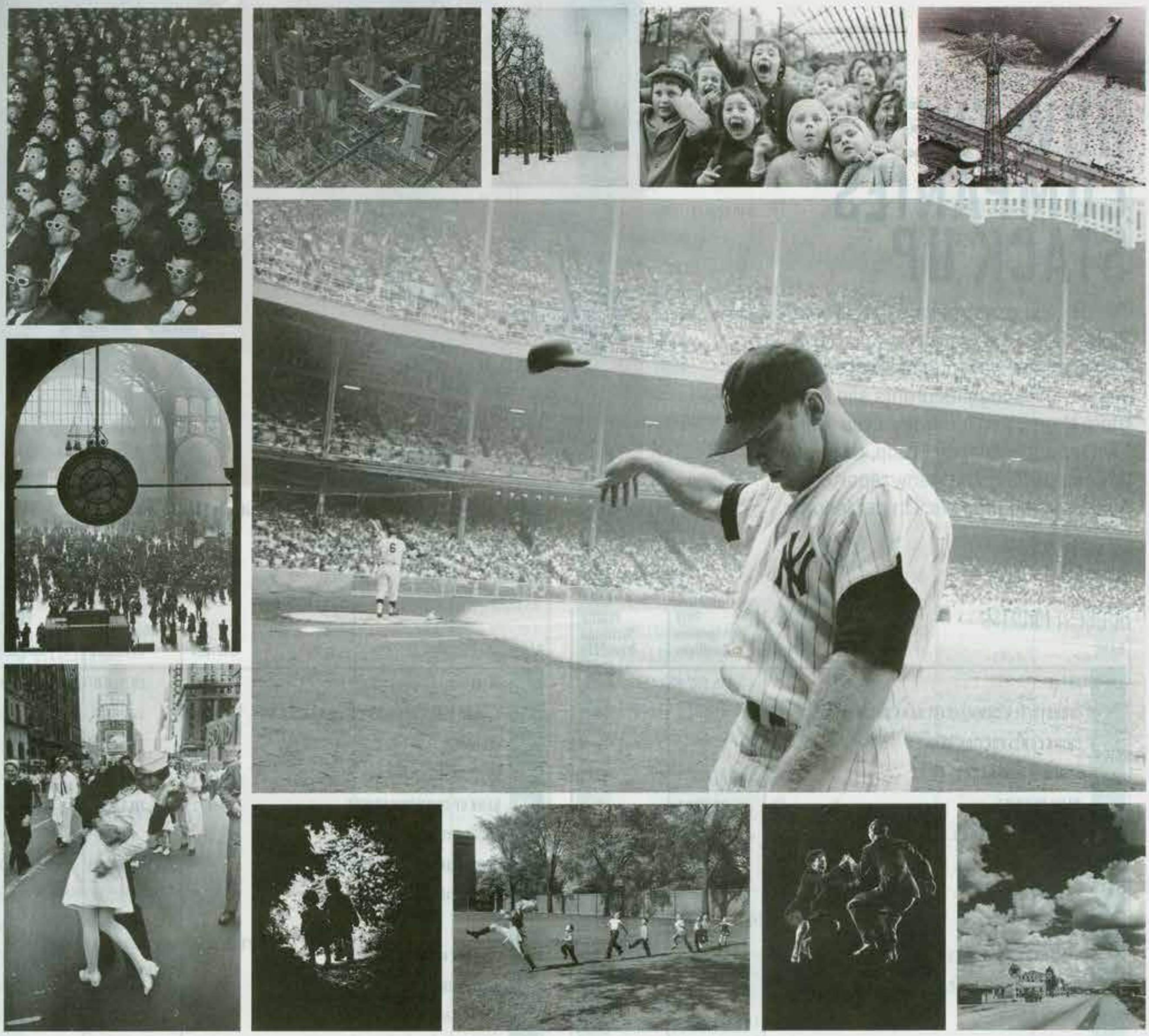
FOOTNOTES

† Figures prepared in accordance with International Accounting Standards.
§ Figures prepared in accordance with U.S. Generally Accepted Accounting Principles.
¶ Includes revenues from discontinued operations.
C A cooperative.
E Excise taxes have been deducted.
G Government owned 50% or more.
P A partnership.
1 Figures are for fiscal year ended Jan. 31, 2017.
2 Figures are for fiscal year ended March 31, 2017.
3 Company is incorporated in Britain. Executive offices are in the Netherlands.
4 Figures are for fiscal year ended Sept. 30, 2016.
5 Company is incorporated in Jersey. Executive offices are in Switzerland.
6 Figures are for fiscal year ended June 30, 2016.
7 Figures are for fiscal year ended Aug. 31, 2016.
8 Company's senior preferred stock is owned by the U.S. Treasury, which also holds a warrant to purchase 79.9% of the common stock.
9 Figures are for fiscal year ended Feb. 28, 2017.
10 Spun off from E.ON (2016 rank: 231), Sept. 12, 2016; fully deconsolidated, Dec. 31, 2016.
11 Acquired China Metallurgical Group (2015 rank: 290), Jan. 1, 2016.
12 Acquired EMC (2015 rank: 436), Sept. 7, 2016. Changed name from Denali Holding, Aug. 25, 2016.
13 Changed name from JX Holdings, April 1, 2017.
14 Reorganized as a holding company and changed name from Dai-ichi Life Insurance, Oct. 1, 2016.
15 Acquired Delhaize Group (2015 rank: 390) and changed name from Royal Ahold, July 24, 2016.
16 Acquired Ingram Micro (2015 rank: 218), Dec. 6, 2016.
17 Figures are for fiscal year ended May 31, 2016.
18 Figures are for fiscal year ended Oct. 31, 2016.
19 Spun off from HP (2016 rank: 194), Nov. 1, 2015.
20 Figures are for fiscal year ended July 31, 2016.
21 Spun off Hewlett Packard Enterprise (2016 rank: 181), Nov. 1, 2015.
22 Acquired Wuhan Iron and Steel and changed name from Baosteel Group, Dec. 1, 2016.
23 Company is incorporated in Bermuda. Executive offices are in Hong Kong.
24 Changed name from HeSteel Group, Jan. 1, 2017.
25 Company is incorporated in Bermuda. Executive offices are in the U.S.
26 Spun off Uniper (2016 rank: 91), Sept. 12, 2016; fully deconsolidated, Dec. 31, 2016.
27 Company is incorporated in the Cayman Islands. Executive offices are in China.
28 Reports financial data according to Generally Accepted Accounting Principles.
29 Acquired Johnson Controls, Inc. in a reverse merger transaction and changed name from Tyco International, Sept. 2, 2016. Johnson Controls, Inc. was the accounting acquirer and Tyco International was the legal acquirer.
30 Reports financial data according to statutory accounting.
31 Figures include operations for entire cooperative, including members.
32 Figures are for fiscal year ended April 30, 2016.
33 Company is incorporated in the Cayman Islands. Executive offices are in Hong Kong.
34 Changed name from Evergrande Real Estate Group, July 26, 2016.
35 Changed name from Sompo Japan Nipponkoa Holdings, Oct. 1, 2016.
36 Changed name from Fuji Heavy Industries, April 1, 2017.
37 Figures are for fiscal year ended Nov. 30, 2016.
38 Company is incorporated in Curaçao. Executive offices are in the U.S.
39 Company is incorporated in Spain. Executive offices are in Britain.
40 Changed name from Flextronics International, Sept. 7, 2016.
41 Profit figure is not available.
42 Went public, May 26, 2016.

THE TOP 50 EMPLOYERS

RANK	Company	500 rank	No. of employees
1	WAL-MART STORES	1	2,300,000
2	CHINA NATIONAL PETROLEUM	4	1,512,048
3	CHINA POST GROUP	119	941,211
4	STATE GRID	2	926,067
5	HON HAI PRECISION INDUSTRY	27	726,772
6	SINOPEC GROUP	3	713,288
7	VOLKSWAGEN	6	626,715
8	U.S. POSTAL SERVICE	99	574,349
9	COMPASS GROUP	387	527,180
10	AGRICULTURAL BANK OF CHINA	38	501,368
11	GAZPROM	63	467,400
12	CHINA MOBILE	47	463,712
13	INDUSTRIAL & COMMER. BANK OF CHINA	22	461,749
14	DEUTSCHE POST	117	459,262
15	AVIATION INDUSTRY CORP. OF CHINA	162	457,097
16	KROGER	40	443,000
17	JARDINE MATHESON	279	430,000
18	SODEXO	484	425,594
19	CHINA RESOURCES NATIONAL	86	420,572
20	INTERNATIONAL BUSINESS MACHINES	81	414,400
21	CHINA TELECOMMUNICATIONS	133	413,536
22	HOME DEPOT	59	406,000
23	ROBERT BOSCH	76	389,281
24	CARREFOUR	67	384,151
25	ACCENTURE	305	384,000
26	MCDONALD'S	436	375,000
27	BERKSHIRE HATHAWAY	8	367,700
28	TOYOTA MOTOR	5	364,445
29	CHINA CONSTRUCTION BANK	28	362,482
30	PACIFIC CONSTRUCTION GROUP	89	362,128
31	EDEKA ZENTRALE	309	351,500
32	SIEMENS	66	351,000
33	TESCO	92	342,770
34	AUCHAN HOLDING	146	342,709
35	AMAZON.COM	26	341,400
36	CHINA RAILWAY CONSTRUCTION	58	336,872
37	FEDEX	180	335,767
38	UNITED PARCEL SERVICE	138	335,520
39	NESTLÉ	64	328,000
40	SBERBANK	232	325,075
41	SAMSUNG ELECTRONICS	15	325,000
42	TARGET	107	323,000
43	PING AN INSURANCE	39	318,588
44	BANK OF CHINA	42	308,900
45	DEUTSCHE BAHN	212	306,368
46	HITACHI	71	303,887
47	EXOR GROUP	20	302,562
48	CHINA SOUTHERN POWER GRID	100	302,421
49	WALGREENS BOOTS ALLIANCE	37	300,000
50	ROSNEFT OIL	158	295,800
	THE GLOBAL 500 MEDIAN		92,911

TIME SHOP



Own a Piece of LIFE

Visit shop.time.com today
to purchase an 11x14 original print

©2015 Time Inc. TIME and LIFE are trademarks of Time Inc.

HOW THE COMPANIES STACK UP

The biggest profitmakers in this year's Global 500 were big banks and Big Tech. Apple led the way for a second straight year, even though its profits slid by more than $7 billion from a year earlier. Switzerland's Adecco Group, the world's largest staffing company, reported a massive bounce back in net income.

A customer scoping out products at an Apple store in Dubai's Mall of the Emirates.

BIGGEST PROFITS

RANK		500 rank	2016 profits $ millions	Profits % change from 2015
1	APPLE	9	45,687.0	(14.4)
2	INDUSTRIAL & COMMERCIAL BANK OF CHINA	22	41,883.9	(5.0)
3	CHINA CONSTRUCTION BANK	28	34,840.9	(4.0)
4	AGRICULTURAL BANK OF CHINA	38	27,687.8	(3.6)
5	BANK OF CHINA	42	24,773.4	(8.9)
6	JPMORGAN CHASE & CO.	48	24,733.0	1.2
7	BERKSHIRE HATHAWAY	8	24,074.0	(0.0)
8	WELLS FARGO	61	21,938.0	(4.2)
9	ALPHABET	65	19,478.0	19.1
10	SAMSUNG ELECTRONICS	15	19,316.5	16.8
11	BANK OF AMERICA CORP.	62	17,906.0	12.7
12	TOYOTA MOTOR	5	16,899.3	(12.3)
13	MICROSOFT	69	16,798.0	37.8
14	JOHNSON & JOHNSON	97	16,540.0	7.3
15	CITIGROUP	74	14,912.0	(13.5)
16	GAZPROM	63	14,222.6	10.4
17	WAL-MART STORES	1	13,643.0	(7.2)
18	GILEAD SCIENCES	358	13,501.0	(25.4)
19	SOFTBANK GROUP	72	13,163.4	233.3
20	VERIZON COMMUNICATIONS	32	13,127.0	(26.6)
21	AT&T	19	12,976.0	(2.8)
22	FANNIE MAE	46	12,313.0	12.4
23	INTERNATIONAL BUSINESS MACHINES	81	11,872.0	(10.0)
24	CISCO SYSTEMS	187	10,739.0	19.6
25	PROCTER & GAMBLE	98	10,508.0	49.3
26	INTEL	144	10,316.0	(9.7)
27	TAIWAN SEMICONDUCTOR MANUFACTURING	369	10,283.7	7.8
28	FACEBOOK	393	10,217.0	177.0
29	NATIONAL GRID	491	10,150.6	160.2
30	BANK OF COMMUNICATIONS	171	10,116.9	(4.4)
31	ROCHE GROUP	169	9,719.9	5.5
32	CHINA MOBILE COMMUNICATIONS	47	9,614.3	(5.2)
33	STATE GRID	2	9,571.3	(6.2)
34	DAIMLER	17	9,428.4	0.9
35	GENERAL MOTORS	18	9,427.0	(2.7)
36	PING AN INSURANCE	39	9,392.0	8.9
37	WALT DISNEY	161	9,391.0	12.0
38	CHINA MERCHANTS BANK	216	9,344.8	1.8
39	ORACLE	280	8,901.0	(10.4)
40	GENERAL ELECTRIC	31	8,831.0	–
41	COMCAST	79	8,695.0	6.5
42	NESTLÉ	64	8,659.2	(8.1)
43	MITSUBISHI UFJ FINANCIAL GROUP	164	8,550.1	7.9
44	BNP PARIBAS	43	8,517.2	14.7
45	INDUSTRIAL BANK	230	8,105.9	1.5
46	SBERBANK	232	8,078.0	121.0
47	SHANGHAI PUDONG DEVELOPMENT BANK	245	7,992.8	(0.7)
48	HOME DEPOT	59	7,957.0	13.5
49	EXXON MOBIL	10	7,840.0	(51.5)
50	ROYAL BANK OF CANADA	304	7,839.6	(1.8)
	THE GLOBAL 500 MEDIAN		1,761.6	(0.3)

© AFP/GETTY IMAGES

BIGGEST INCREASES IN REVENUES

RANK		500 rank	Revenues % change from 2015	2016 revenues $ millions
1	LEGAL & GENERAL GROUP	49	442.3	105,234.8
2	CHARTER COMMUNICATIONS	376	197.3	29,003.0
3	ANBANG INSURANCE GROUP	139	124.0	60,799.8
4	SK HOLDINGS	95	107.4	72,579.1
5	AVIVA	90	105.9	74,627.6
6	CHINA MINMETALS	120	105.6	65,546.9
7	SAMSUNG C&T	447	105.2	24,217.3
8	HNA GROUP	170	79.4	53,035.3
9	CENTENE	244	78.6	40,721.0
10	NOKIA	415	73.4	26,113.4
11	HERAEUS HOLDING	457	65.9	23,793.4
12	CHUBB	342	65.7	31,469.0
13	FACEBOOK	393	54.2	27,638.0
14	PRUDENTIAL	56	53.7	96,965.2
15	AEGON	147	50.5	58,789.0
16	MERCANTIL SERVICIOS FINANCIEROS	442	50.3	24,402.6
17	CHINA EVERGRANDE GROUP	338	50.2	31,828.0
18	MANULIFE FINANCIAL	250	49.4	40,238.1
19	ALIBABA GROUP HOLDING	462	47.9	23,517.3
20	CK HUTCHISON HOLDINGS	319	47.4	33,475.0
21	STANDARD LIFE	432	46.9	25,278.5
22	KRAFT HEINZ	410	44.4	26,487.0
23	RAJESH EXPORTS	295	43.1	36,113.9
24	MEDTRONIC	377	42.3	28,833.0
25	ALTICE	473	42.2	22,952.6
26	TENCENT HOLDINGS	478	39.7	22,870.7
27	LLOYDS BANKING GROUP	121	38.2	65,208.1
28	JD.COM	261	35.7	39,155.3
29	XIAMEN ITG HOLDING GROUP	494	34.3	21,929.6
30	SUMITOMO LIFE INSURANCE	242	31.6	40,920.8
31	BANCO BRADESCO	154	31.3	57,442.7
32	XINJIANG GUANGHUI INDUSTRY INVESTMENT	495	31.1	21,919.3
33	ROYAL AHOLD DELHAIZE	165	29.7	54,955.0
34	CHINA COSCO SHIPPING	366	29.5	29,743.1
35	POWER CORP. OF CANADA	266	27.9	38,286.4
36	COUNTRY GARDEN HOLDINGS	467	27.9	23,043.7
37	AMAZON.COM	26	27.1	135,987.0
38	TOKIO MARINE HOLDINGS	193	26.6	48,291.6
39	GROUPE BPCE	104	25.5	70,516.5
40	HUAWEI INVESTMENT & HOLDING	83	24.9	78,510.8
41	CHINA NATIONAL BUILDING MATERIAL GROUP	259	24.0	39,322.6
42	OLD MUTUAL	422	23.8	25,912.9
43	SWISS RE	229	22.6	43,786.0
44	BROOKFIELD ASSET MANAGEMENT	441	22.6	24,411.0
45	DAIWA HOUSE INDUSTRY	330	21.9	32,420.6
46	AISIN SEIKI	324	21.6	32,879.4
47	ITAÚ UNIBANCO HOLDING	113	21.4	66,876.3
48	AIA GROUP	383	21.1	28,196.0
49	GUANGZHOU AUTOMOBILE INDUSTRY GROUP	238	20.7	41,560.4
50	ALPHABET	65	20.4	90,272.0
	THE GLOBAL 500 MEDIAN		0.5	40,236.2

BIGGEST INCREASES IN PROFITS

RANK		500 rank	Profits % change from 2015	2016 profits $ millions
1	ADECCO GROUP	434	8,909.5	799.5
2	ENBRIDGE	416	695.0	1,560.9
3	POSCO	208	669.8	1,167.5
4	AIR FRANCE-KLM GROUP	386	569.1	875.8
5	KRAFT HEINZ	410	472.9	3,632.0
6	PTT	192	360.6	2,681.6
7	ZHEJIANG GEELY HOLDING GROUP	343	341.6	1,265.7
8	NEW YORK LIFE INSURANCE	243	324.1	1,088.1
9	AMAZON.COM	26	297.8	2,371.0
10	TELEFÓNICA	153	283.4	2,619.7
11	MITSUBISHI CHEMICAL HOLDINGS	349	237.1	1,442.1
12	SOFTBANK GROUP	72	233.3	13,163.4
13	SSE	269	200.3	2,082.9
14	TUI	499	195.5	1,151.7
15	FACEBOOK	393	177.0	10,217.0
16	MARUBENI	116	176.4	1,433.7
17	NATIONAL GRID	491	160.2	10,150.6
18	SUMITOMO	282	154.0	1,577.1
19	JIANGSU SHAGANG GROUP	365	148.5	352.1
20	ELECTRICITÉ DE FRANCE	82	139.4	3,152.8
21	ROYAL DUTCH SHELL	7	135.9	4,575.0
22	MCKESSON	11	124.5	5,070.0
23	ROYAL PHILIPS	375	123.8	1,601.3
24	JFE HOLDINGS	356	123.6	627.0
25	PERTAMINA	289	121.6	3,147.0
26	SBERBANK	232	121.0	8,078.0
27	DAIWA HOUSE INDUSTRY	330	115.8	1,861.5
28	LLOYDS BANKING GROUP	121	111.9	2,784.4
29	AEON	87	108.6	103.9
30	HONDA MOTOR	29	98.3	5,690.3
31	LIBERTY MUTUAL INSURANCE GROUP	265	95.7	1,006.0
32	PEUGEOT	140	91.8	1,913.1
33	CHINA ELECTRONICS	362	82.6	321.9
34	BOUYGUES	300	81.1	809.5
35	ZURICH INSURANCE GROUP	112	74.3	3,211.0
36	FEDEX	180	73.3	1,820.0
37	INDIAN OIL	168	72.7	2,960.0
38	CRH	363	71.2	1,374.6
39	DEUTSCHE POST DHL GROUP	117	70.8	2,918.3
40	SAMSUNG LIFE INSURANCE	413	65.3	1,770.3
41	HINDUSTAN PETROLEUM	384	63.4	1,228.1
42	ITOCHU	215	62.3	3,250.6
43	CENTENE	244	58.3	562.0
44	AIA GROUP	383	54.7	4,164.0
45	MITSUBISHI HEAVY INDUSTRIES	294	52.3	809.6
46	SUZUKI MOTOR	373	51.9	1,476.2
47	STATE POWER INVESTMENT	368	50.9	436.6
48	XINJIANG GUANGHUI INDUSTRY INVESTMENT	495	49.9	251.8
49	PROCTER & GAMBLE	98	49.3	10,508.0
50	HITACHI	71	48.8	2,134.3
	THE GLOBAL 500 MEDIAN		(0.3)	1,761.6

THE GEOGRAPHIC BREAKDOWN

RANKED WITHIN COUNTRIES

The U.S. once again placed the most companies on the list, with 132, but China is catching up fast. This year's Global 500 has 109 Chinese companies—up from 103 last year and just 29 a decade ago. Overall, there are 34 countries represented on the Global 500, with headquarters in 232 cities.

Employees get in the *Star Wars* spirit at a Dalian Wanda (No. 380) theater in Shanghai.

QILAI SHEN—BLOOMBERG/GETTY IMAGES

RANK	Company, *Headquarters*	500 rank	REVENUES $ millions
	AUSTRALIA 7 COMPANIES		
1	**WESFARMERS** *Perth*	198	48,002.9
2	**WOOLWORTHS** *Bella Vista*	218	43,924.9
3	**COMMONWEALTH BANK OF AUSTRALIA** *Sydney*	333	32,286.9
4	**BHP BILLITON** *Melbourne*	350	30,912.0
5	**WESTPAC BANKING** *Sydney*	391	27,704.4
6	**NATIONAL AUSTRALIA BANK** *Docklands*	405	26,957.7
7	**AUSTRALIA & NEW ZEALAND BANKING GROUP** *Docklands*	418	26,031.5
	TOTAL		235,820.3
	BELGIUM 1 COMPANY		
1	**ANHEUSER-BUSCH INBEV** *Leuven*	206	45,905.0
	TOTAL		45,905.0
	BRAZIL 7 COMPANIES		
1	**PETROBRAS** *Rio de Janeiro*	75	81,405.0
2	**ITAÚ UNIBANCO HOLDING** *São Paulo*	113	66,876.3
3	**BANCO DO BRASIL** *Brasília*	151	58,093.4
4	**BANCO BRADESCO** *Osasco*	154	57,442.7
5	**JBS** *São Paulo*	191	48,825.3
6	**VALE** *Rio de Janeiro*	370	29,363.0
7	**ULTRAPAR HOLDINGS** *São Paulo*	487	22,166.8
	TOTAL		364,172.5
	BRITAIN 23 COMPANIES		
1	**BP** *London*	12	186,606.0
2	**LEGAL & GENERAL GROUP** *London*	49	105,234.8
3	**PRUDENTIAL** *London*	56	96,965.2
4	**HSBC HOLDINGS** *London*	88	75,329.0
5	**AVIVA** *London*	90	74,627.6
6	**TESCO** *Welwyn Garden City*	92	74,393.1
7	**LLOYDS BANKING GROUP** *London*	121	65,208.1
8	**VODAFONE GROUP** *Newbury*	149	58,611.4
9	**SSE** *Perth*	269	37,813.0
10	**GLAXOSMITHKLINE** *Brentford*	273	37,641.8
11	**BARCLAYS** *London*	284	36,788.8
12	**CENTRICA** *Windsor*	286	36,579.6
13	**J. SAINSBURY** *London*	310	34,148.8
14	**RIO TINTO GROUP** *London*	316	33,781.0
15	**BT GROUP** *London*	346	31,333.4
16	**COMPASS GROUP** *Chertsey*	387	27,837.3
17	**OLD MUTUAL** *London*	422	25,912.9
18	**STANDARD LIFE** *Edinburgh*	432	25,278.5
19	**INTERNATIONAL AIRLINES GROUP** *Harmondsworth*	435	24,955.6
20	**BAE SYSTEMS** *London*	452	24,011.2
21	**ASTRAZENECA** *Cambridge*	470	23,002.0
22	**NATIONAL GRID** *London*	491	22,035.8
23	**WM. MORRISON SUPERMARKETS** *Bradford*	498	21,741.4
	TOTAL		1,179,836.3
	BRITAIN/NETHERLANDS 1 COMPANY		
1	**UNILEVER** *London*	150	58,292.4
	TOTAL		58,292.4
	CANADA 11 COMPANIES		
1	**MANULIFE FINANCIAL** *Toronto, Ontario*	250	40,238.1
2	**POWER CORP. OF CANADA** *Montreal, Quebec*	266	38,286.4
3	**MAGNA INTERNATIONAL** *Aurora, Ontario*	290	36,445.0
4	**GEORGE WESTON** *Toronto, Ontario*	293	36,211.1
5	**ROYAL BANK OF CANADA** *Toronto, Ontario*	304	34,903.9

RANK	Company, *Headquarters*	500 rank	REVENUES $ millions
6	**ALIMENTATION COUCHE-TARD** *Laval, Quebec*	311	34,144.6
7	**TORONTO-DOMINION BANK** *Toronto, Ontario*	351	30,854.9
8	**ENBRIDGE** *Calgary, Alberta*	416	26,072.5
9	**BANK OF NOVA SCOTIA** *Toronto, Ontario*	424	25,817.4
10	**BROOKFIELD ASSET MANAGEMENT** *Toronto, Ontario*	441	24,411.0
11	**ONEX** *Toronto, Ontario*	474	22,943.0
	TOTAL		350,327.9

CHINA 109 COMPANIES

RANK	Company, *Headquarters*	500 rank	REVENUES $ millions
1	**STATE GRID** *Beijing*	2	315,198.6
2	**SINOPEC GROUP** *Beijing*	3	267,518.0
3	**CHINA NATIONAL PETROLEUM** *Beijing*	4	262,572.6
4	**INDUSTRIAL & COMMERCIAL BANK OF CHINA** *Beijing*	22	147,675.1
5	**CHINA STATE CONSTRUCTION ENGINEERING** *Beijing*	24	144,505.2
6	**CHINA CONSTRUCTION BANK** *Beijing*	28	135,093.3
7	**AGRICULTURAL BANK OF CHINA** *Beijing*	38	117,274.9
8	**PING AN INSURANCE** *Shenzhen*	39	116,581.1
9	**SAIC MOTOR** *Shanghai*	41	113,860.8
10	**BANK OF CHINA** *Beijing*	42	113,708.2
11	**CHINA MOBILE COMMUNICATIONS** *Beijing*	47	107,116.5
12	**CHINA LIFE INSURANCE** *Beijing*	51	104,818.2
13	**CHINA RAILWAY ENGINEERING** *Beijing*	55	96,978.5
14	**CHINA RAILWAY CONSTRUCTION** *Beijing*	58	94,876.5
15	**DONGFENG MOTOR** *Wuhan*	68	86,193.5
16	**HUAWEI INVESTMENT & HOLDING** *Shenzhen*	83	78,510.8
17	**CHINA RESOURCES NATIONAL** *Hong Kong*	86	75,776.3
18	**PACIFIC CONSTRUCTION GROUP** *Nanjing*	89	74,629.0
19	**CHINA SOUTHERN POWER GRID** *Guangzhou*	100	71,241.5
20	**CHINA SOUTH INDUSTRIES GROUP** *Beijing*	101	71,150.5
21	**CHINA COMMUNICATIONS CONSTRUCTION** *Beijing*	103	70,750.8
22	**PEOPLE'S INSURANCE CO. OF CHINA** *Beijing*	114	66,731.9
23	**CHINA NATIONAL OFFSHORE OIL** *Beijing*	115	65,891.7
24	**CHINA POST GROUP** *Beijing*	119	65,605.0
25	**CHINA MINMETALS** *Beijing*	120	65,546.9
26	**CHINA FAW GROUP** *Changchun*	125	64,783.9
27	**TEWOO GROUP** *Tianjin*	129	63,324.2
28	**CHINA TELECOMMUNICATIONS** *Beijing*	133	62,387.0
29	**CHINA NORTH INDUSTRIES GROUP** *Beijing*	135	61,325.5
30	**COFCO** *Beijing*	136	61,265.3
31	**BEIJING AUTOMOTIVE GROUP** *Beijing*	137	61,129.5
32	**ANBANG INSURANCE GROUP** *Beijing*	139	60,799.8
33	**SINOCHEM GROUP** *Beijing*	143	59,532.6
34	**SHANDONG WEIQIAO PIONEERING GROUP** *Shandong*	159	56,174.0
35	**AVIATION INDUSTRY CORP. OF CHINA** *Beijing*	162	55,306.2
36	**HNA GROUP** *Haikou City*	170	53,035.3
37	**BANK OF COMMUNICATIONS** *Shanghai*	171	52,989.6
38	**CITIC GROUP** *Beijing*	172	52,852.0
39	**AMER INTERNATIONAL GROUP** *Shenzhen*	183	49,676.7
40	**POWERCHINA** *Beijing*	190	48,868.8
41	**SINOPHARM** *Beijing*	199	47,809.7
42	**CHINA BAOWU STEEL GROUP** *Shanghai*	204	46,606.2
43	**NOBLE GROUP** *Hong Kong*	205	46,528.3
44	**CHEMCHINA** *Beijing*	211	45,177.2
45	**CHINA MERCHANTS BANK** *Shenzhen*	216	44,551.8
46	**HBIS GROUP** *Shijiazhuang*	221	43,768.9
47	**CEFC CHINA ENERGY** *Shanghai*	222	43,743.3
48	**LENOVO GROUP** *Hong Kong*	226	43,034.7
49	**INDUSTRIAL BANK** *Fuzhou*	230	42,621.6
50	**CHINA SHIPBUILDING INDUSTRY** *Beijing*	233	42,149.2
51	**GUANGZHOU AUTOMOBILE INDUSTRY GROUP** *Guangzhou*	238	41,560.4
52	**CHINA UNITED NETWORK COMMUNICATIONS** *Beijing*	241	41,273.9
53	**SHANGHAI PUDONG DEVELOPMENT BANK** *Shanghai*	245	40,688.7
54	**ALUMINUM CORP. OF CHINA** *Beijing*	248	40,278.0
55	**CHINA MINSHENG BANKING** *Beijing*	251	40,234.3
56	**CHINA PACIFIC INSURANCE (GROUP)** *Shanghai*	252	40,192.7
57	**CHINA NATIONAL BUILDING MATERIAL GROUP** *Beijing*	259	39,322.6
58	**JD.COM** *Beijing*	261	39,155.3
59	**HENGLI GROUP** *Suzhou City*	268	37,879.7
60	**CHINA HUANENG GROUP** *Beijing*	274	37,542.6
61	**SHENHUA GROUP** *Beijing*	276	37,321.5
62	**GREENLAND HOLDING GROUP** *Shanghai*	277	37,240.3
63	**JARDINE MATHESON** *Hong Kong*	279	37,051.0
64	**CHINA VANKE** *Shenzhen*	307	34,458.0
65	**CHINA ENERGY ENGINEERING GROUP** *Beijing*	312	33,929.8
66	**CRRC** *Beijing*	318	33,738.7
67	**CK HUTCHISON HOLDINGS** *Hong Kong*	319	33,475.0
68	**JIZHONG ENERGY GROUP** *Xingtai*	320	33,365.5
69	**XINXING CATHAY INTERNATIONAL GROUP** *Beijing*	322	33,173.8
70	**SHAANXI YANCHANG PETROLEUM (GROUP)** *Xi'an*	326	32,652.3
71	**CHINA EVERBRIGHT GROUP** *Beijing*	329	32,460.5
72	**SINOMACH** *Beijing*	334	32,237.0
73	**CHINA AEROSPACE SCIENCE & TECHNOLOGY** *Beijing*	336	32,093.8
74	**SHAANXI COAL & CHEMICAL INDUSTRY** *Xi'an*	337	31,926.0
75	**CHINA EVERGRANDE GROUP** *Guangzhou*	338	31,828.0
76	**JIANGXI COPPER** *Guixi*	339	31,679.8
77	**CHINA POLY GROUP** *Beijing*	341	31,508.3
78	**ZHEJIANG GEELY HOLDING GROUP** *Hangzhou*	343	31,429.8
79	**WUCHAN ZHONGDA GROUP** *Hangzhou*	348	31,185.0
80	**CHINA AEROSPACE SCIENCE & INDUSTRY** *Beijing*	355	30,581.9
81	**CHINA ELECTRONICS** *Beijing*	362	30,009.7
82	**CHINA STATE SHIPBUILDING** *Beijing*	364	29,876.8
83	**JIANGSU SHAGANG GROUP** *Zhangjiagang*	365	29,862.2
84	**CHINA COSCO SHIPPING** *Shanghai*	366	29,743.1
85	**STATE POWER INVESTMENT** *Beijing*	368	29,493.4
86	**SHANDONG ENERGY GROUP** *Jinan*	372	29,298.6
87	**DALIAN WANDA GROUP** *Beijing*	380	28,482.8
88	**CHINA HUADIAN** *Beijing*	382	28,204.3
89	**AIA GROUP** *Hong Kong*	383	28,196.0
90	**CHINA GUODIAN** *Beijing*	397	27,315.1
91	**CHINA ELECTRONICS TECHNOLOGY GROUP** *Beijing*	400	27,291.7
92	**DATONG COAL MINE GROUP** *Datong*	430	25,630.0
93	**SHANXI COKING COAL GROUP** *Taiyuan*	433	25,122.5
94	**CHINA NATIONAL AVIATION FUEL GROUP** *Beijing*	439	24,588.1
95	**YANGQUAN COAL INDUSTRY GROUP** *Yangquan*	445	24,284.1
96	**SHANXI LUAN MINING GROUP** *Changzhi*	448	24,087.3
97	**MIDEA GROUP** *Foshan*	450	24,060.4
98	**CHINA DATANG** *Beijing*	454	23,871.0
99	**YANGO FINANCIAL HOLDING** *Fuzhou*	459	23,657.0
100	**ALIBABA GROUP HOLDING** *Hangzhou*	462	23,517.3
101	**COUNTRY GARDEN HOLDINGS** *Foshan*	467	23,043.7
102	**SHANXI JINCHENG ANTHRACITE COAL MINING GROUP** *Jincheng*	476	22,874.6
103	**TENCENT HOLDINGS** *Shenzhen*	478	22,870.7
104	**SUNING COMMERCE GROUP** *Nanjing*	485	22,366.1
105	**XIAMEN C&D** *Xiamen*	488	22,145.0
106	**CHINA GENERAL TECHNOLOGY** *Beijing*	490	22,113.1

THE GEOGRAPHIC BREAKDOWN

RANKED WITHIN COUNTRIES

RANK	Company, *Headquarters*	500 rank	REVENUES $ millions
107	**XIAMEN ITG HOLDING GROUP** *Xiamen*	494	21,929.6
108	**XINJIANG GUANGHUI INDUSTRY INVESTMENT** *Urumqi*	495	21,919.3
109	**NEW CHINA LIFE INSURANCE** *Beijing*	497	21,795.7
	TOTAL		6,038,360.1

DENMARK 1 COMPANY

RANK	Company, *Headquarters*	500 rank	REVENUES $ millions
1	**MAERSK GROUP** *Copenhagen*	298	35,464.0
	TOTAL		35,464.0

FINLAND 1 COMPANY

RANK	Company, *Headquarters*	500 rank	REVENUES $ millions
1	**NOKIA** *Espoo*	415	26,113.4
	TOTAL		26,113.4

FRANCE 29 COMPANIES

RANK	Company, *Headquarters*	500 rank	REVENUES $ millions
1	**AXA** *Paris*	25	143,722.3
2	**TOTAL** *Courbevoie*	30	127,925.0
3	**BNP PARIBAS** *Paris*	43	109,026.4
4	**CARREFOUR** *Boulogne-Billancourt*	67	87,111.9
5	**CRÉDIT AGRICOLE** *Paris*	80	80,257.8
6	**ELECTRICITÉ DE FRANCE** *Paris*	82	78,739.5
7	**ENGIE** *Courbevoie*	93	73,692.4
8	**GROUPE BPCE** *Paris*	104	70,516.5
9	**SOCIÉTÉ GÉNÉRALE** *Paris*	108	69,335.4
10	**PEUGEOT** *Paris*	140	59,748.8
11	**AUCHAN HOLDING** *Croix*	146	58,861.9
12	**RENAULT** *Boulogne-Billancourt*	157	56,666.8
13	**FINATIS** *Paris*	197	48,154.0
14	**CNP ASSURANCES** *Paris*	200	47,804.3
15	**ORANGE** *Paris*	210	45,249.0
16	**SAINT-GOBAIN** *Courbevoie*	225	43,230.8
17	**VINCI** *Rueil-Malmaison*	227	42,770.8
18	**CHRISTIAN DIOR** *Paris*	234	42,112.8
19	**SANOFI** *Paris*	240	41,376.3
20	**BOUYGUES** *Paris*	300	35,276.5
21	**SNCF MOBILITÉS** *St. Denis*	317	33,747.1
22	**L'ORÉAL** *Clichy*	379	28,571.8
23	**AIR FRANCE-KLM GROUP** *Paris*	386	27,920.4
24	**SCHNEIDER ELECTRIC** *Rueil-Malmaison*	399	27,306.6
25	**VEOLIA ENVIRONNEMENT** *Paris*	404	26,971.8
26	**LA POSTE** *Paris*	427	25,759.6
27	**DANONE** *Paris*	446	24,266.7
28	**MICHELIN** *Clermont-Ferrand*	466	23,119.9
29	**SODEXO** *Issy-les-Moulineaux*	484	22,476.6
	TOTAL		1,801,719.7

GERMANY 29 COMPANIES

RANK	Company, *Headquarters*	500 rank	REVENUES $ millions
1	**VOLKSWAGEN** *Wolfsburg*	6	240,263.8
2	**DAIMLER** *Stuttgart*	17	169,483.0
3	**ALLIANZ** *Munich*	34	122,195.9
4	**BMW GROUP** *Munich*	52	104,129.7
5	**SIEMENS** *Munich*	66	88,419.1
6	**ROBERT BOSCH** *Stuttgart*	76	80,869.4
7	**DEUTSCHE TELEKOM** *Bonn*	77	80,831.8
8	**UNIPER** *Düsseldorf*	91	74,406.8
9	**MUNICH RE GROUP** *Munich*	109	68,699.6
10	**DEUTSCHE POST DHL GROUP** *Bonn*	117	65,786.8
11	**METRO** *Düsseldorf*	123	64,853.3
12	**BASF** *Ludwigshafen*	126	63,641.4
13	**BAYER** *Leverkusen*	174	52,568.6
14	**DEUTSCHE BANK** *Frankfurt*	189	48,876.2
15	**RWE** *Essen*	195	48,203.8
16	**DEUTSCHE BAHN** *Berlin*	212	44,849.8
17	**CONTINENTAL** *Hanover*	213	44,841.5
18	**THYSSENKRUPP** *Essen*	224	43,589.0
19	**E.ON** *Essen*	231	42,213.4
20	**ZF FRIEDRICHSHAFEN** *Friedrichshafen*	263	38,888.2
21	**TALANX** *Hanover*	302	35,100.6
22	**LUFTHANSA GROUP** *Cologne*	303	35,011.1
23	**EDEKA ZENTRALE** *Hamburg*	309	34,193.0
24	**DZ BANK** *Frankfurt*	327	32,635.7
25	**FRESENIUS** *Bad Homburg*	335	32,161.3
26	**PHOENIX PHARMAHANDEL** *Mannheim*	403	26,976.1
27	**SAP** *Walldorf*	443	24,397.2
28	**HERAEUS HOLDING** *Hanau*	457	23,793.4
29	**TUI** *Hanover*	499	21,655.4
	TOTAL		1,853,534.9

INDIA 7 COMPANIES

RANK	Company, *Headquarters*	500 rank	REVENUES $ millions
1	**INDIAN OIL** *New Delhi*	168	53,561.5
2	**RELIANCE INDUSTRIES** *Mumbai*	203	46,930.7
3	**STATE BANK OF INDIA** *Mumbai*	217	44,533.4
4	**TATA MOTORS** *Mumbai*	247	40,329.2
5	**RAJESH EXPORTS** *Bengaluru*	295	36,113.9
6	**BHARAT PETROLEUM** *Mumbai*	360	30,316.0
7	**HINDUSTAN PETROLEUM** *Mumbai*	384	28,165.5
	TOTAL		279,950.2

INDONESIA 1 COMPANY

RANK	Company, *Headquarters*	500 rank	REVENUES $ millions
1	**PERTAMINA** *Jakarta*	289	36,486.7
	TOTAL		36,486.7

IRELAND 4 COMPANIES

RANK	Company, *Headquarters*	500 rank	REVENUES $ millions
1	**JOHNSON CONTROLS INTERNATIONAL** *Cork*	272	37,674.0
2	**ACCENTURE** *Dublin*	305	34,797.7
3	**CRH** *Dublin*	363	29,972.8
4	**MEDTRONIC** *Dublin*	377	28,833.0
	TOTAL		131,277.5

ISRAEL 1 COMPANY

RANK	Company, *Headquarters*	500 rank	REVENUES $ millions
1	**TEVA PHARMACEUTICAL INDUSTRIES** *Petach Tikva*	496	21,903.0
	TOTAL		21,903.0

ITALY 7 COMPANIES

RANK	Company, *Headquarters*	500 rank	REVENUES $ millions
1	**ASSICURAZIONI GENERALI** *Trieste*	57	95,216.6
2	**ENEL** *Rome*	84	78,063.9
3	**ENI** *Rome*	132	62,693.7

RANK	Company, *Headquarters*	500 rank	REVENUES $ millions
4	**POSTE ITALIANE** *Rome*	285	36,616.8
5	**INTESA SANPAOLO** *Turin*	292	36,225.3
6	**UNICREDIT GROUP** *Milan*	328	32,538.9
7	**TELECOM ITALIA** *Milan*	493	21,941.1
	TOTAL		363,296.3

JAPAN 51 COMPANIES

RANK	Company, *Headquarters*	500 rank	REVENUES $ millions
1	**TOYOTA MOTOR** *Toyota*	5	254,694.0
2	**HONDA MOTOR** *Tokyo*	29	129,198.4
3	**JAPAN POST HOLDINGS** *Tokyo*	33	122,990.3
4	**NISSAN MOTOR** *Yokohama*	44	108,164.1
5	**NIPPON TELEGRAPH & TELEPHONE** *Tokyo*	50	105,127.5
6	**HITACHI** *Tokyo*	71	84,558.4
7	**SOFTBANK GROUP** *Tokyo*	72	82,892.3
8	**AEON** *Chiba*	87	75,772.0
9	**SONY** *Tokyo*	105	70,170.3
10	**PANASONIC** *Osaka*	110	67,774.9
11	**NIPPON LIFE INSURANCE** *Osaka*	111	67,388.3
12	**MARUBENI** *Tokyo*	116	65,791.6
13	**JXTG HOLDINGS** *Tokyo*	127	63,628.5
14	**DAI-ICHI LIFE HOLDINGS** *Tokyo*	142	59,589.7
15	**MITSUBISHI** *Tokyo*	145	59,303.2
16	**MITSUBISHI UFJ FINANCIAL GROUP** *Tokyo*	164	55,185.3
17	**SEVEN & I HOLDINGS** *Tokyo*	167	53,858.0
18	**TOKYO ELECTRIC POWER** *Tokyo*	185	49,446.4
19	**MS&AD INSURANCE GROUP HOLDINGS** *Tokyo*	188	49,238.8
20	**TOKIO MARINE HOLDINGS** *Tokyo*	193	48,291.6
21	**SUMITOMO MITSUI FINANCIAL GROUP** *Tokyo*	202	47,374.6
22	**ITOCHU** *Osaka*	215	44,654.1
23	**KDDI** *Tokyo*	219	43,821.6
24	**NIPPON STEEL & SUMITOMO METAL** *Tokyo*	228	42,756.9
25	**DENSO** *Kariya*	236	41,781.0
26	**FUJITSU** *Tokyo*	237	41,619.9
27	**SUMITOMO LIFE INSURANCE** *Osaka*	242	40,920.8
28	**MITSUI** *Tokyo*	249	40,275.0
29	**MITSUBISHI ELECTRIC** *Tokyo*	262	39,118.6
30	**SUMITOMO** *Tokyo*	282	36,888.0
31	**MITSUBISHI HEAVY INDUSTRIES** *Tokyo*	294	36,122.4
32	**MEIJI YASUDA LIFE INSURANCE** *Tokyo*	297	35,766.6
33	**AISIN SEIKI** *Kariya*	324	32,879.4
34	**DAIWA HOUSE INDUSTRY** *Osaka*	330	32,420.6
35	**SOMPO HOLDINGS** *Tokyo*	340	31,558.8
36	**CANON** *Tokyo*	347	31,271.0
37	**MITSUBISHI CHEMICAL HOLDINGS** *Tokyo*	349	31,157.6
38	**SUBARU** *Tokyo*	352	30,695.5
39	**BRIDGESTONE** *Tokyo*	353	30,678.3
40	**JFE HOLDINGS** *Tokyo*	356	30,538.6
41	**MIZUHO FINANCIAL GROUP** *Tokyo*	357	30,390.1
42	**MAZDA MOTOR** *Hiroshima*	367	29,665.3
43	**SUZUKI MOTOR** *Hamamatsu*	373	29,251.6
44	**MEDIPAL HOLDINGS** *Tokyo*	381	28,276.7
45	**KANSAI ELECTRIC POWER** *Osaka*	389	27,791.6
46	**EAST JAPAN RAILWAY** *Tokyo*	408	26,586.9
47	**SUMITOMO ELECTRIC INDUSTRIES** *Osaka*	420	25,974.8
48	**IDEMITSU KOSAN** *Tokyo*	423	25,887.6
49	**NEC** *Tokyo*	437	24,595.6
50	**CHUBU ELECTRIC POWER** *Nagoya*	451	24,028.0
51	**ALFRESA HOLDINGS** *Tokyo*	461	23,550.5
	TOTAL		2,711,361.6

LUXEMBOURG 1 COMPANY

RANK	Company, *Headquarters*	500 rank	REVENUES $ millions
1	**ARCELORMITTAL** *Luxembourg*	156	56,791.0
	TOTAL		56,791.0

MALAYSIA 1 COMPANY

RANK	Company, *Headquarters*	500 rank	REVENUES $ millions
1	**PETRONAS** *Kuala Lumpur*	184	49,478.7
	TOTAL		49,478.7

MEXICO 2 COMPANIES

RANK	Company, *Headquarters*	500 rank	REVENUES $ millions
1	**PEMEX** *Mexico City*	152	57,773.9
2	**AMÉRICA MÓVIL** *Mexico City*	176	52,201.0
	TOTAL		109,974.9

NETHERLANDS 14 COMPANIES

RANK	Company, *Headquarters*	500 rank	REVENUES $ millions
1	**ROYAL DUTCH SHELL** *The Hague*	7	240,033.0
2	**EXOR GROUP** *Amsterdam*	20	154,893.6
3	**AIRBUS GROUP** *Leiden*	94	73,628.3
4	**AEGON** *The Hague*	147	58,789.0
5	**ING GROUP** *Amsterdam*	163	55,282.3
6	**ROYAL AHOLD DELHAIZE** *Zaandam*	165	54,955.0
7	**LOUIS DREYFUS** *Rotterdam*	182	49,838.0
8	**LYONDELLBASELL INDUSTRIES** *Rotterdam*	374	29,183.0
9	**ROYAL PHILIPS** *Amsterdam*	375	29,003.0
10	**ACHMEA** *Zeist*	409	26,493.8
11	**HEINEKEN HOLDING** *Amsterdam*	468	23,043.6
12	**RABOBANK GROUP** *Utrecht*	472	22,956.2
13	**ALTICE** *Amsterdam*	473	22,952.6
14	**RANDSTAD HOLDING** *Diemen*	477	22,873.4
	TOTAL		863,924.8

NORWAY 1 COMPANY

RANK	Company, *Headquarters*	500 rank	REVENUES $ millions
1	**STATOIL** *Stavanger*	207	45,873.0
	TOTAL		45,873.0

RUSSIA 4 COMPANIES

RANK	Company, *Headquarters*	500 rank	REVENUES $ millions
1	**GAZPROM** *Moscow*	63	91,382.4
2	**LUKOIL** *Moscow*	102	70,896.8
3	**ROSNEFT OIL** *Moscow*	158	56,553.3
4	**SBERBANK** *Moscow*	232	42,159.4
	TOTAL		260,991.9

SAUDI ARABIA 1 COMPANY

RANK	Company, *Headquarters*	500 rank	REVENUES $ millions
1	**SABIC** *Riyadh*	299	35,421.0
	TOTAL		35,421.0

SINGAPORE 3 COMPANIES

RANK	Company, *Headquarters*	500 rank	REVENUES $ millions
1	**TRAFIGURA GROUP** *Singapore*	54	98,097.8

FORTUNE GLOBAL FORUM

■ 广州2017 · 财富全球论坛

December 6–8, 2017
Guangzhou, China

For over two decades, the **Fortune Global Forum** has convened the CEOs of the world's biggest companies on the dynamic frontiers of global business. In 2017, we will explore the key issues facing multinational companies at a crucial time of change in China and the global economy. For CEOs who are committed to participating in China's continued economic progress, there could be no better moment to attend the Fortune Global Forum.

Participation is by invitation only and subject to approval.

To apply, or for more information, go to:
FortuneGlobalForum.com

中国 广州
GUANGZHOU · CHINA
HOST CITY | 2017
FORTUNE GLOBAL FORUM

Presenting Partner

HSBC 汇丰

Official Airline

中国南方航空
CHINA SOUTHERN AIRLINES

Official Automobile

广汽集团
GAC GROUP

广药集团

HermanMiller

Official White Spirit

Insigniam.
Catalyzing Breakthrough Results

水井坊

越秀金控

Knowledge Partner

McKinsey&Company

Supplier

INTERNATIONAL SOS

Fortune is a trademark of Time Inc., registered in the U.S. and other countries. Fortune Global Forum is a trademark of Time Inc. All other trademarks are the property of their respective owners.

THE GEOGRAPHIC BREAKDOWN

RANKED WITHIN COUNTRIES

RANK	Company, *Headquarters*	500 rank	REVENUES $ millions
2	**WILMAR INTERNATIONAL** *Singapore*	239	41,401.7
3	**FLEX** *Singapore*	455	23,862.9
	TOTAL		163,362.4

SOUTH KOREA 15 COMPANIES

RANK	Company, *Headquarters*	500 rank	REVENUES $ millions
1	**SAMSUNG ELECTRONICS** *Suwon*	15	173,957.3
2	**HYUNDAI MOTOR** *Seoul*	78	80,701.4
3	**SK HOLDINGS** *Seoul*	95	72,579.1
4	**KOREA ELECTRIC POWER** *Jeollanam-do*	177	51,500.4
5	**LG ELECTRONICS** *Seoul*	201	47,712.2
6	**POSCO** *Seoul*	208	45,620.5
7	**KIA MOTORS** *Seoul*	209	45,425.0
8	**HANWHA** *Seoul*	246	40,605.5
9	**HYUNDAI HEAVY INDUSTRIES** *Ulsan*	313	33,881.4
10	**HYUNDAI MOBIS** *Seoul*	323	32,971.8
11	**SAMSUNG LIFE INSURANCE** *Seoul*	413	26,221.7
12	**LOTTE SHOPPING** *Seoul*	431	25,444.2
13	**SAMSUNG C&T** *Seoul*	447	24,217.3
14	**LG DISPLAY** *Seoul*	479	22,839.7
15	**GS CALTEX** *Seoul*	486	22,207.3
	TOTAL		745,884.8

SPAIN 9 COMPANIES

RANK	Company, *Headquarters*	500 rank	REVENUES $ millions
1	**BANCO SANTANDER** *Madrid*	73	82,801.3
2	**TELEFÓNICA** *Madrid*	153	57,543.8
3	**BANCO BILBAO VIZCAYA ARGENTARIA** *Bilbao*	223	43,697.5
4	**ACS** *Madrid*	281	36,992.2
5	**REPSOL** *Madrid*	306	34,484.7
6	**IBERDROLA** *Bilbao*	332	32,307.7
7	**GAS NATURAL FENOSA** *Barcelona*	417	26,070.3
8	**MAPFRE GROUP** *Madrid*	426	25,774.5
9	**INDITEX** *Arteixo*	428	25,732.9
	TOTAL		385,404.9

SWEDEN 3 COMPANIES

RANK	Company, *Headquarters*	500 rank	REVENUES $ millions
1	**VOLVO** *Göteborg*	301	35,268.6
2	**LM ERICSSON** *Stockholm*	419	26,004.4
3	**H&M HENNES & MAURITZ** *Stockholm*	482	22,617.8
	TOTAL		83,890.8

SWITZERLAND 14 COMPANIES

RANK	Company, *Headquarters*	500 rank	REVENUES $ millions
1	**GLENCORE** *Baar*	16	173,883.0
2	**NESTLÉ** *Vevey*	64	90,813.9
3	**ZURICH INSURANCE GROUP** *Zurich*	112	67,245.0
4	**ROCHE GROUP** *Basel*	169	53,427.2
5	**NOVARTIS** *Basel*	186	49,436.0
6	**SWISS RE** *Zurich*	220	43,786.0
7	**UBS GROUP** *Zurich*	291	36,229.5
8	**ABB** *Zurich*	314	33,828.0
9	**CHUBB** *Zurich*	342	31,469.0
10	**CREDIT SUISSE GROUP** *Zurich*	354	30,588.0
11	**MIGROS GROUP** *Zurich*	385	28,154.9
12	**COOP GROUP** *Basel*	392	27,668.7
13	**LAFARGEHOLCIM** *Jona*	398	27,308.4
14	**ADECCO GROUP** *Glattbrugg*	434	25,111.5
	TOTAL		718,949.1

TAIWAN 6 COMPANIES

RANK	Company, *Headquarters*	500 rank	REVENUES $ millions
1	**HON HAI PRECISION INDUSTRY** *New Taipei City*	27	135,128.8
2	**PEGATRON** *Taipei*	296	35,891.2
3	**TAIWAN SEMICONDUCTOR MANUFACTURING** *Hsinchu*	369	29,387.9
4	**QUANTA COMPUTER** *Taoyuan*	390	27,715.1
5	**CATHAY LIFE INSURANCE** *Taipei*	411	26,291.7
6	**COMPAL ELECTRONICS** *Taipei*	458	23,772.5
	TOTAL		278,187.2

THAILAND 1 COMPANY

RANK	Company, *Headquarters*	500 rank	REVENUES $ millions
1	**PTT** *Bangkok*	192	48,719.1
	TOTAL		48,719.1

TURKEY 1 COMPANY

RANK	Company, *Headquarters*	500 rank	REVENUES $ millions
1	**KOÇ HOLDING** *Istanbul*	463	23,456.2
	TOTAL		23,456.2

UNITED ARAB EMIRATES 1 COMPANY

RANK	Company, *Headquarters*	500 rank	REVENUES $ millions
1	**EMIRATES GROUP** *Dubai*	480	22,798.9
	TOTAL		22,798.9

U.S. 132 COMPANIES

RANK	Company, *Headquarters*	500 rank	REVENUES $ millions
1	**WAL-MART STORES** *Bentonville, Ark.*	1	485,873.0
2	**BERKSHIRE HATHAWAY** *Omaha, Neb.*	8	223,604.0
3	**APPLE** *Cupertino, Calif.*	9	215,639.0
4	**EXXON MOBIL** *Irving, Texas*	10	205,004.0
5	**MCKESSON** *San Francisco, Calif.*	11	198,533.0
6	**UNITEDHEALTH GROUP** *Minnetonka, Minn.*	13	184,840.0
7	**CVS HEALTH** *Woonsocket, R.I.*	14	177,526.0
8	**GENERAL MOTORS** *Detroit, Mich.*	18	166,380.0
9	**AT&T** *Dallas, Texas*	19	163,786.0
10	**FORD MOTOR** *Dearborn, Mich.*	21	151,800.0
11	**AMERISOURCEBERGEN** *Chesterbrook, Pa.*	23	146,849.7
12	**AMAZON.COM** *Seattle, Wash.*	26	135,987.0
13	**GENERAL ELECTRIC** *Boston, Mass.*	31	126,661.0
14	**VERIZON COMMUNICATIONS** *New York, N.Y.*	32	125,980.0
15	**CARDINAL HEALTH** *Dublin, Ohio*	35	121,546.0
16	**COSTCO WHOLESALE** *Issaquah, Wash.*	36	118,719.0
17	**WALGREENS BOOTS ALLIANCE** *Deerfield, Ill.*	37	117,351.0
18	**KROGER** *Cincinnati, Ohio*	40	115,337.0
19	**CHEVRON** *San Ramon, Calif.*	45	107,567.0
20	**FANNIE MAE** *Washington, D.C.*	46	107,162.0
21	**JPMORGAN CHASE & CO.** *New York, N.Y.*	48	105,486.0
22	**EXPRESS SCRIPTS HOLDING** *St. Louis, Mo.*	53	100,287.5
23	**HOME DEPOT** *Atlanta, Ga.*	59	94,595.0
24	**BOEING** *Chicago, Ill.*	60	94,571.0
25	**WELLS FARGO** *San Francisco, Calif.*	61	94,176.0
26	**BANK OF AMERICA CORP.** *Charlotte, N.C.*	62	93,662.0


Ad Council
I didn't talk for a very long time
Jacob Sanchez
Diagnosed with autism
Lack of speech is a sign of autism. Learn the others at autismspeaks.org/signs.
AUTISM SPEAKS

RANKED WITHIN COUNTRIES

RANK	Company, *Headquarters*	500 rank	REVENUES $millions
27	**ALPHABET** *Mountain View, Calif.*	65	90,272.0
28	**MICROSOFT** *Redmond, Wash.*	69	85,320.0
29	**ANTHEM** *Indianapolis, Ind.*	70	84,863.0
30	**CITIGROUP** *New York, N.Y.*	74	82,386.0
31	**COMCAST** *Philadelphia, Pa.*	79	80,403.0
32	**INTERNATIONAL BUSINESS MACHINES** *Armonk, N.Y.*	81	79,919.0
33	**STATE FARM INSURANCE COS.** *Bloomington, Ill.*	85	76,131.8
34	**PHILLIPS 66** *Houston, Texas*	96	72,396.0
35	**JOHNSON & JOHNSON** *New Brunswick, N.J.*	97	71,890.0
36	**PROCTER & GAMBLE** *Cincinnati, Ohio*	98	71,726.0
37	**U.S. POSTAL SERVICE** *Washington, D.C.*	99	71,498.0
38	**VALERO ENERGY** *San Antonio, Texas*	106	70,166.0
39	**TARGET** *Minneapolis, Minn.*	107	69,495.0
40	**FREDDIE MAC** *McLean, Va.*	118	65,665.0
41	**LOWE'S** *Mooresville, N.C.*	122	65,017.0
42	**DELL TECHNOLOGIES** *Round Rock, Texas*	124	64,806.0
43	**METLIFE** *New York, N.Y.*	128	63,476.0
44	**AETNA** *Hartford, Conn.*	130	63,155.0
45	**PEPSICO** *Purchase, N.Y.*	131	62,799.0
46	**ARCHER DANIELS MIDLAND** *Chicago, Ill.*	134	62,346.0
47	**UNITED PARCEL SERVICE** *Atlanta, Ga.*	138	60,906.0
48	**ALBERTSONS COS.** *Boise, Idaho*	141	59,678.2
49	**INTEL** *Santa Clara, Calif.*	144	59,387.0
50	**PRUDENTIAL FINANCIAL** *Newark, N.J.*	148	58,779.0
51	**UNITED TECHNOLOGIES** *Farmington, Conn.*	155	57,244.0
52	**MARATHON PETROLEUM** *Findlay, Ohio*	160	55,858.0
53	**WALT DISNEY** *Burbank, Calif.*	161	55,632.0
54	**HUMANA** *Louisville, Ky.*	166	54,379.0
55	**PFIZER** *New York, N.Y.*	173	52,824.0
56	**AMERICAN INTERNATIONAL GROUP** *New York, N.Y.*	175	52,367.0
57	**LOCKHEED MARTIN** *Bethesda, Md.*	178	50,658.0
58	**SYSCO** *Houston, Texas*	179	50,366.9
59	**FEDEX** *Memphis, Tenn.*	180	50,365.0
60	**HEWLETT PACKARD ENTERPRISE** *Palo Alto, Calif.*	181	50,123.0
61	**CISCO SYSTEMS** *San Jose, Calif.*	187	49,247.0
62	**HP** *Palo Alto, Calif.*	194	48,238.0
63	**DOW CHEMICAL** *Midland, Mich.*	196	48,158.0
64	**HCA HOLDINGS** *Nashville, Tenn.*	214	44,747.0
65	**BUNGE** *White Plains, N.Y.*	229	42,679.0
66	**COCA-COLA** *Atlanta, Ga.*	235	41,863.0
67	**NEW YORK LIFE INSURANCE** *New York, N.Y.*	243	40,786.6
68	**CENTENE** *St. Louis, Mo.*	244	40,721.0
69	**AMERICAN AIRLINES GROUP** *Fort Worth, Texas*	253	40,180.0
70	**NATIONWIDE** *Columbus, Ohio*	254	40,074.1
71	**MERCK** *Kenilworth, N.J.*	255	39,807.0
72	**CIGNA** *Bloomfield, Conn.*	256	39,668.0
73	**DELTA AIR LINES** *Atlanta, Ga.*	257	39,639.0
74	**BEST BUY** *Richfield, Minn.*	258	39,403.0
75	**HONEYWELL INTERNATIONAL** *Morris Plains, N.J.*	260	39,302.0
76	**CATERPILLAR** *Peoria, Ill.*	264	38,537.0
77	**LIBERTY MUTUAL INSURANCE GROUP** *Boston, Mass.*	265	38,308.0
78	**MORGAN STANLEY** *New York, N.Y.*	267	37,949.0
79	**MASSACHUSETTS MUTUAL LIFE INSURANCE** *Springfield, Mass.*	270	37,788.0
80	**GOLDMAN SACHS GROUP** *New York, N.Y.*	271	37,712.0
81	**ENERGY TRANSFER EQUITY** *Dallas, Texas*	275	37,504.0
82	**TIAA** *New York, N.Y.*	276	37,105.4
83	**ORACLE** *Redwood City, Calif.*	280	37,047.0
84	**TYSON FOODS** *Springdale, Ark.*	283	36,881.0
85	**UNITED CONTINENTAL HOLDINGS** *Chicago, Ill.*	287	36,556.0
86	**ALLSTATE** *Northbrook, Ill.*	288	36,534.0
87	**PUBLIX SUPER MARKETS** *Lakeland, Fla.*	308	34,274.1
88	**AMERICAN EXPRESS** *New York, N.Y.*	315	33,823.0
89	**TJX** *Framingham, Mass.*	321	33,183.7
90	**RITE AID** *Camp Hill, Pa.*	325	32,845.1
91	**NIKE** *Beaverton, Ore.*	331	32,376.0
92	**EXELON** *Chicago, Ill.*	344	31,360.0
93	**GENERAL DYNAMICS** *Falls Church, Va.*	345	31,353.0
94	**GILEAD SCIENCES** *Foster City, Calif.*	358	30,390.0
95	**CHS** *Inver Grove Heights, Minn.*	359	30,347.2
96	**3M** *St. Paul, Minn.*	361	30,109.0
97	**TIME WARNER** *New York, N.Y.*	371	29,318.0
98	**CHARTER COMMUNICATIONS** *Stamford, Conn.*	376	29,003.0
99	**NORTHWESTERN MUTUAL** *Milwaukee, Wis.*	378	28,799.0
100	**SCHLUMBERGER** *Houston, Texas*	388	27,810.0
101	**FACEBOOK** *Menlo Park, Calif.*	393	27,638.0
102	**TRAVELERS COS.** *New York, N.Y.*	394	27,625.0
103	**CAPITAL ONE FINANCIAL** *McLean, Va.*	395	27,519.0
104	**TWENTY-FIRST CENTURY FOX** *New York, N.Y.*	396	27,326.0
105	**UNITED SERVICES AUTOMOBILE ASSN.** *San Antonio, Texas*	401	27,131.1
106	**WORLD FUEL SERVICES** *Miami, Fla.*	402	27,015.8
107	**PHILIP MORRIS INTERNATIONAL** *New York, N.Y.*	406	26,685.0
108	**DEERE** *Moline, Ill.*	407	26,644.0
109	**KRAFT HEINZ** *Pittsburgh, Pa.*	410	26,487.0
110	**TECH DATA** *Clearwater, Fla.*	412	26,234.9
111	**AVNET** *Phoenix, Ariz.*	414	26,219.3
112	**MONDELEZ INTERNATIONAL** *Deerfield, Ill.*	421	25,923.0
113	**MACY'S** *Cincinnati, Ohio*	425	25,778.0
114	**ABBVIE** *North Chicago, Ill.*	429	25,638.0
115	**MCDONALD'S** *Oak Brook, Ill.*	436	24,621.9
116	**DUPONT** *Wilmington, Del.*	438	24,594.0
117	**NORTHROP GRUMMAN** *Falls Church, Va.*	440	24,508.0
118	**CONOCOPHILLIPS** *Houston, Texas*	444	24,360.0
119	**RAYTHEON** *Waltham, Mass.*	449	24,069.0
120	**TESORO** *San Antonio, Texas*	453	24,005.0
121	**ARROW ELECTRONICS** *Centennial, Colo.*	456	23,825.3
122	**QUALCOMM** *San Diego, Calif.*	460	23,554.0
123	**PROGRESSIVE** *Mayfield Village, Ohio*	464	23,441.4
124	**DUKE ENERGY** *Charlotte, N.C.*	465	23,369.0
125	**ENTERPRISE PRODUCTS PARTNERS** *Houston, Texas*	469	23,022.3
126	**AMGEN** *Thousand Oaks, Calif.*	471	22,991.0
127	**US FOODS HOLDING** *Rosemont, Ill.*	475	22,918.8
128	**U.S. BANCORP** *Minneapolis, Minn.*	481	22,744.0
129	**AFLAC** *Columbus, Ga.*	483	22,559.0
130	**SEARS HOLDINGS** *Hoffman Estates, Ill.*	489	22,138.0
131	**DOLLAR GENERAL** *Goodlettsville, Tenn.*	492	21,986.6
132	**AUTONATION** *Fort Lauderdale, Fla.*	500	21,609.0
	TOTAL		8,476,824.7

VENEZUELA 1 COMPANY

RANK	Company, *Headquarters*	500 rank	REVENUES $millions
1	**MERCANTIL SERVICIOS FINANCIEROS** *Caracas*	442	24,402.6
	TOTAL		24,402.6

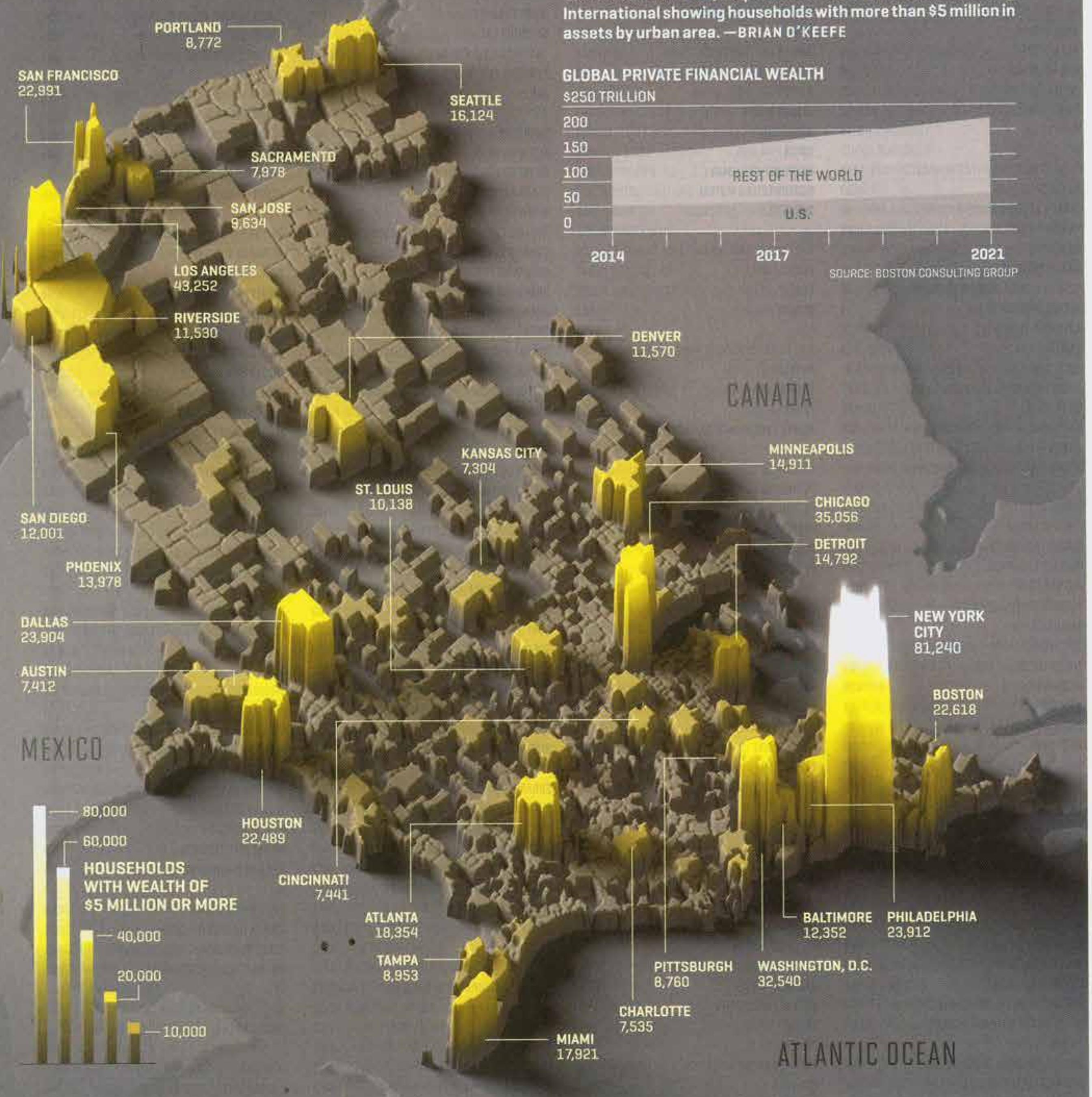
INDEX

JIANGSU SHAGANG GROUP CHINA	365
JIANGXI COPPER CHINA	339
JIZHONG ENERGY GROUP CHINA	320
JOHNSON CONTROLS INTL. IRELAND	272
JOHNSON & JOHNSON U.S.	97
JPMORGAN CHASE & CO. U.S.	48
JXTG HOLDINGS JAPAN	127
KANSAI ELECTRIC POWER JAPAN	389
KDDI JAPAN	219
KIA MOTORS SOUTH KOREA	209
KOÇ HOLDING TURKEY	463
KOREA ELECTRIC POWER SOUTH KOREA	177
KRAFT HEINZ U.S.	410
KROGER U.S.	40
LAFARGEHOLCIM SWITZERLAND	398
LA POSTE FRANCE	427
LEGAL & GENERAL GROUP BRITAIN	49
LENOVO GROUP CHINA	226
LG DISPLAY SOUTH KOREA	479
LG ELECTRONICS SOUTH KOREA	201
LIBERTY MUTUAL INSURANCE GROUP U.S.	265
LLOYDS BANKING GROUP BRITAIN	121
LOCKHEED MARTIN U.S.	178
L'ORÉAL FRANCE	379
LOTTE SHOPPING SOUTH KOREA	431
LOUIS DREYFUS NETHERLANDS	182
LOWE'S U.S.	122
LUFTHANSA GROUP GERMANY	303
LUKOIL RUSSIA	102
LYONDELLBASELL INDUSTRIES NETHERLANDS	374
MACY'S U.S.	425
MAERSK GROUP DENMARK	298
MAGNA INTERNATIONAL CANADA	290
MANULIFE FINANCIAL CANADA	250
MAPFRE GROUP SPAIN	426
MARATHON PETROLEUM U.S.	160
MARUBENI JAPAN	116
MASSACHUSETTS MUTUAL LIFE U.S.	270
MAZDA MOTOR JAPAN	367
MCDONALD'S U.S.	436
MCKESSON U.S.	11
MEDIPAL HOLDINGS JAPAN	381
MEDTRONIC IRELAND	377
MEIJI YASUDA LIFE INSURANCE JAPAN	297
MERCANTIL SERVICIOS FINAN. VENEZUELA	442
MERCK U.S.	255
METLIFE U.S.	128
METRO GERMANY	123
MICHELIN FRANCE	466
MICROSOFT U.S.	69
MIDEA GROUP CHINA	450
MIGROS GROUP SWITZERLAND	385
MITSUBISHI JAPAN	145
MITSUBISHI CHEMICAL HOLDINGS JAPAN	349
MITSUBISHI ELECTRIC JAPAN	262
MITSUBISHI HEAVY INDUSTRIES JAPAN	294
MITSUBISHI UFJ FINANCIAL GROUP JAPAN	164
MITSUI JAPAN	249
MIZUHO FINANCIAL GROUP JAPAN	357
MONDELEZ INTERNATIONAL U.S.	421
MORGAN STANLEY U.S.	267
MORRISON (WM.) SUPERMARKETS BRITAIN	498
MS&AD INSURANCE JAPAN	188
MUNICH RE GERMANY	109
NATIONAL AUSTRALIA BANK AUSTRALIA	405
NATIONAL GRID BRITAIN	491
NATIONWIDE U.S.	254
NEC JAPAN	437
NESTLÉ SWITZERLAND	64
NEW CHINA LIFE INSURANCE CHINA	497
NEW YORK LIFE INSURANCE U.S.	243
NIKE U.S.	331
NIPPON LIFE INSURANCE JAPAN	111
NIPPON STEEL & SUMITOMO METAL JAPAN	228
NIPPON TEL. & TEL. JAPAN	50
NISSAN MOTOR JAPAN	44
NOBLE GROUP CHINA	205
NOKIA FINLAND	415
NORTHROP GRUMMAN U.S.	440
NORTHWESTERN MUTUAL U.S.	378
NOVARTIS SWITZERLAND	186
OLD MUTUAL BRITAIN	422
ONEX CANADA	474
ORACLE U.S.	280
ORANGE FRANCE	210
PACIFIC CONSTRUCTION GROUP CHINA	89
PANASONIC JAPAN	110
PEGATRON TAIWAN	296
PEMEX MEXICO	152
PEOPLE'S INSURANCE CO. OF CHINA CHINA	114
PEPSICO U.S.	131
PERTAMINA INDONESIA	289
PETROBRAS BRAZIL	75
PETRONAS MALAYSIA	184
PEUGEOT FRANCE	140
PFIZER U.S.	173
PHILIP MORRIS INTERNATIONAL U.S.	406
PHILLIPS 66 U.S.	96
PHOENIX PHARMAHANDEL GERMANY	403
PING AN INSURANCE CHINA	39
POSCO SOUTH KOREA	208
POSTE ITALIANE ITALY	285
POWERCHINA CHINA	190
POWER CORP. OF CANADA CANADA	266
PROCTER & GAMBLE U.S.	98
PROGRESSIVE U.S.	464
PRUDENTIAL BRITAIN	56
PRUDENTIAL FINANCIAL U.S.	148
PTT THAILAND	192
PUBLIX SUPER MARKETS U.S.	308
QUALCOMM U.S.	460
QUANTA COMPUTER TAIWAN	390
RABOBANK NETHERLANDS	472
RAJESH EXPORTS INDIA	295
RANDSTAD HOLDING NETHERLANDS	477
RAYTHEON U.S.	449
RELIANCE INDUSTRIES INDIA	203
RENAULT FRANCE	157
REPSOL SPAIN	306
RIO TINTO GROUP BRITAIN	316
RITE AID U.S.	325
ROCHE GROUP SWITZERLAND	169
ROSNEFT OIL RUSSIA	158
ROYAL AHOLD DELHAIZE NETHERLANDS	165
ROYAL BANK OF CANADA CANADA	304
ROYAL DUTCH SHELL NETHERLANDS	7
ROYAL PHILIPS NETHERLANDS	375
RWE GERMANY	195
SABIC SAUDI ARABIA	299
SAIC MOTOR CHINA	41
SAINSBURY (J.) BRITAIN	310
SAINT-GOBAIN FRANCE	225
SAMSUNG C&T SOUTH KOREA	447
SAMSUNG ELECTRONICS SOUTH KOREA	15
SAMSUNG LIFE INSURANCE SOUTH KOREA	413
SANOFI FRANCE	240
SAP GERMANY	443
SBERBANK RUSSIA	232
SCHLUMBERGER U.S.	388
SCHNEIDER ELECTRIC FRANCE	399
SEARS HOLDINGS U.S.	489
SEVEN & I HOLDINGS JAPAN	167
SHAANXI COAL & CHEMICAL INDUSTRY CHINA	337
SHAANXI YANCHANG PETROLEUM CHINA	326
SHANDONG ENERGY GROUP CHINA	372
SHANDONG WEIQIAO PIONEERING CHINA	159
SHANGHAI PUDONG DEVEL. BANK CHINA	245
SHANXI COKING COAL GROUP CHINA	433
SHANXI JINCHENG ANTHRACITE COAL CHINA	476
SHANXI LUAN MINING GROUP CHINA	448
SHENHUA GROUP CHINA	276
SIEMENS GERMANY	66
SINOCHEM CHINA	143
SINOMACH CHINA	334
SINOPEC GROUP CHINA	3
SINOPHARM CHINA	199
SK HOLDINGS SOUTH KOREA	95
SNCF FRANCE	317
SOCIÉTÉ GÉNÉRALE FRANCE	108
SODEXO FRANCE	484
SOFTBANK GROUP JAPAN	72
SOMPO HOLDINGS JAPAN	340
SONY JAPAN	105
SSE BRITAIN	269
STANDARD LIFE BRITAIN	432
STATE BANK OF INDIA INDIA	217
STATE FARM INSURANCE COS. U.S.	85
STATE GRID CHINA	2
STATE POWER INVESTMENT CHINA	368
STATOIL NORWAY	207
SUBARU JAPAN	352
SUMITOMO JAPAN	282
SUMITOMO ELECTRIC INDUSTRIES JAPAN	420
SUMITOMO LIFE INSURANCE JAPAN	242
SUMITOMO MITSUI FINANCIAL GROUP JAPAN	202
SUNING COMMERCE GROUP CHINA	485
SUZUKI MOTOR JAPAN	373
SWISS RE SWITZERLAND	220
SYSCO U.S.	179
TAIWAN SEMICONDUCTOR TAIWAN	369
TALANX GERMANY	302
TARGET U.S.	107
TATA MOTORS INDIA	247
TECH DATA U.S.	412
TELECOM ITALIA ITALY	493
TELEFÓNICA SPAIN	153
TENCENT HOLDINGS CHINA	478
TESCO BRITAIN	92
TESORO U.S.	453
TEVA PHARMACEUTICAL INDUSTRIES ISRAEL	496
TEWOO GROUP CHINA	129
3M U.S.	361
THYSSENKRUPP GERMANY	224
TIAA U.S.	278
TIME WARNER U.S.	371
TJX U.S.	321
TOKIO MARINE HOLDINGS JAPAN	193
TOKYO ELECTRIC POWER JAPAN	185
TORONTO-DOMINION BANK CANADA	351
TOTAL FRANCE	30
TOYOTA MOTOR JAPAN	5
TRAFIGURA GROUP SINGAPORE	54
TRAVELERS COS. U.S.	394
TUI GERMANY	499
TWENTY-FIRST CENTURY FOX U.S.	396
TYSON FOODS U.S.	283
UBS GROUP SWITZERLAND	291
ULTRAPAR HOLDINGS BRAZIL	487
UNICREDIT GROUP ITALY	328
UNILEVER BRITAIN/NETHERLANDS	150
UNIPER GERMANY	91
UNITED CONTINENTAL HOLDINGS U.S.	287
UNITEDHEALTH GROUP U.S.	13
UNITED PARCEL SERVICE U.S.	138
UNITED SERVICES AUTO. ASSN. U.S.	401
UNITED TECHNOLOGIES U.S.	155
U.S. BANCORP U.S.	481
US FOODS HOLDING U.S.	475
U.S. POSTAL SERVICE U.S.	99
VALE BRAZIL	370
VALERO ENERGY U.S.	106
VEOLIA ENVIRONNEMENT FRANCE	404
VERIZON COMMUNICATIONS U.S.	32
VINCI FRANCE	227
VODAFONE GROUP BRITAIN	149
VOLKSWAGEN GERMANY	6
VOLVO SWEDEN	301
WALGREENS BOOTS ALLIANCE U.S.	37
WAL-MART STORES U.S.	1
WELLS FARGO U.S.	61
WESFARMERS AUSTRALIA	198
WESTON (GEORGE) CANADA	293
WESTPAC BANKING AUSTRALIA	391
WILMAR INTERNATIONAL SINGAPORE	239
WOOLWORTHS AUSTRALIA	218
WORLD FUEL SERVICES U.S.	402
WUCHAN ZHONGDA GROUP CHINA	348
XIAMEN C&D CHINA	488
XIAMEN ITG HOLDING GROUP CHINA	494
XINJIANG GUANGHUI INDUSTRY CHINA	495
XINXING CATHAY INTERNATIONAL CHINA	322
YANGO FINANCIAL HOLDING CHINA	459
YANGQUAN COAL INDUSTRY GROUP CHINA	445
ZF FRIEDRICHSHAFEN GERMANY	263
ZHEJIANG GEELY HOLDING GROUP CHINA	343
ZURICH INSURANCE GROUP SWITZERLAND	112

CITIES OF GOLD

THE RICH CONTINUE to get richer—and at a faster rate. Global private financial wealth increased by 5.3% to $166.5 trillion last year, according to the Boston Consulting Group. That compares with a 4.4% gain the year before. Some 45% of that $166.5 trillion is held by 18 million millionaire households worldwide. The number of such households in Asia is growing fast. But the U.S. still has the largest share, with more than 7 million millionaire households vs. 2.1 million in China. To see where wealth is concentrated in the U.S., we plotted data from Phoenix Marketing International showing households with more than $5 million in assets by urban area. —BRIAN O'KEEFE

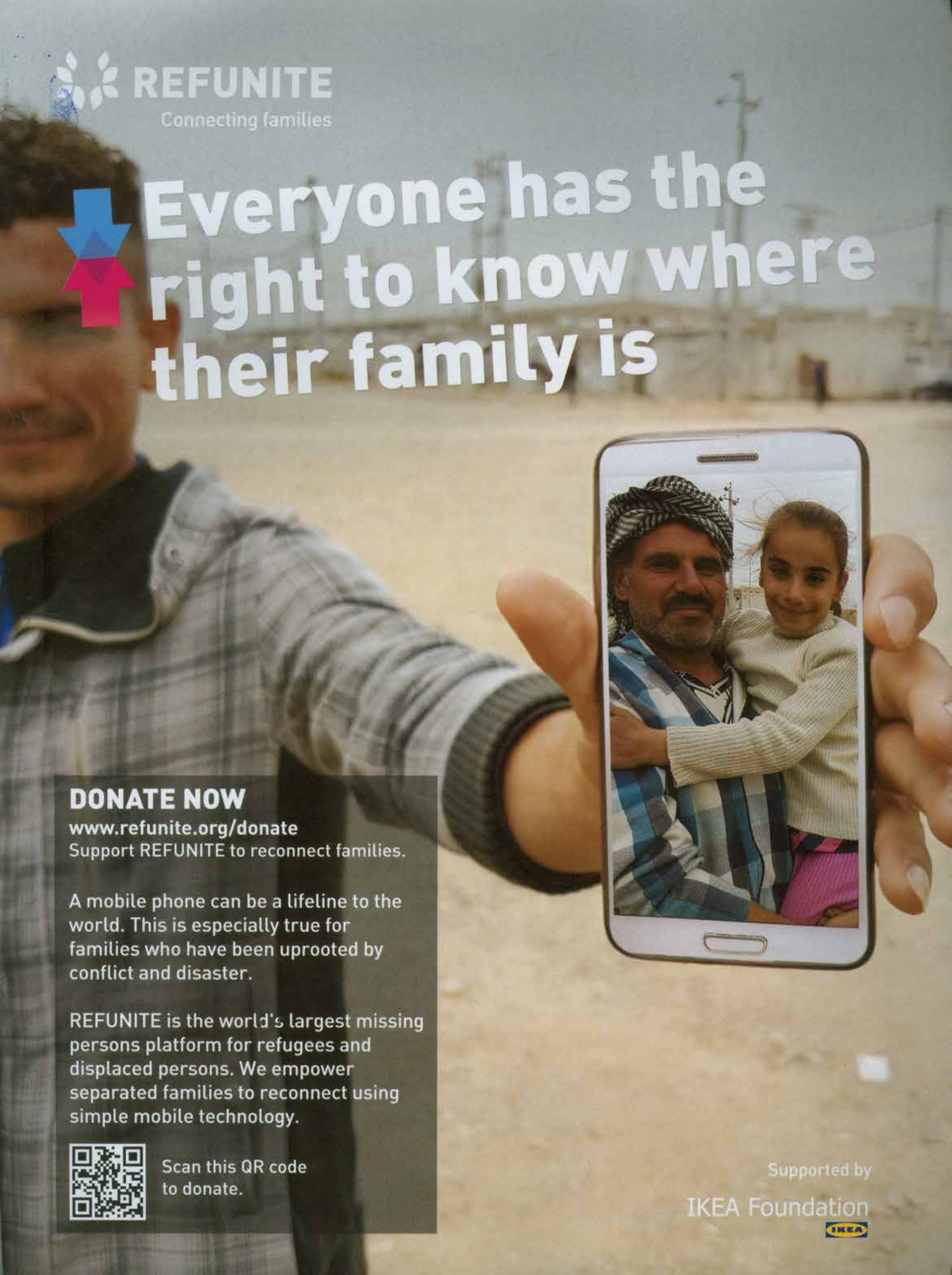
GLOBAL PRIVATE FINANCIAL WEALTH



SOURCE: **PHOENIX MARKETING INTERNATIONAL**, DATA ORGANIZED BY U.S. CENSUS-DEFINED CORE-BASED STATISTICAL AREAS

GRAPHICS BY **NICOLAS RAPP**

31 ก.ค. 2560


REFUNITE
Connecting families
Everyone has the right to know where their family is
DONATE NOW
www.refunite.org/donate
Support REFUNITE to reconnect families.
A mobile phone can be a lifeline to the world. This is especially true for families who have been uprooted by conflict and disaster.
REFUNITE is the world's largest missing persons platform for refugees and displaced persons. We empower separated families to reconnect using simple mobile technology.
Scan this QR code to donate.
Supported by
IKEA Foundation
IKEA

Exploration never stops at failure

Perseverance enables the commitment to build the foundation for future technology

HUAWEI