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SPECIAL DOUBLE ISSUE



THE



GOOD



BECAUSE 2016
NEEDS SOME
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ISSUE** p53

**“MOTHER
NATURE HAS
A VERY BITCHY
UNDERSIDE”** p54

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How the cover gets made

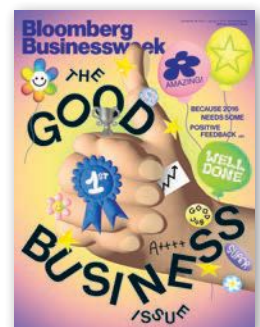
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"This is our end-of-the-year Good Business Issue."

"I thought the end of this year would never come. I'm mentally, emotionally, and physically exhausted. Anxiety has become the norm for me. Day after day, reading headline after terrible headline—and I haven't had a good night's sleep in months. It's as if every ounce of positivity has been sucked out of me and into the black hole that is 2016. Does the Good Business Issue assure us that next year will be better?"

"No, but there is a story on wolf conservation."

"Wolves are so cute!"





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Opening Remarks

Silicon Valley's New Reality Show

By Brad Stone

6

The industry had a monumental 2016, but now it has to deal with the Trump disruption

On Sept. 12, 2016, there was a momentary realignment in the constellation of global business. For the first time, the five largest public corporations in the world by market capitalization were all technology companies: Apple, Alphabet, Microsoft, Amazon.com, and Facebook. The celestial anomaly lasted only seven weeks, because of the rise in oil prices and natural vicissitudes of the stock market, which eventually propelled ExxonMobil and Berkshire Hathaway past Facebook and Amazon. But it's easy to conclude that a portal had opened briefly to the future—a future in which Silicon Valley dominates everything.

Like so much of 2016, the moment surprised a lot of onlookers. But while it was a bad year for prognosticators, it was by and large a very good year for high tech. If you put aside exploding Samsung smartphones, the massive hacks at Yahoo!, fake news on Facebook, and all the business implications of a Donald Trump presidency, the tech industry produced some astounding results in 2016—and not just of the financial variety.

In January, the Alphabet division DeepMind announced it had developed a computer program capable of beating the best human players in the intricate Chinese board game Go. In April, after repeated failures, SpaceX successfully landed an unmanned rocket on a drone ship floating in the Atlantic Ocean. In August, Uber's self-driving cars hit the road in Pittsburgh; two months later, Microsoft said computers were transcribing speech as quickly and accurately as humans. And in December, Amazon announced it had conducted its first commercial delivery via drone, sending a set-top box and some popcorn to a customer near Cambridge, England.

Each advance carried the whiff of corporate stagecraft, but taken together they suggested the inexorable migration of software and machine intelligence into the real world, where they're destined to transform industries and augment or replace people. "When properly deployed, machines can now outthink humans," says Chamath Palihapitiya, a venture capitalist and former Facebook executive. "This was not a concept that was well-defined even back in 2015."

Big business used to be shielded from Silicon Valley's full impact by the industry's boom and bust cycles. Yet despite repeated predictions of doom by skeptics, this time no tech bubble has popped, after eight years of robust growth. The

Bloomberg U.S. Startups Barometer, a measure of the overall fitness of private technology companies, which considers factors such as venture capital investment and mergers and acquisitions, is up 14 percent since the beginning of the year, a sign of relative health.

Some stars have fallen (blood-testing company Theranos, anyone in app-enabled food delivery), but if anything, the pump is primed for more tech company dominance and more rapid change. The few initial public offerings this year are likely to be followed by a slew in 2017, with a planned Snapchat IPO in the spring leading the way for other candidates such as the music service Spotify and cloud companies Dropbox, Cloudera, and Okta. Making the soil even more fertile, anxious older companies stand ready to snatch up these upstarts. We've seen the beginning of this, with Unilever buying Dollar Shave Club for \$1 billion in July and Walmart acquiring wobbly e-commerce upstart Jet.com for \$3 billion in August, among other deals.

Technology's transformation of society actually seems to be speeding up. And now we know where it all leads: to the 25th floor of Trump Tower, and a central spot in the national dialogue over an evolving economy, with all its accompanying winners and losers.

"Tech Gods to Tower!" blared the *Drudge Report* just as Tim Cook, Jeff Bezos, Larry Page, and 10 other tech executives somberly passed the press gantlet to meet with the president-elect. The changes wrought by tech may not have been among the top voter grievances, but they're certainly destined to get there. Technology creates massive opportunities but has a deflationary impact as employers do many times the work with substantially fewer employees. (Consider that Alphabet employs 962 people per \$1 billion of revenue, while Ford employs 1,427 per \$1 billion.) So naturally, the chieftains of Silicon Valley have come to be viewed not only as agents of innovation but also of destruction, capable of undermining a comfortable, Middle American way of life.

Trump's election was the ultimate wake-up call for Silicon Valley. In a way it largely wasn't before, the tech community in 2016 was asked repeatedly to grapple with its broader role in society—not only with the secondary effects of its products but also its own easy characterization as a villain in an age of displacement and stagnation. "It's very telling that Trump happened over

the tech industry's almost unanimous objection," says Eric Ries, author of *The Lean Startup* and the founder of the Long-Term Stock Exchange, a company that aims to create incentives other than immediate profits for public corporations. "We were so confident that our preference would win out that we did not take an all-hands-on-deck attitude. The result has been regret and soul-searching."

This was most evident in the dust-up over fake news, which revealed once again the flaws in the thinking behind "neutral platforms," which treats all content equally as long as users find it engaging. Silicon Valley's instincts when it comes to taking responsibility for the impact of these technologies have often been bad. "I think the idea that fake news on Facebook...influenced the election in any way is a pretty crazy idea," said Mark Zuckerberg at an industry conference after the election. The statement was widely derided, considering the mind-blowing readership for such stories, and in mid-December Facebook reversed course and introduced measures to combat fake news, including partnerships with fact-checking websites such as Snopes.com and PolitiFact. (German lawmakers are

currently considering a law that would fine Facebook €500,000, or \$520,000, each time a fake news post isn't deleted within 24 hours.) Zuckerberg's comment also called to mind other tone-deaf tech proclamations, such as Alphabet's Page opining that in a future with capable robots, people could simply work less, or Uber's Travis Kalanick talking happily about getting rid of the "other dude" in the car (aka the cabbie) to keep fares low.

Technologists are ascendant now, and in the year ahead the Valley will have to refine both its rhetoric and beliefs, particularly with a president who's predisposed to turning companies into targets of populist animus. That extends to how it collects and protects its customers' data. Companies such as Alphabet and Facebook built enormous businesses out of gathering every piece of digital miscellanea about their customers to better serve them content and ads. As we've already seen from candidate Trump's criticism of Apple after it resisted helping to unlock the iPhone used by the terrorists in the San Bernardino, Calif., attack a year ago, President Trump is likely to grab for that data and think little of liberty and privacy when they're seen as

Technological achievements are important. Social responsibility is too

obstacles to national security. "A president who prides himself on changing all the rules and throwing away the established norms is going to look at that data trove and correctly say, 'if I had that data I would do a better job securing the nation,'" says Orion Hindawi, chief executive of data security company Tanium.

Silicon Valley is engaged in many idealistic pursuits, such as creating tools to treat disease, finding better ways to care for the elderly, and improving car, train, and air travel. But it can't mistake these noble efforts as solutions for the real negative side effects of its dominance. For years it was fashionable, even necessary, for tech companies to be an agnostic conduit for all flavors of web traffic, news, ads, and politics. It's now apparent, in demands that they pledge to refuse to build a Muslim registry, for example, that the old neutrality will no longer fly. This is the price of primacy: Silicon Valley is going to have to take a stand. **E**



Donald Trump's New World Disorder

The post-World War II global order is a great U.S. achievement. It should not be imperiled



President-elect Donald Trump has made a point of shaking things up. In domestic policy, this taste for disorder is risky. In foreign policy, it could be calamitous.

It's early to be drawing conclusions, but concern is warranted. Trump rejects the status quo in America's relations with the rest of the world and seems to see global stability as a kind of national surrender.

An early indication of Trump's approach to international relations is his intervention on Taiwan. It's already discomfiting that he abandoned, even before taking office, the delicate balance that governs U.S.-China relations with respect to Taiwan by accepting a call from Taiwan's president. More striking is what Trump said next. In effect, he asked: "Why should the U.S. accommodate China's wishes on this subject if China refuses to deal fairly with the U.S. on trade?"

In short, Trump is proposing to connect trade policy to an issue of great-power politics over which China may be willing to go to war. Stir things up to get better deals. (The implication that the U.S. will have nothing to say on Taiwan so long as Beijing gives Trump a trade deal he likes is disturbing in its own right.) This kind of thinking leads nowhere good.

The world order designed and built by the U.S. after 1945 has served American and global interests better than anyone dared hope. A widening zone of democracy, avoidance of direct superpower conflicts, the fall of communism, and a liberal system of global trade have hugely benefited the U.S. and an expanding sphere of its partners. This remarkable achievement isn't a state of nature. The postwar order was deliberately constructed and must now be carefully maintained.

One way this stability has been preserved is by separating points of contention and limiting the extent of possible quarrels. If every dispute between the U.S. and another country implicates every realm of policy, maintaining stability becomes that much harder. Disagreements are apt to escalate, conceivably

to the point of military conflict. That's why it makes sense, for instance, to keep trade policy separate from arguments over borders or sovereignty.

This isn't to say that all is well with the world or that stability is everything. Trump owes his victory, at least in part, to his ability to exploit a gnawing sense among many Americans that the system isn't working for them, and he has an obligation to address their concerns. Sometimes the price of stability is too high. For instance, the problem posed by Iran and its nuclear ambitions has been shelved rather than solved.

There's a difference, however, between recalibrating the international order and upending it. If Trump wants to make America great again, he'll need to strengthen, not undermine, America's greatest achievement.

The Private Lives Of Fannie and Freddie

Getting government out of the two entities that define America's mortgages is a delicate task

One of most economically consequential challenges of the incoming Trump administration is what to do with Fannie Mae and Freddie Mac, the government-controlled entities that own or guarantee about half of all U.S. home mortgages. Donald Trump's pick for Treasury secretary, Steven Mnuchin, has said he wants to put housing finance back into private hands. Sensible as the goal may be, the hard part will be getting there.

Fannie and Freddie illustrate how slippery the term "private" can be. The two operated as privately owned corporations for decades, albeit with a congressional mandate to promote access to mortgage credit. Mortgages as Americans know them—with 30-year fixed-interest rates, no penalty for early repayment, and the ability to lock in a rate before buying a home—depend on Fannie's and Freddie's willingness to buy loans from banks, package them into standardized securities, and guarantee payments of interest and principal. Fannie and Freddie generated ample profits for shareholders and gained a dominant position thanks in large part to the expectation that the government would rescue them in an emergency. That perception proved correct in 2008, and they have been wards of the state ever since.

In the past few years, Fannie and Freddie have been selling a new kind of security that transfers risk to private investors. If this were expanded to provide ample capital, the government could then charge a small fee for taking on the bit of risk that no private institution can credibly bear: providing a backstop only in a truly catastrophic crisis.

A poorly designed reform, by contrast, could discredit the very idea of privatization. If, for example, the government transferred Fannie's and Freddie's business to undercapitalized banks, the outcome would be all too familiar: Private shareholders would reap the gains in good times, and taxpayers would be on the hook when the losses subsequently materialized. **B**

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Movers

By Kyle Stock



\$35b

▲ **China critic Peter Navarro will run the newly created National Trade Council.** Donald Trump announced. The advisory body will focus on boosting U.S. manufacturing and jobs.

▲ Nike said profit in the recent quarter rose a better-than-expected 7 percent, to **\$842m** thanks to more direct-to-consumer sales and a batch of **self-lacing sneakers that cost \$720 a pair.**



Ups

▲ Volkswagen agreed to a **\$1 billion plan to buy back or fix 80,000 U.S. cars** with larger diesel engines designed to cheat emissions tests. The cars—mostly Audis and Porsches—weren't part of its earlier \$15 billion settlement.

▲ The U.S. and Canada agreed to **indefinitely ban offshore oil and gas drilling** along much of the Atlantic and Arctic coasts.

Coca-Cola bought AB InBev's share of a joint bottling venture in Africa **\$3.2b**

Allergan, the maker of Botox, bought LifeCell, a specialist in regenerative tissues **\$2.9b**

Microsoft won a contract to provide IT services at the Pentagon **\$927m**

▲ Praxair is buying Linde to create **the world's largest supplier of industrial gases.** The purchase price is almost one-third higher than when the companies started discussions in August. Linde agreed to the deal only after Praxair, which is based in the U.S., promised to preserve jobs in Germany.

▲ **The U.S. dollar surged to a 14-year high** after Federal Reserve Chair Janet Yellen made bullish comments about the U.S. labor market.



▲ Walt Disney became the first moviemaker to collect **\$7b** in annual ticket sales globally. **It was responsible for four of this year's five top-grossing films,** including the No. 1 movie: *Captain America: Civil War.*

Nielsen picks up Tribune Media's Gracenote, which scrapes metadata from cars, computers, and TVs **\$560m**

Rite Aid sold hundreds of stores to Fred's to ease its own takeover by Walgreens **865**

Downs



"I never got any warning, in any way or from anyone, so I took decisions, and I take responsibility for my decisions."

▼ **IMF Managing Director Christine Lagarde** was found guilty in a French court on Dec. 19 of negligence for failing to block a payout while she was France's finance minister. She wasn't sentenced to any punishment.

Odebrecht, a Brazilian construction company, and affiliate Braskem paid to settle a global bribery case **\$3.5b**

Swiss regulators fined eight banks, including Citigroup and JPMorgan Chase, for Libor rigging **\$96.3m**

Uber posted a third-quarter loss, as it continued its land-grab strategy **\$800m**

Boeing prepares an 8 percent reduction in its jetliner workforce **6,600**

General Motors laid off Michigan workers as car sales slow **1,300**

▼ **Swiss watches are on track for their worst year since 1984.**

Blame a strong Swiss franc and increasingly frugal Asian tourists.

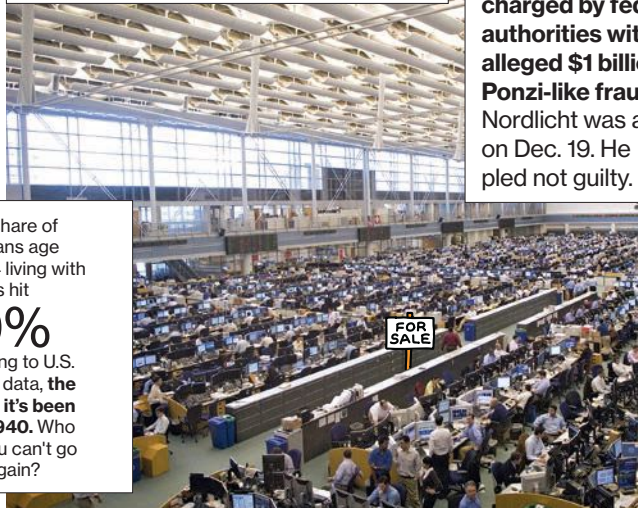
▼ Limited Stores retained a legal adviser in preparation for a possible bankruptcy filing. **The struggling retailer is expected to liquidate;** its web page warned that all sales are final.

▼ **Seven executives at bankrupt Platinum Partners were charged by federal authorities with an alleged \$1 billion Ponzi-like fraud.** Founder Mark Nordlicht was among those arrested on Dec. 19. He pled not guilty.

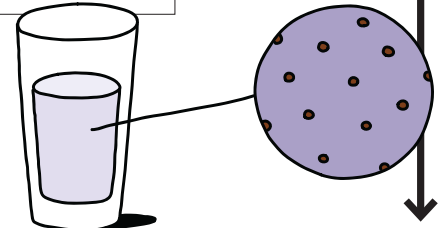


▼ Michigan's attorney general filed criminal charges against four more people in an **ongoing investigation of lead-tainted water in Flint, Mich.** All told, the state is pursuing cases against **13** officials.

▼ The share of Americans age 18 to 34 living with relatives hit **40%** according to U.S. Census data, **the highest it's been since 1940.** Who says you can't go home again?



▼ **A distressed \$149.4 million loan that backed UBS's giant trading-floor complex** in Stamford, Conn., is up for sale. CWC Capital Asset Management, the servicer that controls the defaulted mortgage on the property, which now stands vacant, has put the loan on the market.



Israel's Cutting-Edge CSR Environment

Alex Delaney talks with Strategic Affairs Minister **Gilad Erdan**, MK, ahead of The Israeli CSR Experience conference



As Israel's Strategic Affairs Minister, why do you believe that CSR is strategically important to Israel?

I believe that corporate social responsibility [CSR] is critical to our economic success and growth. We are a relatively small country with few natural resources, but we have two key strengths: an extremely diverse population, and an innovative business culture with more startups per capita than any other country. To succeed, we must fully integrate our diverse society into our high-tech economy.

Our small size and low rainfall makes protecting the environment and sustainable water management critical. Israel now recycles 85 percent of its wastewater. That's four times higher than any other country in the world.

Can you give an example of how you are encouraging workforce diversity?

We are investing heavily in sectors that have been historically underrepresented in the workforce. One example is women from the Bedouin community. We are working with that community to find ways to employ and empower women while respecting cultural sensitivities. One solution we found was to open up an all-women call center housed inside of a local mosque.

This is just one example. Over the past 10 years we have managed to

increase the workforce participation of Arab women by 33 percent. There is still much to be done, but we are moving in the right direction.

What impact have Israel's CSR innovations had beyond Israel's borders?

One of the outstanding characteristics of our startup culture is that it isn't focused only on creating profitable companies, but equally on solving the world's most pressing problems. For example, Israel's cutting-edge sustainable water technologies are improving water quality around the world, from Argentina to India, Azerbaijan and California. Israeli medical devices are helping to prevent the spread of HIV among men in 16 African countries, while Israeli solar technologies are connecting rural villages to electricity in Ethiopia, Tanzania, Malawi and Uganda.

The Middle East is going through a turbulent period. What impact can Israeli CSR have on the region?

Firstly, Israel remains an island of stability and high investor confidence in the region. Foreign direct investment increased last year by 71 percent. In fact, Israel consistently has the highest ratio of venture capital as a share of GDP among all OECD countries.

Secondly, I believe that in our region, CSR can live up to its loftiest ideals. Businesses can serve not only as a force

for social good, but as a catalyst for coexistence and peace. This is true both with regard to Israel's Jewish and Arab sectors, and with regard to Israelis and Palestinians.

One of the top priorities of the current government is to advance social and economic equality between the Arab and Jewish sectors. In addition to the Strategic Affairs ministry, I also hold the Public Security portfolio, and am responsible for the Israeli police. The police force can be a key player in advancing integration and social cohesion. That's why I'm investing millions in a multi-year plan to dramatically increase the number of Israeli Arab police officers. More broadly, we recently allocated \$3.85 billion to improving education, transportation and housing in the sector.

Businesses can be a key bridge to a lasting Israeli-Palestinian peace, as well. ▶



maala CSR
INTERNATIONAL CONFERENCE
ISRAEL

Joint Israeli-Palestinian industrial parks are islands of peace in an often tense region.

I recently visited the Barkan Industrial Park, where 20,000 Israelis and Palestinians work shoulder to shoulder. I spoke with one of the Palestinian factory managers who oversees both Israelis and Palestinians, who explained that the employees park politics at the door and focus on their common goals. He also noted that thousands of Palestinians benefit from these parks, since the wages and benefits are far better than those in the Palestinian Authority.

In order to move toward a true peace, we must build mutual understanding and respect. Businesses can be bridges for bringing people together.

How does Israel see its relationship with the international CSR community?

We are committed to the values of transparency and engagement, and are very interested in a constructive and professional dialogue with the international CSR community.

Unfortunately, certain extremist groups opposed to Israel's very existence have explicitly identified CSR as an arena in which to push their political anti-Israel agenda. However, in my conver-

sations with the CSR leaders during the Israeli CSR conference, I was heartened by their commitment to a constructive exchange. They made it clear that their goal was to promote dialogue rather than divestment, and positive CSR outcomes rather than negative political campaigns, which do nothing but harm Palestinians and the chances for peace. We look forward to continuing the conversation, while sharing our world-leading CSR innovations.

The Israeli CSR Experience: Corporate Citizenship in the Startup Nation

Corporate citizenship is surging in Israel, which is now ranked among the top 20 countries globally for social innovation, and No. 1 in the Middle East, according to sector specialist Maala at Israel's first international CSR conference, The Israeli CSR Experience.

The standard-setting NGO highlighted the growth of local CSR initiatives by noting that the community in Israel now represents a third of the country's entire GDP.

The two-day conference, held on Nov. 30–Dec. 1 in Tel Aviv, featured a medley of renowned international speakers from the world's leading organizations and companies. Domestic representation included local divisions of global corporations, such as Intel, 3M and Unilever, alongside Israeli CSR leaders.

Momo Mahadav, Chief Executive of Maala, said that Israel's experience in the field of CSR was unique and progressive in several ways. He noted that the country tends to focus on domestic social issues, while being somewhat less vocal on international issues such as climate change. Mahadav suggested that this development may be the result of a strong ethos of social solidarity and activism within Israel.

The first day of the conference featured discussions concerning many CSR goals, including: gender parity; the importance of having essential links between business, education and the government; how local economies can be strengthened via the supply chain; and how companies can further diversify their workforce.

Conference organizers did not simply offer presentations and talks; participants were also able to experience ▶

◀ social innovation in the making through numerous field tours held on Day 2, conducted in cooperation with Maala and the TEVET Employment Initiative, a joint venture between JDC and the Israeli government.

On the second day of the conference, participants ventured on field tours to explore firsthand several of the nation's progressive business-led social and sustainability projects.

On a tour of a desalination facility in Ashdod operated by **Mekorot** (Israel's national water company), delegates learned of ultrafiltration, the reverse osmosis technique used to convert seawater and other desalination technologies. These techniques have enabled Israel to overcome a severe shortage of drinking water.

The organization now works with companies in various countries and

A Tour Around Groundbreaking Innovations in Sustainability

regions with similar climates, including Cyprus, California, India and Uganda, assisting them with effective water recycling practices and desalination technologies.

Netafim, pioneer of drip and micro-irrigation, is another Israeli enterprise addressing water issues that started by providing innovative solutions for domestic needs. The company's advanced products and practices for agricultural

irrigation and crop management, landscape water management and mining applications, for example, are now used worldwide.

On the tour of Israel's southern city of Ashdod, conference attendees visited **The Kitchen**, a FoodTech Hub initiated by **Strauss Group**, de-

veloped in collaboration with the Israeli Chief Scientist.

The Kitchen is an incubator that makes investments in early-stage,

pioneering technological initiatives that address global food challenges.

On a tour of **Hadera Paper**, participants were introduced to "the world's most environmentally recycled paper." This innovative 100 percent recycled product not only addresses the sustainability challenges of paper production, but also dramatically reduces the substantial environmental footprint of paper recycling by eliminating some of its wasteful and harmful processes.

The next phase of Israeli innovation in sustainability is emerging in the building and construction sector. **Shikun & Binui** is fostering an innovation community to participate in the planning and building of infrastructure for future cities through its **BuildUp** project.

Israel's sustainable innovations were designed first and foremost to meet the challenges of a modern Western democracy located in the Middle East, and they have gone on to make a major impact around the world. These innovations are helping both developed and developing countries meet the U.N.'s Sustainable Development Goals to end poverty, protect the planet and promote prosperity for all.

"Innovations are helping both developed and developing countries"

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Israeli Minister of Strategic Affairs and Public Security, Gilad Erdan

The Price of Greatness Is Responsibility

In his opening remarks to the conference, Israeli Minister of Strategic Affairs and Public Security, **Gilad Erdan**, a co-sponsor of the event, together with around 20 global and Israeli companies, quoted the former British Prime Minister, Winston Churchill, saying, "The price of greatness is responsibility."

He noted that, in many ways, the international business community is today the world's leading community, with responsibility for the triple bottom line: People, Planet and Profit. In Israel, he suggested, the business community can contribute to a fourth "P"—Peace—

by paving the way toward overcoming distrust, increasing understanding and bringing people together.

The reference to Israel's geopolitical situation was echoed by **Ulrika Hasselgren**, Global Head of Responsible Investment Strategy and ESG Integration at ISS. Since Israel is located in a complex region with regard to ESG factors, she stated that the best way for global CSR consulting firms to lead is to maintain a sustained and open dialog with Israeli companies, and to come to Israel in order to meet these companies face-to-face.

Key Messages from the Conference



Peder Michael Pruzan-Jorgensen, Senior Vice President at BSR for Europe, the Middle East and Africa, said it is becoming increasingly apparent that socioeconomic issues in Europe and the U.S. require the attention of the CSR community.

Leading companies in consumer, financial services, transportation, healthcare and energy sectors all have a role to play.



Ulrika Hasselgren, Global Head of Responsible Investment Strategy and ESG Integration at ISS, said that the best way for global CSR consulting firms to help Israel's complex geopolitical situation is to maintain a sustained and open dialog with its companies.

Hasselgren's message to CSR specialists was clear: Come to Israel and meet its business community face-to-face.



Professor David Grayson, Director at the new Doughty Centre for Corporate Responsibility at Cranfield University, said that one of the most urgent CSR issues that has been identified in the U.K. are the often hidden, struggling population known as JAMs—people who are “just about managing.” He said responsible businesses must find ways to address this issue to maintain high standards of living.

How Do You See Social Innovation?

Israeli CSR activity is characterized by a strong focus on societal challenges. These initiatives became a central feature of Day 2 at The Israeli CSR Experience International Conference.

Maala, Israel's leading CSR organization and the conference organizer, noted that the country's size allowed for faster impact and greater visibility of change, making Israel a good learning ground for international corporations.

Israel's great challenge with regard to inclusion is related to the minority populations that are an integral part of its social texture, such as Israeli Arabs (Muslims and Christians), Haredi (ultra-orthodox Jews), Druze, Bedouin, Circassians, etc.—rather than migrant populations, which is the more common case around the world.

Workforce diversity is key to these communities being truly integrated into the country's social texture, and this

understanding has generated collaborations between branches of government and businesses in order to invest in several labor force and labor market programs. While there is not yet a reporting obligation with regard to diversity in Israel, the business sector is acting on this issue with a sense of urgency and a commitment to social solidarity.

Tours visited **Ryan Centers** in several cities, which offer employment guidance, vocational training and work placement services to Arab citizens. Tours also explored inclusion in practice at **Amdocs**, with the 180 employees at its Galilee hub in Nazareth representing the full cultural spectrum of Israel.

Other destinations included **Bank Hapoalim's Learning and Development Center**, which implements advanced integration programs, and the **Dan Caesarea Hotel**, part of the **Dov Lautman Diversity in Business**

Award-winning **Dan Hotels** chain, which promotes a progressive policy of diverse hiring, including senior managerial positions, throughout its network.

Workplace diversity initiatives extend to people with disabilities, as was evident in visits to the written communications department at the **Meitav Dash investment house**, comprised of six hearing-impaired or deaf employees.

In a visit to a chocolate and sweets factory in Nazareth Illit, participants learned about **Strauss Group's** pioneering strategic plan to address the socioeconomic needs of employees coping with the cost of living, and help reduce social disparities.

Taking pride in the success of diversity projects thus far, conference organizers commended this example, illuminating the next stage—and the next great challenge—of social responsibility projects in Israel: improving the social mobility of low-wage employees.



Russia's Deadly Mideast Game

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► **The Kremlin is doing more in the region than bombing Aleppo**

► **Putin uses “small, victorious wars to keep himself popular”**

With its devastating show of force in Syria's civil war, Russia has reasserted itself as a military power in the Middle East. It's also put Russians in the region at mortal risk, as the Dec. 19 assassination of Andrey Karlov, Russia's ambassador to Turkey, proves.

Karlov is a casualty in the Kremlin's quest for power and influence in the region. Karlov's murder—by a gunman who screamed opposition to the siege of the Syrian city of Aleppo before he himself was killed—is likely to draw Ankara and Moscow closer because

of shared security concerns over the spillover of the Syrian conflict.

Vladimir Putin's regional clout goes far beyond Syria, however, and is aimed at restoring the influence that waned after the fall of the Soviet Union. “Russia is really keen to increase leverage in the Middle East by every means,” Fyodor Lukyanov, chairman of Russia's Council on Foreign and Defense Policy, tells Bloomberg News.

Part of the appeal of the Middle East is the chaos that reigns there. Anders Aslund, a senior fellow at the Atlantic Council in Washington who advised the government of former Russian President Boris Yeltsin, says Putin uses “small, victorious wars to keep himself popular”—as in Chechnya in the early 2000s, Georgia in 2008, and the annexation of Crimea in 2014.

U.S. relations with some Gulf nations have cooled, and Russia is finding common ground with energy-dependent Mideast economies by shoring up oil prices. In December, Russia helped negotiate a deal between the Organization of Petroleum Exporting Countries and non-OPEC producers to curb oil production.

The deal, concluded on Dec. 10, involved direct talks between Putin and his Saudi and Iranian counterparts. “Russia's antiterrorist operation in Syria and the success of its mediation with OPEC shows that its influence has grown and the oil-producing nations of the Middle East are paying attention to its views,” says Elena Suponina, a Middle East expert at the Moscow-based Russian Institute for Strategic Studies, which advises the Kremlin.

Separately, Russia on Dec. 10 secured a \$5 billion investment by Qatar in Russian oil giant **Rosneft**, and then had state-controlled Rosneft take a stake in an Egyptian gas field worth as much as \$2.8 billion.

The Qatar deal was notable because the two countries have had a difficult relationship, with Moscow accusing the emirate of sponsoring Islamist terrorism in Syria and in Russia's Chechnya region during a long separatist war there. In early December, though, Qatar's Emir Tamim bin Hamad Al Thani called Putin to talk business,



"Russia's... influence has grown and the oil-producing nations of the Middle East are paying attention."
—Elena Suponina, a Kremlin adviser

even as Russian aircraft bombed Qatar-backed rebels in Aleppo, according to a Kremlin transcript of the call.

Russia's motives are commercial as well as political. The Middle East's liquefied natural gas industry is booming. Rosneft and state giant **Gazprom** want to develop LNG outside Russia, while protecting their market share in Europe by securing control of gas resources from potential competitors. "Both are keen to become global LNG players," says Valentina Kretschmar, director of corporate research at Wood Mackenzie, an Edinburgh-based consulting firm. The Kremlin has built a strong alliance with Egypt through President Abdel Fattah al-Sisi. It's deepened long-standing ties with Iran, which has sided with Russia in the Syrian conflict. Russian companies including Gazprom signed agreements on Dec. 13 with Tehran that could yield billions.

Moscow is anxious to keep Tehran in its orbit to prevent expansion of Western influence in the Caspian Sea region. The area includes Iran and the energy-rich former Soviet republics of Azerbaijan, Kazakhstan, and Turkmenistan, where Russia holds sway, says Nikolay Kozhanov, a Russia-based academic associate for Chatham House, a London think tank. Iran also is an oil and gas producer and potential competitor to Russia in supplying European markets. Putin "is using the judo strategy: Keep your rival close," Kozhanov says.

Putin has been looking for a route back to oil-rich Libya. The Kremlin has been aiding Khalifa Haftar, a military leader who controls a large swath of Libya's territory and most of its oil fields, and who many Libyans and observers fear is trying to wrest control from a United Nations-backed government in Tripoli. Haftar has twice visited Moscow over the past six months; Russia, under a contract with the central bank in Tripoli, printed 4 billion Libyan dinars (\$2.8 billion) and transferred the notes to an eastern city loyal to the military leader.

Russian arms exports to the Middle East and North Africa have been rising,

with sales totaling \$12.7 billion from 2006 to 2015, compared with \$6 billion in the previous decade. Algeria accounted for more than half of sales

in recent years, followed by Syria, Iraq, and Egypt. Russia's opportunities to export to the Gulf remain limited because U.S. security and economic ties are deeply entrenched there. "Russia on no account is trying to supplant the U.S. in the Persian Gulf," says Suponina, of the Russian Institute for Strategic Studies. But, she adds, "there's room for everyone. Bahrain, Saudi Arabia, Kuwait, and the United Arab Emirates already buy Russian weapons."

With its wars and intrigues, the region is a perfect place for Putin to play out his ambitions. Says Aslund, "Putin is perfectly at ease amidst chaos. When most are lost, he is calm." —Carol Matlack and Marc Champion, with Caroline Alexander, Javier Blas, Henry Meyer, and Matthew Philips

The bottom line Russia's involvement in the Middle East ranges from energy deals with Qatar to power politics in Libya.

Rule of Law

In Poland, the Stench Of Swamp Clearing

► **Democracy is in peril in the Central European nation**

► **"They are using communist-style methods and methodology"**

Like Donald Trump, Poland's Law and Justice party benefited from a rising anger against urban and political elites when it gained power in 2015. In the 15 months that Law and Justice has run Poland, it's been doing what the U.S. president-elect would call "draining the swamp," ridding the state of the influence, in its populist view, of a self-serving ruling class that's mismanaged Poland for most of the past 27 years. The party has purged the public broadcasting industry and done its best to eliminate any

institutional checks on its power.

In the process, the government in Warsaw has run roughshod over the constitution and weakened Poland's democracy, according to officials in the European Union, which has begun an unprecedented formal procedure to censure the government. At the NATO summit in July, President Barack Obama urged Poland to sustain its democratic institutions.

Law and Justice Party leader Jaroslaw Kaczynski and his loyalists fiercely deny accusations they're dismantling the country's democracy. They say they're simply returning Poland to its historical path and to true Catholic values on behalf of ordinary Poles whom the liberal elites ignored for decades.

Poland's swamp is, of course, different from the one Trump has pledged to drain in Washington. Still, there's little doubt Kaczynski's zeal for change has put established checks and balances in his line of fire. That's because coming to power on ambitious pledges to "take your country back" raises the stakes in the usual game of musical chairs involving competing parties, says Ivan Krastev, who heads the Centre for Liberal Strategies, a Bulgarian think tank. Democratic institutions become easier to discredit when they're cast as the source of elite resistance to the will of the people, he says.

In the latest controversy, Law and Justice has tried to subjugate the Constitutional Tribunal, the highest court, to its will. Both Law and Justice and rival party Civic Platform tried to stack the court with sympathetic judges while each controlled the legislature. Now Law and Justice has passed legislation to make it harder for the court to defy the will of parliament and block unconstitutional laws. Legislative deputies for Law and Justice have questioned the impartiality of the tribunal's president, Andrzej Rzeplinski, who prevented judges appointed by Law and Justice from taking their seats on the bench and blocked procedural changes. He's a hero to liberals but the Swamp Thing-in-Chief to Law and Justice. Attorneys for the ruling party are preparing a criminal investigation into Rzeplinski's conduct. His term and ►

Rzeplinski

◀ judicial immunity ended on Dec. 19, and he worries he may go to prison. “Already some prison directors have told me they’ll find me their best cell,” Rzeplinski says with gallows humor.

Law and Justice taps into the nation’s widely held feeling that many Poles have failed to benefit from the impressive growth of the last 20 years. These supporters gave Law and Justice 38 percent of the vote last year, enough to form post-communist Poland’s first single-party government.

To much of the West, the political leaders who emerged from the Solidarity movement to run Poland in the 1990s were Eastern Europe’s great success story. To Jaroslaw Kaczynski and Lech, his twin brother who became president in 2005, they represented an unholy conspiracy of ex-communists and liberals who hijacked Poland’s revolution.

In April 2010, President Kaczynski, as well as other top government officials, perished in a plane crash near Smolensk, Russia, during an official visit. While Polish and Russian investigators concluded the cause

was pilot error, Jaroslaw Kaczynski maintains more sinister forces were responsible. Norman Davies, a British historian of Poland, says Kaczynski has been using his brother’s tragic end to consolidate power and discredit foes as he seeks to rewrite Poland’s post-communist history.

“It is a bogus Poland,” Davies says. “They are using communist-style methods and methodology to overthrow the liberal revolution of 1989.” When Law and Justice assumed power in October 2015, Kaczynski ordered his defense minister, who believes in a Russian plot, to undertake a new probe into the crash.

Kaczynski quickly set about draining Poland’s swamp of the old elite. Within months of taking power, the Law and Justice government replaced more than 300 executives at state-run companies, records gathered by the small Nowoczesna opposition party show. About 1,600 officials at state institutions were also uprooted. New candidates for the civil service no longer have to face the usual competitive process. Poland’s public broadcasters were placed under direct government control. So was the prosecutor’s office.

In January 2016, Standard & Poor’s downgraded the country’s credit rating, citing concern that “Poland’s system of institutional checks and balances has been eroded significantly.” The country’s currency, stocks, and bonds sank. The zloty weakened 6 percent against the dollar this year, more than any of its counterparts except the Turkish lira.

Kaczynski hasn’t personally taken power, staying in the background as the leader of his party. The government instead is led by his hand-picked officeholders: Prime Minister Beata Szydlo and President Andrzej Duda. A bachelor, Kaczynski has lived alone since his mother died in January 2013, and he runs Poland from party headquarters in a shabby Warsaw office building. He didn’t respond to requests to be interviewed.

Supporters say the picture often painted outside Poland of saintly liberals being replaced by authoritarian populists is grossly unfair. They say that because of the compromise reached with the communists to make

the transition to democracy, Poland has never stopped being ruled by them. Law and Justice voters believe they’ve elected a party that will wipe away the vestiges of communist rule. When the constitutional court got in the way, it was portrayed as a tool of the old elite and neutered. Such an attack on a critical institution can happen in other democracies with populist leaders, too. “Right now we are all much wiser,” says Rzeplinski, the Constitutional Tribunal’s president. “We know much more is possible than before.” —*Marc Champion, with Marek Strzelecki*

The bottom line In the name of nationalism and religion, Poland’s government has been purging the bureaucracy of the old elite in the past year.

Commodities

China Gets Serious About Shrinking Steel

- ▶ The authorities are using environmental laws to shut plants
- ▶ “China has focused this year on the so-called zombie plants”

Back in February, China said it would cut steel production by 150 million metric tons over the next five years. By the end of August, the country was already behind schedule. For a second year in a row, China’s steel industry will export more than 100 million tons.

Now there are signs the government of President Xi Jinping is getting more aggressive in its efforts to restructure the world’s largest steel industry. The government is forcing small, illegal mills to close, enforcing stricter environmental rules for all players, and cutting capacity at state-controlled steelmakers. A recent campaign to shutter some induction furnaces, which use scrap as a raw material, is a positive sign, Citigroup analysts Jack Shang and Tracy Liao wrote in a note in late December.

The prospect of mill closures is raising prices for Chinese steel and could boost prices globally, benefiting such companies as **ArcelorMittal**. “China is the largest exporter of steel in the world, and Chinese export prices effectively put the floor under the

How the Populists Took Poland

Provinces where the Law and Justice party won more votes than any other

■ 2011 □ 2015



Provinces where average wages were below the national average at election time



global steel prices,” the Citigroup analysts wrote. Steel in Europe and the U.S. could rise \$50 to \$80 a metric ton in the next month if Chinese prices hold at current levels, Citigroup said. The price of benchmark hot-rolled coil shipped from China has jumped to \$530 per ton, the highest since 2013, according to Beijing Antaika Information Development, which compiles industry data. The price of steel reinforcement bar, used in construction, is up more than 50 percent this year on the Shanghai Futures Exchange.

Industry data for November cast some light on how tighter restraints might play out next year. Production didn’t budge in November from October, even though prices were climbing. That’s a sign that environmental inspections, which started in November, were already having some impact by shuttering plants, according to Kevin Bai, an analyst at researchers CRU Group.

The closing of mills that use scrap steel could increase demand for iron ore by as much as 5 million tons a month, and for coking coal by 2 million tons a month, according to Citigroup. The bank says ArcelorMittal is poised to benefit from the furnace shutdowns because it produces iron ore and coking coal as well as steel. At the same time, global mills such as ArcelorMittal stand to gain from measures to boost growth in Asia’s biggest economy, with China’s steel exports expected to fall in 2016 for the first time in seven years.

As China cuts back, 2017 is shaping up as a good year for the global steel industry. “China has focused this year on the so-called zombie plants,” the unprofitable mills kept alive by local authorities, says Ren Zhuqian, chief analyst at consultant Mysteel Research Institute. In 2017 “it’s going to target operational capacity.” She says it’s possible that steel could follow the coal industry with more direct government intervention. “Supply-side reform has effectively lifted coal-market sentiment this year, and the market expects that to shift to the steel sector.” — *Bloomberg News*

The bottom line China finally appears to be taking aggressive steps to rationalize operations in the world’s largest steel industry.

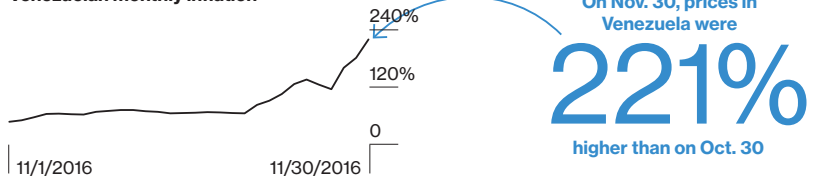
Hyperinflation

By Ben Bartenstein and Mark Glassman

The Bolivar’s Historic Fall

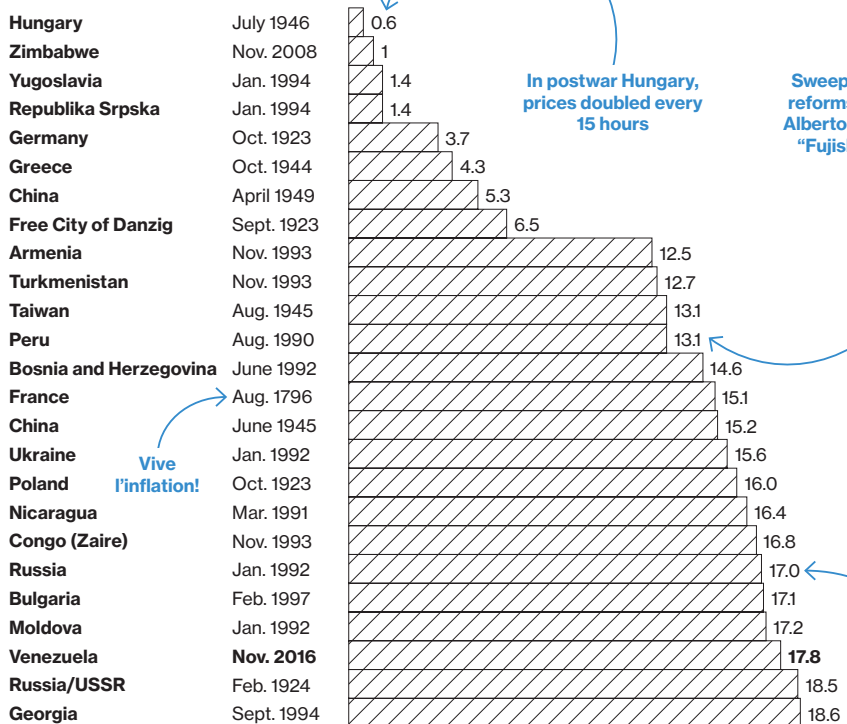
Venezuela’s currency has collapsed so sharply over the past few months that cash is being weighed instead of counted. The country’s inflation rate accelerated quickly in November, reaching historic levels.

Venezuelan monthly inflation

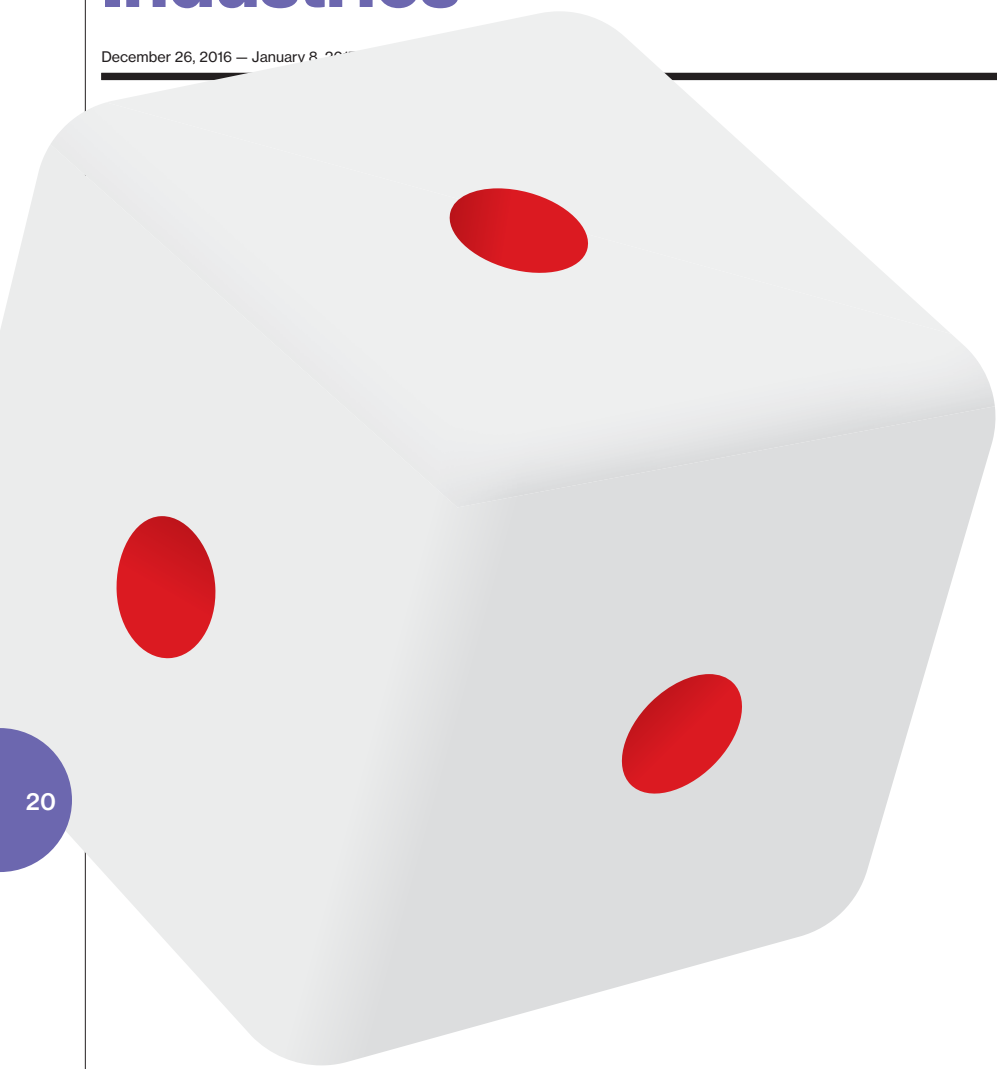


The climb put Venezuela in an exclusive club: the Hanke-Krus World Hyperinflation Table, a list of economies that have experienced a monthly inflation rate of at least 50 percent for more than 30 consecutive days. As of Nov. 30, Venezuela ranked 23rd on a list of hyperinflation episodes since 1795.

Days required for prices to double at an economy’s most inflationary moment



NOTE: PRICE-DOUBLING PERIODS ARE MATHEMATICAL EXTRAPOLATIONS DERIVED FROM MONTHLY MEASURES OF CONSUMER OR WHOLESALE PRICES OR REAL OR IMPLIED EXCHANGE RATES; DATA: JOHNS HOPKINS UNIVERSITY



Japan's Big Bet

▶ Its new casinos likely won't need China's high rollers

▶ Gaming resorts will woo "tens of thousands of people at a time"

For more than a decade, most of the action in the gaming industry has been centered on Macau. Fueled by Chinese high rollers' seemingly insatiable desire to gamble, the former Portuguese colony—the only place gambling is legal in China—mushroomed into the world's biggest

gaming market before a Chinese government crackdown on corruption pulled many VIP gamblers away from its tables.

Now the industry thinks it's found the Next Big Thing to help take up the slack: Japanese casinos. After years of delays, the Japanese parliament

on Dec. 15 approved a bill to legalize casino gambling in the world's third-largest economy. Rather than stand-alone gambling halls, the casinos are expected to be part of integrated resorts, much like Singapore's two complexes operated by **Las Vegas Sands** and Malaysian gaming giant **Genting**. Those properties have transformed Singapore into the world's third-largest gambling center, after Macau and Las Vegas. But Grant Govertsen, a Macau-based gaming analyst at Union Gaming Group, says Japan would be unlike any other casino market in Asia; because of its large population and high per capita income, it won't have to rely on gamblers from China and other countries to fill its tables.

Investment bank CLSA estimates potential gaming revenue in Japan could eventually reach more than \$25 billion a year. That's almost four times the gaming revenue the Las Vegas Strip took in last year. For the casino companies, says Govertsen, "Japan is likely the single largest revenue-and-cash-flow greenfield development opportunity for the foreseeable future."

That's welcome news to global casino operators such as Las Vegas Sands and **MGM Resorts International**, which have been lobbying intensely for the legislative change. "Japan will be a supersized Singapore," says Daniel Cheng, **Hard Rock Cafe International's** senior vice president for Asian business development, "and it can even outstrip Macau." The U.S. cafe and casino chain is looking for partners to jointly bid for a Japanese license. MGM already has a development team in Tokyo and has been sponsoring Kabuki events to raise its profile. **Wynn Resorts**, which has two casinos in Macau, is also eager to jump in. Chief Executive Officer Steve Wynn said in a statement: "To us, the opportunity is thoroughly Japanese and thoroughly delicious."

One reason Wynn and his counterparts are so enthralled is that Japanese have a proven history of embracing wagering. Consumers in Japan are already allowed to bet on



“Cash flow is earned firmly from Japanese locals first, then foreigners become a plus-alpha. There’s no need to emphasize Chinese VIPs. If they want to come, they’re welcome.”

boat and bicycle races, and its horse-racing industry took in \$25 billion in 2015, mostly in wagers, according to the Japan Productivity Center. There also are more than 10,000 pachinko parlors operating what are effectively ball-bearing-based slot machines that get around legal gambling prohibitions by paying off winners with physical prizes that can then be exchanged for cash at a different location. Gamers spent more than 23 trillion yen (\$196 billion) on pachinko in 2015, about 30 percent less than a decade earlier, according to data published by the center.

Japan’s legislators have a year to work out the details of how the casinos would be regulated before would-be operators can apply for licenses. Opening two integrated resorts in major population centers could bring in \$10 billion in revenue, with the potential for \$25 billion if they’re allowed to operate nationwide, according to a CLSA report. Construction, however, may keep casinos from opening for almost another decade.

As they plan, officials are looking closely at Singapore. In 2014, Japanese Prime Minister Shinzo Abe toured the city-state’s two integrated resorts, which combine casinos with hotels, convention halls, shopping, theaters, even a theme park and aquarium. Singapore generated about \$4.8 billion in gambling revenue last year. The nation’s more than 120,000-square-meter Sands Expo and Convention Centre in Singapore, part of the company’s gaming complex, is 50 percent bigger than Tokyo’s largest exhibition and conference facility, according to Bloomberg Intelligence. CLSA analyst Jay Defibaugh says integrated resorts will allow Japan’s gaming

facilities to gain scale more quickly. “We are talking tens of thousands of people at a time” being put in close proximity to the new gambling halls, just from convention centers.

Japan is allowing casinos despite lackluster public support. In a recent survey by public broadcaster NHK, only 12 percent of respondents favored lifting the ban, with 44 percent opposed, and the rest unsure. But the prospect of jobs and additional tax receipts won over politicians. Satoshi Sakamoto,

senior executive director at Tokyo-based gaming-machine maker **Konami Holdings**, said in an e-mail that a successful integrated model can “secure employment, economic benefits, and tax revenue.”

Tourism is a lure for revenue-hungry legislators as well. Singapore had 15 million visitors last year, almost three times the island’s population. Its integrated resorts and blue-chip events, such as the Formula One night-time street race, lifted hotel revenue in 2015 to S\$3.2 billion (\$2.2 billion), from S\$1.6 billion in 2009, the year before its first casino opened.

While Singapore imposes a S\$100 casino entrance fee on locals to deter problem gamblers, Japan has not decided whether to put similar strictures on casinos targeting its much larger populace. Toru Mihara, a professor at Osaka University of Commerce, says that would mean “cash flow

is earned firmly from Japanese locals first, then foreigners become a plus-alpha. There’s no need to emphasize Chinese VIPs. If they want to come,

Move Over, Vegas

Gaming industry revenue in 2015

\$4.8b

Singapore

\$6.3b

Las Vegas Strip

\$28.9b

Macau

\$25b

Annual revenue forecast for Japan by CLSA, if casinos are allowed nationwide

they’re welcome.” But he says the big market will be from wealthy middle-class customers including lawyers and business executives.

Avoiding a dependence on Chinese high rollers would be wise, especially as China tries to stanch capital outflows by clamping down on wealthy gamblers. At Genting’s Singapore resort, where visitors can dine on celebrity chef Joël Robuchon’s sea urchin zephyr with wasabi foam, VIPs accounted for 36 percent of gambling revenue in the third quarter, down from 63 percent in the first quarter of 2014, according to data from BI. Macau has seen its total VIP gambling revenue plunge 46 percent since its 2013 peak. —Bruce Einhorn, Grace Huang, and Daniela Wei

The bottom line Casinos in Japan, just authorized in December, could someday reach an estimated \$25 billion in revenue annually.

Style

Is Amazon Europe’s Next Top Model?

- ▶ Zalando ruled fashion e-tailing. Then you-know-who came along
- ▶ “In the past, we didn’t accentuate the Christmas business”

The online shop **Zalando** has trampled brick-and-mortar fashion retailers—and earned a market value topping \$9 billion—by offering stylish wares from the likes of Tommy Hilfinger, Versace, and Adidas. Now, Zalando faces a rising internet threat of its own: **Amazon.com**. The online behemoth is picking up European market share as it signs up models and socialites and cozies up to such brands as Hugo Boss and Gucci. “We do more than people might appreciate,” says Susan Saideman, vice president for Amazon Fashion in Europe. Fashion “is very different from running a books business.” ▶

◀ Zalando is well-aware. Amazon now has 5.7 percent of the \$42 billion online shoe and apparel market in Western Europe, according to researcher Euromonitor International—just behind Zalando’s 6.1 percent. Both have used high-fashion photo shoots, top models, and slick TV ads to pull almost even with leader **Otto Group**, a traditional mail-order catalog that has seen its share drop from 10 percent in 2011 to 6.2 percent this year.

Zalando is fighting back by beefing up distribution and sweetening its product mix. Early next year the company plans to open a warehouse near Paris that will shave a day or two off French deliveries. A few months later it will trim fulfillment costs

78
percent

German consumers who said they’d shopped at Amazon for fashion in the past year, vs. 40 percent at Zalando

by opening its first company-owned distribution center, a 1.4 million-square-foot facility in Poland, that will handle deliveries to cities across Europe. And Zalando says that over the past few months it’s increased the number of articles it sells by about a third, to 200,000. For Christmas, the company has broadened its selection of such accessories as earrings, watches, and handbags and is making gift cards more widely available, says co-Chief Executive Officer Rubin Ritter. “In the past, we didn’t accentuate the Christmas

business,” he says. This year he’s aiming to ensure there’s “a fresh assortment that’s always up to date.”

For now, Zalando has a fashion edge, according to a December analysis by Sanford C. Bernstein. While the sites have about the same number of brands in Germany, in the U.K., Zalando stocks nine of the top 20 womenswear brands, vs. Amazon’s four. And much of what Amazon carried in Europe was out of season or discounted, Bernstein found. Almost three-fifths of Amazon’s Levi’s products in Britain and Germany were discontinued merchandise, vs. just 14 percent at Zalando. Ritter says he’s working hard to strengthen relationships with major fashion brands—which typically prefer merchants that push current-season, full-price merchandise—as a way to keep interlopers at bay. “They know we are not out to commoditize or monopolize fashion,” he says. “We are focused on the more fashionable customer.”

A big challenge for Zalando will be spending enough to fend off Amazon while achieving its long-term goals of steadily increasing profit margins and sales growth that tops 20 percent annually—targets that have helped fuel a 64 percent share gain since its 2014 initial public offering. Zalando has promised a 4 percent to 5.5 percent operating margin this year, and analysts expect that to reach 6.5 percent in 2018. While Ritter says Zalando has been hitting its numbers even as competition picks up, UBS

analyst Adam Cochrane says those forecasts look high in light of Amazon’s onslaught. UBS, which in November downgraded Zalando to “sell,” surveyed 1,000 German consumers last summer and found 78 percent said they’d shopped

at Amazon for fashion in the past year, compared with 40 percent at Zalando. “The biggest investor fear for Zalando is Amazon improving its fashion offer and being a

more credible threat,” Cochrane wrote in a November note.

Amazon’s Saideman recognizes she faces plenty of hurdles and says she’s working to improve access to the season’s hottest products. In November she visited new **Hugo Boss** CEO Mark Langer to see how Amazon could help as Boss pares its jumble of brands and reemphasizes office wear for men. And Amazon has launched a social marketing blitz. Hungarian model Barbara Palvin is doing photo shoots and promotions on YouTube. Italian fashion blogger Chiara Ferragni is promoting products including her own branded shoe line. And American socialite Olivia Palermo has recorded social media ads with Mr. Butler, her white Maltese dog. That’s all part of Amazon’s effort to nurture a reputation as a place that’s trendy, not just cheap, says Saideman, who moved from Seattle to London in October. “Our mission is to be the place people go to discover fashion,” she says. “There’s not a strategy to be the discount house for online.”

—Aaron Ricadela

The bottom line Amazon is taking more of Western Europe’s \$42 billion market for online shoe and apparel sales from local hero Zalando.

Startups

When the Teacher Is An Ocean Away

▶ **VIPKid pairs Chinese students and American instructors via the web**

▶ **“What keeps me up at night is not growth, it’s quality”**

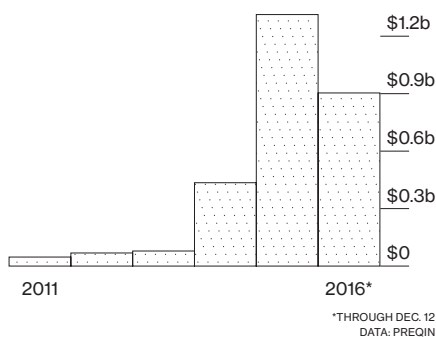
Cindy Mi loved English so much as a child that she spent her lunch money in middle school on books and magazines to practice. By 15, she was good enough to tutor other students. At 17, she dropped out of high school to start a language instruction company with her uncle. Today, 33-year-old Mi is co-founder of a startup that aims to give Chinese kids the kind of education American children receive in top U.S. schools. Called **VIPKid**, the company matches Chinese students age 5-12 with predominantly North American

Ferragni



Profiting From Pedagogy

Venture investments in China educational startups



instructors to study English, math, science, and other subjects. Classes take place online, typically for two or three 25-minute sessions each week.

Mi is capitalizing on an alluring arbitrage opportunity. China has hundreds of millions of kids whose parents are willing to pay up if they can get high-quality education. In the U.S. and Canada, teachers are often underpaid. That's fueled explosive growth at the three-year-old company, which started this year with 200 teachers and has grown to 5,000 working with 50,000 children. Next year, Mi anticipates she'll expand to 25,000 instructors and 200,000 children.

Over the years education experts and teachers have criticized online learning, arguing that nothing can duplicate the face-to-face interaction of a physical classroom. Chinese parents are so bent on getting their kids the best education possible, they're sometimes willing to try unproven methods. Mi has recruited academic advisers from respected U.S. universities, but she's mindful of the challenges. "What keeps me up at night is not growth, it's quality," she says. "We need to be responsible for the learning outcome."

VIPKid has raised \$125 million from venture firms including Sinovation Ventures, Northern Light Venture Capital, and Sequoia Capital China. Basketball legend Kobe Bryant has invested and advises Mi. Sinovation, led by former Google China chief Kaifu Lee, funded VIPKid when it was just an idea in Mi's head. "We really felt education could be reshaped with the power of the internet," Lee says. "The moment we met Cindy we knew we had to invest in her company."

Mi was born in Hebei, a northern

province that surrounds Beijing, but then moved to Heilongjiang province, a remote northeastern region that borders Russia. At her new school, the math teacher took an instant dislike to the outsider and would never call on her. So one day, Mi began reading a science fiction magazine in class. The

teacher grabbed it, tore it into pieces, and threw it in her face. "She said, 'Get out of my classroom. You are the worst student in the universe,'" Mi says. "I love sky diving, bungee jumping, extreme sports. There's only one nightmare that I have, and it's of that teacher. Every couple years."

That experience convinced her that teachers have an outsize influence on children's lives—for good and ill—and pushed her into education. She left high school before graduation to work with her uncle at a traditional tutoring school, with brick-and-mortar classrooms and face-to-face teaching. She helped open a half-dozen learning centers in Beijing over about a decade but dreamed of making a bigger impact. She went back to school, studying at Cheung Kong Graduate School of Business; she also spent a semester at Cornell. In 2013, Mi pitched the idea for VIPKid to Lee, and his firm invested that December. Mi and her three co-founders moved into Sinovation's offices and spent 15 months working on the technology and curriculum.

Mi and her team worked to develop software that would allow students in China to learn from native English speakers half a world away with real-time audio and video links. The student and teacher appear in boxes on the right-hand side of the screen; images and words appear on the left. A typical 25-minute lesson has 25 to 30 slides, and the curriculum builds from session to session so a child can develop her vocabulary and fluency. Parents buy a package of lessons, and their children can then select which teachers they want to study with. A block of 72 classes is about \$1,500, or \$21 each.

Douglas Gao, 10, began studying English as part of an early trial group in 2014 and has kept going. His father,



Victor, says the price is comparable to a group English class his son took, but those classes were inconvenient and ineffective. Now Douglas speaks English in complete sentences, and his 6-year-old brother has started the program.

VIPKid recruits teachers through referrals and social media and gets 10,000 to 20,000 applications a month. Those accepted take VIPKid's training courses for about a week and must pass a final test before starting work. They're not required to have degrees in education, but they do need a bachelor's degree and some teaching experience. VIPKid says most instructors are experienced current or former teachers.

Kristie Kellis, a 41-year-old from Minnesota, started teaching with VIPKid a few months ago. She works 40 to 45 hours a week, usually from 3 a.m. to 8 a.m., plus on some weekends, in addition to her day job teaching at a local university. She's paid about \$21 an hour as long as she works at least 20 hours a week, and she gets bonuses for teaching more hours or during holidays. She says it works out to about \$4,000 a month plus bonuses.

"This rivals what I can make at a university," says Kellis, who has a bachelor's degree in child psychology from the University of Minnesota. VIPKid offers regular incentives for teachers, too, including computer gear and T-shirts. Kellis even won a trip to Beijing in January to meet Mi, her employees, and students.

With the company expanding so rapidly, Mi is setting up a research institute to work on developing best practices for educating children. Already the company says it's noticed that students learn more effectively if they can pick teachers that suit their aptitudes and study examples centered on their own interests. ▶

◀ Says Bruce McCandliss, a professor at Stanford's Graduate School of Education who will help develop the institute's research agenda: "The sheer scale of this presents the opportunity to examine theories that you couldn't look at in your own lab."

—Peter Elstrom and David Ramli

The bottom line Chinese education startup VIPKid has raised \$125 million to launch a web service matching 50,000 kids with 5,000 U.S. teachers.

Cosmetics

Tired of Halal Chicken? Try the Eyeshadow

▶ Sales of makeup aimed at Muslims are growing fast

▶ The trend "carries a certain stigma with the average American"

In a visit this fall to **BASF's** factory in Düsseldorf, Germany, Abdullah Hito inspected production lines and met with managers to discuss ingredients for soaps, shampoos, and conditioners. Hito isn't an engineer or a health department official; he's an Islamic scholar who certifies these goods as halal—fit for use by observant Muslims. "We control everything from the first step, when they buy raw materials, to the end," says Hito, who holds a Ph.D. in Islamic studies from Kuwait University. Manufacturers "are not allowed to change raw materials or suppliers without informing us."

His company, **Halal Quality Control**, is one of dozens across Europe that certify products as halal. Such products can't contain alcohol or additives of animal origin, and production must be isolated from substances considered impure under Islamic law, even cleaning products. BASF, which four years ago got its first such certifications for cosmetics ingredients, today makes 145 chemicals deemed halal for products such as facial cleansers, bubble bath, or household detergents. While BASF's largest markets for the ingredients are Indonesia and other mostly Muslim countries, the company

says demand is growing in the West.

Even as U.S. President-elect Donald Trump threatens to restrict Muslim immigration to the U.S., companies from BASF to sandwich maker **Subway** to fashion house **DKNY** are embracing the group's growing buying power. Muslims make up almost a quarter of the world's population—1.6 billion people—and will outnumber Christians by the end of the century, according to the Pew Research Center in Washington. Consumers will spend about \$27 billion on halal cosmetics this year, and sales could jump to \$39 billion by 2019, researcher Technavio estimates. "This is a market that's going to grow hugely," says Shafiq Shafi, managing director of a consulting firm called Muslim Marketing.

Halal products go far beyond traditionally butchered meat. There's halal foie gras and halal wine. (It's alcohol-free, of course, but also guaranteed not to have come into contact with any banned substances.) U.K. retailer **John Lewis** offers a school uniform with a hijab, and clothing chain **Uniqlo** sold a line by designer Hana Tajima that included printed and dyed hijabs. When France's **Groupe Bertrand** bought the Quick hamburger chain last year, it converted most of the 500 outlets to Burger Kings but left the Quick brand on about 50 in Muslim neighborhoods, serving halal food.

Some companies don't do much to trumpet their halal cred for fear of a backlash among non-Muslims, says Shelina Janmohamed, a vice president of Islamic branding agency Ogilvy Noor and author of *Generation M*, a book about millennial Muslims. "The challenge is a social and political climate that makes it difficult for businesses" to broadcast that they're catering to Muslims, Janmohamed says. Animal welfare activists have called for a boycott of stores and restaurants serving halal meat because they say the halal method of slaughtering livestock is inhumane. And **Marks & Spencer** took some heat when it offered body-covering swimsuits called burkinis—the same suits that became a point of controversy in France last summer

when the mayors of beach towns such as Cannes and Nice banned them. Although Pierre Bergé, co-founder of the Yves Saint Laurent fashion house, deemed the suits an "abominable thing used to hide women," M&S says it sold out of them.

An Illinois company called **Maya Cosmetics** makes nail polish that's permeable—important to Muslims, who are barred from wearing anything that repels water while performing ablutions at prayer time. The website, though, trumpets the product's health benefits as prominently as its halal certification. While word-of-mouth on Muslim websites and Facebook has helped sales in Britain and the Middle East, "halal carries a certain stigma with the average American," says co-founder Javed Younis.

Indonesia, the most populous Muslim country, with 256 million people, will require all foods, beverages, and other consumable products sold there to be halal by 2019. France's **L'Oréal** says most products from its Garnier line made in Indonesia are already halal. And in Britain, the company is including a Muslim in ads for a new line of makeup foundation, called True Match. Each of the 23 shades is represented by a model, with headscarf-wearing Amena the face for color 4.W Natural Gold. "That was quite a breakthrough for Muslim women," says U.K. makeup artist Zukreat Nazar, who has worked with celebrities such as Khloé Kardashian and has more than 250,000 followers on YouTube.

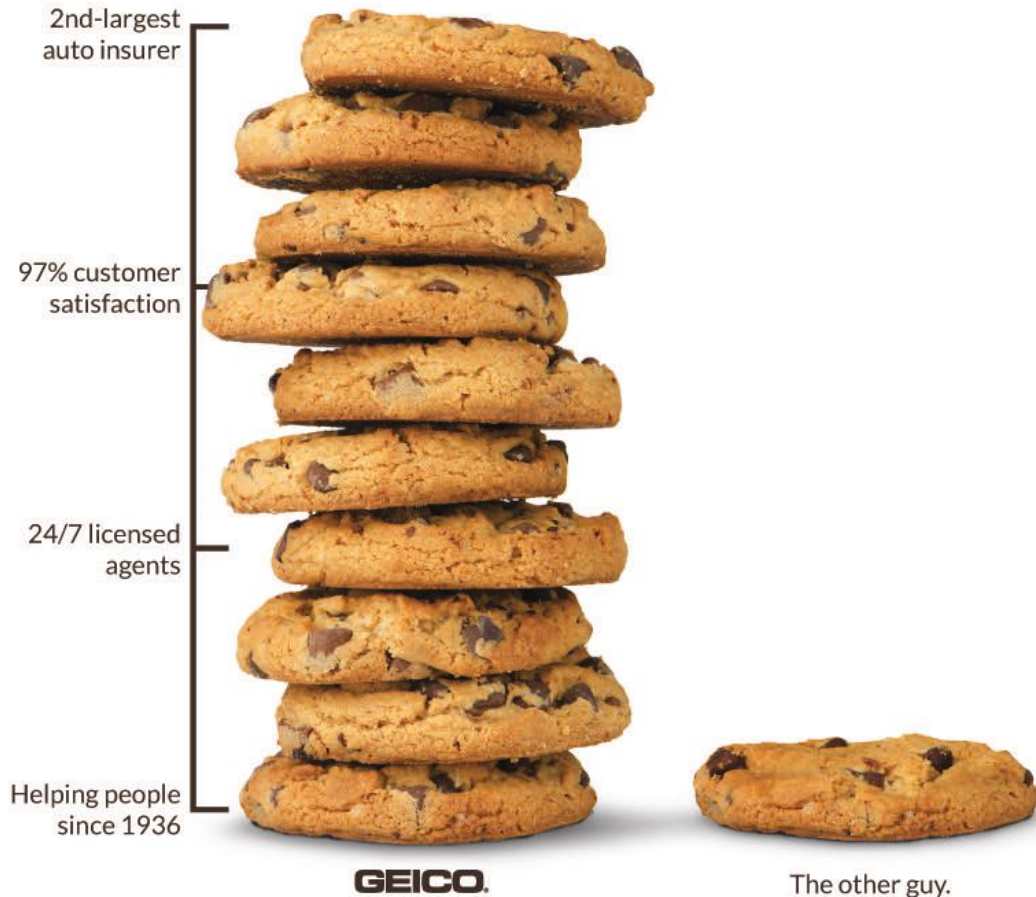
Nazar was mobbed by selfie seekers in October when she appeared on a panel about entrepreneurship at an event called Muslim Lifestyle Expo in Manchester, England. About a half-dozen cosmetics companies, including nail polish maker Maya, were among the 120 or so exhibitors. Younis says he met representatives of Asda, **Walmart Stores'** U.K. unit, and the company plans to start selling his goods next summer—just in time for Ramadan.

—Laura Colby

The bottom line Cosmetics makers are stepping up production of halal makeup, a fast-growing market worth \$27 billion globally.

B Edited by James E. Ellis and David Rocks
Bloomberg.com





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▶ The new administration is inviting fights with Republicans as well as Democrats in Congress

▶ “Part of Trump’s agenda was to shock Washington”

The one safe prediction about Donald Trump’s first 100 days as president is that there will be brawls. Between Democrats and Republicans, of course, but also between conservative and moderate Republicans; between iconoclasts newly appointed to oversee federal agencies and the career civil servants who work under them; and among members of the cabinet, who disagree over issues ranging from budget deficits to Iran.

Emceeding the donnybrook: the president, grinning from ear to ear. Says Marc Sandalow, associate academic director of the University of California Washington Program: “If part of Trump’s agenda was to shock Washington and make the political establishment’s hair stand on end,

he’s already accomplished his goal.”

For Trump, the hard part will come when he has to stop terrorizing the Washington establishment and start working with it. He won’t be able to navigate between Democrats on one side and hard-line Republicans on the other without support from Senate Majority Leader Mitch McConnell and Speaker of the House Paul Ryan. He needs congressional insiders to confirm his cabinet of outsiders, repeal and replace Obamacare, overturn the Dodd-Frank financial regulation act, fill the open seat on the Supreme Court, roll back Obama-era regulations, and cut trade deals.

Producing a budget could be Trump’s toughest challenge, because it will expose him to attacks from both the

Left and, perhaps more important, the Right. He campaigned on a platform that, if enacted, would add \$7 trillion to the national debt over 10 years by one estimate. At campaign rallies, he promised repeatedly not to cut Social Security and Medicare benefits. “You’ve been paying in it for a long time, and a lot of these guys want it to be knocked to hell,” he said at one campaign stop last spring. “It’s not going to happen, OK? Remember that. It’s not going to happen.”

That’s far from the philosophy of Representative Mick Mulvaney, the South Carolina Republican that Trump picked to run the Office of Management and Budget, which oversees planning and spending across the executive branch. Mulvaney, elected in the ▶

◀ Tea Party wave of 2010, is a co-founder of the House Republicans' deficit-fighting Freedom Caucus. He's voted for raising the normal retirement age for Social Security to 70 and has said "we have to end Medicare as we know it."

(In that he joins Representative Tom Price of Georgia, Trump's pick for secretary of health and human services, who favors capping federal spending on Medicare.) Mulvaney has also sided with Democrats in favor of caps on the defense budget; Trump, meanwhile, wants to lift legislative caps on Pentagon spending. When he talks about cutting spending, it's mostly small ball—eliminating waste, fraud, and abuse.

For Trump to choose spending hawk Mulvaney to be the chief of his Office of Management and Budget may reflect the president-elect's tolerance, even embrace, of ambiguity and conflict. Maya MacGuineas, president of the Committee for a Responsible Federal Budget, predicts that Mulvaney will be influential because he knows how the budget works. "He'll be someone with a seat at the table who is serving as a constant reminder that the debt trajectory undermines the objectives of the administration and the health of the economy," she says. But the unlikely pairing may also reflect "wishful thinking on both parts," says Robert Bixby, executive director of the Concord Coalition, which favors shrinking the federal deficit.

Mulvaney's closest congressional allies are already preparing to do battle on behalf of balanced budgets. "In many ways it's the most joyful period of time I've had in my time in Congress," says Republican Representative David Schweikert of Arizona, who's anticipating "robust debate" in the coming year. Schweikert says he's optimistic that Trump will be receptive to some ideas he has for curbing entitlement spending. If Republicans can't make significant cuts in the federal budget during Trump's first year, he says, "we lose the right to get up behind the microphone and scold the system."

Ryan has aligned himself with Trump, but he and other House GOP leaders are "inappropriately optimistic that they can roll the Freedom Caucus," says Henrietta Treyz, an analyst at Washington-based Height Securities. The Freedom Caucus was

"We lose the right to get up behind the microphone and scold the system." —Representative David Schweikert on what will happen if Republicans don't cut spending

instrumental in pushing Ryan's predecessor as speaker, Ohio Republican John Boehner, to leave Congress in October 2015 after relentless attacks over his willingness to do deals with Democrats.

Conflicts over spending will intensify in the runup to April 28, the expiration date for a stopgap spending measure the departing Congress agreed to in early December. Republican Hal Rogers of Kentucky, the outgoing chairman of the House Committee on Appropriations, warned that the measure was "a Band-Aid on a gushing wound." Senate Republican leaders have 52 votes, not enough to override a Democratic filibuster. But any concession to win support from Democrats will alienate conservatives in the House and Senate.

Republicans are planning to use budget procedures to repeal Obamacare and cut taxes in a way that allows them to bypass Senate Democrats. But that could require the fractious party to agree on overall spending levels. Then there's the debt ceiling, the legislative limit on how much money the federal government may borrow. The last time Congress raised the debt ceiling, in October 2015, only 79 House Republicans voted yes; 167 were opposed, including Mulvaney. The deal suspending the ceiling expires on March 15, though the U.S. Department of the Treasury should have enough funds to avoid a default until midsummer.

The biggest clash of all in 2017 is likely to be the one between perception and reality. The perception, shared by Trump voters and Wall Street, is that the president will be able to raise the economy's growth rate substantially. The reality is that, mathematically, the economy can't grow faster than the increase in the number of workers multiplied by the output per worker. Productivity growth is hard to change, and unemployment is already low—4.6 percent in November. Investors have been betting on a burst of Keynesian-style stimulus from the Trump administration in the form of tax cuts and increased defense and infrastructure spending, but that could be strangled if congressional budget hawks simply refuse to play along.

Joseph LaVorgna, Deutsche Bank chief U.S. economist, predicted in a note to clients on Dec. 19 that Trump will try to build some political capital by cutting individual taxes first, then moving on to easy sells to Republicans, such as repealing Obamacare with a delay, dismantling Dodd-Frank, cutting corporate taxes, repatriating foreign profits, and subsidizing a bit of infrastructure investment. Trump may leave more contentious issues including negotiating a replacement for Obamacare and rewriting trade deals for after the 2018 midterm elections, LaVorgna predicted. On trade, he wrote, "the negotiated alterations might be relatively minor." That sounds like business as almost usual. Trump has already changed the nation's political culture, but it will take more than theatrics to fundamentally change the way the U.S. economy operates.

—Peter Coy, with Erik Wasson

The bottom line The success of Trump's program depends on his ability to sell conservatives in the congressional GOP on his spending plans.

Energy

States Are the Nuclear Industry's Best Hope

▶ **Trump's signaled he's pro-nuclear, but it's a low priority for Congress**

▶ **"It's going to be quite challenging to do anything at the federal level"**

Thirty-seven years after a partial meltdown of one of its two reactors made it a symbol of the potential for radioactive catastrophe, the Three Mile Island nuclear plant is still operating—for now. The Dauphin County, Pa., facility represents the perilous economic condition of a nuclear industry besieged by competition from inexpensive natural gas and subsidized wind and solar power. Three Mile Island's owner, Chicago-based **Exelon**, said in a statement that unless the government intervenes to keep the plant running, the notorious facility's "long-term future past 2019" is in doubt.

That suits opponents just fine. "Nuclear power has failed dismally in the marketplace, and that's what will doom Three Mile Island," says

Eric Epstein, chairman of Three Mile Island Alert, a Harrisburg, Pa., group. Yet for those concerned about climate change—presumably not the Trump administration, which is populated by climate-change skeptics, including the president-elect—the waning of nuclear power presents a challenge.

Nuclear plants produce almost two-thirds of the country’s carbon-free electricity. Because of current limits on the supply of wind and solar power, natural gas is the main alternative to nuclear. According to a recently released report by Third Way, a centrist Washington think tank, “when U.S. nuclear reactors retire, they are replaced predominantly by increased generation from new natural gas-fueled power plants.” In the short term, at least, that means greater carbon-dioxide emissions.

Trump has endorsed nuclear power, and in an early December memo, his transition team asked the U.S. Department of Energy how the agency could arrest the shutdown of commercial reactors and keep them “operating as part of the nation’s infrastructure.” But answers for how to preserve the country’s nuclear fleet are unlikely to come from Trump’s White House. “Beyond pro-nuclear rhetoric, it’s going to be quite challenging to do anything at the federal level with regulation or policy,” says Rob Barnett, a Bloomberg Intelligence analyst. Former Texas Governor Rick Perry, Trump’s choice to be energy secretary,

is expected to favor nuclear power, but the Energy Department lacks the tools to do much to promote it. Congress, Barnett adds, “is going to be too distracted by other issues.”

Five nuclear plants have shut down since 2013, in California, Florida, Nebraska, Vermont, and Wisconsin. Shaky economics could soon doom at least a half-dozen of the 61 remaining facilities. The longer-term outlook is worse. More than half the U.S. commercial nuclear fleet appears to be unprofitable, according to analysis by Bloomberg New Energy Finance.

Some reactors that aren’t breaking even operate in states with regulated electricity markets, where their losses are passed on to consumers. But more

than half of the unprofitable units are in deregulated regions, where many can’t compete profitably against cheap, plentiful natural gas. Consider PJM Interconnection, the regional transmission organization through which Three Mile Island sells its power. The price of electricity on PJM is averaging \$39 per megawatt hour, a spokesman says. That doesn’t cover generation costs for single-reactor nuclear plants, which average \$44.50 per Mwh. The comparable cost figure for gas is about \$25 per Mwh.

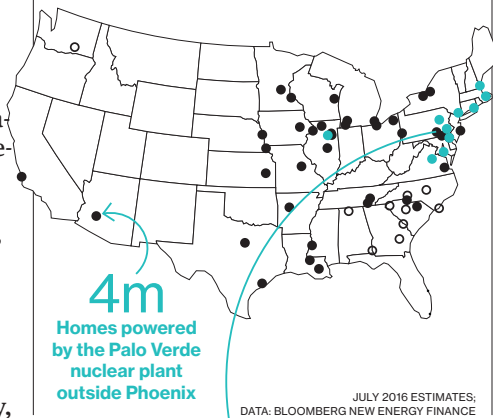
In addition to selling electricity in the immediate energy market, producers participate in a future-capacity market, where they promise to make power available in coming years at a set price. For the past two years, though, Three Mile Island has failed to win contracts in the PJM future-capacity auction, because the plant’s prices have been too high. Without capacity payments, “it is very unlikely” that Three Mile Island will cover its generation costs, according to Bloomberg New Energy Finance. Exelon said it’s exploring ways to return the plant to profitability.

Opened in 1974, Three Mile Island produces enough electricity to power 800,000 homes. The March 1979 meltdown, the worst commercial nuclear accident in U.S. history, understandably terrified millions but according to the Nuclear Regulatory Commission didn’t lead to injuries or deaths. The plant employs 520 people.

Exelon, the largest U.S. operator of nuclear plants, said it “is actively engaged with many policy leaders in Pennsylvania to help them better understand the critical role nuclear power plays.” Exelon can point to two other states—New York and Illinois—that have taken action this year to rescue a total of five Exelon nuclear plants. New York through its Public Service Commission and Illinois via its legislature put in place programs that provide nuclear facilities with “zero emission

U.S. wholesale nuclear generators

Estimated operating margin, 2016-2019
 ● Positive ● Negative ○ Unknown



◀ credits.” The plants can cash in the credits for subsidies running to the hundreds of millions of dollars.

Although they didn’t specifically endorse the propping up of uneconomic nuclear plants, the Natural Resources Defense Council and some other environmental groups backed the New York and Illinois programs because they also included provisions that promote wind and solar and encourage greater energy efficiency. Says Jackson Morris, director of the NRDC’s Eastern Energy Project: “We want to see states taking the initiative” to move toward renewables. —*Paul M. Barrett*

The bottom line Almost two-thirds of U.S. carbon-free energy comes from nuclear plants, but support for providing federal subsidies is weak.

Cabinet

Tillerson’s Got a Private State Department

▶ **Exxon has a global intelligence unit that serves its executives**

▶ **“There’s a very thin line between oil, diplomacy, and geopolitics”**

Even before Donald Trump tapped him to be the top U.S. diplomat, Rex Tillerson had his own State Department. Behind the walls of ExxonMobil’s secluded corporate headquarters outside Dallas, a little-known intelligence unit works to keep top executives informed on economic, social, and political situations around the world so they never walk into a foreign negotiation unprepared. The analysts compile risk profiles of every place Exxon has assets and personnel or may be considering investing. Their work underpins every meeting Chairman and Chief Executive Officer Tillerson engages in, according to people familiar with the unit who asked not to be named because they aren’t authorized to speak publicly on the topic.

As President-elect Trump’s surprise pick for secretary of state, Tillerson, an engineer and Exxon lifer, has been criticized as a diplomatic neophyte with no government experience. But unlike most CEOs, he’s spent decades

engaging and negotiating with foreign governments, with the benefit of regular briefings from Exxon’s analysts. These briefings take the form of risk profiles based on hard data about economic conditions and trends gathered by Exxon’s strategic planning department; open source intelligence such as academic journals, news outlets, government communiqués, blogs, and conference presentations; discussions with overseas diplomatic sources; and confidential reports from Exxon executives posted to foreign capitals. Every major international oil producer conducts similar analyses, though no other company has a system as extensive as Exxon’s. Some rely on outside contracts with risk-assessment firms.

Tillerson, 64, would be the first oil executive to occupy the nation’s top diplomatic post if he’s confirmed by the Senate. “He’s highly respected around the world, he’s deeply knowledgeable,” says OPEC Secretary-General Mohammad Barkindo. “There’s a very thin line between oil, diplomacy, and geopolitics.”

Exxon operates about 45,000 oil and natural gas wells in more than two dozen countries, from Australia to Norway. It employs about 73,000 people. The Irving, Texas-based company pumps enough crude to fill a supertanker every 22 hours. Exxon raked in \$237 billion last year, exceeding the economic output of Portugal.

The company’s need for accurate, nuanced insights into national and local power structures has increased in recent decades as petroleum-rich countries demanded better compensation for access to oil fields and more control over projects. It has an exploration deal with Vietnam in the South China Sea, where China seized a U.S. naval drone in mid-December. “Large oil fields are as likely to be found in politically demanding locations as they are in technically and physically demanding ones,” historians Joseph Pratt and William Hale wrote in *Exxon: Transforming Energy 1973-2005*, a book that drew on executive interviews and corporate archives housed at the University of Texas at Austin.

Tillerson has received backing from former President George W. Bush’s secretary of state, Condoleezza Rice, and Robert Gates, a former defense

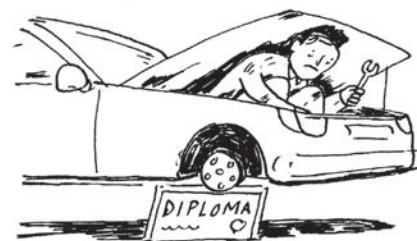
secretary, who’ve worked as consultants for Exxon through their Washington firm RiceHadleyGates. Bush himself called Senate Foreign Relations Committee Chairman Bob Corker, a Tennessee Republican, to recommend Tillerson. On Dec. 16, State Department spokesman Mark Toner said Secretary of State John Kerry had called Tillerson to offer his “personal support,” as well as that of the department, for a “seamless transition.”

—*Joe Carroll, with Alix Steel*

The bottom line Oil executive Rex Tillerson has no government experience, but he’s overseen a private global intelligence unit at Exxon.

Higher Education

Defrauded For-Profit Grads Seek Relief



▶ **The feds are still sending debt collectors after Corinthian alumni**

▶ **“These kids by and large have been scammed”**

Christopher Suarez was unemployed when he enrolled in 2011 at a school run by the for-profit chain Corinthian Colleges. He says recruiters promised he’d make a minimum of \$30 an hour following graduation from a car repair program and showed him data on how the previous year’s graduating class had fared in the workforce. Suarez took out \$20,000 in federal loans to pay for his degree. After he graduated, interviewers told him the best he could hope for was a retail job at Pep Boys or AutoZone making \$9 an hour. Unable to land a job repairing cars, the 42-year-old from Antioch, Calif., makes about \$25,000 annually as an office assistant at a hospital.

Corinthian, once among the largest for-profit chains in the country with such schools as Everest, WyoTech, and

59

Number of prisoners remaining at **Guantánamo Bay**. President Obama had vowed to close the facility within his first year in office.



The White House has notified Congress it plans to transfer at least 17 before Donald Trump takes office, according to the *New York Times*

Heald, faced a flood of government investigations and lawsuits alleging systemic fraud before filing for bankruptcy in 2015. Federal officials concluded that Corinthian had engaged in “widespread placement-rate fraud” for roughly 800 programs at almost every one of its more than 100 U.S. campuses. Prior to its collapse, Corinthian consistently denied any wrongdoing.

In the aftermath, the federal government declared that as many as 335,000 former students could void their debt by filling out a simple form. The Obama administration has repeatedly promised that those who were scammed would be reimbursed for “every penny.” Nevertheless, Suarez has received letters from a debt collection agency—hired by the U.S. Department of Education under a federal contract—threatening to garnish his wages to recover about \$25,000 in defaulted student loans and accumulated interest. Suarez says his immediate reaction was fear: “Oh, God, they’re going to take my car, garnish my paycheck, or come into my house and take stuff that I own.”

The first garnishment order came a few weeks after Suarez petitioned the department to cancel his debt. He appealed the wage garnishment order by submitting his debt-relief application, to no avail. “You have provided no evidence or documentation to support the objection(s) you raised,” read the Oct. 6 letter from the department’s contract debt collector.

As many as 80,000 former Corinthian students who are eligible for loan forgiveness are in default and battling collection efforts—wage garnishments and the seizure of tax refunds and federal benefits—for loans made by the federal government, according to Education Department documents cited by Massachusetts Democrat Senator Elizabeth Warren in September after an investigation by her staff. Others are paying off debt that should be voided.

The Education Department obtained enrollment records earlier this year identifying former Corinthian students who are eligible for debt relief under the administration’s criteria. Instead of halting collections and taking steps to regularly notify borrowers, the department has left it up to individuals to figure out whether they’re eligible.

The department has long resisted

easing borrowers’ path to debt relief. Former students of a defunct for-profit beauty school chain had to sue the Education Department in an attempt to force it to send notices to former students informing them that they could have their debts discharged. The case is still pending.

Not all former Corinthian students are eligible to have their debt canceled. Eliminating the debt of those who are could cost the federal government almost \$4 billion, according to Education Department estimates.

The department says it’s canceled the debt of about 15,000 former Corinthian students. Its outreach efforts include a telephone hotline

staffed by one of its loan contractors.

There’s also an ad campaign on Facebook meant to reach defrauded students, but the government has spent just \$5,000 on it. By contrast, the Massachusetts attorney general’s office says it’s devoted more than 1,200 hours of employee time to aid former Corinthian students.

“The department is not collecting on loans from borrowers that it knows are eligible” for debt cancellation, says Education Department spokeswoman Kelly Leon. She says the department has identified and corrected errors and that education officials believe “nobody should be in collections for a loan that is eligible to be discharged.” The department asked state prosecutors for help because they have resources the

department doesn’t have, Leon says. She declined further comment.

While the Education Department has sent former Corinthian students some letters and e-mails telling them they could be eligible for debt relief, advocates say that’s not an effective way to get the message out. “Consumers are much more likely to open mail containing their bills rather than some random letter,” says Joel Winston, a former senior official at the Federal Trade Commission.

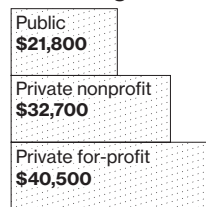
Even when the government has tried to notify borrowers, it hasn’t been consistent about the requirements for debt-relief eligibility. In June the Education Department quietly revised a list of about 700 educational programs eligible for debt relief, months after posting it. The changes tightened eligibility for more than 130 and added an additional 67 without further notice to borrowers.

“There’s no clear-cut reason why there shouldn’t be automatic loan forgiveness for people who otherwise would have a legal claim for deceptive conduct against this now bankrupt company,” David Vladeck, a former director of the FTC’s consumer protection division, says of former Corinthian students. “These kids by and large have been scammed, and the Department of Education in some sense is continuing that harm by making them jump through hoops to get the relief to which they are entitled.”

—*Shahien Nasiripour*

The bottom line The Education Department has records identifying student borrowers who were defrauded, but it hasn’t canceled all their debts.

Average undergraduate borrowing



department doesn’t have, Leon says. She declined further comment.

SAMSUNG

See inside from anywhere.

The new Family Hub™ refrigerator

It has built-in cameras that take a photo every time the doors close, so you always know what you have and what you're missing.



December 26, 2016 — January 8, 2017

Mac Pro Users Want Updates?



► **Apple's desktop and laptop faithful are suffering in the iPhone's shadow**

► **"This is a company with no real vision for what its most creative users actually do"**

In the runup to the planned debut of the latest MacBook Pro, **Apple's** home computer division had a bit of a meltdown. Enhanced battery life was supposed to be one of the big selling points for the new version of the company's main laptop, with custom-shaped cells that could store more power. After the design failed a key test, Apple decided to switch back to the old-model battery rather than miss the holiday shopping season, says a person familiar with the matter.

The change required engineers from other Mac teams to put their own projects on hold to get the Pro ready. And the finished laptop's battery life is pretty much what you're used to—enough for most of a workday, always running down a little faster than expected, and still the biggest gripe among users.

Two people familiar with the battery snafu say it's symptomatic of the Mac's broader problem: its second-class

status within the company. The Mac team has lost clout with the industrial design group led by Jony Ive, they say, and its products have suffered from a lack of direction from senior management, departures of key hardware staff, and technical delays. The new Pro is a typical result: one seriously supercharged component (the graphics card) and a couple of interface experiments in a package of mostly modest updates.

While Apple's computers, broadly considered, remain the high-end consumer standard, researcher IDC estimates that its share of the desktop and laptop markets is dropping—to 7.4 percent in the three months through September, down from

Apple can't afford to neglect the home computer market or its die-hard fans

8.1 percent a year earlier. Macs are worth about \$24 billion a year to Apple, less than 10 percent of its revenue. But with the company betting bigger on services as its iPhone sales growth flattens, it can't afford to neglect the home computer market or the die-hard fans who helped revive its fortunes in the tough years before the iPod.

"This is a company with no real vision for what its most creative users actually do with their most advanced machines," wrote Peter Kirn, founder of *cdm.link*, a news site focused on music and video creators. "**Microsoft** is embracing touch, 3D, and creativity, and making hardware with new ideas. Apple... just isn't doing any of that."

Apple, which declined to comment for this story, has said the Mac remains one of its most important products and isn't being ignored. "Nobody turns over their entire line as quickly and completely as we do at Apple," marketing chief Phil Schiller said ►



◀ at the company’s annual developers conference in 2012, when introducing new MacBook Pros. “We’re really proud of the engineering team and the work they do to do this quick so you can get the exact product you need.”

A decade ago, Macs got the kind of regular upgrade, and ritual fanfare, now reserved for the iPhone. The Mac Pro, Apple’s primary desktop, hasn’t changed since 2013; the cheaper Mac mini, 2014. And besides battery life, the October debut of the latest MacBook Pro prompted a litany of other complaints from reviewers, including the lack of a new superfast set of chips. Why not, some said, pay half the price for a rival product with comparable parts?

As with the rest of the industry, Apple’s hardware advances depend in large part on **Intel’s** development of its key chips. Yet in the Mac’s heyday, engineers working on new models could expect, among other advantages, weekly meetings with Ive’s team to review early concepts and prototypes. Those visits are no longer regularly scheduled, says a person familiar with the situation.

The Mac team divided its efforts to build two possible versions of the 12-inch MacBook, originally meant for release in 2014. By the time their bosses decided to go with the lighter, more ambitious model, finishing the laptop took months longer than anticipated, and it didn’t ship until well after the 2014 holiday season.

The desktop Pro has also suffered from executive apathy. Apple unveiled the Pro in 2013 as its first computer in years to be assembled in the U.S. The company hasn’t upgraded it since, leaving the original model lagging rivals, partly because of difficulties related to U.S. production. Apple has discussed moving production of the next version back to cheaper Asia, according to a person familiar with the discussions.

Morale among Mac designers isn’t great. More than a dozen engineers and managers working on Mac hardware have left for different Apple teams or other companies in the past year, a combination of burnout and frustration with the lack of direction from above, say two people familiar with the departures.

Apple hasn’t stopped innovating.

The latest MacBook Pro features a press-and-swipe “touch bar,” essentially a thin strip of touchscreen built into the keyboard, that lets users quickly access app shortcuts, fiddle with system settings, or pick emojis. The laptop also has smaller USB ports that can take the place of multiple ports, if used with an adapter, connecting or powering several accessories (power cord, external hard drive, HDMI output) at once.

But Mac fans shouldn’t expect a radical redesign in 2017. The company is preparing more modest updates: the new USB port and a new **Advanced Micro Devices** graphics processor for the iMac; a minor bump in processing power for the MacBook Pro; possibly a standalone keyboard accessory for desktops that includes the touch bar and a fingerprint scanner. Nothing on that list is likely to wow hardware junkies who feel Apple’s goals have shifted.

“I think a lot of the frustration from Mac users is that Apple deprioritized their needs yet saw fit to dedicate huge teams and resources to making \$17,000 gold watches, automobiles, and original TV shows,” Michael Tsai, a Mac developer and Apple blogger, wrote in a November post. “So the decisions about the Mac are clearly not driven by a need to focus.”

—Mark Gurman

The bottom line Lost in the wake of the iPhone, Apple’s Mac division is bleeding staffers, delaying product launches, and disappointing fans.

Renewables

Greening Business, One Project at a Time

▶ **Generate Capital helps cleantech startups clinch deals**

▶ **“Now they know someone else is managing and taking the risk”**

Why buy when you can lease? Over the years, makers of everything from sewing machines to SUVs have relied on this type of pay-as-you-go financing to spur sales. The entrepreneur who pioneered the no-money-down formula for rooftop solar systems now

wants to help spread it to other cleantech industries.

SunEdison founder **Jigar Shah** believes the key to unlocking the \$1 trillion a year he estimates is needed over the next decade to wean the world from fossil fuels will be millions of projects worth \$1 million, rather than thousands of \$1 billion ones. Shah’s latest startup, **Generate Capital**, is financ-

ing on-site battery storage systems from a company called **Stem** at about 70 locations of the hotel chain Extended Stay America. It also funded the deployment of fuel-cell-powered forklifts made by

Plug Power, whose customers include Walmart, Lowe’s, and Ikea.

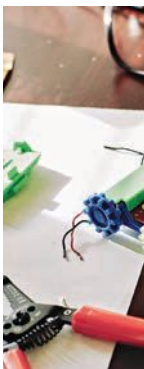
San Francisco-based Generate has built a portfolio of projects worth about \$500 million over two years. “All of the solutions we need to combat climate change already exist in the hands of entrepreneurs,” says Shah, who started the business with two former McKinsey consultants, Matan Friedman and Scott Jacobs. “Our job is to deliver these new technologies to people who can use them.”

Generate lined up funding for a water treatment system at a plant **Lagunitas Brewing** is expanding in Azusa, Calif. Like all beer brewers, Lagunitas produces a lot of what’s called “high-strength waste,” which municipal water treatment plants often can’t handle. (A Lagunitas brewery in Petaluma had to truck its waste 50 miles to Oakland.) “We spent two years vetting treatment plants of every type, and nothing was scalable,” says CFO Leon Sharyon.

Then, in 2013, Lagunitas got a call from **Cambrian Innovation**, a Boston-based company that had developed a system in which bioengineered microbes consume most of the contaminants in wastewater, while belching out methane that can be harnessed for power generation. The whole process takes place in a tricked-out shipping container. (Beer drinkers take note: The treated water isn’t used for

\$1 trillion

Estimated combined annual spending on U.S. equipment leases



FROM LEFT: AP IMAGES (3); PHOTOGRAPHS BY DEVIN CHRISTOPHER FOR BLOOMBERG BUSINESSWEEK (5)

Jacksonville,
Fla.



Education Robot Fight Club

A small startup called Sumo Robot League encourages middle school students to learn to build 4-by-4-inch, 17-ounce machines, program them, then pit them against each other, tournament-style. Chief Executive Officer Eric Parker, an architect by training and a parent, says the goal is to lead more kids toward computer science degrees. He's pitching his \$100 robot-making kits to teachers. "I think they're on the right track," says John Morehouse, director of Georgia's Center of Innovation for Manufacturing, a state development agency that's helping make the kits. "They've nailed it on knowing who to target." —*Michael Belfiore*

School teams are collaborating, using a Sumo Robot League app, and will compete in a spring tournament in Augusta, Ga.



The league has distributed about

400
of its
\$100

kits, which come with parts for a single robot, in six states. It's on track to ship more than 800 in January.



Parker (above) and Will Ashby, the league's only salaried employee, train teachers to code, build the robots, and organize the competitions.



Once built, the robots rely on their coding and onboard sensors to try to shove each other out of the sumo ring.

Parker has raised
\$150k
so far and seeks an additional \$1.2 million to increase production to 1,000 robots a month, cut the price to \$60 apiece, and automate teacher training.

◀ brewing.) A brewer—or vintner or dairy farmer—can get more containers as their operation grows. “We’re continuously upgrading and improving the equipment and can add more at any time,” says Cambrian Chief Executive Officer Matthew Silver.

Generate is paying Cambrian to install its equipment in Azusa, and will charge Lagunitas a monthly fee for the treated water and power it receives.

Sharyon figures the brewer will save about \$1 million a year in utility bills. “We’re getting wastewater treatment service without the risk of ownership,” he says.

Equipment leases on everything from solar rooftops to automobiles

to software rose 1.3 percent in the U.S. in 2016, to more than \$1 trillion, according to estimates from the Equipment Leasing & Finance Association. Generate is targeting a segment of the market traditional lenders have ignored, either because they lack the expertise in cleantech or because the small projects are not worth their while.

So how does Generate convince its own investors that certain projects are worth funding? “We get deep down into the components of the battery cell, pore over the warranty, test the effectiveness of software and the strength of the revenue streams,” says Friedman, Generate’s chief investment officer, describing the due diligence process on the Stem projects.

“Generate helps us close deals,” says John Carrington, CEO of Stem, which has been working with Generate since 2014. “They provide the capital that’s enabled us to greatly accelerate with customer demand.”

Generate’s three co-founders provide a check on each other to prevent what happened to SunEdison, which racked up \$16 billion in debt and filed for bankruptcy this year, seven years after Shah left the company. Says Friedman: “Jigar finds the projects, Scott gets the funds, and I’m in the middle trying to figure out which ones work.”

CEO Jacobs says the biggest attraction for potential customers is that his firm removes some of the worry that comes with buying into new technology. “Now

they know someone else is managing and taking the risk,” he says.

Early adopters such as Lagunitas also get bragging rights for running their business in a sustainable way. A popular measure of a brewer’s efficiency is the water ratio. The gold standard among craft brewers is about 4.5 gallons of water per gallon of beer. A “sloppy brewer” uses 6 or 7 gallons, Sharyon says. “With Cambrian, we’re down to 2.5 gallons. That’s significant savings when you’re talking about millions of gallons a year. It means a lot more in California.” —*Christopher Martin*

The bottom line San Francisco’s Generate Capital has lined up about \$500 million in financing for green infrastructure projects in two years.

Cybersecurity

The Yahoo! Hack Goes From Bad to Worse

YAH-OH NO!

▶ **Victims included FBI, CIA, NSA, and White House staffers**

▶ **“It may really destroy your privacy... without your knowledge”**

When **Yahoo!** disclosed in September that some 500 million of its e-mail accounts had been compromised by hackers two years earlier, it sure sounded like that was the bad news. On Dec. 14 the company revealed that it wasn’t. In 2013 another intrusion had exposed more than 1 billion accounts. And it gets worse.

More than 150,000 U.S. government and military employees are among the victims of the 2013 breach, and their names, passwords, phone numbers, answers to security questions, birthdates, and backup e-mail addresses are in cybercriminals’ hands. This could allow foreign intelligence services to identify the employees and hack their personal and work accounts, threatening national security. These employees had given their

official government e-mail addresses to Yahoo in case they were ever locked out of their Yahoo accounts.

The government accounts belong to current and former White House staff, members of Congress and their aides, FBI agents, and officials at the NSA, CIA, Office of the Director of National Intelligence, and each branch of the U.S. military. The list includes an FBI division chief and multiple special agents working across the U.S.; current and former diplomats in Pakistan, Syria, and South Africa; a network administrator at the NSA’s Fort Meade, Md., headquarters; the chief of a U.S. Air Force intelligence group; and an HR manager at the CIA.

This new wrinkle was revealed by cybersecurity researcher Andrew Komarov. He discovered a stolen database of Yahoo user information involving hundreds of millions of accounts and turned it over to the government, which in turn alerted Yahoo. Bloomberg News reviewed the database and con-

firmated that a sample of the account listings is accurate.

“Yahoo has taken steps to secure user accounts and is working closely with law enforcement,” the company said in a Dec. 14 statement. It declined to comment for this story.

Former intelligence officials say the leak could make it easy for foreign spies to create alphabetized lists of accounts to target. “We went to great lengths to keep the fact people worked at NSA as low-profile as we possibly could. The last thing we’d want is an alpha list of NSA employees,” says Lonny Anderson, the agency’s former technology director. He’s now executive vice president at security company Federal Data Systems.

Access to personal e-mail accounts, even unofficial ones, can be extraordinarily valuable. Hillary Clinton campaign chief John Podesta’s Gmail account was hacked in March, revealing more than a decade of private messages and fueling weeks of attacks on Clinton in the crucial final stages of the presidential election. That hack was part of a propaganda campaign that U.S. intelligence officials believe was orchestrated by Russia to influence the election.

“Jigar finds the projects, Scott gets the funds, and I’m in the middle trying to figure out which ones work.”
—*Matan Friedman, Generate Capital*

Innovation

Medical Exoskeletons

The newly disclosed Yahoo hack could further complicate the company's efforts to sell its core internet assets to **Verizon** for \$4.8 billion, a deal scheduled to close in the first quarter of 2017. A person familiar with the matter says Verizon is considering abandoning the Yahoo deal or demanding a lower price, and in any case wants Yahoo to assume any legal responsibility for the hack damage. "We will review the impact of this new development before reaching any final conclusions," a Verizon spokesman said in a statement.

Komarov, chief intelligence officer for security company InfoArmor, found the database in August while investigating a prolific Eastern European hacker group he calls Group E. The group, which tends to sell spammers stolen data from the likes of **Dropbox**, **Myspace**, and Russian social network **VK.com**, said it had a database of logins for as many as 1 billion Yahoo accounts for sale for \$300,000. Komarov watched the hackers sell the database three times and managed to intercept it during the sales.

"The Yahoo hack makes cyber espionage extremely efficient," says Komarov, citing the possible breach of contact lists, calendars, and travel plans along with e-mails. "It may really destroy your privacy, and potentially have already destroyed it several years ago, without your knowledge."

Two buyers were large, well-known spamming groups; the third asked the sellers to verify that the database included logins for 10 specific government officials and business executives, leading Komarov to speculate it was a foreign intelligence agency. The database he intercepted includes more sensitive information than what Yahoo said could be gleaned from the hack it revealed in September, so in October he alerted U.S. and U.K. law enforcement that a second hack was likely.

Foreign spies will go down the list trying to hack any government employee they can find, says Frank Zou, co-founder of startup HoloNet Security. "They're easy targets," he says. —*Jordan Robertson*

The bottom line Included in the hack of 1 billion Yahoo accounts were the personal data of some 150,000 U.S. government and military employees.

Exoskeletons are wearable robots designed to move or strengthen limbs. Already, lower-body models help paralysis patients in clinics around the world. As long as the devices can continue to shed weight and cost, they should become common as replacements for wheelchairs within five years, says Homayoon Kazerooni, founder of two of the companies below. —*Michael Belfiore*



Innovator Homayoon Kazerooni

Director of the Berkeley Robotics and Human Engineering Laboratory at the University of California at Berkeley; founder of Ekso Bionics in Richmond, Calif.; founder and chairman of US Bionics in Berkeley

Ekso GT Created by Ekso Bionics, the Ekso GT was approved by the U.S. Food and Drug Administration in April for use by stroke and spinal injury patients in clinics, making it the first exoskeleton cleared for stroke victims. At about \$150,000, the 48-pound device is the most expensive of the group.

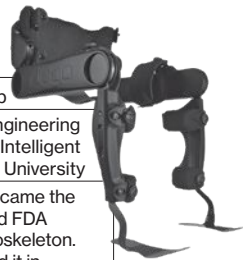
SuitX Phoenix This spinoff from US Bionics, Kazerooni's UC Berkeley lab, aims to create the lightest and cheapest medical exoskeleton. The stripped-down Phoenix has forgone the knee motors of competitors and weighs 27 lbs., with an anticipated price of \$30,000. A motor for each hip allows the user's knees to flex on their own to walk, but not to climb stairs.



Innovator Michael Goldfarb

Professor of mechanical engineering and head of the Center for Intelligent Mechatronics at Vanderbilt University

Indego In March, Indego became the second exoskeleton granted FDA clearance as a personal exoskeleton. European regulators cleared it in 2015. It costs \$90,000 from manufacturer Parker Hannifin. Users control the device by leaning forward (to stand up or walk) or back (to stop or sit). It can't climb stairs, but at 26 lbs. it's the lightest of the category.



Innovator Amit Goffer

Founder of ReWalk Robotics in Marlborough, Mass.

ReWalk Personal The clear leader in the category, ReWalk won the first FDA clearance for an exoskeleton for personal use in 2014. In October, Andre van Rûschen piloted the device to victory in the exoskeleton event at the 2016 Cybathlon in Zurich, the first international competition for device-assisted athletes. The Personal weighs 66 lbs. and costs \$69,500.



Innovator Mohamed Bourri

Group leader at the Robotic Systems Laboratory at the Ecole Polytechnique Fédérale de Lausanne in Switzerland

Twice With development started only in 2015, Twice nevertheless managed to compete in the 2016 Cybathlon, piloted by former acrobat Silke Pan. Buttons in the crutches, which are used for balance, activate four motors to move the legs at variable speeds or to climb stairs. The \$30,000 device weighs 34 lbs.



► **After eight years in the political wilderness, Goldman is back on top in a Trump administration**

► **Politicians love to criticize Goldman, yet “they run to the firm for capital-markets expertise”**

One night in early December, a **Goldman Sachs** partner walked out of the Pierre hotel in Manhattan with a big grin on his face. He'd spent the evening at the bank's annual alumni dinner, and there was a lot to celebrate. For starters, shares of Goldman Sachs were on a tear, having rallied about 30 percent in the month since Donald Trump was elected president. Trump had also restarted an age-old tradition of presidents naming Goldmanites to top spots in their administration.

Former Goldman Sachs partner Steven Mnuchin served as Trump's national finance chairman and is now Trump's nominee for U.S. Treasury secretary. Trump has also tapped Goldman Sachs President (and the

bank's de facto No. 2) Gary Cohn to be his top economic adviser in the White House. Other Goldman alums in Trump's inner circle include Anthony Scaramucci, a former Goldman banker and a member of the Trump transition team's executive committee, as well as Steve Bannon, Trump's campaign manager.

After eight years as the face of Wall Street greed and the target of public scorn, the bankers at Goldman Sachs can be cheerful again. Not only has Trump's election stoked hopes for looser regulatory policies that will make it easier for banks to take bigger risks and book fatter profits, but Goldman also appears to have regained its place at the nexus between Wall

Street and Washington. After being largely cut out of the federal government during the Obama years, with few of its alums tapped for big jobs, Goldman is starting to live up to its former nickname, Government Sachs. If confirmed, Mnuchin will be the third former Goldman partner to lead the Department of the Treasury in the past 25 years, joining Robert Rubin and Hank Paulson.

“They outlasted the criticism,” says Charles Geisst, a Wall Street historian and author of books about the industry. Mark Williams, a lecturer at Boston University and the author of a book about Lehman Brothers' collapse, puts it more bluntly: “Although politicians love to publicly decry Goldman



"How much for that hotel on Pennsylvania Avenue?" 40

Book smart and dollar poor: Higher education yields are down 41

Sachs, in times of need they run to the firm for capital-markets expertise and to fill key cabinet seats." Trump is no exception. Despite painting Goldman as a symbol of a corrupt system during the campaign, he is leaning heavily on the firm's people.

Goldman's Chief Executive Officer Lloyd Blankfein didn't wait long to return the favor, telling a German newspaper that Trump "may turn out to be a much better president" than many expect and that his firm will benefit if Trump succeeds in stimulating the economy. Cohn's departure also gives Blankfein a few more years without an obvious heir apparent, cementing his control at the firm.

Cohn and Mnuchin are poised to preside over a rollback of financial regulations that arguably threatened Goldman more than any other top bank in the years following the financial crisis. Most notably, Trump has said he's considering a repeal of the 2010 Dodd-Frank Act that Congress passed to protect consumers and prevent a repeat of the financial crisis. Regulators appointed by Trump could also choose to give banks more leeway with certain rules, even if they remain in place.

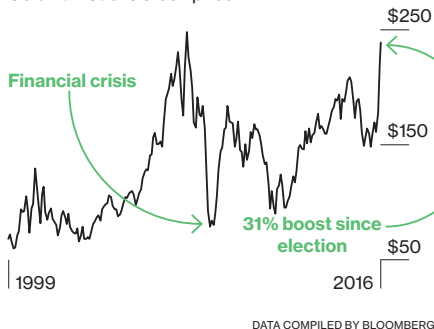
A key part of Dodd-Frank is the Volcker Rule, a law named for former Federal Reserve Chairman Paul Volcker that was intended to cut Wall Street risk-taking by banning firms from making bets with their own money and limiting investments in hedge and private equity funds. The rule was particularly tricky for Goldman, which gets about half its revenue from trading and held billions of dollars in such funds.

Industry lobbying and regulatory infighting delayed enactment of the Volcker Rule for three years after Dodd-Frank's passage, and it was another two years before the rules went into effect. Many banks moved quickly to comply, selling off their hedge funds and private equity stakes, sometimes at fire sale

Goldman has been slow to comply with the Volcker Rule, which could go away under Trump

Back in the High Life Again

Goldman Sachs stock price



DATA COMPILED BY BLOOMBERG

prices. In 2013, Citigroup gave away about 75 percent of one of its hedge fund units for free. Other banks, including Goldman, took a slower approach to complying with the Volcker Rule and applied for extra time to sell stakes. That strategy is already paying off, as the Fed has granted two one-year extensions and indicated that it may give banks until 2022 to comply.

That extension could save Goldman from a costly headache. It held as much as \$6.9 billion in investments affected by the rule, according to its most recent quarterly securities filing. Morgan Stanley, by contrast, holds just \$2.2 billion in such investments. "Regulators have been letting the banks hit the snooze alarm on this divestment for years," says Marcus Stanley, policy director of the nonprofit Americans for Financial Reform. "The banks, at one point, were betting that Congress would pass something that would let them out of it. I hope that bet hasn't paid off."

No matter what happens under Trump, parts of the Volcker Rule will likely remain tough to enforce. A Goldman trader generated about \$250 million in revenue earlier in 2016 by trading risky high-yield bonds, leading compliance staff to conduct an internal review into whether the trades violated the rule. The review found they didn't and could be defended against regulatory inquiries, according to people with knowledge of the review. "It's a blurry, subjective definition," says Stanley. "We've had a lot of doubts about Volcker enforcement even under this administration."

Expectations for Goldman's 2017 profit have soared since Trump's win,

rising by \$543 million over the past month to \$7.67 billion, according to the average estimate of nine analysts surveyed by Bloomberg. The firm's surging stock price has been the largest driver behind the Dow Jones Industrial Average's climb toward 20,000.

Goldman bankers are certainly feeling wealthier. The firm's partners own almost 7 percent of the stock, according to a recent filing, and it can't hurt to see former colleagues poised to take key roles in the White House. "They've proven adept at landing on top and thriving during Democratic or Republican administrations, as well as in bull and bear markets," says Boston University's Williams. "This time is no different." —Dakin Campbell

The bottom line Goldman Sachs stands to be among Wall Street's biggest beneficiaries of a Trump administration.

Law

Can You Say Class Action in German? Nein

► VW litigation highlights benefits of the U.S. system for plaintiffs

► "It's no surprise that investors sue in the U.S. whenever they can"

Andreas Tilp was born in Plochingen, Germany, studied law a short train ride away in Tübingen, and works in the neighboring town of Kirchentellinsfurt. In what could be the biggest case of his decades of practice, he's representing hundreds of clients in a lawsuit against that most German of companies, Volkswagen, which will be heard in a courtroom in Braunschweig, a 45-minute drive from VW's headquarters. Sometimes, Tilp wishes he were American. "The German system is totally hostile to plaintiffs," he says in the converted 1920s textile mill that serves as his office. "It's no surprise that investors sue in the U.S. whenever they can."

Tilp represents shareholders seeking damages of €5.2 billion (\$5.4 billion) ►

◀ from Volkswagen. They say the company was late in disclosing a U.S. probe into cheating on emissions tests, an allegation VW denies. If the case were brought in the U.S., it would likely be easier to reach a settlement, as American attorneys did when they sued VW on behalf of car owners. Eight months after the emissions scandal broke, VW agreed to a \$10 billion deal that provided U.S. buyers with as much as \$10,000 each—and the plaintiffs’ attorneys with \$175 million.

For **Tilp**, it won’t be that quick, and it will probably be far less lucrative. In the U.S., lawyers can file a suit for one client and ask that it be certified as a class action for everyone in a similar situation. Attorneys typically finance cases themselves, and most members of the class never see a lawyer (let alone a legal bill) but can get a check if the case is won or settled. In Germany, by contrast, each plaintiff must file individually and pay legal fees upfront. Investor suits—but not other kinds of claims—can be bundled for gathering evidence. If plaintiffs get a favorable ruling, though, they must resume their individual cases to determine damages.

German plaintiffs who lose must pay their legal bills—and those of the defendant, because of a loser-pays-all rule. Lawyers can’t finance lawsuits and usually are barred from getting a share of money they recover, rules designed to keep attorneys from taking only the most lucrative cases. Germany does allow third parties to shoulder the risk of such cases, and Tilp is working with Irish and British firms to cover some of the costs of the VW litigation. “Attorneys could handle cases here much more efficiently if they could take contingency fees or finance their litigation,” Tilp says. “German law cripples lawyers.”

For previous suits, Tilp worked around some obstacles by setting up sister law firms in Switzerland and on the Portuguese island of Madeira,

where rules are less strict. He did the same in the U.S., where he filed a class action against **Deutsche Telekom** that was settled for \$112 million in 2005. That road is blocked for holders of VW’s Frankfurt-traded shares: A 2010 U.S. Supreme Court ruling makes it harder to sue companies in the U.S. when their shares aren’t directly listed there.

The VW scandal has given new life to a German government proposal to allow more joint actions. Under the plan, certified consumer associations and trade groups—but not lawyers representing individual clients—could file collective lawsuits. Claimants would sign up for only a small fee and avoid hiring their own attorney until the damages phase. That still won’t mean U.S.-style payouts, because Germany doesn’t allow punitive damages, and there are no jury trials, which critics say lead to bigger awards.

The BDI, the main lobbying group for German companies, frets that the proposal could pave the way to what it calls “abusive excesses.” The group says any move in that direction opens the door to other elements of U.S. litigation, such as discovery, in which plaintiffs’ attorneys gain access to a company’s internal information. That could unduly pressure companies to settle cases rather than fight them in court, says Heiko Willems, BDI’s head of legal policy. “There’s the danger of abuse,” he says. “Companies shouldn’t be named and shamed.”

Tilp well knows the frustrations of the German system. In 2001 thousands of shareholders sued Deutsche Telekom claiming they were misinformed in a stock sale, a case related to the 2005 U.S. settlement. Tilp has been involved in the suit for more than 15 years and the plaintiffs’ lead attorney for a decade. A Frankfurt court in November finally ruled in their favor—several months after Tilp’s primary client died. Although that doesn’t affect the outcome, it’s unclear whether the client’s heirs or other plaintiffs will see any money. The court found only that Deutsche Telekom made an error in its sales prospectus. Shareholders now must resume their individual suits, and the company might try to show that losses didn’t result from that error.

Tilp is optimistic the VW case won’t take that long. He predicts the Braunschweig judges will minimize

delays and rule by the end of 2018. After all, he says, in a globalized economy it’s important for Germany to offer investors protection that’s as robust as that available elsewhere. “The VW litigation,” Tilp says, “is the last chance for the German capital market to show it’s a worthwhile place to invest.” —*Karin Matussek, with Margaret Cronin Fisk*

The bottom line The VW emissions scandal has spurred Germany’s government to speed up rule changes that would allow more collective lawsuits.

Real Estate

Selling Trump’s D.C. Hotel Wouldn’t Be Easy

▶ **Too high a price could raise questions about conflicts**

▶ **“All of the possible solutions are sticky”**

The Trump International Hotel Washington D.C. has become a symbol of President-elect Donald Trump’s conflicts of interest around the globe. Ethics specialists and lawmakers have pressured Trump to separate himself from the hotel, but the paths to divestiture aren’t straightforward. On one hand he might face a financial loss should he try to sell it quickly. If he puts the hotel on the market and gets high bids, that might create the impression that potential buyers are seeking to curry favor with the new leader of the free world.

As president, Trump would essentially be on both sides of the lease for the 263-room hotel, which opened in September. The federal government he’ll run owns the renovated building, the historic Old Post Office, and rents it to the hotel. For the **Trump Organization** to recoup its \$212 million investment in the make-over, a buyer would have to pay about \$806,100 per room. It’s unclear whether the property could attract a bid that high.

“At \$800,000 a room, it would certainly be at the top end of the market for luxury hotel values” in the district, says Andy Wimsatt, a Washington-based managing director



The valuation of the property “would be dictated by the prominent landmark status of the building and the appeal of buying an asset from a sitting president.”
—Tom Baker, commercial broker

in hotel brokerage and investment sales at **CBRE Group**. Since the hotel has been open for only three months, there’s no meaningful income data yet on which to base a sale price.

The Trump Organization has said it spent about \$212 million—about 80 percent of it borrowed from **Deutsche Bank**—to redevelop the building, located a short walk down Pennsylvania Avenue from the White House. Patricia Tang, director of sales and marketing for Trump International Hotel, declined to comment. The president-elect’s transition team didn’t respond to an e-mail seeking comment.

By one measure, \$800,000 per room is in the middle of the range for luxury D.C. hotels—but only for deals that include the land. At least four sold during the past 18 months, fetching from \$451,200 a room to a record \$1.3 million a room, according to brokers. Three of the sales were in the Georgetown neighborhood. Unlike Trump’s hotel, they were so-called fee-simple deals, in which the property and the land are sold outright. Trump pays \$3 million a year in base rent for a 60-year ground lease with the federal General Services Administration, with two renewal options for 20 years each. Many buyers are put off by ground leases, whose terms vary widely, so such properties tend to sell at discounts.

Of course, economics are only part of the equation in a potential sale

of the property, where Trump’s name stands in gold letters and five American flags fly above its ceremonial front doors. Trump’s win gives his brand-new value, says Tom Baker, corporate managing director at commercial broker Savills Studley. The valuation of the property “would be dictated by the prominent landmark status of the building and the appeal of buying an asset from a sitting president,” Baker says. The trouble is, “if the price were well above market, then you would have to question the motives of the buyer.”

Without specifying his own role, Trump has said his sons Donald Jr. and Eric will take over his company and won’t do “new deals” during his time in the White House. Trump controls the hotel through his 77 percent ownership of a limited liability company called Trump Old Post Office; his eldest three children own about 7.4 percent each. The GSA bars any sale for three years from the hotel’s opening, so a transaction would likely require a waiver from the agency.

Frank Murray, a partner at Foley & Lardner who specializes in government procurement, says it’s unlikely such a deal could be pulled off before the inauguration on Jan. 20. It also could be complicated to adapt the lease, which is specific to the Trump Organization, to a new tenant, Murray adds.

If Trump gained from a transfer, he could run afoul of the lease’s provision that forbids an elected official from receiving “any benefit that may arise” from the agreement, according

to Matt Schoonover, a lawyer at Koprince Law, which focuses on federal government procurement. “That’s very broad,” he says. “Where does this benefit begin? Where does this benefit stop?”

Meanwhile, four Democratic lawmakers said in a Dec. 15 letter to the GSA that Trump would be in violation of the lease if he doesn’t rid himself of all financial interests in the hotel before taking office. The GSA has said any such conclusion is premature. “All of the possible solutions are sticky,” Schoonover says. “There’s not really a clean way out of this for anybody.”

—Hui-yong Yu and Ben Brody

The bottom line If it were sold, Trump’s new Washington hotel would have to fetch a lofty \$800,000 per room to recoup renovation costs.

Endowments

Little Good News For the Little Ivies

► **Sophisticated strategies didn’t help liberal arts schools last year**

► **“Right now if you’re not diversified, you’re doing better”**

Beyond the Ivy League, there’s a group of prestigious, mostly smaller colleges spread across the Northeast U.S. These private schools count many top financial professionals among their alumni and donors. But having access to Wall Street’s best and brightest is no ►

Investor Anxiety

What keeps bond investors up at night? **31%** said their biggest concern

Up from 9% in October

for the coming year was the rise of populism in politics, according to a Bank of America Merrill Lynch survey of high-grade credit investors in December.

France, the Netherlands, and Germany all have elections in 2017

Only **13%** cited rising yields—which is bad news for traders,

It was 6% in October

because it means falling prices—as their main worry. —Natasha Doff

The yield on the Bloomberg Barclays Global Aggregate Index this month hit the highest level since January



The S&P 500's total return was 4%

◀ guarantee of winning investment results for college endowments—especially not amid the global market volatility that dominated the schools' recently reported fiscal year, which ended June 30.

Over those 12 months, a group of 18 liberal arts schools sometimes dubbed "Little Ivies" lost an average of 3.3 percent. That trailed the 2.5 percent average loss posted by 450 endowments tracked by Cambridge Associates. The eight Ivy League schools were down 0.8 percent on average in the same period, according to data compiled by Bloomberg.

Over the longer term, some small schools have impressive records. Maine's Bowdoin College, whose investment committee includes hedge fund manager Stanley Druckenmiller, class of '75, has one of the best five-year records in higher education with a 9.9 percent average return. It was better than average last year with a loss of 1.4 percent. Even Middlebury College, which lost 4.5 percent over those 12 months, still gained a solid 7 percent annualized over the past decade.

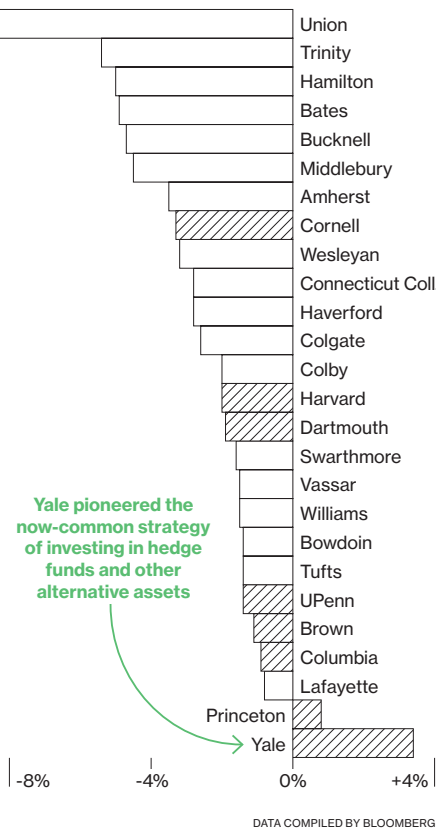
So what happened last year? Most of the schools declined to comment on their investment funds' performance. But clues can be gleaned from some of their annual financial statements. The endowments tended to follow Wall Street's current wisdom to be very broadly diversified, not only holding many different stocks but investing in emerging markets, hedge fund-like strategies, and alternative investments.

Heather Myers, a partner at Aon Hewitt's investment consulting division, says many selective liberal arts colleges have sophisticated portfolio strategies and are willing to take risks that other less-wealthy schools won't. They also tend to have long-standing ties with top managers. "They have different access," she says. "It's a whole different level of insight than other pools of capital."

But it wasn't a very good year for the kind of insight most Wall Street pros have to offer—a fact also reflected in the recent weak performance of the hedge fund industry. "The theory is diversification should protect you, but right now if you're not diversified, you're doing better," says William Jarvis, executive director of Commonfund Institute, which works with nonprofit investors. Over the year ended in June,

Prestige Can't Buy Performance

Endowment returns in the 12 months through June
 ▨ Ivy League ▢ Little Ivies



Yale pioneered the now-common strategy of investing in hedge funds and other alternative assets

an index fund portfolio of 60 percent U.S. stocks and 40 percent bonds earned about 4 percent.

Williams College, which had a comparatively small 1.5 percent loss, noted in its fiscal report that while U.S. stocks were up, world markets, and especially emerging markets, fared poorly. The college saw a decline of 7.6 percent in its global equity portfolio. It also held hedge fund-style long-short funds—which can bet on certain securities falling in price—that lost 6.7 percent. The Massachusetts college's \$2.4 billion endowment has earned an annualized 7.3 percent over a decade.

"It's fairly typical for a number of endowments to have quite high weighting toward international equities and emerging markets," says Joseph Bohrer, chief investment officer of the \$740 million endowment at Lafayette College in Pennsylvania. He says his school leaned more heavily than others toward U.S. stocks, as well as fixed income, which helped it to keep losses to just 0.8 percent, the best showing among the 18 schools.

Union College, founded in 1795, was the worst performer, with a 9.7 percent decline. The Schenectady, N.Y., school's endowment is now worth \$390 million. Wall Street is well-represented at Union, which has at least three Goldman Sachs veterans on its board of trustees. David Henle, Goldman's former head of private wealth management, who left to start DLH Capital in 2005, is vice chairman of the board.

The school's annual financial report shows it held hedged equity funds, which fell about 12 percent in value in the year through June. Debt-related funds fell by half. The school had no comment on its investment performance. Union College's average return for the decade through June is 5 percent. That's about what it spends out of the endowment on school operations every year.

The tension between investment earnings and spending from endowments has become an issue across higher education. The strain is particularly pronounced at institutions that typically count on endowments to subsidize more than a third of their operating budgets, as some rich schools do. At the same time, schools are facing pressure to rein in tuition and increase financial aid. Representative Tom Reed, a New York Republican, has proposed legislation to tax some schools if they don't devote a set amount of their investment gains to reducing the cost of attendance.

Haverford College near Philadelphia, which uses its endowment for 25 percent of its operating budget, said in June it was capping financial aid after its credit rating was downgraded amid persistent budget deficits. Haverford lost 2.8 percent in the fiscal year.

Lafayette's Bohrer says underperforming in a volatile year is to be expected from a diversified strategy. "It's tough to say that a one-year period is long enough to say who's doing a good job or not," he says. "These are extremely long-term-focused investment programs."

—Michael McDonald and Kate Smith

The bottom line Liberal arts colleges in the Northeast may be well-connected to Wall Street, but that didn't protect them in a volatile year.

B Edited by Pat Regnier, David Rocks, and Matthew Philips
 Bloomberg.com

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When Couples Need Financial Therapists

It's well known that money is one of the topics that couples fight about most. Increasingly, a new kind of financial advisor is helping couples deal with issues that bridge the interpersonal and financial spheres, according to Dr. Kristy Archuleta, a Human-Centric Insights Panelist, Program Director of Personal Financial Planning at Kansas State University and a past President of the Financial Therapy Association.

How common is it that couples who see a financial advisor have relationship issues that interfere with their financial planning? Research indicates that about one-third of couples who see a financial professional report having marital issues, and about one-third of couples who see a marriage therapist report financial problems. So what that tells us is that couples may be confused when they are seeing a professional—whether it's a financial advisor or a therapist—about what their underlying problem is.

There is this third type of professional—neither a financial advisor nor a relationship therapist, but a financial therapist. What do they do that is different from the other two roles? Traditionally, mental health professionals have zero training about money issues. It's not taught at all when studying to become a therapist. Likewise, financial advisors receive little to no training in interpersonal communications. A financial therapist brings these two disciplines together because they have training in both. A financial therapist works with the whole person, including their partner and/or family. By calling on the expertise of a therapist, a financial advisor can help couples solve their underlying communications issues, so that the advisor can help them reach their financial goals.

Are there limits on what a financial therapist can do for clients? Yes. They can't make financial decisions for clients who are compromised. For instance, you can't ethically treat someone's depression and also make investments for them. But you can help them move down the road toward better financial planning.

How can financial advisors identify couples who could benefit from speaking to a financial therapist?

THERE ARE FOUR THINGS THEY SHOULD LOOK FOR:

- 1 The couple argues, but never resolves the issue. All couples argue, but it's worrisome when issues are never resolved, or when the way the couple argues is destructive to one another.
- 2 Only one partner contributes to the planning process. This could be a sign of a power and control dynamic in which one partner controls the other by not allowing them to participate.
- 3 The couple plays the blame game. When partners blame each other, they often fail to look at their own contributions to the problem, and what they can do differently in order to help resolve the issue.
- 4 One or both partners display uncontrollable worry, fear, anxiety or depressive symptoms around money.

How can financial advisors find a financial therapist for clients? The Financial Therapy Association [FinancialTherapyAssociation.org], of which I'm a past President, has a nationwide network of providers who refer to themselves as financial therapists. FAs should also reach out to relationship therapists in their community, so they can be prepared to make a recommendation to someone they trust.

Couples may be confused when they are seeing a professional about what their underlying problem is.



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Dr. Barbara Nusbaum

Clinical Psychologist, Ph.D., expert and speaker, specializing in the intersection of money, psychology and life

Dr. Nusbaum works with individuals, families and organizations on the impact of the emotional/psychological side of money. She has appeared as an expert for *The New York Times*, *CBS News*, *Forbes*, *The Wall Street Journal*, *Bloomberg*, *Money Magazine* and *Daily Worth*.



Dr. Kristy Archuleta

Program Director of Personal Financial Planning at Kansas State University

Dr. Archuleta's research relates to the area of financial therapy and includes dyadic processes influencing financial and marital satisfaction.



Dr. Vicki Bogan

Professor and Director of the Institute for Behavioral and Household Finance (IBHF) at Cornell University

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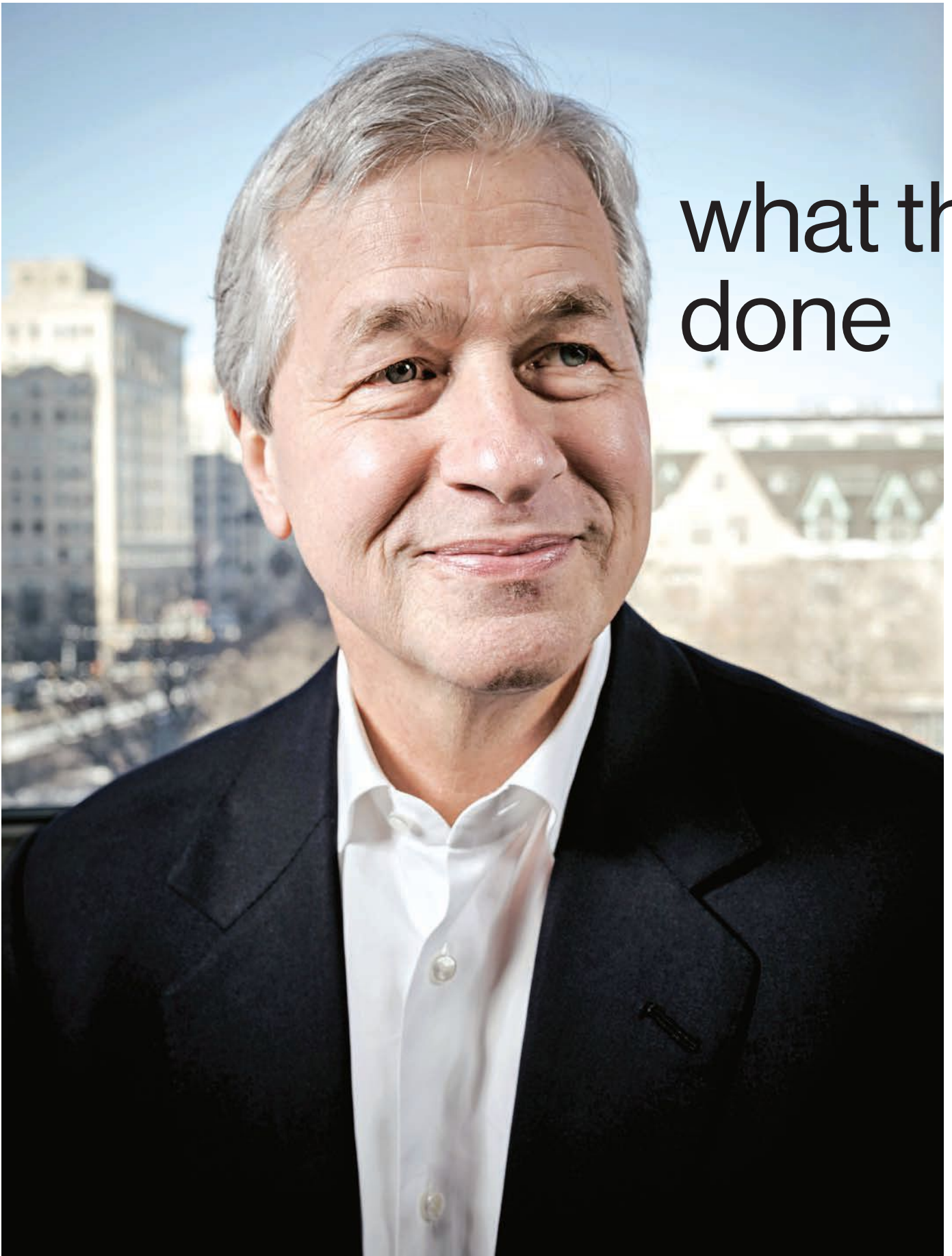
Tim Sanders

Author and expert on motivation, emotional talent and sales innovation

Tim is the author of five books including the New York Times bestseller, *Love Is the Killer App: How to Win Business & Influence Friends*. He was the Chief Solutions Officer for Yahoo, as well as their Leadership Coach.

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what th
done

‘If you can duplicate
they’ve
in Detroit
around the country,
you’re going
to have
a huge
renaissance’

Jamie Dimon, the CEO of JPMorgan Chase,
talks about the city’s revival— and his views on the incoming
Trump administration—
with *Bloomberg Businessweek* Editor Megan Murphy
Photograph by Wayne Lawrence

We're here in Detroit to look at what JPMorgan Chase has done with a five-year commitment to invest \$100 million in the city. Why is an initiative like this good business for you as well as for Detroit?

I would do it for moral reasons alone. But it is good business. We are the largest bank in Detroit. The National Bank of Detroit was started by General Motors in 1933 in the Depression when most banks were closing. That bank merged with First Chicago, Bank One, and then with JPMorgan Chase. So here we are, the largest bank in consumers, small business, middle market. We bank all the major institutions, the hospitals, the major companies here, and the government. It's an important town for us. It's probably one of the only towns in America that really did not have a renaissance in the 1980s, 1990s, and 2000s. So this has been a train wreck we all knew was coming for about 20 years. **It's been two and a half years now. How have you learned to get things done?**

We knew a little bit about the mayor: a white man who got elected in a mostly black community. He asked, "What do you need in Detroit?"

"We need the streetlights on." He got them on, all 65,000.

But this mayor had this huge set of problems: "We need jobs. We need affordable housing. We need housing for commercial markets. We need training and skills." He didn't have one thing to focus on. He had to focus on all of them.

It doesn't work to do one. He had to get hope back. He had to bring businesses back. He had to build affordable housing. He had to get training, get schools, get the police, the sanitation, the sidewalks. And you know, this man—with a smile—set up all these things like we would have done in business: the war room for lights, the war room for sanitation, the war room for this and that, constantly tracking it all. And it's working.

It was because Mayor Mike Duggan—and Rick Snyder, the governor, too, by the way, one a Democrat, one a Republican—were saying, "Let's go work to make this work for society." And we were all in it. We didn't just come here to throw money at it, which is easy to do and can often be wasteful.

Peter Scher, our head of corporate responsibility, asked them, "What do you need?" They needed, for example, to get rid of 70,000 blighted homes, but they didn't know where they were. So someone came up with this idea, and we funded it: "Use your iPhones and your iPads, take a picture and geolocate every home you know." Now, 10,000 blighted homes have been shut down. Now they can plan. You can start selling homes by mobile phone right now.

We wanted to be an accelerator. If you can start up entrepreneurs, that helps the whole community. We try to think more how venture capital helps this get going: working with the governor, the mayor, all the city, the not-for-profits here. We also had our people come. We provided data, analytics, money, advice, consulting, all the things you need to get things off the ground. It's been a fabulous effort. And honestly, without a mayor like this, I think it would have been a total waste of time.

Is government policy not structured to actually get things done?

It shows you the worst part of public policy. You could throw money at it and, unfortunately, it took the train wreck almost to happen to bring in a mayor with a vision and leadership skills to get this done. If we help the city, it helps our business. Remember, we bank here. We need a healthy, vibrant bank. We can do it elsewhere, too, and help communities where we are. It's good for society and obviously very good for business.

Where are the areas where it's going a bit slower?

Everything needs to work at the same time. But what keeps

society vibrant permanently is jobs, industry, business, and stuff like that. It pays for everything else. If you just build affordable housing and those people don't have jobs, it'll no longer be affordable soon. So you really have to build around the business community.

Is what you're doing in Detroit replicable? Is it possible to unite on a broader scale given the extreme divisions of the country and a cast of characters in a new administration that is very different from what we've seen in the past?

I run one of the biggest banks in the world. And I have a good relationship with unions. I try to have a good relationship with everybody, and that's my job to make sure we do it. I'm a little bit of an eternal optimist. People always say to me, "If you go do this and it fails, what are you going to do?" I don't care. I'm going to give it my best shot. That's what I'm going to do. If it doesn't work, it doesn't work. And I'll try again.

Business has to have a seat at the table.

Infrastructure isn't going to be built properly if business doesn't have a seat at the table.

A school is not going to happen if businesses don't work with schools about what kind of jobs they really need.

I'm going to oversimplify this, but what happens with infrastructure is that the Democrats say, "Spend money. Just spend money." And, of course, we do a lot of that. A lot of people feel it just goes out to bridges to nowhere. So the Republicans are right to be questioning how the money gets spent. There are a lot of ways to do that. A lot of it, by the way, is to give it back to this mayor who knows how to do it. We don't want Washington to tell the mayor what he needs.

There was speculation about you going into this new administration as Treasury secretary.

I don't think I'm suited to be secretary of the Treasury. I love what I do. I'm not ready to do something else. I think I add a lot of value to America just doing what I'm doing.

As recently as September, you thought it would be difficult for people on Wall Street to get into the new administration. Now, Donald Trump has tapped several Wall Street figures. What do you think they're going to bring that's different?

Obviously, I was dead wrong about that. But you had a complete upheaval. The Republicans are in charge, and they have not been anti-business the way you've seen the Democrats largely be anti-business for years. I think if you are going to be president, you should have the best people sitting around a table. I think it's a mistake for the American public to constantly be told that if you work for an oil company or you work for a bank, that automatically makes you bad. I think a lot of these people are very qualified people who are patriots. They're going to want to help the country. They're not going to try to help their former company. These are people with deep knowledge that will hopefully do a great job.

I think it's a reset moment for how businesses are going to be treated: 145 million people work in America; 125 million of them

work for private enterprise; 20 million work for government—firemen, sanitation, police, teachers. We hold them in very high regard. But you know, if you didn't have the 125 you couldn't pay for the other 20. Business is a huge positive element in society. But for years it's been beaten down as if we're terrible people. So I think it's a good reset.

Detroit is a perfect example where civil society, not-for-profits, government, business all work together to improve the lives of American citizens. If you can duplicate what they've done in Detroit around the country, you're going to have a huge renaissance.

What is your diagnosis about what's going on in this country, this economic angst, the anti-immigrant sentiment?

It's not anti-immigration per se. America's changing too much for that. The core of the frustration and anger were two things. First, middle-class incomes have really not grown for 15 years. Second, the difference between unskilled and skilled has been growing over time. The unskilled really have a hard time having what you would call a living wage.

There are solutions. Skills training, like they do here in Michigan. I would also greatly expand the earned income tax credit. We only do it for mothers with babies. We don't do it for single men. So if you're making \$8, \$9 an hour, the government will pay you \$3 or \$4 [as part of your tax refund]. Figure it as negative income tax. If I can give you a job at a living wage, it helps small businesses. It's not necessarily good for big business, but it's a wonderful thing to do for society.

I think fixing corporate taxes, immigration, trade, all done properly will have fast results in America. Unfortunately, a lot of people who talk about fixing those problems, their answer is beating up on business is going to make it better. It's not.

Let's talk about increasing minimum wage. You believe it's vital to growth. We now have Andy Puzder as Trump's nominee for labor secretary. He's been one of the staunchest opponents of raising the minimum wage.

What he said is that the government should be very careful about raising its minimum wage too high. It should be a decision made at a local level because, you know, California and New York City can afford \$15, but upstate New York can't. What he's saying is that he's not against states raising it thoughtfully to help people. I'm in favor of that. I would not be in favor of the federal government doing it and imposing real hardships.

But the other thing is, if your business can afford it, raise it. Share the wealth a little bit, OK? I tell people at JPMorgan I'm more worried about the pay of our lower-paid people than our higher-paid people.

And raising minimum wage will help small business. If you're a small business that needs wages at \$10 an hour to get by and you can't afford medical—I'm not saying you're a bad person, but that's how you survive—then this will really help you. You'll be able to attract better people. They'll be paid more. You'll probably have less attrition. And it will allow you to maybe afford more benefits over time. Raising it is just a teeny piece of it.

You're going to be chairman of the Business Roundtable, a group that's advising the president-elect on business policy.

Obviously, advising anyone who's president. I'm a patriot. I've always offered my help. I did to President Obama. I will to President-elect Trump. What I've heard is he wanted it to be about jobs and growing the economy. So it'll be specifically about that. The BRT is 192 companies, pretty much Fortune 500 or the S&P 500, but representing half of all capital expenditures in the United States. It drives a tremendous amount of growth. I think the BRT could take a very proactive approach to help solve the nation's problems and be

part of the solution. That's why I took on the challenge.

We're talking very specifically about the need for corporate tax reform. We are driving capital overseas every single day. And you know, I think the government made a mistake to act as if the inversion was the problem. The problem is that

our tax rate is so
much higher
than the rest of the world and
the rest of the world's been coming down in order to stay level.
Because of that,

companies are leaving
their money
overseas.

They're reinvesting it overseas.

They're buying companies overseas.

And some of that's
permanent.

It's not coming back.

So I think the only question is how much damage is done before we change it. Every study shows that reducing corporate tax rates helps lower-paid people and wages. I'm hoping the new administration can do that.

You've talked quite vocally about education and immigration. How are you going to spearhead those initiatives?

I think one of the greatest disgraces in this country is the fact that in a lot of inner-city schools, 50 percent of the kids don't graduate high school. And even those kids who graduate are not necessarily job-ready. That's a crime. That's America at its absolute worst. We are allowing that to happen, and these kids don't have the opportunity we all had at one point in life. We have to fix it. It's not whether something's free. It's whether it ends up where you're properly trained for a job. If you go to Germany, for example, two-thirds of the kids at 15 or 16 go to vocational school. Those vocational schools work with local businesses so the kids get a certificate that leads to a job.

In New York City there's a school called Aviation High School. Kids travel from all over the city. They're trained in how to maintain small aircraft, electronics, hydraulics, electrical systems. When they graduate, everyone gets a job—\$60,000 a year. You can do that in robotics, coding, accounting, a lot of health-care fields. That's what we should be doing. It doesn't mean you can't go to college. It just means that you get an education that leads to a job.

As for immigration, there's the Schumer-McCain bill. It allows educated individuals—who mostly went to American schools and got advanced degrees here in science, technology, engineering, and math—to stay. I think we should let them stay and let them build their careers and homes and then have some kind of path to citizenship. And it's very tough. It takes 15 years, showing you're a good, law-abiding taxpayer here. You're a documented immigrant whose path to become a citizen is not behind everyone else's.

And look, we're not going to kick 11 million people out. President-elect Trump is different from candidate Trump. He's now said that if you break the law, we're going to



deport you. Of the 11 million undocumented, only 800,000 are estimated to have broken the law. By the way, that is the current policy of the United States. President Obama deported 2.8 million people for breaking the law. The BRT supports immigration. It is a pro-jobs argument.

The fact is, most people, when they say they want to get rid of immigration, it's not necessarily that they don't like immigrants. They're more afraid that the American way of life is changing. So you could be multicultural but still support the American way of life. This is the only nation on the planet that was an idea. It was a vision. It was a value. It was not a tribe. I think it's good that a lot of people want to make certain that it doesn't change. **The same thing seems to be happening in Europe as occurred in the U.S. Do you think it's a temporary phenomenon? A generational one? Or is it a permanent movement to redraw national borders, national identities, regrouping after two decades of constant disruption across so many destabilizing forces in their lives?**

I do think if you go to Europe and part of Britain, there is the same frustration on income inequality, about growth in wages, about lost jobs. How'd that happen? A lot of it is government policy, by the way.

A lot of what you saw
in America and you see

overseas is,
"I want a change."

They want a wrecking
ball

brought
to these governments.

A lot of us are sympathetic
with that.

We want to see something different. We want things to be better.

Ultimately, you have to have facts, analysis, and real detail to make that happen. Populism itself could destroy things. Just keep in mind about Europe: Since World War II, they've had peace. They didn't have peace for the 2,000 years before that. So there are benefits people are reaping. Maybe they've forgotten about it. It's important to have peace in Europe, too.

One populist issue is regulation, the kind that came after the crisis. In people's minds, less regulated means more risky. How do you see regulation playing out over the next four years?

JPMorgan didn't jeopardize the system. We did not cause the crisis. We have three times more capital than we had back then. We saved 30,000 jobs. We helped governments, cities, schools, states, hospitals that probably wouldn't have survived. But I understand the concept. The American public saw a disaster. It wasn't their fault—it was Wall Street and Washington. And they absolutely have the right to say, "We want a safe and sound banking system that doesn't cost me money and doesn't take down my economy."

That does not mean that therefore all these rules and

regulations are good. A lot of the things in Dodd-Frank had nothing to do with the crisis. Zero. Nada. It was just the pet peeves of certain Democrats.

But we have not solved the housing market with mortgages. That issue, which is divided among seven agencies, or something like that, banks and others are afraid to make mortgages to first-time homebuyers, the self-employed, or people who had a prior bankruptcy. Now, 80 percent of the time, prior bankruptcies are perfectly legitimate. It was usually due to death, divorce, disease, loss of job. They deserve a second chance. We haven't fixed that.

Even Chuck Schumer used to say to me, "Look, eventually this huge legislation will be opened up, we'll relook at it, recalibrate it, synchronize it. You know, reduce the negative parts that have no benefit while still accomplishing the ultimate goal." So it's a perfectly reasonable thing to try to figure out where you can do better—as opposed to the knee-jerk reaction that everything that was put in place is good.

Are the days over when the industry essentially had a scarlet letter on its back?

I don't know if it's going to be over. Most of our customers like us. I'm welcome in Detroit—and California.

When the second TARP [Troubled Asset Relief Program] happened, that was a scarlet letter. Not every bank needed it. But the rhetoric was that all the banks were bailed out. They were not all bailed out. But that became a scarlet letter.

I don't think it's going to go away for a long time. I think all you can do is just earn your stripes every single day by doing a good job for every client, every single community, and every single city around the world. That's my job. I'm very proud of JPMorgan Chase.

You're not going to be Treasury secretary, but you will be involved in advising the administration. When you think of your legacy, and looking forward with Detroit very much part of it as well, what do you want to be remembered for?

You gotta do it all, right? Just like the mayor's doing here, you've got to have systems right, technology right, culture right, people right. I've got to do it right in every country. I gotta get the whole mosaic right. So the one thing I want people to say is, "We're gonna miss that son of a bitch. The world is better off for him. He made this a better place."

I am so damn proud of my company. You need a JPMorgan Chase for the great future vitality of American society.

Is there going to be a second act after you leave, when you leave?

I live and breathe JPMorgan Chase. I wear this jersey, "It's not about my comp." I really mean it. I want to make this place better. And so when I leave here, I'll probably teach a little bit. I may write a book. I have been through a lot. I'm lazy, so I'll probably go to New York City and maybe join or start an entrepreneurs of color fund like we have here in Detroit. It's going to be a gas. I'm going to do a lot of stuff. But I will not run another major big company.

And if Donald Trump did call you in a year's time, in two years' time, if we did see the economy teetering a bit. Would you take the call?

I would never not take a call from the president of the United States of America and would listen to what he has to say and consider what he has to say. Again, I don't think I'm suited for it.

Now, if you somehow convinced me I'm the only one who could do something like that, I would consider it a patriotic duty. I doubt that's ever gonna be the case.

But you're open to it.

I would take the call. ③



Bloomberg

MARKET DATA OVERVIEW

COMP	FINANCIAL	INDEX	EQS
BOV:JPMBS	1007.74	1007.74	1007.74
BAF:SOO	2.20738	2.20738	2.20738
SP:STOCKS 50	2075.41	2075.41	2075.41
KOSPI	239.94	239.94	239.94

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AAPL:US	111.66	+3.44%	55.65
USD	12.29	+3.71	

005930:KS	1.57M	-0.19%	271.20
KRW	2.57	-3.00K	

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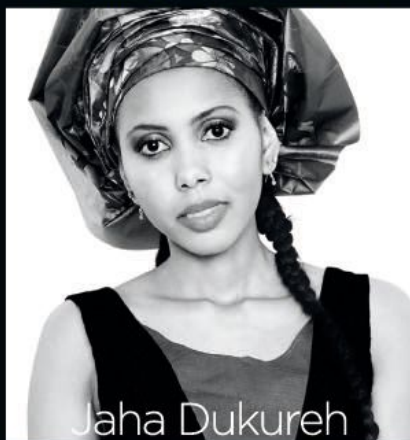




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THE GOOD BUSINESS ISSUE

In 2016 there were some profits—and lots and lots of losses. We at *Bloomberg Businessweek* can't solve Russian hacking or climate change, or, as our president-elect promises to do, "fix" Islamic State. Instead, we offer our reasonably hopeful annual Good Business issue. Here's an heroic scientist who uncovered the reef damage under China's manmade islands; the ranchers and environmentalists who are only semi-reluctantly participating in a form of group therapy to save

wolves in Washington state; François-Henri Pinault, the CEO of luxury group Kering, who could be splashing in pools of money, à la Scrooge McDuck, but has instead invested in lofty sustainability goals; and web giant Wikipedia, which wants to become a diversity standard-bearer—and doesn't care if that seems so 2015.

We also give you a chance to try doing good—by playing Good Choices: The Board Game™. Good luck and Happy New Year!



**MY,
WHAT
GREAT
BIG
SYMBOLIC
VALUE
YOU
HAVE!**



A COMPROMISE
BETWEEN RANCHERS
AND CONSERVATIONISTS
TO SAVE WOLVES IN
WASHINGTON STATE IS A
REAL-LIFE FABLE WITH A
MORAL THAT MIGHT
JUST SOLVE AMERICA

BY KAREN
WEISE
PHOTOGRAPHS
BY AMI
VITALE

Arron Scotten wants to take the long route to the scene of the killings. He's at the wheel of a steel-gray pickup truck winding down two-lane roads in the far northeast corner of Washington state, shotgun resting on the back seat, flip phone charging in the lighter, a pouch of Grizzly chewing tobacco in the cup holder. "See where those poplars are?" he asks, pointing down a valley ringed by rounded mountains and dotted with hayfields gently turning a golden fall yellow. "The caves up there are where my great-great-grandparents spent their first winter." In the 1880s, Scotten's forebears came by wagon to this area from Missouri, arriving too late to build a homestead before snow arrived.

Almost a century later, as a teenager, Scotten rode these hills on horseback. He left to join the Navy in 1996, and by 2012, when he returned to become part of the community of independent livestock ranchers, the area's once-thriving mining and timber industries had collapsed. Scotten works as what's called a range rider, under a new state program that hires horsemen to keep predators from devouring cattle on this mix of federal and private land.

The area, much of which is leased by Len McIrvin, the patriarch of a prominent ranching family whose herd Scotten protects, is usually ideal for grazing. "The grass is green, and it's lush, and the cows spread out a little bit and eat and eat," Scotten says. But the past few years haven't been usual. "Mother Nature has a very bitchy underside," he adds.

In 2015 a winter drought fueled a hellacious summer fire season. Scotten was one of many ranchers who worked from dawn to dusk to move thousands of cows to safety. This year the ranchers are facing another test: a wily family of 12 gray wolves known as the Profanity Peak pack.

For almost a century, no gray wolves were known to live in Washington, having been hunted to the brink of extinction by ranchers and farmers settling the West. Over time, scientists convinced much of the public that without apex predators, an ecosystem gets thrown out of whack. In 1974, a year after President Nixon signed the Endangered Species Act, gray wolves gained federal protection. This set up a decades-long process of returning the canids to the tall peaks and riverbeds that span the U.S. Northern Rockies and the Cascades.

In the mid-1990s government biologists captured dozens of wolves in Canada and trucked them into Yellowstone National Park, where they thrived, and, indifferent to state

borders, migrated west. In 2008 biologists documented the arrival of Washington's first wolf pack. Since then, the population has grown beyond expectations, by roughly 30 percent each year. In the last survey, taken in winter when it's easier to spot wolves against the white snow from a helicopter, the Washington Department of Fish and Wildlife (WDFW) counted at least 90, though officials suspect many more evaded detection. Fifteen of the 19 documented packs roam in the northeastern part of the state.

The majority of wolves don't pester livestock, but those that do can tear a 1-ton cow to shreds. The state pays twice the market value for each cow, sheep, horse, or other animal killed—payments that can total more than \$7,000 per claim—but these depredations keep cattle and ranchers on edge.

So far, none of the wolves has loped across the arid plains of Central Washington and over the rugged Cascade peaks toward Puget Sound. There they'd find, as the economy of Eastern Washington hollowed out, modern Seattle and its sprawl were ascendant. The same engineering brains powering Microsoft and its ilk are predisposed to obsess over the science of climate change. Now in this rainy region solar panels abound, composting is considered a civic duty, and the fate of two elephants, Chai and Bamboo, is enough to spark heated protests at a Seattle zoo. It turns out that the wolves that chose the Evergreen State as home made the best move for their long-term survival.

Where wolves are protected as endangered, unless one is caught in the act of eating a rancher's animals, it's a federal crime to kill them, punishable by fines or jail time. In 2011, after years of political fights and a growing gray wolf population, the packs in Eastern Washington and most of this stretch of the U.S. Northern Rockies lost their endangered



Scotten, with grandkids Skyler and Elayna, outside his cabin in Kettle Falls, Wash.

status. This left states responsible for instituting management plans that would maintain a healthy enough number of wolves to keep them off the list permanently—300 for the region is the minimum. Montana and Idaho, red states through and through, managed to keep their delisted status even though they issue permits for hunters to shoot the animals; more than 200 killings a year isn't uncommon. Legal nonprofit Earthjustice is representing several NGOs in a legal trench war as Wyoming attempts to get its wolves delisted; its proposed management plan allows for indiscriminate trapping, poisoning, and shooting.

The political schism within Washington has forced the state to work toward a more balanced approach. Aside from the divergent cultural persuasions, there are competing financial interests. Hunting and cattle ranching are worth at least \$700 million each. But wilderness tourists and vacation-home buyers, for whom a lurking rare animal adds to the allure of the outdoors, also keep the economy juiced.

Scotten recalls the 1970s antigovernment movement whose credo was recently rekindled just south, in Oregon, during the Bundys' armed occupation of the Malheur National Wildlife Refuge. "One wrong move around here," he says, "and you could see us teleported to the Sagebrush Rebellion."

Acrimony among hunters, ranchers, and conservationists reached a fever pitch in 2014, when wolves in the Huckleberry Pack ate one rancher's sheep by the dozen. The state sent a sharpshooter in a helicopter to kill one of the pack, but the sniper accidentally took down the breeding female. Tens of thousands of comments flooded the offices of the WDFW and the governor. Conservation groups sued, and ecoterrorists threatened physical harm to government staff and ranchers. To tamp down the flames, the state added more members from all the interest groups to its Wolf Advisory Group (WAG), a small and by then bitterly feuding committee of ranchers, hunters, and conservationists. They also hired an independent peacemaker named Francine Madden.

Madden runs a tiny nonprofit called Human-Wildlife Conflict Collaboration and has a self-defined job not unlike that of a group therapist. She told WAG's members that the wolf problem was actually a people problem. "When you have identity-level conflict—black vs. white, antigovernment sentiment, urban-rural divide, whatever it is—you can go anywhere in the world, and people will shoot themselves in the foot if they have a chance of hurting the other side," Madden says. She's spent more than a year and a half speaking with an estimated 800 people during hourslong conversations that took place everywhere from a LEED-certified building in Seattle to a supermarket deli out past where Starbucks roams.

Humans have long dumped their anxieties on wolves. Little Red Riding Hood was devoured by the Big Bad Wolf in the classic tale. In the 1960s, Canadian author Farley Mowat galvanized environmentalists to rehab the wolf's reputation with his book *Never Cry Wolf*, depicting them as friends who didn't threaten humans and largely fed on vermin rather than stately caribou. But wolves' negative image persists—it's always a "lone wolf" terrorist attack; gangs are "wolf packs." The wolf's image is split: It's both fanged monster and wise free spirit staring intensely from the cover of the latest Sierra Club calendar.

Madden won't say where she stands on the rangy animal; she works like a cipher. She's in her mid-40s, lives in Washington, D.C., and has a daughter. But beyond that she shares little, lest people assume that what pet she has or food she likes means she secretly favors one side or another.

Madden developed her approach to mediation in the mid-1990s, while serving in the Peace Corps in Uganda. Ecotourism there was improving protection for mountain gorillas. But officials failed to respond to the villagers' sense of peril, so people resorted to poaching. Madden helped the park and government see the vitality of adjacent communities as essential for the gorillas' welfare. Rangers started living in the villages and formed rapid response teams with farmers to chase attacking gorillas back into the park. Madden went on to apprentice with reconciliation teams

after Rwanda's genocide and the wars in East Timor and the Balkans. For two decades, she's applied the human-centered approach she learned to lessen poaching in countries such as Kenya and Mozambique.

The wolf conflict in Washington is her largest project yet. She signed a two-year, \$850,000 contract with the state that covers her salary and travel, plus support from two staffers. Shelly Short, a state legislator from northeastern Washington, was initially skeptical. Folks in her rural district don't appreciate urbanites telling them what to do. But after meeting Madden, Short was cautiously optimistic. "I was like, 'Huh. OK.' She sounded like someone who didn't have a dog in the fight."

Roughly every other month, Madden leads two-day WAG meetings. Jack Field, the no-nonsense executive vice president of the Washington Cattleman's Association, which has spent about \$175,000 in the past five years lobbying the state government, says he showed up at the first meeting with a long list of policies that he expected to resolve then and there, such as lowering the number of wolves required for recovery to be considered complete and deciding when the state can shoot wolves. "I don't want to talk. I want to do," he says. "But we can't all just go in and do if people don't have that level of trust. It just takes time."

Madden structured the meetings so each group—conservationists, hunters, and ranchers—could explain the histories and priorities of their communities. They'd grab drinks at the hotel bar and have dinner together in bland hotel meeting rooms at night, when they were forbidden from talking about policy. The WAG members came to learn about one another as three-dimensional people rather than parodies of the weak-minded envirokook or the selfish cattleman.

When a rancher spoke about receiving death threats from environmentalists, "that was a bonding experience right from the beginning," says Paula Swedeen, carnivore policy lead at Conservation Northwest. She says she hadn't understood why ranchers wouldn't take up her group's offer to pay for resources to prevent attacks. "You can be the most technically proficient and well-financed and well-intentioned," she says, "but it won't go anywhere" unless you have compassion for the threats ranchers are facing. Swedeen thinks her

"ONE WRONG MOVE

AROUND HERE AND
YOU COULD SEE US

TELEPORTED TO

THE SAGEBRUSH
REBELLION"

position was heard, too. “The planet is going down the tubes,” she says. “It’s large, existential threats about climate change, the loss of habitat, the number of species declining, and the government and general public are not acting in accordance with the scale of the threat.”

In May, just before the summer grazing season began, WAG reached an extraordinary detente. The ranchers agreed to adopt nonlethal protocols. For reducing wolf attacks, there are many such techniques: Guardian dogs can scare them off in summer, or foxlights, which flash at random patterns, can protect areas where calves are born. Range riders such as Scotten can create a human presence that wolves fear. Most bizarrely, wolves are also afraid to cross barriers known as fladry: little red flags tied along a white string, like those at used car lots. In turn, conservationists agreed that if the protocols failed—and many ranchers consider them hocus-pocus—the state could kill a wolf after confirming that its pack made four attacks on livestock. The number was arrived at based not so much on hard science as on what each side could stomach.

A necropsy performed by the state in early July, using forensic techniques such as measuring the depth of bite marks, confirmed that a pack had killed its first calf of the season—one of McIrvin’s. In the next two weeks, two more calves were killed by wolves, all in a large, remote area known as Profanity Peak. Following the new protocols, Scotten raced all summer to keep the wolves away from the languorous ruminants. His daughter helped him look up the GPS locations of a few wolves the state had fitted with radio collars before releasing them into the wild. His son rode out with him to scare the wolves with loud noises. The plan seemed to be working.

On a Tuesday night in August, about 60 people trickle into a microbrewery in Seattle to discuss the question “Can humans and wolves successfully coexist?” The guests grab seats at wooden tables and place orders for IPAs and grass-fed beef burgers before the panel, hosted by Seattle’s Woodland Park Zoo, begins. “Do you like wolves?” a young man in a baseball cap asks an older woman across a table. “I love wolves!” she says enthusiastically.

The panelists praise wolves for their adaptability: Their plump paws are perfect snowshoes in winter, and their lean, aerodynamic bodies help them run as fast as 40 mph and cover hundreds of miles across a variety of terrain. Suzanne Stone, a biologist with Defenders of Wildlife, points to the audience and asks, “Can I use you as guinea pigs?” She arranges volunteers into a pack structure. A zoo staff member in a khaki shirt holds his hand up high, like the pack’s strong alpha male holds his tail, while a woman with dyed purple hair hunches and folds her arms inward—a vulnerable pup. A woman in a brown cardigan takes the role of a beta female, which Stone likens to “middle management,” helping babysit pups while other adults seek food. As the pups grow, they

branch out, going through a lone wolf period before eventually forming new packs.

A pack’s family arrangement supports a high reproductive rate, which is why wolves have rebounded faster than the government anticipated. Two decades after the Yellowstone introduction, wildlife biologists are thrilled by how quickly the wolves have restored balance to the elk population, which had bloated after decades without a predator. The willow, aspen, and cottonwood that the ungulates had trampled regrew, attracting songbirds, filtering waterways, and bringing back beavers and other riparian fauna.

The three greatest threats to wolves, Stone tells the beer drinkers, are “us, us, and us!” As the panel wraps up, a tall man unfolds himself from a low couch in the back and introduces himself as Shawn Cantrell, the Northwest program director for Defenders of Wildlife and a member of WAG. “Two years ago this group existed, and it was the most dysfunctional group of people you could imagine,” he says. Now, they were transformed. “We’re not going to sit in a room and figure out how to argue,” Cantrell says. “We’re going to sit in a room and try to understand each other’s point of view.”

Cantrell tells the gathering that this slow work has made Washington the first state to come to an agreement. “We have dramatically increased social acceptance in the ranching community for wolves,” he explains. But, he says, “We’ve had to agree that if we get to a point where a wolf pack is, despite the best efforts of this livestock operator, continuing to attack his cows and sheep, we say, ‘Yes, we need to remove those wolves.’” Cantrell adds: “And ‘remove the wolves’ is a euphemism for kill them. Which is a really hard pill to swallow.”

With that, he issues a warning: The Profanity Peak pack has already killed three cows in July. “If we get to a fourth one,” he says, “the department is authorized to go in and start killing wolves in that pack.” A gasp ripples across the brewery. Cantrell goes on: “We are busting our backside to try to avoid that.”

The day after the brewery event, on Aug. 3, Scotten finds evidence of two more attacks, the fourth and fifth. Two months later he drives me to check out the site of the fifth, his truck rattling across the Kettle Range, over a land bridge between two ridges covered in golden huckleberry bushes and small pine trees. When Scotten arrived at the scene in August, it appeared that the wolves had chased and trapped a group of cattle against a barbed-wire fence, leaving mangled wire dangling between two posts. A calf had gotten hung up on the fence, according to Scotten, and when they found her, she had teeth marks and chunks of missing flesh. She’d already bled to death. He describes the mother cow as almost haunted, “running up and down, up and down, mooing, mooing, mooing.” Overnight, the Profanity Peak pack had blown past the threshold that authorized the state to kill some of its wolves, testing a fragile peace that was only a few months old.

Following the protocol recommended by WAG, on Aug. 5, the WDFW’s director authorizes the killing of a portion of the pack. The next day, a sharpshooter in a helicopter kills two female members. Everyone braces for the blowback. “Two days into the Huckleberry Pack removal, the governor’s office had received 20,000 e-mails and his switchboard was literally shut down,” Cantrell tells me a few days later. “It’s much calmer this time.”

For two weeks, the hills of the Kettle Range are quiet; the



Madden at a Wolf Advisory Group meeting in Tumwater, Wash., in March

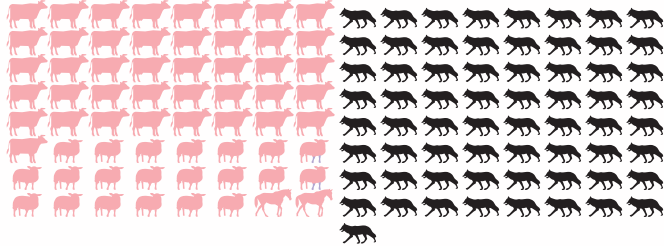
LIVESTOCK KILLED BY WOLVES. WOLVES KILLED BY PEOPLE

 Cattle  Sheep  Horses  Dogs  Gray wolves killed in 2015

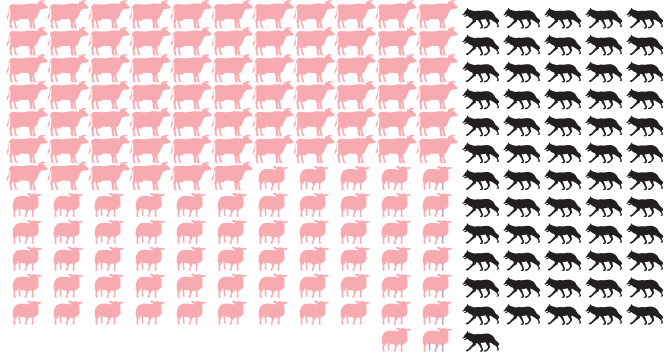
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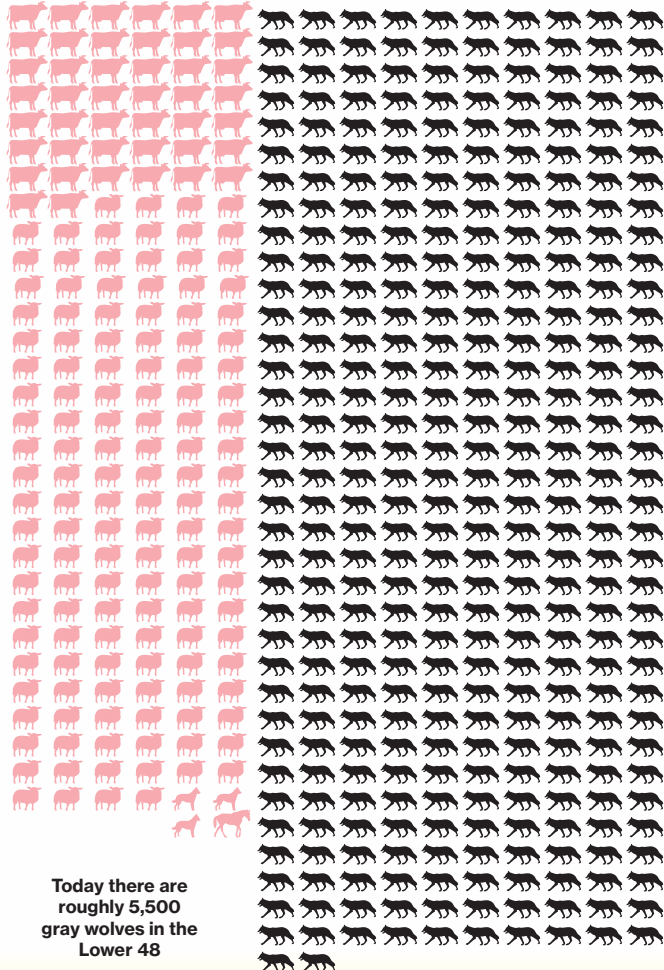
Montana



Wyoming



Idaho



Today there are roughly 5,500 gray wolves in the Lower 48

wolves don't attack any more cattle. The department declares the lethal action over. The next day, though, Scotten finds two more calves the department agreed were "probable depredations." The director authorizes the staff to wipe out the rest of the Profanity Peak pack.

Over the next week the state shoots four more wolves—two adult males, an adult female, and a female pup. Several environmental groups that aren't part of WAG protest at the state capitol, waving signs that read "Conserve Wolves Not Cattle" and "Wolf Lives Matter." The four conservation groups on WAG issue a news release calling the deaths "deeply regrettable," but restate their commitment to the "long-term recovery and public acceptance of wolves in our state alongside thriving rural communities."

Then, in a front-page article in the *Seattle Times*, Robert Wielgus, director of Washington State University's Large Carnivore Conservation Lab, is quoted saying about the McIrvins: "This livestock operator elected to put his livestock directly on top of their den site."

That's when everything explodes. Ranchers, department staff, and environmentalists receive death threats, and the four conservation groups that support WAG face a revolt from their members. Within days, WSU issues a retraction, calling the comments "inaccurate and inappropriate," and saying that Wielgus had admitted "he had no basis in fact" for his claim. But the damage is done.

"We are just getting ripped," Diane Gallegos, the executive director of the animal sanctuary Wolf Haven International, says with a sigh. People who once supported her organization now accuse her of selling out the animals. "What would Wolf Haven be getting for that bargain?" she asks. Continuing to stand by WAG is a financial risk, as the group has already lost some of the donors who provide essentially all of her \$1 million budget. Gallegos has also received death threats.

Molly Linville, a rancher with a small cattle herd who sits on WAG, says she feels "gut-punched" when she hears what the conservationists on the group are going through. "They're getting death threats—from their own people!" Linville had invited Gallegos to the ranch "to chill for a few days." Linville says Gallegos told her, "I feel more confident and driven than I have ever been.' I was amazed by that statement."

Madden says the infighting among conservationists is "same-side conflict"—a force that can be more vicious than battles between opponents. The first WAG session after the Profanity Peak firestorm is another volatile example. Activists circle in the parking lot outside the meeting, which takes place in mid-September at a Holiday Inn about 20 miles east of Seattle. The gatherings typically allow public comment for a half-hour at the end. But this time 30 minutes isn't going to cut it. Madden decides to open up the entire meeting to outside voices. It's better to bring people into the process, she's learned, than to have them seethe on the periphery.

The WAG members and department staff sit in a U-shaped circle, with the public surrounding them. "I'm not going to look at Francine," Linville jokes, making an unsuccessful attempt to hold back tears. "Us cattle producers are not great at change. People are upset that we are not changing fast enough. ... I want you to realize that cattle producers using nonlethals is huge. It's huge. And they are doing it." Nick Martinez, who raises sheep and cattle, quietly says, "It's unfortunate that it takes tragic circumstances to create a lot of trust built in a short time. We are all together. We are all in the same boat. And down the river we go. Francine has the only paddle."

The group brainstorms about what parts of the

lethal-removal protocol to revise. Several members lament that the plan doesn't formally account for depredations that the department determined had "probably" been carried out by wolves. To ranchers, those deaths shouldn't go unanswered. Dan Paul, from the Humane Society of the United States, says he'd like more detail on how the department could incrementally reduce the pack size, instead of jumping to a full removal. And Linville raises the department's culling methods. "Humane killing of wolves is very important to me because I am part of the decision that reached this stage," she says.

That statement sends a jeer through the audience, which is unmoved at seeing a rancher express concern for wolves. A woman with horn-rimmed glasses stands and declares, "I do not want people to say 'humanely' removed." Scotten, who's made the five-hour trek to the meeting, says, "I don't want to see the wolves decimated, but at the same time, I have a hundred years plus of history and I want to see another hundred more."

With WAG's conservation members taking so much heat, Short and Joel Kretz, the other state legislator for the northeast, penned an op-ed in support of WAG. They wrote in the *Chewelah Independent* that they "deeply appreciate these groups' efforts to find common ground" and praised "a path to stable wolf populations that also promote a vibrant ranching culture."

"Some of the cowboys are kinda pissed at me," Kretz says of the response to the op-ed. "Say something nice about an environmental group, you know? They're the devil incarnate in everybody's opinion over here. ... This is how you get unelected."

Where this all leads depends on the family at the center of the Profanity Peak controversy. "The whole ranching industry is hanging on the McIrvin's right now," Kretz says. While many ranchers take on second jobs to stabilize their incomes, the McIrvin's work full time running one of the largest cattle operations in the state. "If the McIrvin's go down," Kretz says, "then the little guys go down."

The family had kept quiet this summer amid death threats against them and their kids. But in late September they agree to meet. Scotten drives me to their ranch, the Diamond M, following the Kettle River until we get close enough to the border that our phones switch to Canadian cell towers. We pull off the two-lane highway and follow a dusty road that bends with the river to a small log cabin with a flapping American flag out front.

Len McIrvin, the 73-year-old patriarch, greets us in the kitchen, and his wife, Pat, offers coffee from the urn she puts out each morning for the ranch hands. McIrvin's son, Bill, heads out to start moving cattle, while Len and his grandson, Justin Hendrick, get to talking. McIrvin, whose angular eyes and bridged glasses resemble the elder George Bush's, explains why he agreed to talk. "Do you know what



Scotten (right) and Josh Huffman herd cows near Kettle Falls

WM2 means?" McIrvin asks, leaning forward in his recliner. "Nope," I say.

"Well-meaning, woolly minded," he quips. "Hopefully you will get a word out to the WM2 people. Hopefully we can change that to well-meaning, knowledgeable people."

McIrvin's grandfather founded Diamond M. Three generations now live on the property. McIrvin reminisces about a time when the government encouraged ranchers to take protection into their own hands. "When I was a kid, I got a bounty for them—\$40 for a cougar scalp, and 10¢ for a crow or magpie," he says. But since the wolves have come

back, they feel they have no recourse. "I am not advocating the complete annihilation," he says. "But the wolves have to teach their pups.

These predators have to fear man, period. All we've ever asked is to leave us alone. Diamond M Ranch will take care of the problem." That's just what the conservationists are afraid of.

By this point, the state has confirmed wolf attacks on nine of McIrvin's cattle, plus another five "probable" attacks. The family suspects that when they round up their 2,000 cattle for winter, more than 100 will be dead. Plus, they say, their cows can't lazily graze because the wolves keep chasing them. McIrvin says that

"I DO NOT WANT
PEOPLE TO SAY
'HUMANELY' REMOVED"



until the department eventually removed it.

Later, Scotten and I drive alongside a nearby creek to meet McIrvin and Hendrick at a corral under an arbor of pine trees. “Come on, girls!” Hendrick cries, pushing and nudging the mooing cattle up a clanking metal ramp to a semi emblazoned with Diamond M’s name. Even though the McIrvins have paid to lease the land for several more weeks, they’re moving roughly 60 cows and calves to a private parcel 50 miles south, out of the territory roamed by the Profanity Peak pack.

By late October the department has killed three more of the pack’s members, bringing the total dead to seven. Another is thought to have died of natural causes, leaving only an adult female and three juveniles in the Kettle Range. More than two weeks have passed without a wolf attack, and as the McIrvins and other ranchers pull the cattle off the hillsides, the risk of attacks recedes. The department announces that lethal removal of the Profanity Peak pack is over.

With the grazing season ending, the peace generally holds—or at least, no environmentalists file lawsuits, nor do any ranchers poach a wolf. The winter provides a break, as the wolves and cattle don’t share as much of the landscape then. In early February, WAG hopes to tweak the lethal protocol, and then it will try to foster the truce through to the summer grazing season.

As humans increasingly sprawl out into wildlife habitat, learning how to get along with each other getting along with the animals will be key to maintaining a semblance of balance in the earth’s ecosystems. “People are more willing to go above and beyond if they don’t feel above and beyond is imposed on them,” Madden says.

Back in Scotten’s truck, headed to his cabin and his two dozen chickens, six horses, and a gaggle of dogs, he says he’s been talking with the families he works with and plans to attend future WAG meetings. “We have got to keep ourselves inside the battle.”

At the same time, Scotten was moved when he met several WAG members, including Conservation Northwest’s Swedeen, touring the Kettle Range in late summer. “When I first met Paula, I was standing out in the woods, where I’m comfortable,” he says. “She took the time to come and take a look.” After talking with Swedeen, he didn’t see her as an enemy. “Even though she may be labeled a conservationist, I just see her as Paula.”

Scotten hopes to find middle ground. “I could see on their side that they want their kids to see the things and do the things that they’ve done,” he says. “Is she going to want to make sure there’s this open space, this open land? Absolutely. Is her reason maybe a little different than mine? Probably. But can we agree that we don’t want to see all of this land get developed? Absolutely. Again, you find a commonality, and that’s what you work towards.” **E**

means the cows will come back not only thinner—fetching less at auction—but less likely to be pregnant. Normally, 1 percent to 2 percent of the cattle come back barren, but the McIrvins worry that this year, as many as 20 percent will be childless. “They’re not only killing 20 percent of this year’s calves,” McIrvin says. “They’re eliminating 20 percent of next year’s.”

But the McIrvins don’t accept the compensation the department offers for dead cattle. “In our minds, compensation is the same as compromise,” Hendrick chimes in. “Like Grandpa said, we’d be selling our morals.”

Although they toe a hard line and are skeptical of WAG, the McIrvins have quietly, begrudgingly, adapted in ways that were unheard of a few years back. They’ve started waiting longer than normal to begin grazing calves, which puts stronger animals on the land, and they follow the state’s guidelines to remove dead animals that could attract wolves. In perhaps the biggest concession to the department, they’ve agreed to work with a range rider—Scotten—who’s paid \$9,800 a year by the state for protecting the McIrvins’ cattle. “Arron is different,” Hendrick says. He explains that their families go back generations. “We said, ‘OK, we’ll consent to somebody being up there if we get to choose the guy.’”

Scotten later tells me they even laid out fladry around a dead cow that they found in a location too remote to haul out. The flags did keep wolves from returning to feast on the carcass for a little more than a month, Scotten says,

WHERE DID YOU GET THAT LOVELY SUPPLY CHAIN?

THE CEO OF KERING, FRANÇOIS-HENRI PINAULT, ALREADY HAS BILLIONS, IS MARRIED TO SALMA HAYEK, AND CONTROLS THE MOST SOUGHT-AFTER FASHION BRANDS. NOW TO SAVE PLANET EARTH ONE VENDOR AT A TIME

As you slip into heels or a tux to toast the New Year, you probably won't be thinking about the fact that the leather in your shoes polluted drinking water in Indian villages, or that merino sheep were made miserable for your suit—and François-Henri Pinault doesn't want you to have to. This year, the 54-year-old Frenchman is toasting the results in his 2016 sustainability report. The fashion industry pollutes heavily and relies on subsistence-wage earners and poorly treated animals. So the chief executive of Kering, which owns 16 brands, including Yves Saint Laurent,

Gucci, Boucheron, and Puma, in 2012 set a series of goals to be met in four years that address every damaging aspect of the supply chain.

Kering hasn't hit them all—the word “challenges” appears 34 times in the sustainability report—but its companies are using more recycled paper in packaging, improving working conditions, and eliminating some toxic chemicals, among other accomplishments. The \$13 billion giant may represent only a small slice of the multitrillion-dollar apparel and accessories industries.

But think of it as proof of concept, says Pinault, whose company's stock has doubled in the four years since he's implemented his plan.

Why did you set out to make Kering sustainable?

The [2013] acquisition of Puma was a game-changer. At that time, Puma was run by Jochen Zeitz. Jochen is someone who was personally committed to the environment. He went very far with it through Puma. And he gave me this new approach of sustainability. If you do it right, you can create for yourself amazing opportunity creating good for the planet, for your employees, for your shareholders, for stakeholders. It's a completely different vision.

We spent three years putting in place this EP&L [environmental profit and loss, a model that factors in environmental costs] methodology that is very complex. We did that with international partners, NGOs, and we invested a lot of money in that. This is available for everyone on a completely free basis. [Kering also developed an app called MY EP&L that allows designers to calculate the impact of any product using a criteria of 5,000 factors.] You need to make sure that the company is organized to deal with that commitment. And one of the first moves we did, it was in 2008, if I remember well, I created a sustainability committee at the board level. We were the first listed company in France to do that. For all my CEOs, part of their yearly bonus is linked to sustainability achievements. Everyone has to have a full-time position in charge of sustainability.

Is there a philosophical or spiritual component to your decision to run this kind of business?

I succeeded my father. I always heard him telling me that whatever the size, a company needs to pursue a cause that is beyond the profit target you usually have. It's a matter of being a part of the society where you want to do business, or not. I'm here for a certain number of years, and I hope I will transmit [Kering] to someone else, be it my son or anyone. The question is, What am I going to build in the meantime? My father built something extraordinary; I want to leave something that is. I strongly believe this will be, I hope, my legacy.

You say sustainability is now part of luxury. Isn't luxury about excess?

Desires are short-term; we're all about dreams. Fast fashion is about

desire. Luxury is about dreams, so it's all the time. You cannot make people dream if you're cheating by offering a product that is a nightmare behind the scenes.

Do you ever go personally to look at these efforts, such as the python skins used at Gucci?

Gucci is one of the biggest brands using python skins. It's not an endangered species, but if we don't change anything, this will become an endangered species, because there is no transparency in that trade. You cannot just say, "Well, I'm compliant with the certificate that you need," because we all know that most of the certificates are not really.... We decided with Gucci to go much beyond that. And the only solution in that case is to integrate ourselves into the farming of python. So we are now investing in Thailand and in China in python farms.

What's it like?

Special. The python is an animal that needs to eat living animals. So you have to raise rats on the side. It's also about making sure [we're] respectful of the communities around the farm—we buy pythons from them. We use the [flesh] of the pythons, it's used in those areas.

We did that in crocodile farms also. It's about the only way to really completely control the supply chain.

Was it hard to get your individual brands on board with the mission?

Not that difficult. But you have to understand that in a luxury brand, you have the creative people and the rest of the company. There's always this thinking of, We have to let them do whatever they want. They cannot have rules or constraints around them, so don't bother them with sustainability things, it will be a disaster.

The first thing I did in 2008 was to see all the designers on a one-to-one basis. I said, "This is the commitment I'm thinking about. Where are you on that?" And it was amazing to see that



Stella McCartney's Resort 2017 platform is made with a leather substitute using renewable vegetable oil and recycled polyester

they were even beyond me. I remember [Bottega Veneta Creative Director] Tomas Maier, for instance. No one would have thought it in the company, but Tomas was so involved. It was the first brand that reached 99 percent PVC-free. In less than two years. You should have seen Tomas pushing everyone, redesigning part of the collection.

What are your conversations like with Stella McCartney, known for not using leather?

Stella is always one step further than anyone. I follow her! We have internally what we call the "new business model." Stella is very much involved in the thinking of what that should be. For instance, [to reduce landfill waste,] we did a partnership with H&M and this company called Worn Again. [They've developed a recycling technique that separates blends back into original fibers and removes chemicals so the fiber can be rewoven.] This was brought by Stella.

We also are working very significantly on new technology coming from biotech—trying to create leather from living animal cells. They get the animal cells from the skin of a living animal, and then they grow them. They're going to do transparent leather. Not before 10 or 15 years. One of the students that won the award from Kering [at the London College of Fashion] was based on mushroom leather. Those big mushrooms that grow around trees, beautiful things—it's a parasite, by the way.

Are you finding that the rest of the fashion industry is paying attention to this now?

I do consider that the luxury segment of that industry is leading the race in sustainability, because we have the resources.

But again, what is very complicated in the fashion industry as a whole is that it's not integrated. It's a value chain with many, many players. And what is striking, and this is the first learning from our EP&L when we released it for the first time, 93 percent of our footprint is outside our legal boundaries.

Presumably, if more people use your methods, it'll make it more cost-effective, right?

As usual, you find things and people come to you and say, "Well, we know how to do that in a more sustainable way, but it costs more." What do we do? Of course it's more, because it's not the way we were doing things before. But there's no reason why it has to be. So, the example of metal-free tanning process, it's 20 to 25 percent more expensive because we have to salt the skins at the beginning of the process, and only a certain number can go through that. Those that can't are considered waste.

And this is where I told the team we are not an NGO specializing in sustainability. We are a corporation, and through our creativity we have to find economically viable solutions. So we are trying to find ways of reselling those skins to other industries that could use that quality. We're down to 10 to 12 percent more expensive now. We also need to scale to lower the cost. But we will reach that point.

What do you think about U.S. President-elect Donald Trump's possible opposition to the Paris climate pact?

Sustainability for me has nothing to do with politics. Politics can help, but it's much above any political issue. If it's part of the political debate, there's something completely wrong. So I couldn't imagine that America wouldn't be part of the Paris agreement.

It's above the four years of any president in the world. A country like China is moving so fast. Could you imagine that America could be the slowest? America should lead the race in that, of course. It's the new moon. In the '60s, America was walking on the moon. It was the big thing. The new frontier is the sustainability frontier. **E** —Kim Bhasin



McCartney, Pinault, and Hayek at the spring 2016 London Fashion Week

THIS ROBOTIC BABY

BY ESME E. DEPREZ
PHOTOGRAPHS BY
ACKERMAN +
GRUBER



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64



A RealCare Baby being repaired at Realityworks headquarters



TWO OUT OF THREE U.S. SCHOOL DISTRICTS BUY INFANT SIMULATORS MEANT TO INTIMIDATE KIDS OUT OF PARENTHOOD. THE LATEST INDEPENDENT RESEARCH SAYS THEY SIMPLY DON'T WORK

MIGHT NEED CHANGING



Fifteen-year-old Shaila Dominguez dreaded the thought of taking her baby out in public, but it was a rare day when she didn't have work or school or both, and Christmas was fast approaching. So on an overcast December afternoon in Rapid City, S.D., she strapped the baby into its animal-print car seat, swung by Taco John's to pick up her paycheck, and made her way to the nearest Walmart.

In the toy aisle, Shaila picked out a robotic turtle for her 4-year-old cousin, with whom she shares a room in their aunt's single-wide trailer. Seconds after she paid the cashier, the baby began to cry, so Shaila perched the car seat on a vacant checkout counter and swapped a green diaper for a yellow one. An elderly man with long white hair approached in a motorized wheelchair. Shaila had draped a blanket to shield the baby from view. Without asking, the man used his thumb and two forefingers to peel it back for a glimpse. "They still make 'em that small!" he said, laughing, and rolled away.

Shaila, who has a pretty, round face and big brown eyes that she makes look bigger with a catlike swoop of black liner, froze in a nervous half-smile. "I don't know if he thinks I'm weird because it's fake, or if he thinks it's real," she said. "I'm so confused. I don't know what to think!"

The baby was indeed a phony, made of vinyl and circuitry instead of flesh and bone. Shaila had to take it everywhere—to fill up the tank of her beat-up Mercury Cougar, to her grandfather's house to eat dinner, to the grocery store to buy cat food—as part of a school assignment designed in part to prevent her from becoming an actual teen mom. A teen mom like her own mother was when she gave birth to Shaila at 14. A teen mom she doesn't want to become, because she knows it could forestall her dreams of being the first in her family to go to college and eventually to law school.

"I like to argue," she'd said when I asked her the night before why she

wanted to become a lawyer, her dark hair pulled high into a topknot. "And also because I want to help people."

Since its invention in 1992, the infant simulator that Shaila carried around has become a staple of American education, reaching more than 6 million students at 17,000 schools. It's used in 91 countries around the world—an impressive footprint for the private, 63-person company in Eau Claire, Wis., that invented it, Realityworks, which estimates it controls 95 percent of the infant-simulator market.

For educators such as Wendy Conrad, Shaila's child development teacher at Rapid City Central High School, the appeal of the robot baby is straightforward: Once teenagers see how tough parenthood is, the last thing they'll want to do is have unprotected sex. At \$649 each, not counting software and accessories such as car seats and diaper bags, the simulators are no small purchase for schools.

But purchase they do, despite a growing body of research raising doubt about their effectiveness. The latest study, the first randomized, controlled trial

to test the intervention's long-term effectiveness on pregnancy outcomes, was the most damning of all. Published in August by Australian researchers in the *Lancet*, a prominent British medical journal, it found that girls who cared for the electronic progeny got pregnant and gave

birth at a higher rate than those who didn't.

Recognizing the threat the study posed to its babies, Realityworks came out like a mother grizzly. "I can only trust that researchers do a good job," says Chief Executive Officer Timm Boettcher, 45. "But that doesn't happen every time, which is why we have the term 'junk science.'"

In 1992 a recently unemployed rocket scientist named Rick Jurmain was sitting on a couch next to his wife, Mary, in their ranch-style home in a San Diego suburb. They were exhausted parents of a newborn baby girl and a 4-year-old boy whose colic had left them sleepless for his first 11 months. On the TV

flicked a PBS show on sex education, showing teens carrying flour sacks to mimic parenthood. (Chicken eggs, with their obvious fragility, were also popular at the time.)

"I remarked to Mary rather wearily and skeptically that a sack of flour doesn't wake you up in the middle of the night," Jurmain recalls when I call him at his new home in Vermont. "Mary responded, 'Well, why don't you build something that does?' She was being flippant, but I said, 'That's not a bad idea.'"

Jurmain read a book to teach himself electronics and made his way to the garage, where his son helped him insert parts into circuit boards that Jurmain then soldered in a frying pan. Soon he and Mary had a prototype that they felt better simulated a newborn. They began cold-calling schools. They hired sculptors for the head and body molds; found engineers and manufacturers; and eventually tapped a family-and-consumer-science teacher from Wisconsin, where they'd moved, to develop curriculum.

"My official title back then was vice president in charge of things that go beep," Jurmain says—meaning phones, cars, the fax, and computer. Mary became CEO. They called their first product Baby Think It Over, and it exploded in popularity almost immediately. Mary was a guest on *The Oprah Winfrey Show*—becoming an early benefactor of the Oprah effect—and was written up in the *New York Times*. The product has since appeared on *90210*, *Project Runway*, and a *Jersey Shore* spinoff, where Snooki and JWoww took their robot babies to a gay bar.

Early models did little more than cry, and users had to insert a key into their backs to make them stop. The ninth and latest iteration, the RealCare Baby 3, is more technologically advanced. At Rapid City Central High, Conrad has 22 of them, kept when not in use inside a \$5,399 storage/charging cart, all purchased, as is common, with a federal Perkins grant. (For classroom instruction, she also has Realityworks babies that mimic the effects of drug exposure (\$399), premature birth (\$299), and fetal alcohol syndrome (\$295.) The babies weigh 7 pounds and come in seven skin tones, with "ethnic-specific facial features."

With each wail—recordings of real infants, timed to real schedules—Shaila would have two minutes to swipe a sensor-equipped bracelet over another sensor in the baby's stomach. Then she'd have to determine what to do: feed the baby with a sensor-equipped bottle,

"I THINK IT'S POOPING!"
JASMINE SQUEALED.

"WELL, I THINK IT'S
FINE," SHAILA SAID,

THEN HEADED OUT
THE DOOR



Left to right: Realityworks' Mary Stenvig, CFO; CEO Boettcher; and sales and marketing VP Jameson in Eau Claire, Wis.

change its sensor-equipped diaper, or simply rock it until it went back to sleep mode. Just as with a real newborn, Shaila would need to support the baby's neck and monitor its temperature. On Monday, Conrad would download the baby's data to assess how she did.

Students often name their babies. Shaila throughout the weekend referred to hers simply as "No. 9," after its place in Conrad's inventory. On Saturday afternoon, I met her inside the cramped three-bedroom trailer where she lives with Rachael Wannigman, her aunt who's been her guardian since her mom went to prison in 2010; Wannigman's husband; her half-sister, Jasmine, 11; and her two cousins, Destiny, 8, and Xavier, 4. They were headed to their grandfather's house

nearby, and as the kids packed what they needed to spend the night into white plastic bags, Shaila readied the car seat. The vinyl body lay motionless, its facial expression poised in a state of alert, brown eyes unblinking, lips pursed for feeding. Then, from the speaker on its chest, No. 9 started to emit tiny groans.

"Oh no, this isn't good timing!" Shaila said in a panic.

Wannigman smiled knowingly. "It never is."

Shaila swiped her wristband and held up the bottle. But that elicited no sucking sound, indicating that wasn't what No. 9 wanted.

"I think it's pooping!" Jasmine squealed.

Silence.

"Well, I think it's fine," Shaila said, then headed out the door.

The last Thursday in August, Boettcher was standing at his desk in his small, windowless office in Eau Claire when an e-mail arrived. A reporter sought a comment on the study about to be released by the *Lancet*. Boettcher knew nothing about it. But soon there were headlines around the world. The *Wall Street Journal*: "Robot Babies Not Effective Birth Control, Australian Study Finds." The *New York Times*: "A Strategy Backfires, Increasing Teen Births." *New York* magazine: "Creepy Robot Babies Don't Deter Teens From Spawning."

The study had followed 2,834 girls age 13 to 15 at 57 schools in Perth, Australia. From 2003 to 2006, students in the intervention group cared for a Realityworks infant simulator over a weekend as part of a pregnancy prevention curriculum, while the control group received only standard health education. Researchers led by Sally Brinkman at the University of Adelaide's School of Population Health then used medical records from hospitals and abortion clinics to track the girls until they turned 20.

Their findings, Brinkman says, came as a surprise: Girls in the intervention group were twice as likely to give birth and one and a half

times more likely to terminate a pregnancy than girls in the control group. In the *Lancet*, Brinkman wrote that the devices were "likely to be an ineffective use of public resources aimed at pregnancy prevention."

In Eau Claire, Boettcher and Scott Jameson, Realityworks' vice president for sales and marketing, were beside themselves. They obtained a copy of the study to parse its every word. They held late-night conference calls to discuss strategy and contacted lawyers and a crisis public-relations firm. And they crafted a statement that fumed with indignation.

"The study had nothing to do with us, our curriculum, or our RealCare Baby infant simulators, nor are its conclusions about us credible," they

EMPATHY 'R' US

Realityworks says much can be taught through simulation. The company's tag line is "Live it. Learn it."



The Pregnancy Profile, \$735, simulates third-trimester burdens



The RealCare Baby 3, starting at \$649, needs to be fed, have its diaper changed, and be rocked



The Geriatric Simulator, \$2,499, makes users feel hobbled by old age

wrote. They called the Australian curriculum "not even a CliffsNotes version of ours" and added, "You can't gut the curriculum the way these authors did and expect good performance or draw any inferences whatsoever about our program." They cited a cash "Baby Bonus" program started by the Australian government to boost birthrates, suggesting it gave the study's intervention group, which was slightly poorer, more financial incentive to get pregnant. "What distresses us most about this study, apart from the obvious flaws, is that it confuses a vital public health issue," they concluded. As the RealCare Baby's use has grown, "Teen pregnancy has also declined. There are doubtless many reasons for this, and we believe one is the marked change in attitude toward teen pregnancy and parenting found in RealCare Program participants."

But Brinkman's study wasn't the first to question the value of baby simulators. Previous ones had focused on short-term changes in attitudes and perceptions, and their findings were mixed. Several publications said the devices had "no effect" or a "minimal" impact on students' beliefs. "Infant simulation experiences focus on teaching teens the responsibilities of parenting, the realities of a teen pregnancy, and the personal consequences involved with early sexual

behavior," said a 2004 study in *Public Health Nursing*. "They do not teach teens the skills required to actually prevent a pregnancy." One of the positive reviews, published in 2009 in the journal *Health Educator*, was underwritten by Realityworks.

The *Lancet* study was the first unbiased, randomized controlled trial on the infant simulators. That kind of experiment is the gold standard in research, which added to the power of the findings. The study was also the first to look at actual outcomes over the long term: Did girls get pregnant or not? Bill Albert, chief program officer at the National Campaign to Prevent Teen Pregnancy, says this distinction between outcomes vs. intentions is crucial. Take dieting, he says: Success depends not on whether someone intends to lose weight, but on whether they actually do. "It is a reasonable thing, when taxpayer dollars are involved, to say, 'Does this particular intervention work?'" he says. "Based on the research we have, the answer is no, it doesn't work to change teen behavior. Communities should consider the Hippocratic oath here: First, do no harm."

Alison Chopel, the director of the California Adolescent Health Collaborative, has a harsher view. "The company should consider reevaluating how they market their products," she

says. "It might have other positive advantages, but if they continue to market their intervention as teen pregnancy prevention, they're going to be defrauding their customers."

Educators looking to fight teen pregnancy, Albert says, should consult the list of evidence-based interventions compiled by the U.S. Department of Health and Human Services' Office of Adolescent Health. Realityworks' program isn't on it. "The overwhelming majority talk about delaying both the onset of sex and the importance of contraception—not either/or, both," says Albert. "When you look at

the historic gains this country has made in reducing teen pregnancy since the early 1990s, it has been driven by this magic formula of less sex and more contraception." Some of the more recent promising interventions include a focus on healthy relationships and a Colorado experiment offering free long-acting birth control.

While the teen pregnancy rate has fallen drastically, the U.S. still battles the highest in the developed world. In 2014 some 250,000 babies were born to women age 15 to 19, according to the Centers for Disease Control and Prevention. Teen pregnancy and childbirth cost U.S. taxpayers \$9.4 billion in 2010. The tragedy isn't just financial: Babies born to teens face higher rates of abuse, neglect, and incarceration, and in turn are more likely to become teen parents themselves.

The potential for harm grows as robot babies proliferate into lower-income countries, where poor access to contraception and safe abortion and high rates of rape are common, says Brinkman.

"Isn't it beholden upon them," she says of Realityworks, "to actually find out if the program works or not before selling it to the public, when it may indeed cause more harm than good? I question the ethics of implementing such programs without rigorous evaluation. For vulnerable countries and

populations, I question the ethics even further. The company should have a responsibility to the communities, schools, and students to know—not just believe—that the program works.”

When I traveled to Realityworks in October, Boettcher and Jameson argued the *Lancet* study was flawed from the start because it measured the wrong thing. “We’re not about teen pregnancy prevention,” Jameson told me. “We’re about educating young people on the choices they make and what the outcomes are going to be like after going through that experience.” He added, “If you talk to our educators, they look at it as a parenting tool.”

This seems to contradict the company’s own messaging. Under the heading “target audience” on its website, “teen pregnancy prevention” is listed first, “childcare” is second, and “parenting skills” is fourth. “Since the company’s inception,” press releases read, Realityworks has “had a vision of reducing unplanned and unwanted pregnancies.” In a blog post on its website, it directs teachers having trouble obtaining federal funding to seek grants aimed at tackling teen pregnancy.

Boettcher and Jameson’s second argument was that long-term evidence is unnecessary because educators aren’t asking for it. They like the program, and “they believe firmly that it works,” Jameson told me. “Our educators who work with us for years are better sources for what they see occurring with individuals than a study.”

But that’s anecdotal, I responded.

“So it’s not valid?” Jameson said. “Don’t refute thousands of educators who’ve been using this for 20 years. All of those educators who’ve been using this firsthand and seeing it—why are we muting their voice? Why aren’t we listening to that?”

I interviewed 17 educators from across the country to do just that. None used the RealCare program solely for teen pregnancy prevention, but they saw that as one of several potential benefits. Most hadn’t heard of the *Lancet* study or those prior, but once I gave them an overview, they brushed them aside. Jameson was right. The emerging science didn’t match

educators’ experiences (even though they admitted they had no way to track actual pregnancy outcomes), and thus they dismissed its relevance to their classrooms. Not one said they’d stop using the RealCare Babies.

“It’s working for me,” said Marcia Farrar, a family and consumer sciences teacher in Boise, Idaho. “I’m still going to use them.”

“I don’t have a lot of time to go and spend researching,” said LaRae Rosenfeldt, a teacher in West Fargo, N.D., who uses RealCare Babies in her child development class. “Lots of parents say this has value.”

I thought back to a tour Jameson had led of the Realityworks warehouse, where babies undergoing repairs before getting shipped out sit next to a giant box of plastic arms and legs destined to be recycled into lawn furniture. He pointed out a hole in the ceiling that Boettcher had made when popping the cork on a celebratory bottle of Champagne. In September, the month after the *Lancet* review, Realityworks’ revenue had reached a record high.

Since Boettcher became CEO in 2005, Realityworks has diversified, and the RealCare Baby line now makes up only about 30 percent of sales. The company has gone further into “simulation

**“THE COMPANY SHOULD HAVE
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learning,” part of the career technical-education industry—also known as CTE or simply vocational training—which is fast-growing and enjoys government funding. In 2007, Realityworks introduced a “pregnancy profile” suit that gives wearers a sense of third-trimester burdens. (I tried on the \$735 apparatus during my visit. Hard plastic balls dug into my ribs to mimic fetal limbs. A warm weight pressed on my bladder, making me have to pee. And when I bent over to pick up a pen from the floor, the 30-pound belly almost tipped me over.) Realityworks has since released products to teach welding, culinary safety, and the

debilities of old age; it’s exploring ways to enter the medical-education market.

“Profitability alone does not define our success,” reads the company’s mission on a sign greeting visitors in the office lobby. “We measure our impact by how many lives are changed in positive ways, and how profoundly they are changed, as a result of our efforts.”

In South Dakota, Shaila had enrolled in Conrad’s elective class in part because babies are “fun” and “cute,” she said. But as her weekend with No. 9 wore on, the excitement wore off. As the oldest of her generation within her family, she’d taken care of her half-sister and younger cousins plenty—even overnight, as the sole provider. No. 9, she decided, was easier. “You don’t have to pay as much attention to it, and you don’t have to hold it,” she said. “I think a real baby would be awake more, and you’d have to interact with it more. And if it was real, I wouldn’t let it sleep in my bed with me.”

Shaila told me she doesn’t plan to start having sex anytime soon and pegged her late 20s as the ideal age to begin motherhood. But she’d felt that way before the robot baby came into her life—and doubted that caring for one would change anyone’s mind.

On her classroom door, Conrad had hung a Realityworks poster listing the drawbacks of teen pregnancy. Inside, she told me that while the vast majority of her students can’t wait to be done caring for the baby, some do return the following semester pregnant. “I just can’t believe it after all the things I’ve talked to them about in my class,” including contraception, she said.

The *Lancet* study “doesn’t make me want to stop using the babies, like they’re worthless now,” she said. “Because I do feel like even if it’s not preventing that particular thing, it still helps me cover a lot of the standards of the curriculum. It does make me think about how I want to present it to my kids, though.”

Students had returned the babies that morning. “I don’t think I want kids!” a girl named Cassidy said in a huff. A cheerleader named Rachel, who was redoing the assignment for extra credit, said her second time with a robot baby was harder, but overall, not bad.

Shaila came in with a friend and placed No. 9 on a shelf. It was early, and she was tired and quiet. She held out her wrist for Conrad to snip off the sensor bracelet. She was free. **B**



Wikipedians at an editathon in Brooklyn on Dec. 10. From top left, by row: Chloë Bass, Marlin Adams, Jeremyb, Heather Hart, Yashua Klos, Jaret Vadera, Richard Knipel, Erika Herzog, Jim Henderson, Kristen Williams, Clinton Wallace (aka Dr. Luv)



IS WIKI PEDIA WOKE ?

THE UBIQUITOUS
REFERENCE
SITE TRIES TO
EXPAND ITS
EDITOR RANKS
BEYOND THE
COMIC CON SET

BY
DIMITRA
KESSENIDES
AND
MAX
CHAFKIN

PHOTOGRAPHS BY
WILLIAM MEBANE

Bisi Adeleye-Fayemi is a 53-year-old British-Nigerian human-rights activist and, it's fair to say, a person of some note. She's co-founder of the African Women's Development Fund, a nonprofit dedicated to promoting women's rights throughout the continent. It's not a huge charity, having distributed \$26 million since 2001, but it does important work. In 2013, Leymah Gbowee, a Nobel Peace Prize laureate, credited the AWDF with helping to end the Liberian civil war. But until recently, Adeleye-Fayemi didn't exist on Wikipedia, which meant that as far as many people were concerned, she didn't exist at all.

The online encyclopedia, founded in 2001 and now published in 295 languages, includes about 40 million articles, all of them free. The site is a source of first resort for students writing term papers, for anyone who makes a bar bet, and—though they'll deny it to their graves—for *Bloomberg Businessweek* writers who want to double-check how to spell the names of, say, recent Nobel Peace Prize winners. "It's a first draft of history," says Craig Newmark, founder of Craigslist and a longtime donor to Wikipedia who gave \$1 million to the website's new endowment fund in June. (Bloomberg LP, which owns *Bloomberg Businessweek*, also is a Wikipedia donor.) Newmark was initially taken by the project's similarity to Isaac Asimov's fictional *Encyclopedia Galactica*. "For a nerd like me," he says, "it was obvious how important it would be in our world."

Anyone can contribute to a Wikipedia article, which you'd think would open it to all manner of mischief. And you'd be right, although the site's volunteer editors are remarkably adept at quickly removing vandalism, propaganda, and other falsehoods. Studies have generally shown that Wikipedia entries are about as accurate as professionally written articles in resources such as the *Encyclopaedia Britannica* or Germany's 200-year-old *Brockhaus Enzyklopädie*. The site also remained mostly free of the conspiracy theories that deluged social media during the 2016 election. Edgar Welch, whom police say in early December fired an assault rifle inside a Washington pizzeria after attempting to "self-investigate" widely circulating reports that a child sex ring was operating there, would have found the truth on Wikipedia, which identified Pizzagate as a "debunked 2016 conspiracy theory."

And so, Wikipedia is only as good as its community of editors. About 30,000 people contribute regularly to the English-language version of the site, an additional 45,000 to the other editions. Not surprisingly, given that the organization's earliest supporters were software geeks, its entries often reflect the concerns and biases of a group that's overwhelmingly white and, according to several surveys of Wikipedia editors, about 85 percent male. There are hundreds of comprehensive Wikipedia articles on various aspects of the *Star Wars* universe—a 1,300-word entry on Princess Leia's home planet, Alderaan; a 2,900-word one on the people of Mandalore, which includes Boba Fett—but precious little about vast swaths of the human world. The makeup of the editorial pool affects classification, too. In 2013 a *New York Times* columnist noticed that Harper Lee appeared on the page for "American Women Novelists" but not on the one for "American Novelists."

"It's written entirely from the point of view of people sitting in the U.S. and Europe," says Anasuya Sengupta, an activist from Bangalore who, until 2015, served as chief grant-making

officer for the Wikimedia Foundation, which funds the operations of Wikipedia. Sengupta's mandate at the foundation, which employs almost 300 people and has an annual budget of \$66 million, included giving money to groups creating content for and about the developing world. Yet such efforts never seemed to amount to much. When Sengupta would think of a topic relating to feminism or global development or human rights, she'd look it up. Every time, either she wouldn't find an entry, or she would find one that was incomplete or inaccurate.

While attending a conference for African Wikipedia editors in Johannesburg in 2014, Sengupta, who hadn't written an article for Wikipedia before, decided to try solving the problem more directly. She opened up her laptop and started pecking out an article about Adeleye-Fayemi, whom she'd met at a

handful of women's-rights conferences. "As a philanthropist, she was very notable," says Sengupta.

Wikipedia requires that all entries be about "notable" topics and every assertion be backed up by a reliable secondary source. This can be problematic for figures who aren't well-known in the U.S., but Adeleye-Fayemi had been covered in the Nigerian press, and Sengupta included 11 footnotes in her first draft. She hit publish.

A few minutes later, she glanced at her laptop. The entry had been marked for speedy deletion, which means a Wikipedia editor had judged it to be, essentially, trifling. The only people qualified to remove this designation are the encyclopedia's administrators—some 1,300 volunteers for the English entries who have the power, and the technical ability, to block users and delete articles.

Sengupta took to the article's Talk page, a forum of sorts, to make her case for inclusion. She won her appeal, but only after drawing in Florence Devouard, a former chair of the Wikimedia Foundation, who happened to be sitting next to her at the conference.

The experience was sobering for Sengupta, who left the foundation the following year to start Whose Knowledge?, a nonprofit focused on promoting diversity on the internet. If the only way to get an article about the developing world published on Wikipedia was to know a former board member, it was hard to imagine how a random editor from Johannesburg or Bangalore would have any hope. "When your only frame of reference is your world, your language, your context," Sengupta says, "where does that leave the rest of the world?"

This so-called filter-bubble problem, coined by Eli Pariser, co-founder of the viral video site Upworthy, is the idea that the internet can contribute to the insularity of certain communities. Filter bubbles have been blamed for the spread of misinformation during the 2016 presidential election and for the failure of pundits in the U.K. to anticipate Brexit. They've prompted soul-searching at Facebook over the degree to which the site should personalize its algorithms and caused some to worry that tech companies are losing touch with regular people. Wikipedia's filter-bubble problem is a particularly acute threat for an organization whose stated mission is "to empower and engage people around the world." "We need to bring in people who have not traditionally been Wikipedia editors," says Jimmy Wales, the co-founder. "If we're not providing a space for women, someone else will."

Wikipedia's origins date to 2000, when Wales, who also

"THE PERSON WILLING TO
MAKE THE BIGGEST
JERK OUT OF HIMSELF
OFTENTIMES WINS"

went by Jimbo then and was known primarily for operating a successful search engine for raunchy photos called Bomis, hired a philosophy Ph.D., Larry Sanger, to oversee Nupedia, a free general interest online encyclopedia with a handful of articles. The following year, Wales and Sanger adopted wiki software, allowing anyone to edit the site and create articles, and launched Wikipedia as a nonprofit. By 2013 the site was one of the most popular on the internet, with more than 20 billion page views and 500 million or so unique visitors each month.

Wales didn't get rich from Wikipedia's runaway success, but his position in the world rose. He's married to Tony Blair's former assistant, regularly attends the World Economic Forum in Davos, and no longer goes by Jimbo. The Wikimedia Foundation took in \$77 million in donations for 2016, up from \$45 million in 2013.

Even as Wikipedia's fundraising machine and respectability have grown, its web traffic has declined. The project now has 16 billion monthly page views. It no longer discloses unique visitors, but its U.S. audience hasn't grown, according to ComScore. The reasons for the drop-off are the subject of some debate among Wikipedia supporters, but they're partly the result of the organization's struggle to adapt to changes in how people use the internet. Google incorporates information from Wikipedia, such as birthdates and thumbnail biographies of famous people, into its search results, so users often are able to get information from Wikipedia without visiting its website. Digital assistants, such as Amazon.com's Alexa and Apple's Siri, also draw on Wikipedia data without sending users to the encyclopedia.

Wikipedia didn't release an app for the iPhone until 2011, and even today it's difficult to write a new entry on a mobile device. This was partly because editors, who mostly contribute to the encyclopedia on desktop computers, questioned the need for mobile apps on the grounds that users editing on their smartphones would be more likely to insert errors into carefully crafted articles. "The hard-core community members think editing should be hard—so they're sure you've done your homework," says Andrew Lih, a journalism professor at American University and the author of *The Wikipedia Revolution: How a Bunch of Nobodies Created the World's Greatest Encyclopedia*. This pose can take on sexist overtones when male editors raise questions about whether a woman merits inclusion in Wikipedia. In addition, female editors, or editors who write articles about women, are frequently subjected to harassment or threats. "How can you get people to participate in an environment that feels unsafe, where identifying yourself as a woman, as a feminist, could open you up to ugly, intimidating behavior?" Lih asks.

This pattern has made it harder for Wikipedia to cover aspects of the world that aren't of obvious interest to its biggest users. The 2011 wedding of Britain's Prince William and Kate Middleton was a bonanza for media outlets around the world, attracting by some estimates 2 billion television

viewers. Wikipedia failed to fully capitalize on the excitement, in part because its community leaders couldn't agree on whether Middleton's dress belonged in Wikipedia at all. A Wikipedia article about the dress, a celebrated gown designed by Alexander McQueen creative director Sarah Burton, was repeatedly deleted and undeleted, as the article's Talk page devolved into something resembling a shouting match. "The sheer presence of this article is one of the lowest points ever reached by Wikipedia!" one editor declared.

The following year, at the annual Wikimania conference, Wales brought up the incident as evidence of the encyclopedia's shortcomings. He noted that Wikipedia's "typical tech geek male" users had biased the site in favor of certain topics at the expense of others, comparing the brouhaha over the dress to the more than 100 articles that had been written about various editions of the open source operating system Linux. "Why don't we have the top 100 most famous dresses?" he asked. "It's culturally very important."

Wales, who holds the only permanent seat on the Wikimedia Foundation board, is sometimes referred to as the project's "benevolent dictator for life." Although he objects to the designation—and he has his critics within the Wikipedia community—his comments instantly settled the debate about whether dresses belonged on Wikipedia. It coincided with an awakening within the foundation. Talks were given, conferences organized, and surveys were commissioned that showed editors were overwhelmingly male. They were "an eye-opener," says Pete Forsyth, an editor and former foundation staff member who runs a Wikipedia consulting business, and "spurred a lot of discussion in the community."

The impact so far has been halting at best. In July 2015 the activist group Women in Red formed to encourage volunteers to address the site's gender imbalance. (The name is a reference to the color Wikipedia uses to identify notable people who haven't had articles written about them.) Since then the project's 150 members have organized dozens of "editathons"—events where editors get together to add women to the site—and added about 45,000 entries covering notable women. But the share of women featured on Wikipedia's English-language pages has increased only modestly, from 15 percent to 16.8 percent, since the group formed. (By comparison, 29 percent of the entries in the Gale Biography Resource Center, a database used in many school libraries, are about women, according to a 2011 paper.) "It's just enough progress to make us feel frustrated," Wales says. "We underestimated the scale of the problem."

The scale of the problem was apparent at a Saturday morning editathon in mid-December organized by arts collaborative Black Lunch Table. The event, held at BRIC, a cultural center in Brooklyn, had been billed as an opportunity to "correct

SEMI-SAINTLY STARTUPS

These for-profit apps promise to alleviate...

... birth control fails

Delivery service app **Nurx** allows users to prompt doctors to write prescriptions and get their pills delivered within hours. It's branching out to include anti-HIV medication and quick lab results, and just raised \$5.3 million from Union Square Ventures and others.

... shopping guilt

Launching in early 2017, **Olivela** hopes luxury shoppers will want to spend while being reminded of global poverty. High-end labels donate clothes and the e-tail site sells them at a discount. Part of the proceeds go to NGOs such as the Malala Fund.

... voter apathy

The 2016 presidential election was a breakout moment for **Brigade**, a civics-focused social network backed by Napster co-founder Sean Parker and Salesforce.com CEO Marc Benioff. Trump's win, the company has claimed, was predicted by user posts.

... bullying

The **STOPit** app provides kids with an anonymous way to report cyberbullying via text messages, screen shots, or video, using the smartphones they already have in their hands all day. The posts go to a platform that schools—which pay a

per-student, per-year fee—can monitor. Insurers have picked up on the idea, offering the app for reduced rates to districts they cover. It's in 6,000 schools in 38 states, according to a company rep. Former New York Yankee Derek Jeter is an investor.



Wikipedia's pervasive gender bias and inaccuracies." Several of the dozen people who showed up had come under the mistaken impression they'd be able to write entries about themselves. Wikipedia prohibits editing or writing articles about "yourself, your family, friends, or foes"—a point that the organizer, Heather Hart, delicately noted.

"Anyone can edit," Hart, an artist, told the group, "but there are several admin layers, and you have to understand them to do this. There are a lot of rules." Wikipedia's administrators closely scrutinize edits from new community members, and new articles are often initially rejected. The editing process itself is not especially intuitive, requiring users to employ special codes to add line breaks or citations.

Three hours later, the participants had made small improvements to eight articles. Kristen Williams, a Brooklyn artist who was new to Wikipedia, added a birthdate to an entry for the visual artist Jonathan Allen. Another participant worked on an entry about the writer June Jordan, adding details about one of her books and tweaking a subhead from "Consciousness of race, class, and gender identity" to "Concepts of race, class, and gender."

The changes were modest, but Wikipedia executives and community members say that making history more inclusive is a slow process. The encyclopedia's reliance on outside sources, primarily newspapers, means it will be only as diverse as the rest of the media—which is to say, not very. "We are a reflection of the world around us," says Katherine Maher, who began as the foundation's third executive director in June 2016. Wikimedia plans to organize more events to bring in new editors and find ways to make the editing process less forbidding. In December the board issued a statement for the first time that condemned harassment of editors. "It establishes a sense within the community that this is a priority," Maher says. Still, she acknowledges, "it has to be more than words."

The capacity of Maher—or anyone—to directly change the way Wikipedia operates is limited, however. Although the Wikimedia Foundation controls a substantial budget, it can't commission articles or do much to regulate the content of the encyclopedia. Wikimedia's previous executive director, Lila Tretikov, left last year after trying unsuccessfully to establish a feature, "superprotect," that would have allowed the foundation to overrule editors. "Wikipedia has no real person in charge—it's sort of like a tragedy of the commons problem," says Bill Beutler, a contributor who runs a marketing consulting firm in Washington and advises clients such as Verizon and engineering giant Bechtel on interacting with Wikipedia. "The person willing to make the biggest jerk out of himself oftentimes wins."

Sengupta has continued to edit her article about Adeleye-Fayemi. It has since received contributions from 16 other Wikipedia editors and now includes 18 footnotes. So far she's created 28 pages, most recently for the Brazilian feminist Sonia Corrêa. Like many people in the "free knowledge movement," as some in the Wikipedia world describe themselves, Sengupta has been discouraged by the rise of nationalism and anti-immigrant sentiments in the U.S. and Europe. But they see Wikipedia as a potential bulwark against those tides—if it can live up to its own ideals. "Making Wikipedia more plural and diverse in terms of who edits and what they edit is one of the most effective ways in which we can move beyond the stereotypes that exist all around us," she says. "There is something very, very meaningful about this moment in time." **B**

POWER

GLOBAL EQUALITY FOR WOMEN
AND GIRLS IS A HARD SELL, SO ONE
DESIGNER ON A MISSION FOUND A
SOFT SOLUTION

BY CAROLINE
WINTER
PHOTOGRAPH BY
GILLIAN LAUB

Henriette Ernst's idea formed over the summer, after a fateful walk in Lower Manhattan with her Morkie, an ewok-like cross between a Yorkshire terrier and a Maltese. She was joined by a neighbor she'd recently met named Yasmeen Hassan, a human-rights lawyer and global executive director for Equality Now. Over the course of a couple of hours, the two talked about many of the issues Hassan works on: rape cases, genital mutilation, child marriage, education for girls. Ernst became increasingly agitated by the discussion—and energized. "I said, 'You know what? Maybe I can do something,'" she recalls. "'Maybe I can make coffee for your organization, or organize an event, or be a volunteer.'"

Ernst has sparkly dark eyes and brown hair, and she brims with energy and opinions, spoken in a thick German accent that gives her declamations the delightfully contradictory air of a pragmatic diva. For decades she'd been a design director, most recently as senior vice president for women's clothes at Joe Fresh, helping labels meet relentless retail demands for all things new. At the time she met with Hassan, she was taking a break from the industry to contemplate her next career move. "I also felt a little bit sick of the superficiality of the fashion world," she says.

When Ernst visited Equality Now's Manhattan headquarters to learn more about the organization, she immediately felt at home. "I thought, These are friends I've been missing!" As a young girl in Berlin, Ernst had joined demonstrations and raised money for social and environmental causes. As a designer she felt her industry should be more involved—particularly in women's rights. "In the '80s, male designers like Calvin Klein and Kenneth Cole did a wonderful job banding together and raising awareness for AIDS/HIV—but designers have done little to help women," she says. "And that's most of our customers!"

WRAP



Ernst and Hassan, who's wearing a Round Plus Square silk square

At Equality Now, Ernst felt less enthusiastic when Hassan showed her the organization's branding. The old logo—the symbols for man and woman, fused around an equal sign—looked dated. A newer one looked corporate. “Henriette was like, ‘Oh my God, it’s hideous,’” Hassan says.

That’s when Ernst had an idea: Why not use her skills and fashion world connections to create a brand of clothing that reflected and supported the values of the nonprofit? She decided she’d call the brand Round Plus Square, symbolizing harmony and structure.

Her years at the Royal Academy of Fine Arts in Antwerp, Belgium, from which she graduated in 1994, gave her an intellectual take on clothes and also a useful credential. Previous graduates, such as Ann Demeulemeester and Dries Van Noten, whose deconstructed blazers and bohemian fabrics defined late 1980s high fashion, had polished the school’s luster. Ernst landed a series of plum jobs with Calvin Klein, Jil Sander, Strenesse, and Van Noten, learning every aspect of the business from conceptualizing a line to sourcing textiles. In 2009 she joined Céline as head designer for fabric and color concepts, reporting directly to Phoebe Philo, the British fashion arbiter who’s behind many of today’s surprise trends (for example, the ugly shoe revival in the form of fur-lined Birkenstocks and haute Tevas).

“You can’t forget Henriette,” says Nadège Vanhee-Cybul, artistic director for Hermès, who worked at Céline with Ernst in those years. “She has such a strong sense of femininity and feminism.”

She began working on Round Plus Square in August, drawing on old contacts to find the most socially and environmentally progressive factories. (Ernst points out that the textile industry is among the world’s biggest polluters.) Funding the entire line on her own, she produced a small initial collection of T-shirts, fabric brooches, silk bandannas, and large square scarves in time for the Make Equality Reality annual yearend gala. To keep prices down, the products are sold exclusively online. Thirty percent of sales will support the charity, while the rest will go back into the business.

For her bandannas (\$65) and shawls (\$165 to \$290), she’s using silk manufactured by the Canepa factory near Como, Italy, a woman-owned operation that recycles 80 percent of its water. Ernst’s T-shirts (\$35 to \$58) are made with organic cotton sourced by Neo Tekstil,

a woman-run company in Istanbul known for tapping top suppliers for high-quality, organic cotton jersey clothing. “I trust them,” says Ernst. “I had food together with the workers, and it was good traditional Turkish food. In China, if you go to a factory, you’d never get the food workers eat.”

For years, Hassan says, gaining support for her cause was difficult, because corporate sponsors tend to shy away from controversial topics such as genital mutilation and child brides. Now these issues are less taboo, and support for the rights of girls and women is more widespread. But Equality Now still steps delicately. It operates in many different cultures, where local women run regional offices ensuring the group’s message and actions are attuned to social customs and norms.

Ernst interpreted the need for a light touch by tucking handwritten slogans, such as “make equality reality,” among lyrical flowers, polka dots, and butterflies. The result is cheerful and subtle in a sisterhood-is-powerful way, but not cloying.

For the line’s formal debut at the big fundraising gala in Los Angeles on Dec. 5, Gloria Steinem wore a Round Plus Square scarf on stage. Jaha Dukureh, a leading activist, wore one as a turban. And TV producer Josh Whedon wrapped a bandanna around his wrist.

“High-end donors were very inspired,” says Hassan. “Usually NGO T-shirts and products are unattractive, something people buy in the moment to support a cause and then wear only as a nightshirt, if at all. But these are cool-looking.”

Of course, Ernst was never going to stop at just brewing Equality Now’s coffee. “I feel better knowing that I’m supporting an organization where they’re working their asses off to make a difference for women,” she says. “I’m not a good lawyer like Yasmeen, I didn’t study it. But this I can do.” **B**



Thirty percent of profits go to Equality Now

GOOD CHOICES: THE

MAKE YOUR WAY THROUGH 2016 AS AN ETHICAL CONSUMER

START

You forget to get free-range eggs at the farmers market, but it's OK—the egg industry is going cage-free. You pick up a dozen at the supermarket.
Advance **3** spaces.

Breakfast is overrated. You're going to spend that time seeding your lawn with a biodiverse clover mix, which threatened bees love.
Advance **3** spaces.

Some wasps are pollinators! You're Mother Nature incarnate.
Advance **5** spaces.

Hold the frittata. The New York Times reports that cage-free alternatives may lead to worse conditions for workers as hens stir up more particulate matter.
Go back **2** spaces.

It turns out that wasps also love clover, and you can't walk on your grass because it's overrun with them.
Retreat **2** spaces.

You take matters into your own hands. Congratulations on your emissions-free Tesla!
Rev forward **6** spaces.

When humans invented the wheel, brains were nourished by ancient grains such as quinoa. You add it to your diet.
Advance **4** spaces.

To learn more about the summer heat wasps love, you pay to watch *Before the Flood*, Leonardo DiCaprio's documentary on climate change, in theaters.
Advance **5** spaces.

If you're going to destroy your body with bad fat, beauty, bath, and home products. Try Jessica Alba's Honest Company.
Advance **8** spaces.

Now that your clothes are clean, refresh your investments. Divest your oil stocks and put the money in DNB Global Indeks, one of the world's largest ethical investment funds.
Advance **9** spaces.

You, too?! Demand creates a quinoa oversupply, forcing prices down. Andean farmers can't make a living. Eat some fries.
Go back **2** spaces.

"Tesla's Electric Cars Aren't as Green as You Might Think"
—Wired.com, March 31, 2016.
Put it in reverse **5** spaces.

The Department of Justice finds the DiCaprio Foundation may unwittingly have gotten funds embezzled from Malaysia. This could embolden climate change deniers.
Go back **7** spaces.

Avocado toast is a dumb fad anyway. You're making a real difference because your electric utility switched from burning coal to natural gas—50 percent less CO₂.
Advance **6** spaces.

Post "good fat" food porn by putting a pic of your #avocadotoast on Instagram. You're on your way to becoming a social media star.
Advance **6** spaces.

GAME

DNB holds shares in ExxonMobil, Chevron, BP, and Royal Dutch Shell. Go back five—oh, wait! DNB doesn't invest in pornography.

Saunter back **4** spaces.

Do you hate polar bears? Drilling for natural gas causes methane, a potent greenhouse gas, to escape into the atmosphere.

Go back **4** spaces.

America's avocado obsession is leading to deforestation in Mexico. Eat a PB&J (full of rainforest-destroying palm oil).

Go back **7** spaces.

Easy solution: Wash your bags regularly, then buy produce at the local farmers market to reduce agribusiness pollution. If the kale's not too heavy...

Advance **7** spaces.

Instead, help local farm deliveries scale up by joining the Park Slope Food Coop, in Brooklyn, N.Y., which sells regional farm produce at a Whole Foods clip.

Advance **4** spaces.

Honest might not be true to its name: It's dealing with lawsuits that allege its products aren't free of unhealthy chemicals (a claim it denies). Buy some industrial detergent.

Go back **7** spaces.

You adopt an older dog from a shelter. You give it homemade vegetarian feed. The joy the pup brings you eliminates the need to buy stuff. **You win!** Finally, you've done nothing wrong; go play fetch.

Since you're now personally accelerating global warming, you eschew plastic bags and use reusable ones you got when you donated to National Public Radio.

Advance **8** spaces.

"Only 3 percent of shoppers with multi-use bags said they regularly washed them."
—USA Today, Jan. 6, 2014.
In 99 percent of bags tested, half carried coliform bacteria, while 8 percent carried *E. coli*.

Go back **6** spaces, you filthy animal.

You might have a smaller carbon footprint if you bought supermarket veggies. Semis and trains delivering from afar can be more efficient than armies of small trucks.

Go back **3** spaces.

You win! Just kidding. According to the *Wall Street Journal*, four Coop members were subject to a trial over a proposed boycott of Israeli products. Your stress level skyrockets.

Go back **3** spaces.

FISH

SAVING THE

SOUTH



A reef-destroying harvest of giant clamshells is unloaded in China's Hainan province



H

CHINA SEA

AS CHINA BUILDS ISLANDS ON TOP OF REEFS, AN AMERICAN SCIENTIST TRIES TO STOP THE DESTRUCTION

BY DUNE LAWRENCE AND WENXIN FAN

On a map of the world, the South China Sea appears as a scrap of blue amid the tangle of islands and peninsulas that make up Southeast Asia between the Indian and Pacific oceans. Its 1.4 million-square-mile expanse, so modest next to its aquatic neighbors, is nonetheless economically vital to the countries that border it and to the rest of us: More than \$5 trillion in goods are shipped through it every year, and its waters produce roughly 12 percent of the world's fish catch.

Zoom in, and irregular specks skitter between the Philippines and Vietnam. These are the Spratly Islands, a series of reefs and shoals that hardly deserved the name "islands" until recently. In the past three years, China, more than 500 miles from the closest of the Spratly reefs, has transformed seven of them into artificial land masses; as it's reshaped coral and water into runways, hangars sized for military jets, lighthouses, running tracks, and basketball courts, its claim to sovereignty over the watery domain has hardened into an unsubtle threat of armed force.

Mobile signal towers on the newly cemented islands now beam the message, in Chinese and English, "Welcome to China" to cell phones on any ships passing within reach. But its latest moves, in the long-running dispute with its neighbors over the sea, the fish in it, and the oil beneath it, are anything but welcoming: China appears to have deployed weapons systems on all seven islands, and last week seized a U.S. Navy underwater drone.

In the run-up to all this, as most international observers watched the islands bloom in time-lapse on satellite photos, John McManus arrived with a film crew in February 2016, to document a less visible crisis under the water. To McManus, a professor of marine biology and ecology at the University of Miami, the Spratlys aren't just tiny chips out of a blue background on Google Maps; from dives there in the early 1990s, he remembers seeing schools of hammerhead sharks so dense they eclipsed the light. This time, he swam through miles of deserted dead coral—of the few fish he saw, the largest barely reached 4 inches.

"I've never seen a reef where you could swim for a kilometer without seeing a single fish," he says.

When we met in early November, McManus had just moved offices at the Rosenstiel School 

of Marine and Atmospheric Science, on Virginia Key next to the Miami “Seaquarium.” A large desk was jammed under windows that look over Biscayne Bay. McManus rummaged through a box to find an extension cord before opening a laptop to pull up slides.

McManus is tall and broad-shouldered, but slightly stooped at 64. He tends to follow his statements with a reflexive chuckle. He decided to become a biologist as a third-grader in landlocked Vermont and followed through with a bachelor’s degree in marine biology from the University of Connecticut. He helped pay his way by joining the ROTC and went on active duty after graduation as an amphibious cargo operations officer stationed in Virginia Beach. He returned to UConn for graduate work in marine zoology, but by 1978 he was running out of money and signed up for the Peace Corps, asking to be sent to any country with a coast. He was assigned to the Philippines, where he conducted coral reef surveys and met his future wife, Liana Talau-McManus, a Filipina marine scientist. He stayed for two decades, minus three years to get his Ph.D., studying the reefs and fisheries of the region and becoming one of the world’s experts on the ecology of the South China Sea.

The first signs of what was to come appeared in late 2012. Satellite photos of reefs in the Spratlys showed mysterious arcs, like puffs of cartoon smoke, obscuring the darker areas of coral and rock. A colleague forwarded them to McManus, wondering if the shapes might be signs of *muro-ami* fishing, where fishermen pound large rocks into a reef, tearing up the coral to scare their prey out of hiding and up into a net above. Another theory, floated first in an article on the Asia Pacific Defense Forum, a military affairs website, explained the arcs as scars left by fishermen harvesting giant clams.

Giant clams are an important species in the rich reef systems of the Indo-Pacific waters; they anchor seaweed and sponges, shelter young fish, and help accumulate

the calcium deposits that grow reefs over time. Underwater, the elegantly undulating shells part to reveal a mantle of flesh in rainbow hues: blue, turquoise, yellow, and orange—mottled and spotted with yet more colors. The largest can reach almost 5 feet across and weigh more than 600 pounds. Long hunted for their meat, they’re also prized in the aquarium market, though they’re protected by international law.

McManus found both theories implausible, particularly the giant clam one; the only method he’d ever heard of for fishing



McManus in Florida

the hefty bivalves involved wrestling them by hand into the boat.

As McManus pondered this mystery, tensions in the South China Sea were flaring, with the Chinese fishermen of Tanmen as the tinder. Tanmen is a pinhead of a place on the coast of Hainan Island, China’s equivalent of Hawaii. Temperatures rarely drop below 60F, and blue skies contrast with the smoggy haze over much of the mainland. Tanmen was a subsistence fishing village until Hainan opened up to foreign investment and a Taiwanese entrepreneur arrived in 1990.

The man, Zhan Dexiong, had run a business for years in Southeast Asia turning seashells into beads and handicrafts. Tanmen had a dozen small boats

and no electricity, according to Zhan’s son, Zhan Yulong. It did have a cheap and abundant supply of all kinds of seashells, which the locals discarded after taking the meat out. The elder Zhan bought generators, moved machines from his factory in the Philippines, and set up the first foreign venture in town.

By the early 2000s, the success of that first factory had attracted copycats and spurred the creation of a special industrial zone devoted to shell processing. Over the next decade, Chinese consumers, avid buyers of jade and ivory, developed a taste for *objets* from those factories, intricate sculptures with giant clamshells as the medium. Although China listed giant clams as a protected species, Tanmen fishermen found a loophole, going after the large shells of long dead clams, buried within reefs. By 2012 the shells from giant clams, dead or alive, had become the most valuable harvest for the vessels sailing from Tanmen into the South China Sea. Boats regularly came home with 200-ton hauls, which could sell for 2,000 yuan (\$290) a ton—big money in a place where the annual income for a fisherman was 6,000 yuan.

In April 2012 a Philippine navy ship encountered 12 Chinese boats fishing around Scarborough Shoal, a 58-square-mile ring of barely submerged reefs encompassing a lagoon with just one narrow entrance. Shells from the shoal fetched a premium for their purplish color, some as much as 30,000 yuan apiece. Both countries—and Taiwan—claim Scarborough, which sits more than 140 miles off the coast of Luzon, the largest island in the Philippines, and roughly three and a half times that distance from Tanmen. Filipino soldiers boarded the boats and found them loaded with hundreds of clamshells. Within hours, Chinese government ships arrived to face off with the Filipinos, who eventually withdrew. China has remained in control of Scarborough ever since.

The Chinese fishermen returned to Tanmen to be feted by state media as patriots and photographed grinning in front of heaps of creamy-gray shells.

The Philippines and China are both signatories to the United Nations Convention on the Law of the Sea (UNCLOS); the Philippines initiated proceedings against China for violations of the law in the Permanent Court of Arbitration (PCA) in The Hague in January 2013.

That spring, Tanmen received the ultimate honor: a visit from China’s newly minted president, Xi Jinping. He shook hands with men wearing traditional

basket hats, urging them to build bigger boats to catch more fish in support of China's sovereignty over the South China Sea and pledging financial support. He made good on his word: Government funds went to adding new 500-ton boats to the local fishing fleet and subsidized voyages.

Xi made no mention of giant clams, but the local shell industry became the biggest, and most obvious, beneficiary of the government's largesse: The number of clam-processing factories ballooned to more than 100. Families turned their streetfront homes into shops; along the main artery, Fugang, or "Rich Port," Street, two-thirds of the 300 stores sold clamshell carvings. There were Buddhas reclining among clouds; the many-armed Guanyin, goddess of mercy; intricate landscapes of mountains and trees; there were even, ironically, clamshells shaped to look like ivory tusks. Tourists were beginning to visit from the seaside resorts of nearby Bo'ao, which hosts an annual Davos-like summit, while middlemen bought in bulk to hawk the carvings online.

"All countries have trouble controlling fishermen, because these are desperate

"I'VE NEVER SEEN A REEF WHERE YOU COULD SWIM FOR A KILOMETER WITHOUT SEEING A SINGLE FISH"

people," McManus says. He has a long familiarity with this dynamic from his work in the Philippines. After finishing his Ph.D. in biological oceanography at the University of Rhode Island in 1985, he moved to Bolinao, on the thumb tip of mitten-shaped Luzon Island, to run a long-term study of the local reefs and fisheries. McManus first analyzed NASA Landsat information to locate the reefs, then took his own aerial photos. He'd priced out the cost of hiring a photographer to do this at \$50,000. Learning that an ultralight aircraft cost \$15,000, he bought one and taught himself to fly. He also trained a team of students to help with his research; they swam each reef at least once every two months, tracking the numbers and sizes of 600 species

of fish. They also gathered data on dynamite-blast fishing. Such practices, coupled with population pressures and poverty, were quickly undermining the ecological balance in the waters off Bolinao. "It was extremely heavily over-fished, and fish species would basically disappear,"

McManus says. "Where do you get the fish when you run out?"

A colleague at the University of the Philippines suggested that the Spratlys helped replenish coastal resources, providing what McManus calls "fortuitous pulses of fish." The situation there was already dangerous—in 1988, Chinese navy ships killed dozens of Vietnamese soldiers on Johnson South Reef. But McManus didn't need to visit; he devised a way to figure out whether fish larvae from the Spratlys could reach the coast of the Philippines, drifting with the ocean currents, in the weeks it takes for them to develop the ability to swim. He started with old arrow charts of drift data in the South China Sea, recording

CLAMTASTROPHE

China's rush to build airstrips on atolls and sell clam carvings annihilated large swaths of reef, which doesn't bode well for regional fisheries

Reefconomics

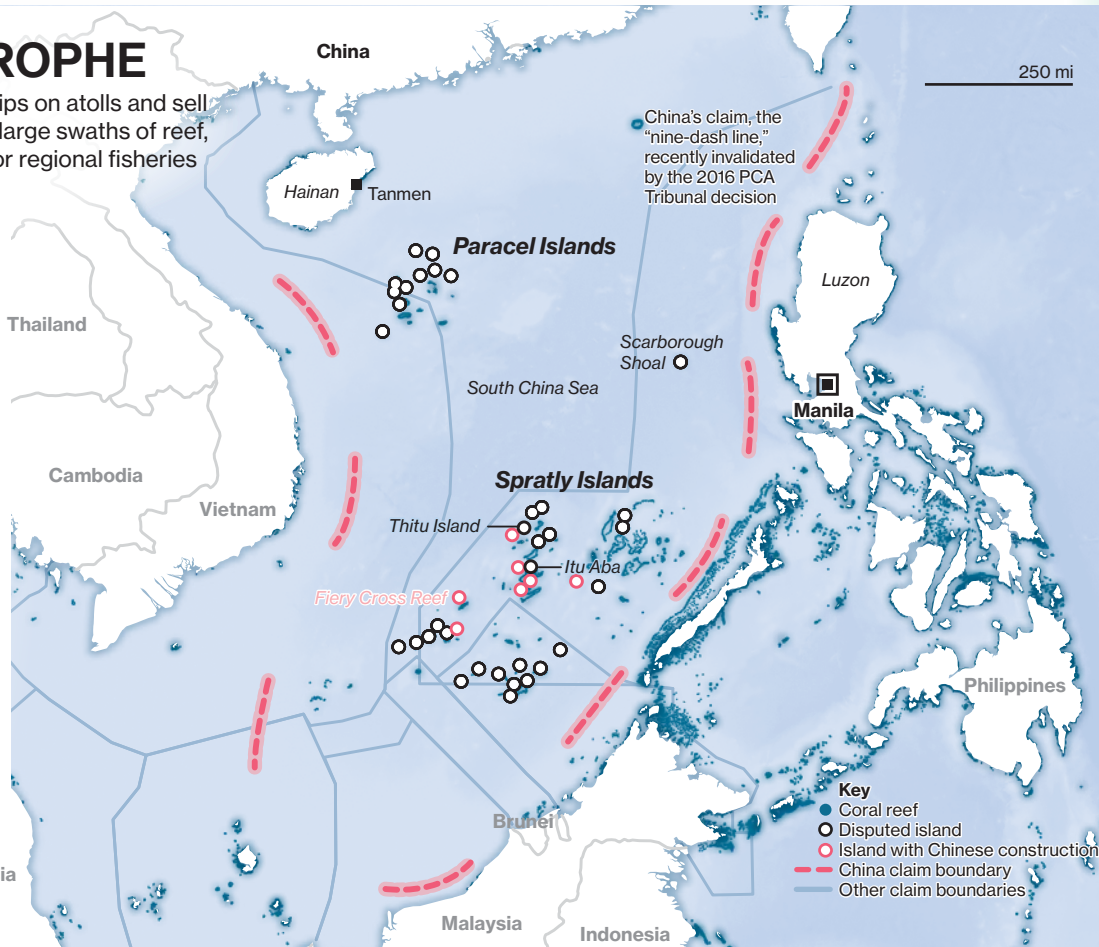
A 2012 study tried to put a price on the ecosystem services provided by a square mile of coral reef

Food	\$0.18m
Raw materials	\$5.58m
Genetic resources	\$8.56m
Ornamental resources	\$0.12m
Climate regulation	\$0.31m
Storm moderation	\$4.40m
Waste treatment	\$0.02m
Erosion prevention	\$39.68m
Genetic diversity	\$4.20m

\$63m per sq. mi.

61.6 sq. mi. of reef damaged or destroyed by China

\$3.625 billion* at risk



where ships meant to go and where they'd ended up, which he found in a paper from the 1960s.

"They were all just arrows to indicate how fast the currents were going," he says. "Monsoon directions change. They go from the northeast sometimes, and from the southwest at other times."

His estimates showed that replenishment larvae could make it to Luzon and other parts of the Philippines from the Spratlys; when the currents shifted, like a top-loading washing machine drum reversing direction, larvae could also make it up to Taiwan and South China.

"The most important long-term resources to be had from the Spratlys may be those which are already being used—the larvae of fish and invertebrates which the Spratlys apparently supply to heavily fished waters elsewhere around the South China Sea," McManus wrote in a 1992 paper about his findings. "The Spratly Island area could be considered a 'savings bank' where commercially important fish and invertebrates (as capital) are saved from overharvest."

In his paper, McManus proposed a policy solution to the tensions in the South China Sea: Make the Spratlys into a marine park, jointly run by all six countries with claims to the reefs. At that time, few fishermen made it all the way out to the Spratlys, so limits on fishing there would have little direct negative impact while conserving fisheries that produced hundreds of millions of dollars in exports annually, not to mention food for the bordering nations.

The paper appeared in a quarterly magazine about fisheries, *Naga*, after the more general-interest *Far Eastern Economic Review* rejected it "with considerable amusement," McManus says.

"Something about protecting my own reputation from being ruined by an article like that."

McManus found the scientific community more receptive, at least initially. The MacArthur Foundation awarded him a grant for a regional fish genetics study, with scientists from six different nations. The results shored up the idea that the coastal and commercial fisheries depend on the genetic reserve of the Spratlys.

After that, he says, funding dried up. In 2000 the University of Miami

lured McManus back to the U.S., appointing him director of a new research center and his wife a professor of marine affairs. He continued to write and speak about the Spratlys but devoted himself mainly to fundraising efforts for the center, teaching, and building a computer model for how reefs recover from storms and other damage.

In 2015, McManus was invited to speak at a symposium on the South China Sea in Brussels. The Philippines' case against China in The Hague had triggered an unexpected response. The nations competing over the sea had established bases on some reefs over the years to support their claims—mostly small structures, but also a resort, built by Malaysia. By 2014, however, satellite images showed China embarking on construction over the reefs on a much larger scale, converting its posts into permanent bases.

McManus began using Google Earth and images collected by the Center for Strategic and International Studies, a think tank in Washington, to analyze what was happening to the reefs around the growing islands. Tracking satellite photos backward in time, he could see the appearance of the same arcs that had defied explanation years earlier. With China's new islands emerging, he pinned blame for the spreading scars on dredging by Chinese ships. He estimated that China's construction had permanently wiped out about 6.6 sq. mi. of reef. Reefs over a far larger area, about the size of San Francisco, showed damage

that could take decades to recover from. McManus sent his findings to the team representing the Philippines.

Then in December 2015, a journalist for the BBC, Rupert Wingfield-Hayes, caught Chinese clam fishermen in the Spratlys on video: They appeared to be intentionally cutting up the coral reef, revving the engines of their dinghies while at anchor and kicking up long plumes of sand and debris in the water. Another journalist, Victor Robert Lee, who'd been tracking developments in



Life and death in the sea, from top left: A satellite image of Fiery Cross Reef, one of China's seven man-made islands; a living giant clam; a sculpture for sale in Tanmen. Rare carvings, for instance from two sides of the same shell, can sell for as much as \$1 million.

the South China Sea for the *Diplomat*, found images online of fishermen standing on reefs, dragging small vessels outfitted with propellers on long shafts across them to dig up the largest giant shells, buried in the coral.

McManus couldn't quite believe it until he saw it for himself, in February 2016, with the documentary film crew. The crew flew to the Spratlys from Manila, landing on Thitu Island, where the Philippines has a base. They motored out by boat, on the alert for China's coast guard, to reach an unnamed reef, dubbed Checkmark by McManus for its shape. He took his camera and started swimming—through pure devastation. "It's like burning down the rainforest to get the elephant," McManus says.

Early in the expedition, a wet nylon rope cut into his legs. By the time he got back to Manila, the wound had turned gangrenous after days swimming and living onboard the small boat. Desperate to back up the evidence against China, he uploaded his photos from a hospital bed before flying back to the U.S.

"I was imagining the whole time, if they amputate my legs, it'll be so great for the cause!" McManus says. "That was the most important thing I've ever done in my life."

McManus redid his calculations, based on his ground truthing. There was almost



"IT'S LIKE BURNING DOWN THE RAINFOREST TO GET THE ELEPHANT"



62 sq. mi. of damage—together, an area almost as large as two Manhattans—to reefs across the South China Sea. Forty square miles of the devastation was the work of Chinese giant clam fishers; the rest was from dredging and filling in beneath the islands. In the Spratlys alone, he found 27 sq. mi. of clamming-related damage, all of it directly attributable to China, wrought since the Philippines had brought its arbitration case.

The Hague's PCA Tribunal published its verdict on July 12 in favor of the Philippines, ruling that China's claims to the South China Sea had no legal or historical basis and that China had violated its obligation under UNCLOS to protect and preserve the marine environment. McManus's evidence featured prominently in the written decision: "The Tribunal recalls in particular the very recent examinations conducted by Professor McManus, which led him to estimate that China is responsible for almost 70 square kilometres (27 sq. mi.)

of coral reef damage from giant clam harvesting using propellers, a practice he described as more thoroughly damaging to marine life than anything he had seen in four decades of investigating coral reef degradation."

China refused to participate in the process in The Hague, leaving the tribunal to piece together possible motivations for its apparent support of the clam harvesting. In public statements and a report in 2015, China claimed the island-building wasn't damaging to the environment and took place in areas of coral that were already dead. The tribunal came to a more sinister conclusion, based on the evidence, that China was fully aware of and even tolerated and protected the practice, creating the conditions necessary to claim that the construction of Chinese bases itself wasn't harming the reefs.

Beijing rejected the tribunal verdict, calling it "a political farce under the cloak of law" and dismissing the findings on the environment, saying that it had taken "an array of measures to effectively protect" the ecosystem. The local government of Tanmen held public meetings about the damage from clam fishing as early as July 2013, and more than a year before the ruling it imposed a ban on harvest and sale; the ban put some factories out of business as supply shrank. Locals like Li Xuanru, a shop owner who's still

operating, undercut the tribunal's theory. "Xi would be furious had we told him the bigger boats were out for giant clams," he says.

The backstory hardly matters now. McManus is focused on curbing further destruction. "We have to stigmatize this. This is not just a clam, it's an entire reef system," he says. He's tried to get environmental groups to help turn giant clams into another giant panda, without much luck; non-governmental organizations already working in China to stigmatize ivory, shark fins, and tiger bones may fear retaliation for bringing the fraught South China

Sea into the picture.

But McManus's point—that all the countries fighting over the South China Sea share a common enemy—is taking hold. In September the U.S. Department of State sent McManus on a speaking tour to the Philippines. In October the Vietnamese government invited him to speak to academics and policymakers. He calculates that without radical cuts to the fish catch and protection for the reefs that help resupply coastal fisheries, some 38 million people may face food shortages. If all the countries involved could freeze their political claims and collectively protect the South China Sea reefs, his models suggest that many could recover in about 20 years. The Philippine president, Rodrigo Duterte, plans to designate the interior of Scarborough Shoal a marine sanctuary, and the country's nominee for ambassador to China, Jose Santiago Santa Romana, said at his confirmation hearing this month that China has agreed not to reclaim the shoal. McManus envisions ecotourism, diving tours from Luzon and co-tours from China. "Scarborough is what I'm hoping a lot of people will focus on, because that could be the breakthrough," he says.

Since the tribunal's ruling, both the national and provincial Chinese governments have stepped in with stiffer penalties against those selling giant clam carvings. At least one Tanmen shop full of carvings responded by pasting paper over the characters for giant clam wherever they appeared on their shelves. **B**

TRUMP'S SECRET SANTAS

Donald Trump's White House entourage will have a combined net worth of about \$6 billion. That means the president-elect—whose own charity said this year it broke rules barring leaders from using funds to benefit themselves—isn't the only one on his team with a foundation. —Caleb Melby and Max Abelson

THE "STAYING IN THE IN CROWD" GIVER



Steven Mnuchin
Nominated for: Secretary of the Treasury
Net worth:

\$655 million

The Steven & Heather Mnuchin Foundation

\$5.2 million in assets

In 2014, Mnuchin and his then-wife's foundation gave \$50,000 to the Los Angeles Ballet and \$75,000 to the Museum of Contemporary Art, Los Angeles (the couple divorced that year, and the foundation hasn't filed a report for 2015). Mnuchin, who moved from New York to Los Angeles around 2009, isn't one to forget his friends back East. He also gave \$25,000 to the Foundation for Ethnic Understanding, led by Rabbi Marc Schneier and rap mogul Russell Simmons.

THE "AS LONG AS YOU GIVE SOME BACK" GIVER



Betsy DeVos
Nominated for: Secretary of Education
Net worth:

\$130 million

The Dick & Betsy DeVos Family Foundation

\$62.1 million in assets

In addition to financial gifts, the DeVos foundation also makes low- or no-interest loans, often in the millions of dollars. In 2013 and 2014 it extended loans to a nonprofit founded by the DeVoses' son Rick, ArtPrize Grand Rapids (\$5 million, with some of the money repaid and some of it forgiven); Grand Action, a nonprofit for downtown Grand Rapids founded by Dick DeVos (\$3.5 million, at a 1 percent interest rate); and the West Michigan Aviation Academy, which DeVos and her husband co-founded (\$3 million).

THE "SMACKDOWN" GIVER



Linda McMahon
Nominated for: Administrator of the U.S. Small Business Administration
Net worth:

\$1.4 billion

Vince & Linda McMahon Family Foundation

\$1.3 million in assets

World Wrestling Entertainment's former chief executive officer has given to health and fitness nonprofits, including \$250,000 to the Westport Weston Family YMCA and \$100,000 to the Connecticut Basketball Club in 2015, \$1 million to the Greenwich Hospital Foundation in 2014, and a total of \$500,000 over those two years to SoldierSocks (now SoldierStrong), which donates bionic suits to paralyzed veterans. From 2007 to 2009, McMahon and her husband gave \$5 million to Trump's foundation.

THE "PILLAR OF MIDWESTERN SOCIETY" GIVER



Karen Pence
Role: Incoming Second Lady
Net worth:

At least \$635,000

Indiana First Lady's Charitable Foundation

\$128,277 in assets

The foundation, which raises money from outside donors, made its largest gift this year, of \$100,000, to the Indiana Bicentennial Commission's Treasures of the Statehouse exhibition, a three-dimensional model of the building with interactive touchscreens. Pence also fed \$500 to \$1,000 to the General Van Rensselaer chapter of the Daughters of the American Revolution, Christ Child Society of Fort Wayne, and Lady's N Charge, a club for female owners of Dodge Chargers.

THE "PRO-CHOICE WALL STREET" GIVER



Gary Cohn
Named: Director of the National Economic Council
Net worth:

\$520 million

The Pevaroff Cohn Family Foundation

\$20.2 million in assets

Of the 50 donations Cohn's foundation made in its 2014 and 2015 fiscal years, only one went to an organization outside New York, Washington, D.C., or Palm Beach, Fla.: \$1,000 to St. Jude Children's Research Hospital in Memphis. In that time, he donated \$71,310 to Congregation Rodeph Shalom, a Reform Jewish synagogue on Manhattan's Upper West Side, as well as \$2,500 to Naral Pro-Choice America and \$5,000 to Planned Parenthood of New York City.





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