April 3 — April 9, 2017 | bloomberg.com

Bloomberg Businessweek

Tough times at the Worldwide Leader in Sports

p48

The Sweet Spot for Smart Logistics

An evolving supply chain calls for customized solutions, and logistics partners must rise to the challenge

Navigating the modern supply chain requires increasing sophistication both strategically and technologically. The leading logistics companies are able to meet their clients' ever-rising expectations, which in turn encourages customers to ramp up the complexity of services requested. The result is a fast-paced feedback loop that is not without its challenges—or opportunities.

The basic dynamics driving change in this sector are customer needs for speed, information and an excellent experience, plus globalization, and they are stretching supply chains far beyond their original confines. To thrive in this increasingly customer-centric industry, providers need to adopt a hybrid of "asset-light" and "asset-based" business models. Arkansas-based ArcBest has found success in this sweet spot, and its strategy of meeting customer needs by balancing guaranteed-capacity services with an expanding asset-light organization has proven to be a strength-meets-agility proposition.

"The more we've presented our capabilities to customers, the more they've pushed themselves to uncover new opportunities."

– Dennis Anderson, ArcBest

One East Coast company recently experienced receiving-capacity issues due to supply chain unpredictability. "Certain quantity levels, at certain times, were beyond what they could handle, no matter what adjustments they made," recalls Dennis Anderson, Chief Customer Experience Officer at ArcBest. The solution was to long-haul from the point of origin using full-truckload shipping services, and route through an ArcBest service center—one of 240-plus across the U.S.—where the freight could be staged according to a timetable that suited the consignee.

"It's what is called a 'final mile' issue, and it is often the source of tremendous problems for clients," Anderson adds. "In this case, the asset side of what ArcBest can offer was there to provide necessary flexibility, along with security."

Freight logistics is also grappling with the call for customized transit conditions, driven by rising consumer demand for fresh foods and, in the drug industry, an increase in the transport of temperature-controlled products. ArcBest's expansion has addressed the specialized needs of the "cold chain," highlighted by the acquisition of Panther Expedited in 2012, which allowed the company to digitize the supply chain and, according to Anderson, make the "flow of information as important as the flow of goods."

One of these new capabilities—satellite tracking—proved to be game-changing for shipments with constant-temperature requirements. "The monitoring capability was one of the more dramatic forms of end-to-end transparency along the cold chain," says Anderson. "Suddenly, that information was digital, real-time and uninterrupted."

Given access to a full suite of supply chain resources, partners are often inspired to expand their business into new territories. "The more we've presented our combined asset-based and asset-light capabilities to customers," Anderson notes, "the more they've pushed themselves to uncover new opportunities."

Recently, one client approached ArcBest with an idea that required dedicated trucking capacity in a key location in the upper Midwest. "Because we had acquired expertise in delivering this service in an asset-light fashion," Anderson explains, "we were able to quickly start the operation that might have taken several months to ramp up had we needed to buy the equipment and recruit new employee drivers."

Whether helping to manage everyday problems or to clear complex hurdles, this spirit of collaboration sets a logistics partner apart. By leveraging custom-made solutions that meet their specific needs—from warehouse and distribution services to less-than-truckload shipping—the businesses that turn to ArcBest can transform their supply chains to develop a solution for any scenario.

The breakthroughs that result don't only streamline business processes; they represent how, when invested with trust by a client, a skilled logistics partner can change the competitive landscape of an entire industry. ■


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"Story's on ESPN. It's the latest media organization to be affected by cord cutting, which has cost the network millions of cable subscribers."

"Does this mean that mainstream sports will become a barely acknowledged niche interest? And that adults who never engaged in sports, perhaps because of the childhood trauma of being picked last in every game, possibly due to a lack of coordination and a full-figured stature, will no longer be ridiculed for not being able to participate in 80 percent of all conversations with their guy friends?"

"No, it doesn't mean that at all."

"I'm just not sure it's newsworthy, then."

COVER PHOTO ILLUSTRATION BY 731. COVER PHOTO BY GETTY IMAGES

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Corrections & Clarifications
"Time to Rethink Early Retirement" (Focus On/Retirement, March 27-April 2, 2017) should have stated that retiree Greg Ledbetter lives in Redmond, Ore.

MAIN: MICHAEL FRIBERG FOR BLOOMBERG BUSINESSWEEK; BEZOS: MARK WILSON/GETTY IMAGES; STEUERLE: ALEX WONG/GETTY IMAGES

Show Us Your Tax Reforms

By Peter Coy

The president needs a win, and he's picked the federal tax code as the issue on which to take a stand. On March 24, still stinging from his failure to repeal and replace Obamacare, Donald Trump told reporters he'd "start going very, very strongly for the big tax cuts and tax reform." Taxes, he said, "will be next."

Judging from the fiasco over the American Health Care Act, there's good reason to think Trump is about to get in over his head again. The federal tax code is one of the world's most complicated machines, and he hasn't even released the outlines of a plan for how to fix it, unless "phenomenal" counts as a description. What we have heard of the plan is inconsistent: Trump has promised big cuts in top income tax rates, which would benefit the rich, while Treasury Secretary Steven Mnuchin has insisted that there will be no absolute tax cut for the upper class. That circle can't be squared.

Tax reform is hard in the best of circumstances, which these aren't. "The obstacles to tax reform are at least as great as those that blocked the health-care bill," Tan Kai Xian, an analyst at consultancy GaveKal Research Ltd., wrote in a note.

Just ask Urban Institute fellow Eugene Steuerle. As a Treasury Department staffer, he led the research project that was the basis for Ronald Reagan's Tax Reform Act of 1986. The law, which lowered top rates in exchange for eliminating deductions, remains the most important tax reform of the past half-century or more. It took Reagan five years in office to achieve it, Steuerle notes, even though there was widespread agreement that top rates were too high. (The act cut the highest rate from 50 percent to 28 percent; the top rate had been 70 percent before Reagan's 1981 tax cut. The current top rate is 39.6 percent.)

Trump and his advisers are repeating the mistake they made on health care by focusing on campaign-style messaging, says Steuerle: "They have put so much attention on the symbolism that they wanted to achieve rather than the nitty-gritty of working out the balance sheets, the distribution tables of winners and losers, et cetera."

Taxation is a tougher nut now than it was in Reagan's era because the aging of society boosts the cost of Social Security and Medicare, creating a permanent tendency for spending to rise faster than revenues. "They've just got a major budget problem that they came into office with and they haven't been willing to tackle," Steuerle says. "Now throw a tax cut into that mix and you're probably only going to compound the problem." Layer onto that the opposition Trump faces from an emboldened House Freedom Caucus on the right (page 27) and a unified Democratic Party on the left, and it's hard to see how he'll be able to lead on taxation.

The first conflict is that Trump mostly just wants to cut taxes, while House Speaker Paul Ryan wants to rebuild the tax code while raising the same amount of money to keep deficits from growing. Ryan's A Better Way plan would move the U.S. toward a tax on consumption rather than income. It "would be the most substantial tax reform since the original enactment of the income tax in 1913," writes University of Chicago Law School professor David Weisbach in a new paper. A key aspect is border adjustment, which would level the playing field for American producers by taxing just what's sold in the U.S., whether domestic or imported.

Border adjustment probably won't happen, though, at least not the full version Ryan wants. Exporters like it but importers hate it, and history shows that concentrated opposition beats diffuse support every time. Plus, Trump was burned when he pushed Ryan's complex, unloved health-care plan. He likely won't want to repeat the experience with another piece of complex, unloved, Ryan-invented legislation.

Unfortunately for Trump, dropping the border-adjusted tax means losing the $1 trillion or so it would raise over the next decade. Without that windfall, it will be harder for him to cut other taxes without widening the deficit. Trump's team was also counting on the repeal of Obamacare to create budgetary room for tax cuts. That's not happening, either.

The budgetary process isn't Trump's friend. The next choke point is the April 28 expiration of a continuing resolution that's essential to maintain funding for federal programs and services. If the resolution is allowed to expire because of stalemate, the government begins to shut down on April 29—which by a twist of fate is the last of Trump's first 100 days in office.

Trump faces another fight this summer over the 2018 budget resolution, a blueprint for spending in the fiscal year beginning on Oct. 1. Given how polarized his party has become, he'll have trouble getting enough Republican votes to pass the budget

Reagan took five years to enact his landmark legislation. Trump will have a harder time

ILLUSTRATION BY KURT WOERPEL

resolution, and if he fails, tax legislation is dead for at least the rest of 2017. (The technical reason: A budget resolution is a prerequisite for the reconciliation process, which is what Trump intends to use to get a tax bill passed with a simple majority in the Senate, evading a Democratic filibuster.)

One glimmer of hope for Trump is that House Freedom Caucus Chairman Mark Meadows of North Carolina is indicating that the group will be less doctrinaire on taxes than it was on health care. He said on ABC's *This Week With George Stephanopolous* on March 26 that he wouldn't protest if tax cuts aren't fully offset by new spending cuts or new sources of revenue such as a tax on imports.

If Republican leaders do want to keep tax changes revenue-neutral and they don't pass border adjustment, with its slug of fresh revenue, they may have to settle for a corporate income rate as high as 28 percent, according to top congressional GOP sources. That's a far cry from Ryan's goal of 20 percent or Trump's goal of 15 percent. In fact, it's the same corporate rate that President Barack Obama sought. (The rate is 35 percent now.) The rates Ryan and Trump wanted "aren't realistically possible," says Dean Zerbe, a former Senate Finance Committee staffer who is national managing director at tax consulting firm Alliantgroup LP.

The bottom line is that whatever Trump manages to get done on taxation

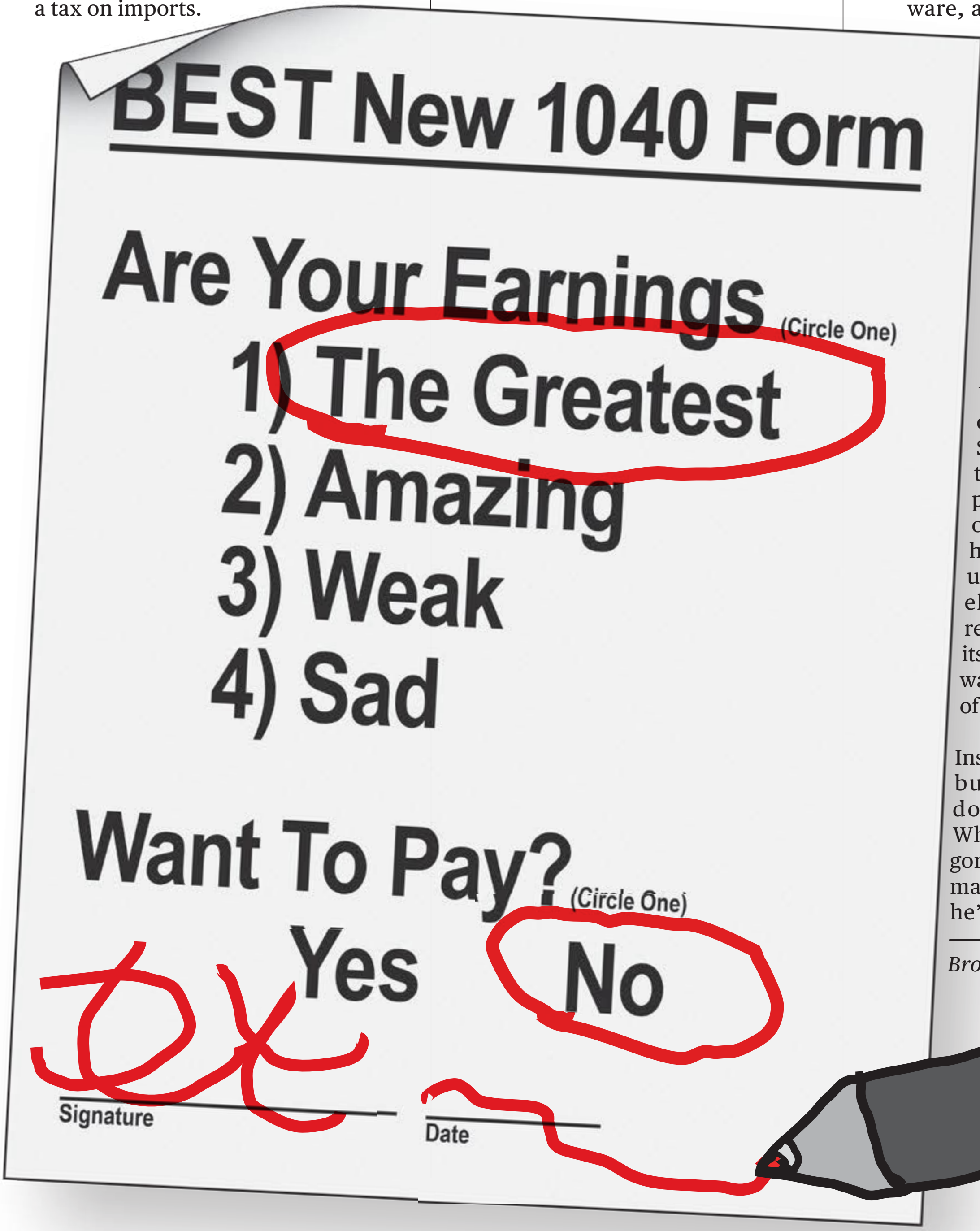
"The House will call it tax reform, but it'll essentially be a tax cut that increases the deficit"

is likely to be small-bore. "The House will call it tax reform, but it'll essentially be a tax cut that increases the deficit," says Stan Collender, a federal budget expert at the communications firm Qorvis/MSLGroup. "The question is whether that can pass in the Senate." In addition to a small cut in corporate taxes, Congress may pass accelerated depreciation, which encourages investment in equipment and software, and end the carried interest rule that hedge fund managers use to reduce their taxes, says Steven Blitz, chief economist at research firm TS Lombard. "On the personal tax side, there will be a cut for his constituents that he will duly sell as being bigger than it is," he predicts.

Wall Street seems to be coming around to the idea that the president won't be able to deliver on all of his promises. Goldman Sachs Group Inc. has been tracking the stock market performance of a basket of companies that pay high taxes. The index shot up after Trump's surprise election victory, but has receded. Through March 28, its postelection performance was actually worse than that of the Standard & Poor's 500.

Steuerle, the Urban Institute budget expert, says budgeting always comes down to one question: Whose ox are you willing to gore? A weakened president may find that on tax policy, he's the one being gored.

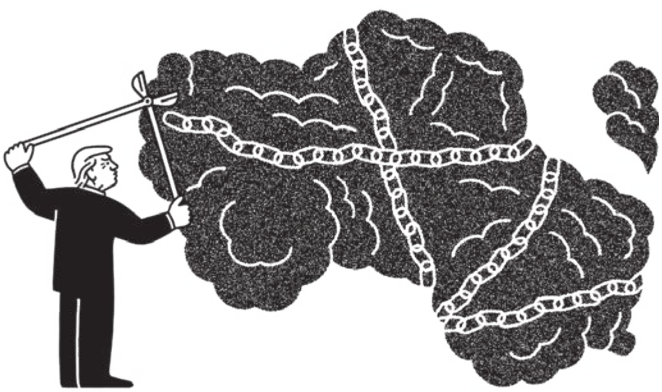
—With Sahil Kapur, Lynnley Browning, and Justina Lee



To read Jonathan Bernstein on Trump's deepening unpopularity and Megan McArdle on the American dream, go to Bloomberg view.com

California vs. Trump Over Car Emissions

The administration wants to curtail the state's massive influence over fuel efficiency



Thanks to a peculiarity of U.S. law, California has special power to set car pollution standards that affect the whole country. And the whole country—even the whole world—has benefited as the state has pushed automakers to create ever better pollution-limiting technology and ever more fuel-efficient cars. In the face of Donald Trump's threats to let greenhouse gases rip, California's help is needed more than ever.

The administration has signaled a desire to undermine the state's de facto national authority. State leaders have vowed to resist and are moving ahead with stricter emissions standards. Fortunately, California has a good chance of winning this fight.

The state's prerogative stems from its historic efforts, dating from the 1960s, to restrict tailpipe emissions to reduce smog in Los Angeles. In 1970, when Congress passed the Clean Air Act, it recognized California's progress by authorizing it to receive waivers from the U.S. Environmental Protection Agency to continue enforcing its own regulations, as long as they remained at least as strict as the federal government's. Other states were allowed to follow California's rules, and at this point more than a dozen do. Automakers have little choice but to see that all their cars comply.

By the early 2000s, the state had moved on from smog control to climate protection, setting high fuel efficiency standards to limit carbon dioxide emissions. And although the EPA under George W. Bush resisted granting a waiver for these rules, once Barack Obama reached the White House, the state had its waiver, along with a deal to harmonize California's fuel efficiency standards with new national ones—the ones that the Trump administration wants to set aside.

It's important to point out why the standards, though imperfect, are worth keeping. Tailpipe emissions are a leading source of greenhouse gases in the U.S. And carbon dioxide emissions can't be blocked with pollution control devices; the best way to reduce them is to burn less fuel.

Automakers say raising fuel efficiency costs too much, especially the scheduled national boost to more than 54 mpg by 2025. Trump agrees. As a matter of law, though, the administration can't dial back standards without justifying the change in light of a Supreme Court decision that recognizes the need to regulate greenhouse gases. Assuming the administration overcomes that hurdle, it would then need to justify withdrawing California's waiver for the 54 mpg standard. There's no precedent for the EPA withdrawing such a waiver.

At best, this is a fight that could be embroiled in lawsuits for years—ensuring a long period of uncertainty for automakers and climate-conscious citizens alike. Unless he's willing to fight for a smarter policy, Trump should do the country a favor and leave the existing rules alone.

Central America's Fiscal Failure

El Salvador, Guatemala, and Honduras basically outsource their tax revenue problems

Central Americans have good reason to flee to the U.S. in ever greater numbers. Record-setting homicide rates and lack of economic opportunity plague much of the region. A main cause of these and other ills is the failure of governments to provide for the health, education, and welfare of their citizens.

Saddled with some of the world's highest poverty rates, El Salvador, Guatemala, and Honduras—the countries that accounted last year for most apprehensions at the U.S. southern border—gather relatively little in tax. Right now these countries are in effect outsourcing the uplift of their poorest by exporting undocumented immigrants. In 2015 each took in remittances equal to more than 10 percent of gross domestic product.

A smarter approach to collecting revenue could raise more money for essential services without unduly burdening workers or producers. Central America relies on personal income taxes for a tiny proportion of revenue. Top marginal rates are low (7 percent in Guatemala), and they kick in only at high levels of income. Exemptions, deductions, and assorted loopholes further narrow the base to which these meager rates apply. And what little is raised comes almost exclusively from the rich. The sound fiscal principle that most people should contribute to the cost of good public services is absent.

Meanwhile, taxes on spending raise most of the revenue, but they're plagued by evasion. Moreover, if consumption taxes aren't well targeted—they usually aren't—they can hit the poor hardest and negate the benefits of promising programs of cash transfers. Broadening the income tax base and cracking down on evasion could raise substantially more revenue for education and other vital public services. Greater transparency would boost taxpayers' confidence and their willingness to pay into the system. Higher cash transfers, targeted more precisely toward the poorest, would get more bang for the antipoverty buck.

ILLUSTRATION BY TOMI UM

Movers

By Kyle Stock

▲ **Jim Gianopulos was named CEO of Paramount Pictures.** The studio is running sixth at the box office so far this year. Gianopulos, the former head for films at Twentieth Century Fox, replaces Brad Grey, who left in February after 12 years.

▲ **Amazon.com agreed to buy Middle East online retailer Souq.com** for an undisclosed sum. The Dubai-based company has 3,000 employees and draws about

23m

visits a month.

10%

▲ **Increase in value of shares in Darden Restaurants on March 27**, when it announced plans to purchase Texas-based Cheddar's Scratch Kitchen for $780 million. The chain, known for its ribs, gives Darden a source of growth.

▲ San Francisco-based **Wells Fargo will pay**

$110m

to settle lawsuits by customers over unauthorized accounts the bank opened in their names. The company already paid $185 million to settle regulatory charges related to the scandal.

▲ Good news for elephants: Ivory prices have fallen to $730 per kilogram from a peak of $2,100 in 2014. **China has closed its tusk-carving factories and will ban ivory sales by yearend.**

▲ No. 1 U.S. carrier **American Airlines Group bought a**

$200m

stake in China Southern Airlines, angling for one of the world's fastest-growing travel markets. The carriers will begin selling tickets on each other's flights later this year.

▲ Surrounded by representatives of the country's 77,000 coal miners, **Donald Trump signed an executive order lifting a ban on coal mining on public lands** and laying the groundwork for rewriting the Clean Power Plan, an Obama-era policy to fight climate change.

▲ Pimco agreed to pay co-founder Bill Gross

$81m

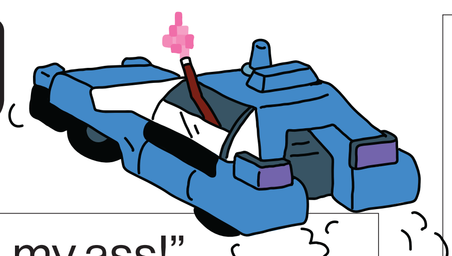
to settle charges that he was forced out in September 2014. Gross, now at Janus Capital, plans to donate the money to charity.

▲ As it nears saturation in the U.S., **Square is expanding its mobile payment services to the U.K.** CEO Jack Dorsey is keen on the country's high concentration of small and midsize businesses.

▲ **Domino's Pizza Enterprises said it will start using a sidewalk droid** to deliver pizzas in Germany and the Netherlands. The six-wheeled pie bots will be supplied by London-based Starship Technologies.

Ups

Downs



"Netflix, my ass!"

▼ **Sony Motion Picture Group Chairman Tom Rothman on *Blade Runner 2049***, set to debut in movie theaters rather than on streaming platforms.

▼ In Berlin, **thieves made off with a 221-pound Canadian gold coin** named the Big Maple Leaf. It's worth $750,000 as tender, or

$4.5m

as metal.

▼ After failing to persuade the Danish government to change its laws regulating taxis, **Uber said it will exit that market** on April 18. It leaves behind about

2,000

drivers.

▼ **Used-vehicle prices plummeted 1.6 percent in February** from the month before, more than they have in almost a decade, the National Automobile Dealers Association said. The dip is fueled in part by generous discounts on new cars and trucks.

▼ Toshiba's nuclear unit, **Westinghouse Electric, filed for bankruptcy** as it struggled with cost overruns. Demand for nuclear power cooled after the Fukushima meltdown. The filing puts the fate of four unfinished Westinghouse reactors in the U.S. in question.

▼ With $5.1 trillion in assets under management, **BlackRock said it will overhaul its stockpicking business**, shifting resources from human managers to computer models. Several dozen employees are expected to leave.

▼ **Britain officially triggered Brexit** with a letter from Prime Minister Theresa May delivered on March 29 to European Council President Donald Tusk. The missive kicks off a two-year divorce process.

▼ Ericsson said it would take a charge of $1.8 billion to $2.4 billion for this year as it **restructures to deal with fierce competition for its telecom-equipment business**. About one-quarter of the writedown is tied to intellectual property.

▼ Anbang Insurance Group and a company owned by the family of Jared Kushner, Donald Trump's son-in-law and adviser, **ended talks on plans to redevelop 666 Fifth Avenue**. Lawmakers had questioned the potential deal, in which the Manhattan property would have gotten $400 million in Chinese investment.

▼ A report from Barclays says **recent traffic declines cost Whole Foods Market as much as $479 million a year in sales**. The analysts note shoppers have instead taken their business to Kroger.

RIBS: CATPHOTO4/ISTOCK; CHINA SOUTHERN: AFP/GETTY IMAGES; IVORY: PHILIPPE LOPEZ/GETTY IMAGES; COAL: NICHOLAS EVELEIGH/GETTY IMAGES; DORSEY: LARRY FRENCH/GETTY IMAGES; COIN: PICTURE-ALLIANCE/GETTY IMAGES; BREXIT: YVES HERMAN/REUTERS; AIR MAN: CRISSERBUG/ISTOCK; KUSHNER: CHERISS MAY/GETTY IMAGES

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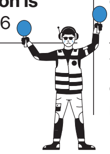
Your flight booked out of Berlin's BER? It just might be awhile ... 18



Who Gets to Drill Here?

YAEL MARTÍNEZ/BLOOMBERG

▶ Resistance to foreign energy companies in Mexico boosts a populist presidential candidate

▶ "With machetes, with pistols, with whatever necessary, we will defend our land"

When an angry mob torched city hall in the southern Mexican town of Tecpatán in February, it sent a warning flare across a country already thrown into turmoil by Donald Trump.

The outrage was over oil, specifically the government's plan to auction off a swath of land around the farming community to private drillers. The locals say they weren't informed that a date—July 12—had been set for the auction. When they found out, they set fire to the two-story town hall, which now sits charred and abandoned, its windows smashed and the iron gate chained shut. Its tower clock stopped at 10:55.

The unrest harks back to the 1990s, when Zapatista rebels were roaming the region and declaring war on the North American Free Trade Agreement. The recent protests come at a time when President Enrique Peña Nieto is trying to revive Mexico's struggling oil industry by bringing in foreign capital—that's why the land around Tecpatán is on the market. The front runner in next year's presidential election, Andrés Manuel López Obrador, is vowing to roll back the reforms enacted by Peña Nieto in 2014. And Amlo, as he's known, stands a decent chance of winning—thanks to Trump. The new U.S. president has incensed Mexicans, creating the perfect opening for Amlo, a fiery populist who promises to stand up to foreigners and Big Business and put local people first.

Amlo's message chimed with the mood in early March at the humid concrete hall in Tecpatán, where community leaders were meeting to plan more acts of resistance. "With machetes, with pistols, with whatever necessary, we will defend our land," said Elmer Escalante, an elementary school teacher. "Oil development here won't mean jobs for us. But it will mean the ruin of our land."

Peña Nieto's reforms opened the door for giants such as **Chevron Corp.** and **Exxon Mobil Corp.** to operate in Mexico for the first time since the government took over the industry almost 80 years ago. The expropriation still looms large in the national memory. A large fountain in Mexico City commemorates it; employees at the state oil company, **Petróleos Mexicanos** (Pemex), rallied in March, as they do every year, to celebrate its anniversary. In the tumultuous days after the 1938 seizure, rich and poor Mexicans donated whatever they could—from fur coats and jewelry to pigs and ▶

◀ chickens—to help pay off the foreign oil companies.

So Amlo's defiance strikes a chord. And increasingly Peña Nieto's justification for his policy doesn't. Mexicans were told that energy prices would fall as investment poured in. So far, the opposite has happened. When the government raised gasoline prices on Jan. 1, protests and riots broke out nationwide, the president's popularity plunged to record lows—and Amlo extended his poll lead. He's promising a referendum on keeping energy resources under national control, though he said in March that there will be no "authoritarian action" to confiscate assets.

Mexico's energy reformers had plenty of reasons to argue that foreign capital and know-how were needed. After peaking in 2004, annual oil output has dropped each year as the giant Cantarell field in the shallow waters of the Gulf of Mexico has started drying up. The government says the arrival of the world's biggest producers will reverse the trend, because they'll be able to extract deepwater oil that Pemex, with its limited technology, can't reach.

Even if Amlo wins, it won't be easy to undo Peña Nieto's actions, says Duncan Wood, director of the Mexico Institute at the Woodrow Wilson International Center for Scholars in Washington. Amlo would need approval from Congress, which is unlikely, and if Congress backed him, the Supreme Court would have to declare the action constitutional. That's a lengthy process, and "the energy reform itself will be beginning to pay dividends by that point, in terms of rising oil production and fiscal revenue," Wood says.


López Obrador

The government is speeding up its plan. Rights to about 40 areas have been sold since 2015. A similar number are up for auction this summer, when the National Hydrocarbons Commission (CNH) expects to raise up to $2.8 billion from onshore sales. Thirteen companies, including France's **Total**, Colombia's **Ecopetrol**, and Canada's **Gran Tierra Energy**, have registered an interest in bidding. Mexico "needs more participants" to make the auction a success, CNH Commissioner Juan Carlos Zepeda said on March 10.


Peña Nieto

Two of the new blocks are in northern Chiapas, and the CNH says at least 12 exploratory wells will be drilled there across an area of about 525 square miles. The area is mostly inhabited by the Zoques, a people with links to the Aztec and Mayan civilizations, and has an economy based on cattle, corn, beans, and coffee. "There are a lot of indigenous communities in Chiapas, and if you don't show the right kind of sensitivities to their customs and traditions, then you are going to run into problems," Wood says. "If mistakes are made, by investors and by the government," then opposition will spread.

In tiny towns with names that derive from the local dialect—Chapultenango, Ixtacomitán—protests are already stirring. Energy ministry officials have visited the region to inform and consult. But communities such as Tecpatán are isolated: Mobile phone service and internet access are luxuries. What really spread the news of the imminent land auction, locals say, was the jailing on Feb. 21 of Silvia Juárez Juárez, a mother of two, for organizing opposition. "The local government arrested her to silence the movement but by doing so just created more awareness and resistance," says Sergio Cruz, a Tecpatán resident who's become a protest leader. "It was the wrong move."

On March 8, International Women's Day, hundreds of people marched through Tecpatán to denounce the oil plans. They carried huge pictures of Juárez and chanted that the Zapatistas are alive and well. The current unrest hasn't reached the scale of the earlier revolt. In less than two weeks in 1994, the Zapatistas freed prisoners, torched army barracks, and seized town halls and ranches across Chiapas. A military crackdown ensued, leaving scores dead, but the rebellion simmered for years afterward. Now it may be heating up again. Juárez's sister, Evanjelina, says she visited the activist in a jail near the provincial capital Tuxtla Gutiérrez. "She's happy her arrest has advanced the movement," Evanjelina says. "That's what she wants. It needs to be known that in this region we protect our lands any way we can." —*Adam Williams*

The bottom line President Peña Nieto's efforts to revive Mexico's oil industry with foreign help are sparking popular protests.

Labor

In Europe, Brain Drain Flows the Other Way

▶ **Long a magnet for talent, London is losing workers heading east**

▶ **"Their ultimate dream is to come home"**

When **BlackRock Inc.**, the world's largest asset manager, announced it was setting up a new office in Budapest this year, with 500 open positions, it was inundated by applicants from an unlikely place: London.

Those interested in leaving Europe's top banking center for Hungary made up a third of aspirants, says Melanie Seymour, BlackRock's managing director in Budapest. At a get-together the company hosted at its London office in late January to promote the jobs, she says, so many senior investment bankers and other top-earning Hungarians attended that the afterwork event stretched into the evening.

As London braces for a post-Brexit talent exodus, Central and Eastern Europe are preparing for an influx. Following years of brain drain, when elite graduates fled ex-communist nations for higher-paying jobs in the West, the region now has more to offer. According to the Association of Business Service Leaders (ABSL), a trade group with offices across Central and Eastern Europe, the number of finance, legal, research, and design jobs in business-service centers in the region will more than triple, to 1 million, from 2015 to 2025. Employers include **Goldman Sachs Group Inc.** in Poland

FROM TOP: SUSANA GONZALEZ/BLOOMBERG; MANDEL NGAN/AFP/GETTY IMAGES

One-year decline in financial services jobs new to the London market in February

17%

and **Pfizer Inc.** in the Czech Republic. “Their ultimate dream is to come home,” says Seymour about Eastern Europeans who left to work in London. “The only reason they’re not here is because there aren’t the career opportunities to satisfy their intelligence and career ambitions.”

At the center of the job boom are business-service hubs, where global companies—many headquartered in the West—have long done much of their back-office activity, such as accounting, human resources, and customer service. These divisions have begun to do more innovative work, attracting highly educated and multilingual staff, as companies move to digitize and automate tasks around the world. BlackRock is hiring in marketing, financial modeling, and other fields in Budapest, Seymour says. Also in Budapest, **General Electric Co.** plans to expand its service center to more than 2,000 employees by the end of the year, up from 1,900.

Although the service-center trend has developed independently of Brexit, more than a quarter of U.K. employers suspect European Union citizens on their staffs are considering leaving this year, according to a survey by the London-based Chartered Institute of Personnel and Development. Uncertainty about the split seems likely to help the shift to the East—with Poland perhaps the biggest beneficiary. The country’s government says it will lure as many as 30,000 British jobs this year as companies seek to keep their operations in the EU after Britain leaves the trading bloc. In financial services, Goldman Sachs is planning to halve its London staff to 3,000, and it will expand its head count in Warsaw to “several hundred” people over the next three years, according to *Handelsblatt*, a German business newspaper. **JPMorgan Chase & Co.**, which may move as many as 2,500 jobs to Central Europe, is also considering Poland. **UBS AG** already has a global hub in Krakow.

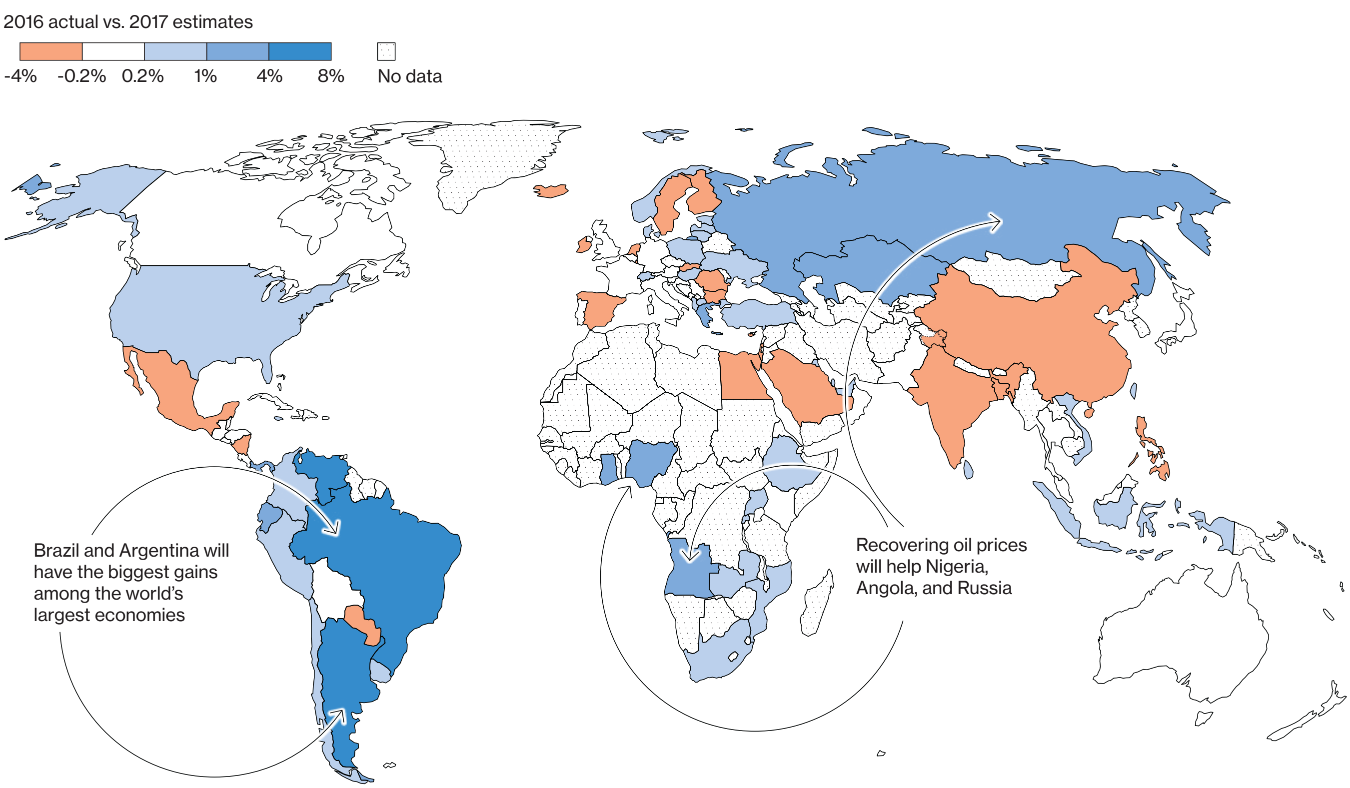
In the Czech Republic, Brno has offices for **AT&T Inc.**, while Romania’s Cluj-Napoca has **Hewlett Packard Enterprise Co.** Salaries have risen across the region. Software developers with three to five years of experience, for example, make an average of €28,500 ($30,900) a year in Prague and €33,200 in Budapest, according to ABSL.

Those salaries are three times the Czech and Hungarian national averages but still far less than the €65,000 a year software developers make in Dublin. Higher pay in the West continues to draw Eastern European workers abroad, and there won’t be enough workers leaving London for Eastern Europe to offset those losses in the short term. The outflow has created a labor shortage that’s hampering growth in the region, with Hungary, Poland, Romania, and the Czech Republic boasting four of the eight lowest jobless rates in the EU, according to Eurostat. The Czechs have the lowest, at 3.4 percent.

Business-service centers are helping raise the productivity of employees. That higher productivity supports salary increases, and higher salaries help keep some workers home. ▶

Outlook Where the Growth Is

Most economies will see improvement in 2017, according to Bloomberg. While India’s and China’s growth rates will decline slightly, they remain robust, at 6.8 percent and 6.5 percent, respectively. —*Andre Tartar and Catarina Saraiva*



NUMBER ACCORDING TO THE RECRUITING CONSULTANT MORGAN MCKINLEY
DATA: BLOOMBERG SURVEYS AND CALCULATIONS, NATIONAL STATISTICS OFFICES

◀ "The work that happens there," says BlackRock's Seymour, "is both as important to the overall outcome of the firm and as complex as anything we do in London, New York, Hong Kong, or Singapore. We can hopefully help support keeping talent here, as well as attracting some of it back."
—*Zoltan Simon*

The bottom line Aided by Brexit, the number of finance, legal, research, and design jobs in Eastern Europe could more than triple from 2015 to 2025.

Travel

Achtung, Berlin: Your Flight Is Five Years Late

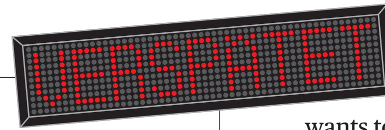
▶ **The city's airport woes threaten tourism and have hurt companies**

▶ **"As a German engineer, I'm rather annoyed"**

You think you have a travel story from hell? Try this one: The inaugural flight from Berlin's new international airport is almost five years late, and no one can say when it might take off.

The airport's planned launch in June 2012 was scrapped a month before its unveiling because of fire safety issues, and it's since been pushed back three times. With costs piling up at €13 million ($14 million) a month, the operating company in March saw the departure of its third chief in four years. The black eye for Germany's exalted engineering prowess threatens to undermine a tourism boom in Berlin, and there's talk of scrapping a plan to shutter Tegel, one of the city's existing airports. "This airport should have been a world-class showpiece for Germany," says Tim Clark, president of **Emirates Airline**, which has long sought to introduce service to Berlin. "It's an embarrassment."

The bill for Berlin Brandenburg Airport Willy Brandt—most people call it BER—has more than doubled, to some €5 billion, since construction began in 2006. And the delayed opening has wounded local restaurants as well as airlines **Air Berlin Plc** and **Deutsche Lufthansa AG**, which had expected to expand routes from the capital. Instead, Germany's biggest city has fewer overseas flights than Düsseldorf (with less than a quarter of Berlin's population).

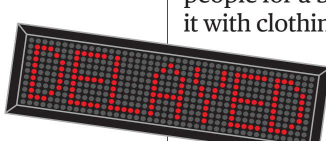


The list of construction defects reads like a bad joke: Automatic doors lacked electricity, escalators were too short, and a smoke-extraction system was so complex, yet ineffective, it was dubbed "the Monster," according to daily tabloid *Bild*. To keep the air flowing and limit mold growth, empty trains run to an empty station in the basement of BER's glass-clad terminal. Upstairs there's everything an airport needs—except passengers.

Once BER opens, it may already be too small. It was designed to accommodate 27 million passengers annually—ample for the 18 million arrivals in Berlin in 2006. But last year, Tegel and the city's other functioning airport, Schönefeld, handled 33 million passengers. And BER will have 118 check-in counters, about 80 fewer than the combined number at Tegel and Schönefeld. "Resolving the capacity problem of BER will take another several years," says Simon Morris, vice president at aviation adviser ICF International.

The airport operator, **Flughafen Berlin Brandenburg GmbH**, which also runs Tegel and Schönefeld, says the terminal is 89 percent completed and some 150,000 defects have been remedied. The fire safety system is now largely fixed, 6,000 kilometers (3,728 miles) of cables have been relaid, and the northern runway has been resurfaced. With planned expansions, the airport will have enough capacity, the state-owned company said in an email. The aim is to "finish BER as soon as possible."

When the 2012 delay was announced, restaurants had already installed ovens and dishwashers in the terminal, Berlin designer Evelin Brandt had hired four people for a boutique and stocked it with clothing, and a toy retailer had ordered stuffed animals for its shelves. **Haru-Reisen GmbH** bought three buses to ferry travelers to BER, then had to sell them at a loss. All told, the company has swallowed some €300,000 in unreimbursed costs, says Karsten Schulze, Haru's managing director. "No one wants to accept responsibility for the damage small companies have endured," he says. The airport operator says it compensated some vendors with retail space at Tegel and Schönefeld.



Air Berlin, which had expected BER to become its main hub, says it has "great concern" over the turmoil. The delay contributed to financial woes at Air Berlin, which in 2014 settled a suit with the airport operator after claiming at least €48 million in damages. Rival Lufthansa hired 200 cabin crew in 2012 for expected new routes and built a maintenance hall the size of a football field. The crews have mostly been transferred to the carrier's low-cost arm, and part of the repair facility is being rented for servicing private jets. The situation at BER "is pretty embarrassing," says Carsten Spohr, Lufthansa's chief executive officer. "As a German engineer, I'm rather annoyed."

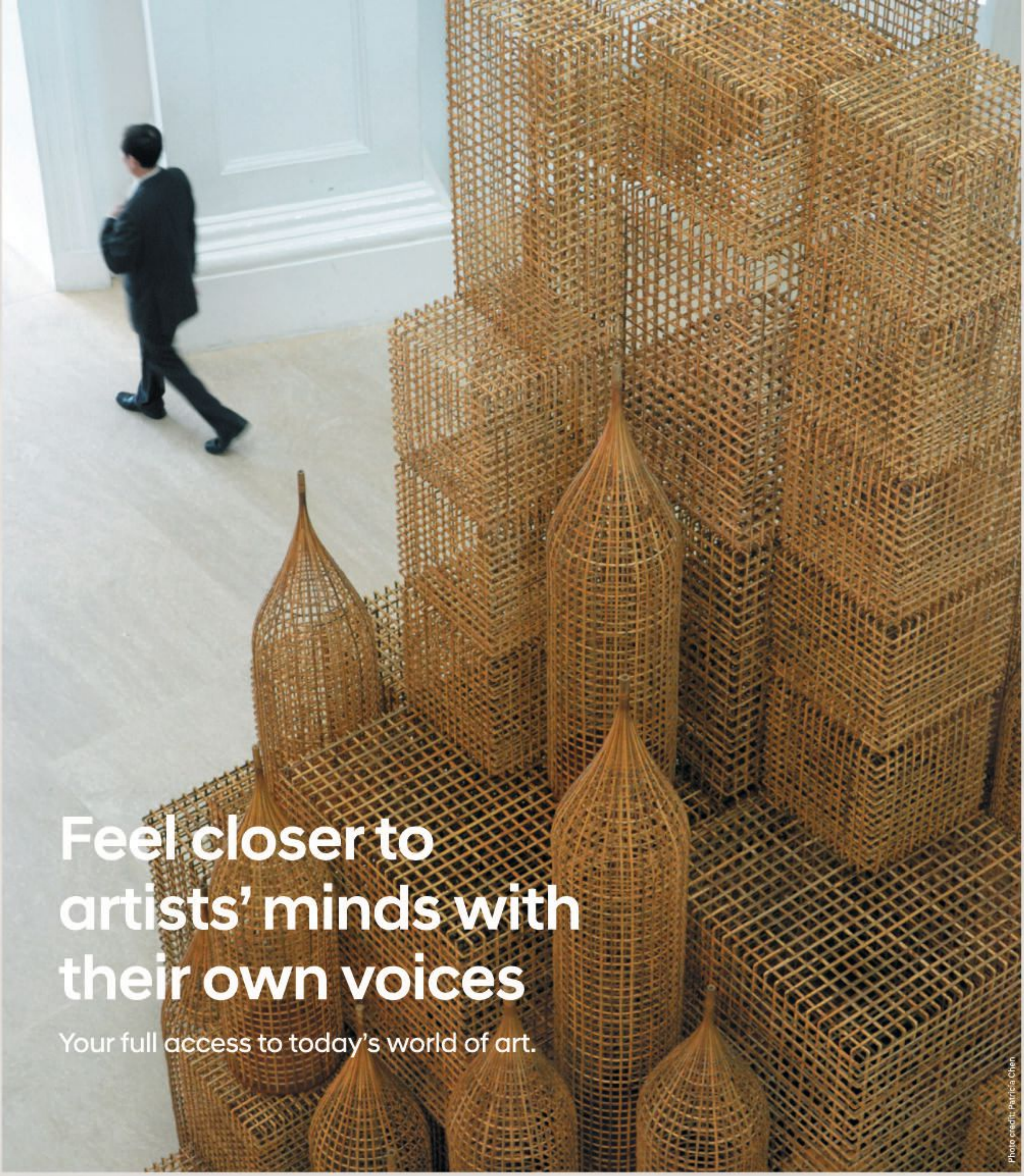
The government in 2008 closed Tempelhof—the historic facility where Allied planes landed in the Berlin Airlift—and the plan is to do the same with Tegel once BER begins operating. Designed for a fraction of the 21 million people who pass through annually, Tegel feels like it's held together with duct tape: A secondary terminal is tacked onto a converted parking garage, and Air Berlin occupies a massive metal shed without any jet bridges. Still, the facility ranks highly with locals, and in its original hexagon-shaped terminal—opened in 1974—the distance from taxi to plane is just a few dozen steps. A citizens' group has collected 250,000 signatures backing a referendum calling to keep Tegel open.

Dieter Faulenbach da Costa, a consultant who's worked on airports in Frankfurt, Moscow, and New York, says not to expect a resolution anytime soon. He says it's unlikely BER will open in less than four years—and that it might even be mothballed. "The airport company still doesn't have the situation under control," he says. "I don't see them finding a way out of this crisis."
—*Stefan Nicola, with Richard Weiss and Andrea Rothman*

The bottom line Delays at Berlin's new airport have doubled the cost, to $5 billion, and damaged the finances of airlines and local businesses.

Edited by David Rocks and Nick Summers
Bloomberg.com

ILLUSTRATIONS BY 731



Compound, Sopheap Pich
Installation at the National Museum of Singapore, Singapore Biennale (2011)

A male contraceptive gel? Big Pharma would rather nap 22

Lots of little offices inside Staples' big box 24

Hong Kong pulls the plug on Tesla tax breaks 25

April 3 — April 9, 2017

Jeff Bezos Goes Grocery Shopping

▶ The Amazon CEO's dream of disrupting supermarkets won't be as easy as beating Sears

▶ "You're saving people a trip…but people actually like going to the store to buy groceries"

ILLUSTRATION BY SIMON ABRANOWICZ

Since its founding in 1994, **Amazon.com Inc.** has remade the business of retailing. But one brass ring has always remained outside its grasp: food. Despite several attempts to break into the $800 billion grocery industry over the past decade, the company has struggled to entice shoppers to buy eggs, steaks, and berries online the same way they've flocked to buy books, tablets, and toys.

Amazon's dreams are enormous. The secretive company's goal is to become a top-five grocery retailer by 2025, according to a person familiar with the plans. That would translate into more than $30 billion in annual food and beverage spending through its sites, up from $8.7 billion—including AmazonFresh and all the retailer's other food and drink sales—in 2016, according to Cowen & Co. LLC.

Reaching that milestone would require billions of dollars of store and warehouse investments. That's an existential change for Amazon, which has long eschewed perishable goods and mostly avoided the overhead of physical stores. "A bunch of smart people at Amazon have been thinking about reimagining the next phase of physical retail," says Scott Jacobson, a former Amazon executive who's now a managing director at Madrona Venture Group LLC. "They want more share of the wallet, and habitual, frequent use of Amazon for groceries is the ultimate goal."

Amazon Chief Executive Officer Jeff Bezos seems to understand that he can't win the grocery game with websites, warehouses, and trucks alone. So the world's biggest online retailer sees brick-and-mortar stores playing a key role in a renewed grocery push, internal documents reviewed by Bloomberg show.

Signs abound that Amazon is revising its approach to snare food shoppers. Last year it purchased supply-chain software from LLamasoft Inc.—a major departure for a company known for its internal logistics prowess. More recently it changed the way various grocery teams were managed, to narrow their focus and set clear priorities, according to people familiar with the company's business. In early March, men in cherry pickers worked in a driving rain to affix "AmazonFresh" signs to a drive-in facility in Seattle's Ballard neighborhood, where shoppers can have online grocery orders loaded into their cars. And on March 29, Amazon said it's shuttering the Quidsi division running its Diapers.com and Soap.com websites—shifting their software developers to Amazon Fresh.

The biggest break from Amazon's ▶

◀ standard formula is expected next year when the giant e-tailer will invite shoppers inside its own grocery stores to smell the oranges, squeeze the tomatoes, and tap the watermelons.

Amazon is testing three brick-and-mortar grocery formats in Seattle: convenience stores called Amazon Go, the AmazonFresh drive-in grocery kiosks, and a hybrid supermarket that mixes online and in-store shopping features. The company may eventually open as many as 2,000 stores, according to internal documents.

An Amazon spokeswoman declined interview requests for this story. And so far, details of Amazon's game plan are few, save for a video about Amazon Go's no-checkout format that has racked up more than 8.7 million views on YouTube and a March 28 announcement that two grocery pickup kiosks are being tested in Seattle. But one thing that's certain is Amazon's current offerings of groceries online can be confusing. AmazonFresh is available in about 20 U.S. cities for $14.99 a month. Prime Pantry lets shoppers buy crackers, cookies, coffee, and other nonperishables for a delivery fee of $5.99 per shipping box. Amazon's speedy drop-off service, Prime Now, offers items from local grocers in some cities. Its stick-on **Amazon Dash Buttons** let people wirelessly order many household products—including some groceries, but not fresh food—by linking to their Amazon account with a finger tap. And Subscribe & Save offers discounts to customers who sign up for periodic delivery of laundry detergent, toothpaste, diapers, and other items frequently purchased in supermarkets.

One problem dogging AmazonFresh is the high cost of food going bad. For conventional grocery sellers, chicken breasts nearing their expiration dates can be marked down. At AmazonFresh, such items aren't discounted but discarded, lest they be returned by frustrated customers, according to a person familiar with the matter. AmazonFresh has lost money from spoilage at more than double the rate for a typical supermarket, said the person, who asked not to be identified discussing internal operations.

"Grocery is the most alluring and treacherous category," says Nadia Shouraboura, a former Amazon executive whose company, Hointer Inc., is developing technology to improve in-store grocery shopping. "It lures inventors and retailers with shopping volume and frequency, and then sinks them with low margin."

To compete with supermarket giants such as **Wal-Mart Stores Inc.** and **Kroger Co.** and counter customer apprehension about buying fresh food online, Amazon executives decided last year to explore building grocery stores closer in size to a **Trader Joe's** than a Walmart to offer easy access to milk, eggs, and produce. Other items like paper towels and canned goods would be stocked on-site in a warehouse where they could be easily delivered to shoppers before they head home, according to documents reviewed by Bloomberg. The stores would also serve as a delivery hub for online orders. Site selection for the concept's first store is under way in Seattle, says a person familiar with the plan.

Amazon Go, unveiled in December, is open only to employees while the systems are tested. Cameras and sensors monitor shoppers who scan their smartphones on entering, allowing them to grab items such as sandwiches, drinks, and snacks and automatically pay for them without a checkout kiosk. Products are embedded with tracking devices that pair with customers' phones to charge their accounts. Weight-sensitive shelves tell Amazon when to restock.

Although Amazon had hoped to open the site to the public in early 2017, the technology has been crashing in tests when a store is too crowded, requiring workers to watch videos to ensure customers are charged for the right things, says a person familiar with the plan. The *Wall Street Journal* on March 27 reported the launch has been delayed.

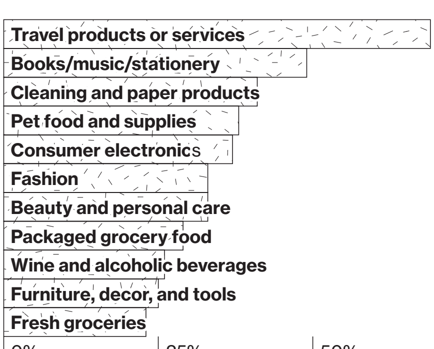
Even if it solves its technical problems, Amazon will still face a broader industry challenge. "Online grocery is failing," says Kurt Jetta, CEO of TABS Analytics, a consumer-products research firm. Only 4.5 percent of shoppers made frequent online grocery purchases in 2016, up just slightly from 4.2 percent four years earlier, despite big investments from companies such as Amazon, according to TABS's annual surveys. "The whole premise is that you're saving people a trip to the store," says Jetta. "But people actually like going to the store to buy groceries."

The retailer seems undeterred by such concerns. "Amazon wants to be the first thing any consumer thinks of when they need to buy anything," says Jim Hertel, a senior vice president at marketing tech company Inmar Inc. "Food is the largest retail category. They can't do what they want to do without grocery, and they're definitely not going to give up." —*Spencer Soper and Olivia Zaleski*

The bottom line Amazon is trying new approaches to conquer the $800 billion grocery industry. Tech problems have plagued a new store.

What Sells Online

Share of all online purchasers who've bought items in these categories



Pharmaceuticals

A Miracle Drug Big Pharma Doesn't Want

▶ **A male contraceptive has drawn little interest from companies**

▶ **If "companies were run by women, it would be totally different"**

Kinkar Ari, a 39-year-old day laborer in the rural village of Gharghar about 80 miles west of Kolkata, says that when he and his wife, Aloka, decided they didn't want more children, they had a choice between tubal ligation for her or vasectomy for him. But neither could afford the time off to recuperate from the surgery.

So when a public-health worker in 2012 told the couple about a promising

FROM LEFT: COURTESY AMAZON; SUMIT DAYAL/BLOOMBERG; DATA: NIELSEN

The Real Battle of the Sexes

A reversible male contraceptive nearing approval in India could relieve the family planning burden on women

DATA: TRANSPARENCY MARKET RESEARCH (GLOBAL DATA); UNITED NATIONS POPULATION DIVISION (INDIA DATA)

male contraceptive requiring little recuperation time that researchers were testing nearby, Ari enrolled in the study. The injection of a novel sperm-zapping gel took 15 minutes with some local anesthesia. After a half-hour of observation at the clinic, Ari said, he was able to walk the 2.5 kilometers (1.6 miles) home. Two days later he was back at work. Ari was so enthused by the procedure, he persuaded two other men to have it done, he says.

That reaction delights Sujoy Guha, the 76-year-old biomedical engineer who invented the gel in 1978 only to spend almost four decades trying to gin up interest among Big Pharma to commercialize this first male contraceptive in more than a century. The treatment is 98 percent effective. And the last major drug company to study the male contraceptive market forecast that a reversible method could win as much as half the $10 billion annual global market for female contraceptives and take a cut of the annual $3.2 billion in condom sales. Even so, only a U.S. nonprofit has taken up development of the technology outside India.

"The fact that the big companies are run by white, middle-aged males who have the same feeling—that they would never do it—plays a major role," says Herjan Coelingh Bennink, a gynecology professor who helped develop the contraceptive implant Implanon and birth control pill Cerazette while he was head of research and development in women's health for Dutch drugmaker **Organon International B.V.** from 1987 to 2000. "If those companies were run by women, it would be totally different."

Guha's technique for impairing male fertility relies on a polymer gel that's injected into the sperm-carrying tubes in the scrotum. The gel carries a positive electrical charge that acts as a buffer on negatively charged sperm, damaging their heads and tails and rendering them infertile. The treatment, known as reversible inhibition of sperm under guidance, or Risug, can be reversed with a second shot that breaks down the gel, allowing sperm to reach the penis normally.

The procedure has no major side effects, and its efficacy is about the same as condoms if they're used every time, says R.S. Sharma, head of reproductive biology and maternal health at the Indian Council of Medical Research. About 540 men have received it during testing in India, where it continues to prevent pregnancies in their partners 13 years after treatment, he says.

In India, which the UN says has more married women than any other country who would like to stop or delay childbearing but aren't using any contraception, social stigma and a lack of privacy in stores have kept condom use to less than 6 percent.

Representatives for **Pfizer Inc.** and **Merck & Co. Inc.**, both of which sell products for female fertility control, say male contraception isn't an area of active research for either. Schering AG studied a male pill in the 1990s. **Bayer AG**, which bought Schering in 2006, stopped all R&D activities relating to male fertility control about a decade ago, says Astrid Kranz, a spokeswoman. Although an earlier clinical trial involving hormones delivered via injection and an implant was "efficient, with a tolerable side effect profile," Kranz says, Bayer wasn't convinced the "inconvenient" regimen would fly.

Because of the tens of millions ▶

◀ of dollars required to get a new birth control product approved in the West, Guha is counting on a big global drug player to pick up his invention. "In doing anything abroad, quite substantial money is required, and that can only come from the pharmaceutical industry," says Guha, a professor at the Indian Institute of Technology in Kharagpur.

For now, Guha has licensed the technology to the Parsemus Foundation, a U.S. nonprofit, to help establish a market for it outside India. Parsemus plans to manufacture and distribute its own version, called Vasalgel, almost at cost—or $10 to $12 per person in low- and middle-income countries, and about $400 to $600 in wealthier markets, Elaine Lissner, the foundation's founder, said in an email. The foundation is seeking donations to fund costly human trials starting next year.

Meanwhile, after using a grant from the Indian government to develop a method of mass production of the drug, Guha has created a startup called **IcubedG Ideas Pvt.** to introduce the technology there. He's determined to succeed, though patents on his invention have long since expired and he won't see any personal financial gain if it takes off. "Why should the burden be borne by the female only?" he says. "There has to be an equal partnership." —*Ari Altstedter, with Jared S. Hopkins and Johannes Koch*

The bottom line The developer of a male contraceptive that's 98 percent effective is having trouble interesting drug companies in the product.

Marketing

Staples Doesn't Want To Be Your Superstore

▶ **The office goods chain looks beyond life as a big-box retailer**

▶ **"The reality is that's very far from where we are today"**

Twentysomethings sip gourmet coffee in comfy booths as a chill soundtrack plays. There's funky art, as well as skylights and an artificial putting green, and on some nights, there's even a happy hour with beer and wine.

A W Hotel? A tech startup?

No, it's a Staples office-supply store—that longtime favorite of cubicle jockeys and back-to-school shoppers. **Staples Inc.** offers this co-working space—where millennials on laptops set up their instant offices—inside its store in Boston's Brighton neighborhood, the 30-year-old chain's original outlet.

A co-working space at the original Staples store in Boston

This reimagining of its oldest store is emblematic of how the company is trying to become one of the first big-box retailers to achieve further growth by serving Internet Age businesses. To accomplish its makeover, Staples is targeting a now trendy market segment that it still considers neglected: small-business owners, including independent contractors who patronize co-working spaces and entrepreneurs on Main Street and in Silicon Valley.

The company's new chief executive officer, Shira Goodman, a former consultant at Bain & Co., wants to transform a revamped Staples into a small-business consultant of sorts—an "indispensable" partner to companies, as she describes it. Goodman likes to haul out a PowerPoint slide that shows the company's sales from online orders surpassing 80 percent by 2020, up from 60 percent today. "If you want to get our strategy on one page, this would be it," she says of the online forecast. "If you go to most people on the street and ask about Staples, they'd go, 'Oh yeah, the office-products superstore.' But the reality is that's very far from where we are today and even farther from where we want to be."

Goodman wants to dominate the $80 billion-a-year business of selling goods and services to U.S. midmarket companies (those employing fewer than 200) with plenty of one-on-one advice on all the things needed to keep operations humming. To better focus on boosting its market share of less than 5 percent with that group, Staples has sold off its overseas divisions and is shutting down unprofitable U.S. outlets. In March it said it will close 70 of its more than 1,500 stores after shuttering more than 300 over the past three years.

Staples—with $18 billion in revenue last year, still the largest company in the sluggish office-supplies business—had originally followed a more traditional path for a market leader in a declining industry. In February 2015, it tried to gain market share by bidding for smaller competitor **Office Depot Inc.**, which had already snapped up rival OfficeMax. The Federal Trade Commission challenged the deal as anticompetitive and blocked it last May.

In a management shake-up three weeks after the deal busted, Goodman was named CEO. She sees an upside in not having to handle integrating the operations of a rival. "Now you could have unbelievable focus around the Staples of the future and how quickly can we get there," she says.

So far, Wall Street isn't so sure. Staples shares trade at about $8.50, a third of their 2007 peak, and only one of 14 analysts following the company recommends the stock. One reason for skepticism, says Brad Thomas of KeyBanc Capital Markets Inc.: Rivals such as Office Depot and **Amazon.com Inc.** are also vying to boost sales to small businesses.

In a sense, Staples founder Tom Stemberg, who died in 2015, planted the seeds of the current approach. He thought it was impractical for businesses to drop by a store to pick up, say, a 50-pound case of paper. So in 1993 he started the chain's delivery distribution network, which became a key advantage as e-commerce arrived later that decade.

Today, when Neil Ringel, the Staples executive overseeing delivery, envisions the chain's future, he sees a woman the company calls

FROM LEFT: COURTESY STAPLES; GETTY IMAGES

"Jackie": a "jack-of-all-trades" office manager at a small company who must handle everything from ordering ink to unclogging toilets. Ringel wants to win Jackie with offerings and memberships to make her job easier, including a mobile app that allows supplies to be ordered via voice, photo, text, and Facebook Messenger. There are discounts from Staples and third-party vendors such as **FTD** for flowers and **Drizly** for booze purchases.

Staples also has aggressively expanded into supplies for bathrooms and break rooms, such as soap and coffee–also responsibilities of Jackie. These items now make up 12 percent of sales, topping stalwarts such as paper. In November, raising its investment in this market, Staples bought Capital Office Products Inc., a Florida company with $100 million in revenue. And to make sure that smaller companies get the hand-holding they may need, Staples plans to hire 1,000 field salespeople, a 25 percent increase. Explains Ringel: "We're doubling down."

Staples is preparing to introduce a national marketing campaign. It wants to portray itself as the company that knows how to service the fluid nature of modern work, which can be performed at home, in a park, or while waiting to pick up a child at school. "We have to move the brand, so that people understand it really is this partner for business," Goodman says.

A case in point: Staples' partnership with **Workbar Inc.**, a Boston-based co-working company founded in 2009. Co-working has soared in popularity along with the rise of self-employment. Monthly Workbar memberships at Staples cost $130, and more than 200 people have joined since the first of three spaces opened in September, including the one in Brighton.

The companies share revenue, but the benefit runs deeper, according to Brian Coupland, Staples' vice president for retail merchandising. Workbar attracts coveted millennials, as well as entrepreneurs, a potential pipeline for new small-business customers.

Goodman

Coupland has his eye on Workbar customers such as Dmitri Boulanov, a 28-year-old tech consultant who praised the "cool coffee machine" and overall aesthetic of the Brighton space where he spends his workdays: "Nothing really stood out about Staples before," Boulanov says, "but this does." —*Matt Townsend*

The bottom line Staples, already getting 60 percent of sales online, wants to become a business-services supplier to small companies.

Autos

Could Tesla Run Out of Gas in Hong Kong?

▶ **The end of tax breaks in the city will test demand for the brand**

▶ **"It's going to have a massive effect on the market"**

Calvin Zhang was tired of his Maserati. The Italian sports car spent too much time in the repair shop and guzzled too much gasoline. That bothered the Hong Kong investment banker, who wanted a car more consistent with his commitment to the environment. So he replaced it with a Tesla Model S, taking advantage of a tax break exempting electric vehicles (EVs) from the city's hefty tax on new cars. Zhang is now so hooked on the Tesla, he says, "I rarely drive my Aston Martin."

Thanks in part to the generous tax policy, Teslas are hot in Hong Kong. Bankers, hedge fund managers, and other wealthy car buyers have made Asia's financial hub one of **Tesla Inc.**'s top markets. As of February 2017, there were more than 8,000 EVs in the city, according to Hong Kong's Environmental Protection Department, up from fewer than 100 in 2010, and most of them were Teslas. Hong Kong last year accounted for 5.7 percent of the global sales of the Model S sedan.

That could change after the government eliminates the tax break for most EVs on April 1 in a move to reduce traffic congestion. The new policy to apply a "first registration tax" (FRT) will raise the price of an electric car by at least 50 percent, says Mark Webb-Johnson, a Tesla owner and chairman of Charged Hong Kong, an advocacy group focused on air quality and EVs. The price of a Model S, he says, will jump from starting at HK$570,000 ($73,000) to HK$926,000. "It's a dumb decision, a really crazy decision," he adds. "It's going to have a massive effect on the market."

"This new policy threatens to move Hong Kong backwards," Tesla said in a statement. But the environment bureau maintains the government hasn't retreated from its commitment to EVs. "The new FRT concessions for electric private cars can achieve a reasonable balance between promoting the use of electric private cars and stemming the excessive growth of the private car fleet," the bureau said in a statement. Hong Kong continues to offer some relief to EV owners, waiving the FRT for the first HK$97,500 of a car's price and completely exempting commercial vehicles such as electric buses and vans. EV owners also get a break on their annual registration fee: An owner of a Tesla Model S 90D needs to pay only about HK$1,000, according to Bloomberg Intelligence, compared with HK$7,664 for an owner of a Mercedes E400. Says Under Secretary for the Environment Christine Loh: "Electric private cars can still be attractive."

The uncertainty in Hong Kong could prompt Tesla to focus more on mainland China. Tesla's Chinese revenue tripled last year, to more than $1 billion, and may get a further boost following the March 28 disclosure that Chinese Internet giant **Tencent Holdings Ltd.** paid $1.8 billion for 5 percent of the automaker. While Tesla dominates Hong Kong's EV market, it has just a 4 percent share on the mainland. Tesla has long touted Hong Kong as a forerunner market, says Steve Man, an analyst with Bloomberg Intelligence in Hong Kong. "If sales do go down," he says," it shows EV sales are dependent on government support." —*Bruce Einhorn*

The bottom line Almost 6 percent of Tesla's Model S sedan sales are in Hong Kong. The end of an EV tax break could threaten their popularity.

B **Edited by James E. Ellis**
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Contractors, before you design that wall, read this 31

The Republican't Party

▶ Divisions inside the GOP keep it from being able to cut a deal with itself

▶ "What you're really seeing with that defeat is the Balkanization of this party"

Bill Hoagland spent 25 years as a Republican aide in the Senate, a career spanning the presidencies of Ronald Reagan and both George Bushes. He's old enough to remember when the GOP was capable of tough things, such as comprehensive tax reform. He also remembers when he could count on such creatures as "yellow dog" Democrats, who were conservative enough to be to the right of a handful of liberal Republicans.

Fast-forward from Reagan's 1986 tax reforms. Despite controlling the White House and having one of the largest congressional majorities in its history, Republicans today are tied up in knots. That's mostly the result of the Tea Party infusing its brand of hard-right sentiment into the GOP. "It's an element of the party that sees no good in government," says Hoagland. "Which makes me wonder why they're even serving in Congress." The yellow dogs are extinct.

House Speaker Paul Ryan faces a deeply divided Republican caucus, with ultraconservatives driving a hard bargain and moderates starting to rebel after years of going along with far-right legislation. In a way, a Republican in the White House deepens the dysfunction, since lawmakers no longer have the luxury of voting for bills they know won't get signed into law.

The divisions forced the GOP into what may be the biggest broken promise in modern political history when it failed to pass its health-care bill. And the animosities aren't going away. They could vex Ryan's dream of overhauling the tax code and may even prevent the party from performing basic tasks, such as averting a government shutdown in April or raising the debt limit later this year. That's not to mention trying to pass the $1 trillion infrastructure bill Donald Trump has promised. "What you're really seeing with that defeat is the Balkanization of this party," says Steve Bell, a former longtime Republican budget aide. "We've been able to paper it over, but now it's coming out."

To fully understand the trouble ahead, it's helpful to remember the recent evolution of House Republicans. In 2010, when the GOP picked up 63 seats and took back the House, the party shifted to the right, empowering the 150-member Republican Study Committee, which was formed in 1973 and for years stood as the House's hard-right flank. In 2011, Jim Jordan, an Ohioan and former champion wrestler, gained the chairmanship of the RSC. That summer the committee helped engineer the debt ceiling fight. In 2013 it played a role in forcing the government shutdown.

But by 2015, Jordan and other archconservatives began to see the RSC as too willing to go along with party leaders and broke off to form the House Freedom Caucus, which Jordan described as a more nimble, action-oriented faction. Within a year they forced out Speaker John Boehner and almost shut down the government again, this time over their demand to defund Planned Parenthood. ▶

◀ With about three dozen members, the Freedom Caucus is small, yet it's big enough to block GOP legislation if its members stick together. And they often do, even at the cost of embarrassing the party and, as in the health-care debate, a Republican president. Caucus members hail mostly from districts that are so Republican that the only political danger they face is from a right-wing challenger. That's the opposite political dynamic facing their more moderate peers, who worry about Democrats.

The health-care fight became even more of a free-for-all when moderate Republicans stood up for themselves after years of being dragged to the right. The Tuesday Group, a faction of about 50 moderates, many of whom represent competitive districts in swing states, showed a newly rebellious side. Its leader, Representative Charlie Dent of Pennsylvania, came out against Trump's American Health Care Act before the vote, lamenting that it would "lead to the loss of coverage" for too many lower-income Americans. Even though the Tuesday Group favored past efforts to gut Obamacare, they never had to worry about the consequences. Faced with a live bill, they balked.

A case in point was the battle over Obamacare's essential health benefits –10 items insurers must provide in their policies. When GOP leaders kept the provision in the original replacement bill, the Freedom Caucus withheld their votes. After GOP leaders agreed to rip them out, moderates walked. "The moderates in our conference and the Freedom Caucus are truly at opposite ends of the issues," says Representative Chris Collins, a New York Republican. "And so you get one, you lose one, you get one, you lose one."

In the face of this push-and-pull, Ryan has an almost impossible job of uniting the party. The forces that stymied Boehner remain in place. "This isn't a matter of Ryan not being capable," says Bell, the former budget aide. "This is a matter of arithmetic."

Ryan's push to pass a tax-reform bill won't be any easier. The Freedom Caucus is already angling against a key component: revenue neutrality, where any tax cut is offset by equal revenue increases. Without offsets for tax cuts, an overhaul can't be permanent without Senate Democratic support; it'll have to be limited to 10 years. The main offset Ryan has proposed, a border adjustment provision to raise taxes for net importers and cut them for exporters, has divided the Right.

While Ryan can afford to lose some 20 Republicans in the House and still pass bills without Democratic support, Senate Majority Leader Mitch McConnell has 52 GOP votes, and most bills require 60 votes. Funding bills and debt limit increases, both of which require 60, are likely to get caught in the crossfire.

With the government set to run out of funding on April 28, conservatives in the House, spoiling for a win, want to use both issues to push for steep cuts to programs for the middle class and poor, which won't sit well with the Tuesday Group. The Freedom Caucus also wants to defund Planned Parenthood, which Democrats won't support.

Altogether, it's enough to make Republicans wonder if they're even capable of governing anymore. Hoagland, the former GOP aide, sees only one way out for Ryan: work with Democrats. "It may be difficult for the speaker," he says, "but it also is the way legislation used to be done around here." —*Sahil Kapur*

The bottom line Divisions inside the GOP that scuttled its health-care reform could keep it from preventing a government shutdown.

Protests

Putin's Rival Targets Provincial Russians

▶ **Navalny is stirring protests and traveling to Russia's hinterlands**

▶ **"I've got much more to say to these people"**

Before being arrested on March 26 while participating in some of the largest antigovernment protests to hit Russia in five years, Alexei Navalny, the man intent on challenging President Vladimir Putin in elections next year, spent a month campaigning across the vast Siberian heartland. In February, Navalny, a lawyer who's spent years agitating against corruption, embarked on an extensive tour of the hinterlands in an attempt to raise his name recognition in a country where he's barred from appearing on national TV, Kremlin spokespeople avoid mentioning his name, and less than half the population knows who he is.

"We need to create a propaganda machine that will defeat television," Leonid Volkov, Navalny's campaign manager, urged a crowd in Kemerovo, the scruffy capital of the Kuzbass mining region, 2,200 miles east of Moscow.

A week later, Navalny had returned to Moscow to take part in a protest movement he'd helped start. Despite draconian laws forbidding unsanctioned rallies, at least 60,000 people participated in a wave of demonstrations that rippled from Russia's Pacific coast, across Siberia to Moscow and St. Petersburg, the radio station Ekho Moskvy reported. More than 1,000 people were detained in Moscow alone. A court sentenced Navalny to 15 days in jail for resisting arrest during the protest.

ALEKSEY ABANIN/KOMMERSANT/GETTY IMAGES

Navalny's long-shot effort to topple Putin is starting to look like a national campaign, complete with big demonstrations in the streets. On the ground, engaging with Russians, Navalny is loose and provocative. In Tomsk, a science and technology hub known for its liberal politics, on March 17 he met with campaign volunteers. "How many of you have thought of emigrating?" he asked. Nearly half of those present, almost all of whom looked to be in their early 20s, raised their hands. Navalny looked appalled. "Tomsk should have long ago become the Russian Berkeley, with startups cooked up everywhere and crowds of hipsters strolling around with coffee in paper cups," he said.

A generation of Russian opposition leaders has failed to break out of the intellectual bubbles enclosing Moscow and St. Petersburg. Navalny has the chance to do that now, and the recent protests suggest a hunger for his defiance of the Kremlin in the nation's backwaters and regional capitals as well as in the western cities. "I am not happy at all to stay in the liberal intelligentsia niche. This is why I am traveling around," he says in a sitdown interview. "In fact, I've got much more to say to these people than to my traditional audience in Moscow."

"I am not happy at all to stay in the liberal intelligentsia niche. This is why I am traveling around." —*Alexei Navalny*

Navalny's campaign may seem quixotic, since a criminal conviction prevents him from running for office. He received a five-year suspended sentence in February for fraud in a retrial after the Supreme Court canceled his previous conviction, which the European Court of Human Rights had pronounced illegal. The decision on his candidacy ultimately hinges on how the Russian Central Electoral Commission and the courts interpret the constitution and election law. In Putin's Russia, both bodies are tightly controlled by the Kremlin.

If he's permitted to run, it may be the Kremlin's way of raising turnout—helping to legitimize Putin's almost certain victory. The president's approval rating was 84 percent in February, according to the Levada-Center, an independent polling and research organization. Yet when Navalny was allowed to run for mayor of Moscow in 2013, the Kremlin got an unpleasant surprise: He won more than 27 percent of the vote, nearly forcing a runoff.

Navalny is taken into custody during a March 26 protest in Moscow. He hopes to challenge Putin in next year's election

Even before the March 25 protests, current and former Kremlin officials were skeptical that Navalny would be allowed to run. After the protests, which surprised the Kremlin with their nationwide reach and strong turnout among young people, that's likely to be seen as too big a risk to take. Letting him become an official candidate would send a signal to the political and business elite that disloyalty is tolerated, if not rewarded. And even if he didn't win, a full-fledged campaign could give a boost to Navalny's chances in the next presidential contest in 2024, when Putin won't be allowed to run again, according to the constitution, though Putin can always change the law.

Even if Navalny, who turns 41 in June, is barred from running, the network of campaign offices he's establishing across the country is a powerful asset. Discontent is bubbling up across Russia, which is just starting to recover from a two-year recession brought on by the crash in global oil prices. On top of that, the Kremlin has been anxious about the threat posed by Navalny ever since he led the Bolotnaya Square protests in Moscow after the 2011 election results.

Konstantin Belyakov, a member of the Tomsk city council from Putin's ruling United Russia party, characterizes Navalny as a virus that keeps the body of the state in check. "A useful virus," says Belyakov. "As long is it stays under control." Otherwise, Navalny could "destabilize the entire system and turn into a tumor of sorts," he says.

Navalny's views are influenced by a circle of political scientists and journalists who draw inspiration from libertarians in the U.S. In his current campaign, he's dropping some of his past anti-immigrant rhetoric and shifting to the left, talking of tripling Russia's minimum wage and allocating more funds to health care and education. In Kemerovo, Navalny told a small group of supporters that he would raise ▶

◀ their wage to 25,000 rubles ($440) a month. "How many of you are getting less than that?" he asked. At least half raised their hands. He said he was shocked when he learned what miners typically earn in the Kemerovo region. "It's a moral catastrophe, when people who work underground are being paid $300 a month," he said.

Foreign policy was conspicuously absent from Navalny's Siberian speeches. Instead, he stuck to a message of economic populism that he hopes will resonate with Russia's working class, especially in the face of Putin's push toward defense spending and attempts to flex Russia's military might. "When we have 20 million people living below the poverty line," he asks, "what kind of greatness can we talk about?" *—Leonid Ragozin, with Ilya Arkhipov, Stepan Kravchenko, and Gregory White*

The bottom line Alexei Navalny has been touring the Russian heartland in hopes of challenging Vladimir Putin in next year's election.

Quoted

> "Americans will never be safe online from having their most personal details stealthily scrutinized and sold."

Jeffrey Chester, executive director of the Center for Digital Democracy, in response to Congress voting to reverse internet privacy protections

Regulation

A Hillary Fan Inside Trump's Treasury

▶ **A Clinton superdonor lands a job at Treasury reviewing regulations**

▶ **His time at BlackRock is "probably more relevant" than his politics**

As a member of Hillary Clinton's national finance committee, a distinction reserved for those who raised at least $100,000 for her presidential bid, Craig Phillips qualified as a Hillary superfan, or a "Hillblazer" in the words of the campaign. A former **BlackRock Inc.** executive, Phillips had told friends and colleagues he hoped to get a political appointment at the Treasury Department, parlaying his big donations into a big job in Washington. His plan half-worked. Phillips is indeed working at the Treasury; it's just that his boss is Donald Trump, and his job is totally different from what it would've been under Clinton.

Phillips is leading Treasury's review of how to roll back financial regulations, a policy move opposed by Democrats. He's also one of a handful of people hired by Treasury Secretary Steven Mnuchin in the first two months of the Trump administration. While Phillips's views on the rules that were piled on the banking industry after the 2008 financial crisis aren't clear (he wouldn't comment for this story), conservatives inside and outside the government are surprised he got the job, given his political leanings. A Treasury spokesman says Mnuchin is confident Phillips supports the administration's economic policy goals, adding that he "is a key member of our team."

Phillips, who spent his 40-year career in finance, including stints at Credit Suisse First Boston and Morgan Stanley, announced last September he was leaving BlackRock. At the time, few thought Trump had a chance. Yet after the election, as Democrats grappled with their diminished prospects, Phillips saw he still had an opportunity to work in government, thanks to his almost 25-year friendship with Mnuchin. The two had crossed paths because of their work in housing finance, a subsection of Wall Street where major players tend to know one another.

Mnuchin fought to bring on Phillips, 62, because of his deep experience in the markets, people familiar with the hiring say. Although some White House and Treasury aides opposed him, they were ultimately overruled. Phillips was among the first people to start working at Treasury as part of the administration's "beachhead team" of appointees who took the reins as soon as Trump was sworn in.

Phillips has been in on most discussions of the major issues confronting the department, including a tax overhaul, the debt limit, and Trump's executive order in February directing the department to get serious about cutting financial regulations. Phillips is now one of Treasury's most senior officials, given how slow the White House has been to nominate people for top positions, including undersecretary and assistant secretary for domestic finance.

Part of the delay, people involved in the nomination process have said, was because of a desire by the White House to make sure Mnuchin's preferred candidates hadn't publicly opposed or criticized Trump. Despite his Clinton connections, Phillips wasn't subjected to as intense White House scrutiny, since his job as a counselor to Mnuchin doesn't require Senate confirmation. Even so, his political donations were hardly a secret. Federal Election Commission records show he donated $136,100 to Clinton in October. That same month he gave $33,400 each to the Democrats' Senate and House campaign committees. One source notes Phillips later gave a big check to Trump's inaugural committee.

Ian Katz, a policy

FROM LEFT: STEFAN FALKE/LAIF/REDUX; ILLUSTRATIONS BY 731 analyst who watches the Treasury for Capital Alpha Partners LLC in Washington, says Phillips's support for Democrats might not be as strange as it seems. "In finance there's often not a huge difference between Republicans and Democrats, they're all for free markets," says Katz. "The fact that he worked at BlackRock is probably more relevant than his political affiliation."

The Treasury has until early June to report back to Trump on regulations. Many in the banking industry see this effort as the first and perhaps best chance to scrap some of the more onerous requirements imposed by the 2010 Dodd-Frank Act. The bulk of Phillips's review kicked off in March with a series of group meetings. Big banks such as **JPMorgan Chase & Co.** and **Citigroup Inc.** have already been in, as have asset managers such as BlackRock and **Fidelity Investments** and consumer advocates. Held in Treasury's ornate Cash Room, the events weren't open to the public. Phillips plans to hold 16 sessions; among others, he's also invited community banks and credit unions. People familiar with the meetings said firms were told to bring ideas for changes they want made to financial rules, along with solutions that preferably don't involve passing legislation.

At these get-togethers, the banking industry is looking for any kernel of insight into the White House's thinking on financial regulations. On the campaign trail, Trump repeatedly blasted big banks, yet he's filled his administration with **Goldman Sachs Group Inc.** partners, including Mnuchin.

First, though, Wall Street must figure out where Phillips stands. Those who see his ties to Clinton as evidence he'll be a counterweight to the administration's push to eliminate rules may be disappointed. "Financial regulation is not inherently political," says Hester Peirce, a senior research fellow at the Mercatus Center at George Mason University. "It's about trying to get the financial system to work well so the rest of the economy works well." —*Robert Schmidt*

The bottom line Despite donating $136,100 to Hillary Clinton's campaign, Craig Phillips is a top official in Trump's Treasury Department.

Edited by Matthew Philips
Bloomberg.com

Mexican cement giant Cemex SAB de CV won't participate because of political pressure

The Wall

By Drake Bennett

Let the Bidding Begin

On March 17 the Trump administration released its invitation for contractors to build the president's "big, beautiful" border wall. Bidders were instructed to adhere to a few basic if relatively vague requirements (below) and had less than two weeks to submit their ideas. In April finalists will be asked to build full-scale 30-foot-long prototypes of their design, along with smaller mock-ups "to allow the Government to test and evaluate the anti-destruct characteristics of the bidder's wall design."

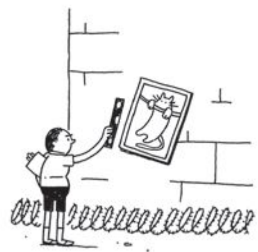
Size

"The wall design shall be **physically imposing in height**. The Government's nominal concept is for a 30-foot-high wall. Offerors should consider this height, but designs with heights of at least 18 feet may be acceptable. Designs with heights of less than 18 feet are not acceptable."

Durability

"The wall shall deter for a minimum of 30 minutes the creation [of] a **physical breach** of the wall (e.g., punching through the wall) larger than 12 inches in diameter or square using sledgehammer, pick axe, chisel, battery operated cutting tools."

Looks



"The north side of wall (i.e. U.S. facing side) shall be **aesthetically pleasing** in color, anti-climb texture, etc., to be consistent with general surrounding environment."

Over ...

"It shall **not be possible for a human to climb** to the top of the wall or access the top of the wall from either side unassisted (e.g. via the use of a ladder, etc.)."

... Under

"The wall shall **prevent digging** or tunneling below it for a minimum of 6 feet below the lowest adjacent grade."

Angles

"The wall design shall be constructable to **slopes of up to 45 percent.**"

AI's games without frontiers 34
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April 3 — April 9, 2017

Sweetening The Deal

▶ Apple is giving app developers faster approvals and more data

▶ "We don't have to worry about waiting a week or two weeks"

Apple Inc.'s App Store has made a great many software developers into millionaires since its launch almost a decade ago. But working with the famously controlling company can be pretty frustrating, especially for the app makers who don't get rich. Apple has typically rejected apps with little explanation or chance for appeal. It's also been reluctant to give developers any data on how, or how often, iPhone customers are using their apps.

These days, Apple can't afford to brush off the developer community. Sales of iPhones, iPads, and Macs are slowing, and the company is under pressure to extract more revenue from its services business, which grew 22 percent last year, to $24 billion. "We expect the revenues to be the size of a Fortune 100 company this year," Chief Executive Officer Tim Cook said during Apple's latest investor call, in January.

Cook also predicted that the services arm, which includes iTunes and the service warranty program AppleCare, will double in size by 2021. The business's standout performers are the App Store (yearly revenue up 40 percent, to $8.6 billion, in 2016) and subscription service Apple Music ($1.6 billion in its first full year), according to estimates by Gene Munster, who runs Loup Ventures and covered Apple as an analyst for years.

So Apple is starting to make concessions to app makers, cutting them more favorable revenue-sharing deals and doling out more user data. Over the past year the company has introduced software to help analyze app use and revenue generation, sped up the approval process for new apps, halved its take from many App Store transactions, and made it easier for developers to sell subscriptions.

For years, app developers have complained that Apple's guidelines on content and design basics—whether an app contained overly sexual material or was too similar to another, for example—were discretionary enough that it could be tough to tell when you'd get rejected and why. Kushal Dave, a former senior engineer at Foursquare Labs Inc. who's working on a new startup, says unknown developers could get "totally stuck at any given time," because so much was up to "Apple's whim."

Decisions weren't made quickly, either. It was common for developers to have to wait a week or more for approval or rejection with the App Store, vs. a couple of days or even hours when dealing with Play, **Google Inc.**'s Android app store. Even approvals on app updates often took as long as a week. And Google Play was a lot more generous with its data, showing app makers detailed stats on customer subscription and cancellation behavior.

Apple engineers recognized that this setup was hurting iOS development, and in 2013 they began pushing their bosses in earnest to speed things up and turn over more usage data, says a person familiar with the company's deliberations. At the end of 2015, Cook took away control of the App Store from Eddy Cue, the senior vice president for internet software and services, and handed it to marketing chief Phil Schiller, who'd been running developer relations for years.

By May, developers had noticed Apple was approving or rejecting ▶

PHOTO ILLUSTRATION BY 731; PHOTO: GETTY IMAGES

◀ their apps in less than two days. "If there's something we need to fix or we want to get out an additional update, we don't have to worry about waiting a week or two weeks anymore," says James Vaughan, whose **Ndemic Creations** sells a mobile game called *Plague Inc.*, in which players aim to wipe out the world's population. "That's been hugely positive for us."

Since the summer, Apple has become more willing to share usage data. It now shows developers detailed time stamps and other data they can use to figure out, for example, how many paying users cancel subscriptions on their first day (meaning they likely had no intention of subscribing for the long term), as opposed to their last day (meaning the service might have done more to keep them). **JoyTunes** co-founder Yuval Kaminka, who makes piano instruction apps for kids, says Apple's new developer analytics tools have helped his business increase sevenfold in the past year, because it's a lot easier for him to figure out what turns free-trial users into paid subscribers. "We know what's working much sooner," he says. Within weeks, when the latest version of iOS comes out, developers will also finally be able to respond to customer reviews on the App Store, Apple announced in January.

The most important change may be Apple's approach to app revenue. The company used to take 30 percent of the fees paid by any customer; in September it began halving that cut for customers who'd completed a year's subscription. Apple also now allows developers to charge different prices in different regions and gives all apps the ability to charge subscription fees, a privilege previously reserved mostly for streaming entertainment such as Netflix or management apps like Dropbox. Itai Tsiddon, whose startup **Lightricks Ltd.** sold about 10 million copies of photo-editing apps Facetune and Enlight last year, says subscriptions could boost his $10 million in sales 10-fold. "For us, that's what's exciting about this new model," he says.

Making developers happier may not be enough to keep iPhone sales up. Global smartphone sales grew at the slowest pace on record last year, so Apple is battling harder to keep customers away from phones made by **Samsung Electronics Co.** and **Huawei Technologies Co.** "They are doing a lot more," says Nuno Gonçalves Pedro, partner at Delta Partners Group and Strive Capital Inc. "But Google has upped its game as well," adding layers of more specific usage data. And Google, as Gonçalves Pedro says, has spent a lot more time figuring out what developers need, as well as what they want. —*Alex Webb*

The bottom line Apple's strategy of doubling its take from the App Store and other services by 2021 has led it to give developers markedly better deals.

Software

The Smartest Machines Are Playing Games

▶ **AI systems are steadily mastering more complex fantasy worlds**

▶ **"With games, you can generate as much data as you like"**

Artificial intelligence has come a long way in the 20 years since **International Business Machines Corp.**'s Deep Blue beat world champion Garry Kasparov in a six-game chess match, or even the six years since Watson trounced Ken Jennings on *Jeopardy!* Computers have beaten top human players at checkers, backgammon, poker, and go. Add to the list *Super Smash Bros. Melee*, a 2001 **Nintendo Co.** fighting game that lets you pit, say, Mario against Pikachu.

Humanity has MIT researchers to thank for this defeat, chronicled in a paper they published in February, but *Melee* isn't the only video game getting a lot of playtime from learning machines. AI software has cracked *Super Mario Bros.*; early **Atari SA** games such as *Space Invaders*; arcade mainstays *Pac-Man* and *Mortal Kombat*; even mobile favorite *Angry Birds*. Optimists say AI can help solve the world's toughest problems, including cancer and climate change. So why are AI systems spending so much time gaming?

It's all about data. Games allow AI software to tackle the kinds of complex logic problems found in the real world—uncertainty, negotiation, bluffing, cooperation—in carefully controlled environments, says Vlad Firoiu, who was part of the team that cracked *Melee*. Researchers can start their fledgling AI with relatively simple video game problems, run the tests thousands or millions of times, then gradually move on to more complex challenges as the system learns to handle the initial ones.

"With games, you can generate as much data as you like," says Demis Hassabis, chief executive officer of **DeepMind Technologies Ltd.**, the London AI company owned by Google parent Alphabet Inc. "You want to hit the sweet spot, not too hard and not too easy for your current algorithms." Over the past three years, DeepMind has trained software to master Atari games and beat the world's best players at go, a strategic board game popular in Asia.

Game environments are ideal for what's known as reinforcement learning, says John Schulman, a researcher at nonprofit lab **OpenAI**, which is backed by the likes of Tesla Inc.'s Elon Musk, Y Combinator co-founder Sam Altman, and venture capitalist Peter Thiel. Reinforcement learning means the machines figure out proper sequences of actions through processes of trial and error. Again, the controlled environment helps: It's much safer to teach an algorithm how to drive with a racing game than with your car. An engineer at **Otto**, the driverless-truck company owned by Uber Technologies Inc., has tried teaching AI software to play *Grand Theft*

YOUTUBE (3)

Game Theories

Researchers are training computers to beat dozens of video games. Different games help hone different skills.

Super Smash Bros. Melee
Who MIT researchers
Skills Strategies for competing with multiple players and imperfect information

Freeciv
Who Arago, a German AI company
Skills Memory, long-term planning, and compensating for imperfect information in turn-based play

Auto V, as has a team from **Intel Corp.**

Hassabis says DeepMind has focused on games because it believes true general AI will have to understand its presence in a physical landscape. The simulated environments in games are a way to do this without having to build robots, which can be a pain in the ass, he says: "They are slow. They break. You can't run faster than real time. You can't run millions of them in parallel."

Some influential executives have turned their noses up at game research. "We are not pursuing AI to beat humans at games," **Microsoft Corp.** CEO Satya Nadella said at his company's developers conference in September. Instead, he said, Microsoft had staked much of its future on AI as a means to help solve "the most pressing problems of our society and economy." Chris Bishop, who heads Microsoft's AI research lab in Cambridge, England, says making competitive games the benchmark for AI also reinforces fears that smart computers threaten people.

That said, Microsoft has created Project Malmo, an AI research environment based on the video game *Minecraft*, which it happens to own. Bishop says *Minecraft* doesn't feed the man-vs.-machine narrative because it has no set objectives and isn't necessarily competitive.

"We are very interested in what happens when you have several intelligent agents in the same environment. How do they interact? Can they learn to cooperate?"
—*Katja Hofmann, the Microsoft researcher who helped create Project Malmo*

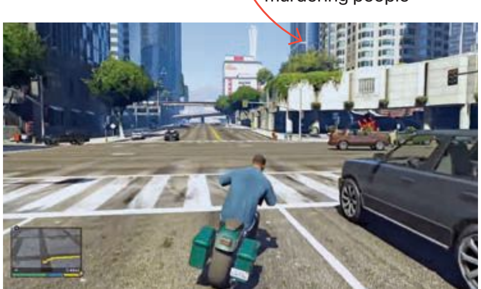
Knocks on the gaming model haven't deterred other AI researchers. Besides *Grand Theft Auto V*, they're using dozens of games as tests, including *StarCraft II*, *Montezuma's Revenge*, and *Freeciv*, a free game based on Sid Meier's *Civilization* series. But, as OpenAI's Schulman says, the real trick is developing AI that can solve not one game but any game you give it. Then the technology might be ready for the game of life, and not the Milton Bradley version. —*Jeremy Kahn*

The bottom line AI researchers are using increasingly complex video games as proving grounds for their software.

Project Malmo (*Minecraft*)
Who Microsoft
Skills Moving in 3D space from an embodied, first-person point of view, plus planning and cooperating with human players and other AI agents

Lab
Who DeepMind
Skills Navigating a mazelike 3D world from a first-person perspective, remembering routes, accounting for multiple allies or rivals

Grand Theft Auto V
Who Craig Quiter, a software engineer at Otto (the self-driving technology company Uber owns); Intel; Darmstadt University
Skills Driving—yes, driving, not murdering people



StarCraft: Brood War
Who Facebook and University of Oxford researchers
Skills Navigating a complicated visual landscape; also dealing with imperfect information, memory, and long-term planning in real-time play rather than making players wait their turn

StarCraft II
Who DeepMind and others
Skills Planning and priority-setting akin to that in the earlier *StarCraft* game, plus active competitions involving some of the world's best pro gamers

Universe
Who OpenAI
Skills Visualizing the pixels on a screen and manipulating a virtual keyboard and mouse

Cybersecurity

When Coders Become Stickup Artists

▶ **Anonymous and other hacking groups target central banks**

▶ **"All you need is one employee to click on the wrong link"**

In 2008 thieves stole $700,000 from Russia's central bank the old-fashioned way: They infiltrated a processing center, handcuffed a guard, and made off with the cash. These days, thefts from the Bank of Russia are less labor-intensive—and far more lucrative. Last year hackers looted as much as $21 million from accounts at the bank, part of a surge in cyberattacks on global monetary authorities. "For a central bank, the question is not if, but when, they will be victims of online assaults," says Giulio Coraggio, a lawyer focusing on cybersecurity at DLA Piper LLP in Milan.

This year is likely to be even worse. Cyberattacks on the financial system are among "the most significant risks our country faces," Federal Reserve Chair Janet Yellen said in testimony before the congressional Joint Economic Committee in November. North Korean hackers have started targeting central banks, according to two people familiar with the matter. And the hacking collective Anonymous, known for harassing corporations and governments, is also going after those institutions, according to two people with direct knowledge of the group's activities. While the people wouldn't say which banks might be hit, they said Anonymous has been recruiting members to aid in its forays. The group last year attacked at least eight monetary authorities, including the Dutch central bank, the Bank of Greece, and the Bank of Mexico, said the two people, who asked not to be identified discussing private conversations. In a change of strategy, the so-called hacktivists may sell confidential information they obtain rather than simply disrupt websites as a publicity stunt, according to one of the people.

The most notable such theft was in Bangladesh, where hackers last year used Swift, the interbank messaging system, to steal $81 million ▶

◀ from the central bank–an attack the U.S. government suspects may have been carried out by North Koreans, two people familiar with the matter say. The case "really brought the focus on payments systems within central banks," says Adrian Nish, head of threat intelligence at **BAE Systems Plc**.

Poland's financial regulator says hackers in January planted code on its site aiming to infect computers of visitors from the country's commercial banks. The Polish Financial Supervision Authority says it's since secured the site and has beefed up security, without giving any details. However, the IT systems of several Polish banks were recently attacked, and prosecutors in Warsaw say they're investigating. Similar code was placed on the sites of banks in Uruguay and Mexico last year, BAE and U.S. software company **Symantec Corp.** say. "Cyberattacks have become military attacks," says Biagio De Marchis, a senior vice president at Italian defense company **Leonardo SpA**, which offers cybersecurity services.

$81
million

Amount hackers stole from the central bank of Bangladesh in 2016

Recognizing the problem, financial institutions are hiring security consultants to increase their protection. In June, Swift execs engaged BAE and British cybersecurity adviser **NCC Group Plc** to help the messaging system better analyze whether it needs to flag potential issues to member banks. BAE says it's detected multiple warning signs regarding Swift's security, ranging from crashes because of software update errors to intruders hacking into banks' systems. And the Bank of England is working with **Anomali Inc.**, a cybersecurity startup, to find ways to better investigate intrusions.

Central banks must make online security a top priority as attacks get more sophisticated, says Tasnoova Zaki, a cybersecurity expert at financial consultant Bovill Ltd. in London. She says any financial institution is vulnerable as hackers use social networks and phishing strategies to worm their way into systems. "All you need is one employee to click on the wrong link," Zaki says. "It's a low-investment and high-return crime: A hacker makes a thousand attempts but only needs to be successful once." *—Chiara Albanese, Daniele Lepido, and Giles Turner*

The bottom line Diversifying beyond mere disruption, hacktivists and other techno-rogues appear to be adding cybertheft to their arsenal.

Hardware

Samsung Would *Love* to Talk About This Phone

▶ **The Galaxy S8 has a taller screen and isn't on fire or under arrest**

▶ **"It'll be a while before consumers feel confident"**

Samsung Electronics Co. has a big new smartphone coming, and this one hasn't been banned by the Federal Aviation Administration. The Galaxy S8, unveiled on March 29, ahead of its April 21 release, marks the first serious test for Samsung's phone division since the recall of its exploding Note7 cost the company more than $6 billion and its global lead in smartphone sales. While the S8 is packed with new features–curved screens, encrypted facial recognition, better voice commands–Samsung is also advertising an "eight-point battery safety check" meant to assure customers that unlike the Note7's power supplies, the S8's aren't at risk of blowing up.

"We've put our utmost effort to provide our customers with near-perfect devices to earn back their trust," says Lee Young-hee, executive vice president for Samsung's mobile business. The company accounted for 17.8 percent of global smartphone sales in the last three months of 2016, slightly less than **Apple Inc.**, according to researcher Gartner Inc.

The S8 is the company's first major product launch since Jay Y. Lee, Samsung Group's heir and functional head, was arrested on bribery and embezzlement charges related to a national influence-peddling scandal. He's denied wrongdoing, but the company has yet to sort out its chain of command while his case goes to court. "The biggest issue hobbling the company is still the trial of its de facto chief," says Koo Chang-hwan, who researches corporate brands at the Korea Reputation Center in Seoul. "That will overshadow the S8."

That's saying a lot, given how ginormous this phone is. The Galaxy S8 comes in two sizes, a standard model with a 5.8-inch screen and an S8+ with a 6.2-inch screen. Both are larger and, in a company demo, showed richer colors than the iPhone 7 and 7 Plus, their main competition until Apple's 10th-anniversary iPhone comes out later this year. Samsung's corporate logo is gone from the front of the S8, making room for a taller, 18.5:9 ratio screen that eliminates the thin black bars around widescreen videos and makes them larger. Likewise, the home button is integrated into the bottom of the screen. The phones come in five colors: silver, blue, gold, black, and gray.

On the software side, users can clip specific apps to the top of the screen so they can, say, keep a relevant web page up while writing an email. The S8 also introduces a digital assistant, Bixby, that lets users operate many of the phone's functions via

COURTESY BELL HELICOPTER (3)

voice commands. The Bixby software keeps track of calendar appointments and reminders–offering to order a car when it's time to head to a meeting–and is integrated with the phone's camera so it can identify landmarks or other objects. (Amazon.com put a similar feature into its failed Fire Phone.)

The phone's front and rear cameras are a bit better than those in Samsung's previous models, and the camera app will include Snapchat-like stickers that can be added to images. And while some previous Galaxy phones let users unlock their device using facial recognition, the S8 is the first that encrypts the faceprint data, with the idea that it can help increase security for sensitive applications such as mobile banking.

In one of Samsung's more ambitious moves, the S8 can essentially become a full-blown desktop computer via a separately-sold docking station called the DeX. When the phone is in desktop mode, some of its apps, including Microsoft's Office programs, will switch over to bigger-screen versions. That's an advantage Motorola Mobility didn't have in its short-lived docking station in 2011. Samsung declined to name S8 prices, saying those decisions are up to wireless carriers.

Even with the Note7 scandal and Lee's legal troubles, Samsung shares have been trading near record highs, thanks to the strength of the company's semiconductor business. Still, its phone division is facing growing challenges not only from Apple but also from rivals such as **Huawei Technologies Co.** and **Oppo**, most notably in China, the world's biggest smartphone market.

Samsung has some serious work to do to rebuild its tarnished brand, says Koo of the Korea Reputation Center. "Success isn't going to come overnight for the S8, and it'll be a while before consumers feel confident the phone has no problems like the Note7," he says. Especially with Lee's trial going on, "a single product may not be enough to put the risk surrounding the top executive behind."

—*Mark Gurman and Sam Kim*

The bottom line The Galaxy S8 is an impressive new primary phone for Samsung, but the company has a long way to go to win back consumers' trust.

Edited by Jeff Muskus and David Rocks
Bloomberg.com

Innovation

FCX-001

Form and function
This mock-up of a single-rotor concept helicopter, unveiled in March at a trade show in Dallas, combines higher fuel efficiency, lower noise, and helmet-controlled flight instruments. It's meant to carry as many as 12 passengers.

Innovator Scott Drennan
Age 47
Director for innovation at Bell Helicopter, a Fort Worth division of manufacturer Textron Inc.

1.

Cutting edge Unlike most helicopters, the FCX doesn't need a tail rotor to stabilize the main one. Bell has designed an "anti-torque" tail boom that keeps it balanced by exerting a thrust.

Origin Drennan says Bell, known for the Vietnam-era UH-1 "Huey," began last summer to make a concept copter, like the futuristic designs that carmakers roll out at auto shows.

Morphing Drennan's team is working on rotor blades that adjust their shape during flight to cut noise and increase fuel efficiency.

1

2

Hybrid An electric motor powers the anti-torque tail system. Bell is also devising ways to convert vibrational energy to electricity.

2.

Look, no hands! As with some advanced fighter jets, a pilot flies the FCX with a voice- and gesture-controlled augmented-reality helmet that projects functions on its visor.

Leisure For communications and entertainment, passengers wear AR helmets as well.

Next Steps
The FCX isn't headed for the assembly line, but several of its innovations will likely make their way into production models in the next few years, according to Drennan. "The goal was to let the creative team pull us closer to our physics and engineering boundaries," he says. At some point, he adds, a helicopter like the FCX should be able to fly without a pilot.
—*Justin Bachman*

PHOTO ILLUSTRATION BY KURT WOERPEL; PHOTOS: GETTY IMAGES (2)

How to Trade a Donkey

▶ **From livestock to flowers, exchanges are popping up everywhere in China. So is speculation**

▶ **"Spawned from needs in the real economy"**

Chances are, if you can buy it or sell it, China has an exchange for it. The latest example? The **China Donkey Exchange**. It's one of more than 1,000 trading venues that now dot Asia's largest economy, up from 300 in 2011, according to SunSirs, a provider of data and research on Chinese commodity markets.

The country has everything from the national stock exchanges in Shanghai and Shenzhen to small operations that consist of little more than software for matching buyers and sellers. But regional trading venues are becoming ever-bigger players. Helping determine prices for agricultural products, metals, and chemicals, they now cover 32 of China's 34 provincial-level regions. An orchid exchange began operating in Yunnan province in September,

A strange stock in your index fund 40

A Russian bank's big move in Croatia 42

and a market for small-company shares opened in Ningbo in May. Properly run exchanges "are beneficial to the development of China's markets," says Hao Hong, chief strategist at Bocom International Holdings Co. in Hong Kong. But the rapid increase and sheer number of trading platforms have also raised concerns about patchy oversight. "Many of the exchanges started as a place of hedging but evolved into a place of speculation, which in excess brings no obvious benefits to the real economy," Hong adds.

The donkey exchange was born for much the same reason hog and soybean futures are traded around the world. Donkeys in China are not just beasts of burden, but an agricultural commodity. A traditional treatment for anemia known as *e'jiao* is made from boiled donkey skin. Demand for e'jiao, which can be purchased as a cooked gelatin, has surged in the past decade as millions have joined China's middle class.

Donkey prices have quadrupled over the same period—to about 8,000 yuan ($1,160) a head—in part because breeders have failed to replenish their herds. Donkeys are hard to breed quickly; the animals have long pregnancies, lasting up to 14 months.

The demand from China is being felt internationally. Niger, the BBC has reported, has banned the export of donkeys to preserve the animal there; Burkina Faso has banned the export of their skins. In some places where donkeys are used in farming and other work, the trade "has inflated prices for donkeys so much that families that depend on them can't replace their donkeys," says Mike Baker, chief executive officer of the Donkey Sanctuary, a U.K. charity.

In China, e'jiao companies have trouble finding enough skins to keep their factories busy. **Dong-E-E-Jiao Co.**, a state-owned producer, launched the exchange in December to "promote the industry of donkey breeding and raise nationwide production," says Liu Guangyuan, who oversees the project.

The marketplace, based in a rural part of Shandong province, handles transactions over the telephone. A farmer can call to say he wants to sell a group of donkeys, and the exchange will send a so-called runner—it employs more than 100—to confirm the animals exist and meet quality standards. It will help find a price both seller and buyer agree on and arrange shipping after a deal is struck.

More than 370 million yuan's worth of donkeys have changed hands on the exchange since it opened. Dong-E-E-Jiao says that figure will probably reach 1.5 billion yuan by yearend, and it plans to start web- and app-based trading in April. Liu says Dong-E-E-Jiao doesn't trade on the market for its own account, because it doesn't buy live donkeys. Instead, it buys skins after the animals have been slaughtered.

The proliferation of Chinese exchanges has fueled concerns in Beijing that local authorities aren't equipped to supervise them properly. In January a group of national ministries responsible for monitoring regional markets said in a statement that some platforms had been engaged in illegal activity, adding that venues for stamps, coins, and collectible cards had faced market manipulation allegations. It didn't disclose names.

One recent episode illustrates the risks. In 2015 police alleged that the owner of **China Gold & Silver Trade Center**, a commodities exchange in the northern autonomous region of Inner Mongolia, had fled with users' funds. China Gold & Silver's website is now inaccessible; calls to its phone number, listed in filings with the State Administration for Industry and Commerce, didn't go through; and it didn't respond to an email seeking comment. An official at the local police department in Chifeng, which posted the allegations on its official Weibo account, said by phone that the case had been transferred to Beijing, without providing further details.

Problematic exchanges "siphon funds from proper markets to participate in speculation, undermine order in financial markets, and should be cleared promptly," says Wang Deyi, a lawyer at Beijing Xunzhen Law Firm who's represented investors in cases against regional exchanges.

Still, there are plenty of success stories among the new markets. One of the most notable is the **China Stainless Steel Exchange**, which opened in 2006 and now has all the hallmarks of a major futures market: centralized trading, standardized contracts, warehousing, and third-party custodians. The exchange, which operates almost continuously on weekdays, rivals the nationally regulated Shanghai Futures Exchange as a provider of benchmark pricing for nickel.

While China stands out for the sheer number of its exchanges, many of the venues were "spawned from needs in the real economy," says Man Rongrong, a senior analyst at SunSirs in Shandong. The challenge is to keep them grounded there. —*Bloomberg News*

The bottom line The China Donkey Exchange is one of more than 700 market platforms that have sprouted in the country since 2011.

Lending

Deutsche Bank Is in a Bind Over Trump Debt

▶ **Real estate loans are backed by Trump's personal guarantee**

▶ **It's uncommon "for headline risks to involve a … political dimension"**

A small detail in **Deutsche Bank AG**'s loans to Donald Trump's real estate business has turned into a large headache for the bank. The issue is a personal guarantee Trump gave the German bank when the various loans were negotiated in 2012 and 2015, according to a person with knowledge of bank discussions. Payments are being made on the $300 million or so in debt—which funded a Florida golf resort, the Trump International Hotel in Washington, and a Chicago tower. Under the agreements, if the loans ▶

◀ default, the bank is entitled to go after Trump's other assets.

Since Trump was elected in November, bankers have tried to eliminate the awkward prospect of collecting from a sitting president. But Deutsche Bank's effort to restructure part of the debt has stalled. The problem: If the bank removes Trump's personal guarantee, critics might accuse it of trying to curry favor with the president. And if it raises the interest rate on the debt in exchange for changing terms, Deutsche Bank will risk the scorn of the Trump business organization.

Making matters more complicated, the U.S. government is investigating the bank's failure to flag trades by wealthy customers who spirited $10 billion out of Russia. Although that investigation has no links to Trump, some lawmakers and others have expressed concerns about a potential conflict for the U.S. Department of Justice, which has to report to the president even as it investigates his primary lender.

Deutsche Bank has admitted to compliance lapses in the Russian matter and says it's cooperating with authorities; it paid fines to U.K. and New York regulators earlier this year to resolve those complaints. The Justice Department has declined to comment on the status of its investigation.

Discussions about Trump's loans have moved from the bank's lending experts, who were trying to find a way to eliminate the personal guarantee, to more senior managers, who are assessing the political ramifications of any restructuring, says the person familiar with the discussions. Selling the loans is one option, but potential buyers may be concerned about "headline risk"—the media scrutiny of anyone doing business with Trump—says one commercial banker contacted by Bloomberg.

Personal guarantees such as Trump's aren't unusual, says Sam Chandan, associate dean for NYU's Schack Institute of Real Estate. Banks take a client's PR issues into consideration, he says, "but it's less common for headline risks to involve a significant political dimension."

Deutsche Bank declined to comment on the loans. The White House referred inquiries to the **Trump Organization**, which also declined to comment. Since becoming president, Trump has handed over management of his businesses to his sons Eric and Donald Jr., and he's said he'll remove himself from decision-making. He retains ownership of the companies.

In December, Alan Garten, general counsel for the Trump Organization, told Bloomberg that the loans are modest in the context of Trump's multibillion-dollar empire. The personal guarantee isn't a long-term issue, he said, because the loans were structured to eventually become standard debt backed by the properties they were used to build. That's already the case with the Trump International Hotel & Tower in Chicago, which now serves as collateral for a loan, Garten said.

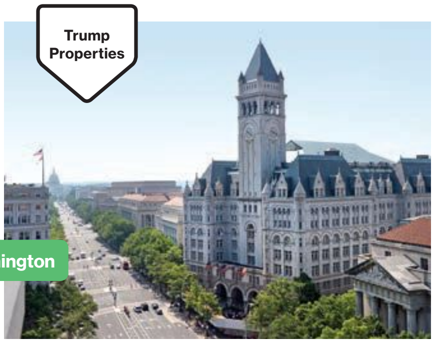
The roughly $300 million Trump's organization owes Deutsche Bank represents almost half of his outstanding debt, according to a July Bloomberg analysis that found the mogul had a net worth of $3 billion. The loans look like deals with a high-net-worth client, with more favorable rates than would be common on building loans, says a real estate investor who reviewed the rates at Bloomberg's request and asked not to be named.

The debt includes a $170 million loan Trump took out in 2015 to finish the Trump International in Washington. The organization also owes $125 million on the Trump National Doral Miami resort. The Doral debt, dating to 2012, carries a rate of Libor plus 1.75 percentage points or prime rate minus 0.75 percentage points, according to a Trump filing with the Federal Electoral Commission, which isn't more specific. The other major piece is the loan against the Chicago tower. The debts come due in 2023 and 2024.

Prospects may have brightened at Trump's Washington hotel, in a post office building leased from the government. Critics questioned the legality of the Trump Organization doing business with the government, but the General Services Administration said on March 23 that it had determined the company wasn't violating laws restricting elected officials' business activities. —*Greg Farrell and Caleb Melby*

The bottom line Deutsche Bank has no easy way to untangle itself from its most prominent client: President Trump.

Trump Properties



Washington

Chicago

Miami

ALAMY (3)

Stocks

The Mystery of the 4,555 Percent Return

▶ **An obscure stock included in the Russell 2000 Index goes wild**

▶ **"There's no subjectivity to the process"**

Investors who put money into U.S. index funds usually aren't looking for surprises. Sometimes they get one anyway. Included in the Russell 2000 Index, a benchmark for small-company shares, is a little-known Chinese stock whose price went supernova for no apparent reason.

Shares of a company that leases equipment and guarantees loans to small businesses in China, **Wins Finance Holdings Inc.**, rose as much as 4,555 percent since making their debut on Nasdaq in 2015. Based on the price of its traded shares, Wins's market value at one point in February

Digits

50%! ~~85%~~

The tax rate Saudi Arabia will apply to its state-owned oil company, known as Saudi Aramco. Cutting the rate from 85 percent will boost the company's value as the government prepares an initial public offering to sell as much as 5 percent of it.

surpassed $9 billion, about four times as much as **LendingClub Corp.**, an online lender with 50 times the revenue. Even Wins said in a news release that it had no idea what drove the stock's surge.

The mystery begins on the 37th floor of a skyscraper in New York's Times Square, where the company's U.S. headquarters are located, according to government filings. There aren't any signs of the business. The floor is occupied by **Forefront Capital Advisors**, a financial-services firm founded by Bradley Reifler, who used to be on the Wins board.

Reifler, whose bronzed complexion matches his gold cuff links, is known on Wall Street for co-founding Pali Capital Inc., a brokerage that at its height, he says, threw a $4 million poker party with singer John Legend. Pali went down in flames in 2010 amid a dispute between its founders, and its parent filed for bankruptcy. Reifler filed for personal bankruptcy in January.

Reifler says he resigned from Wins's board when it started considering making loans in the U.S., to avoid a conflict with Forefront's business. About three Wins employees still work in the New York office, he says, declining to name them. He also lets Richard Xu, a former Wins president, use it. He says he doesn't know who runs the company now but mentions a recent lunch he had with Jianming "Jimmy" Hao, who's listed as its chairman and co-chief executive officer. Hao couldn't be reached for comment, and his lawyer, Lian Fang, didn't follow up on a request for a meeting. Giovanni Caruso, a lawyer for Wins in New York, declined to comment.

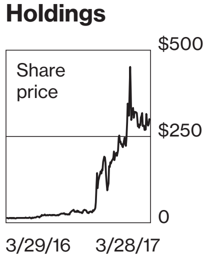
The search for answers didn't go any better at Wins's Beijing headquarters. A receptionist said only a few employees work there and referred inquiries to a woman in human resources who was traveling. In a phone call before the visit, that woman had recommended calling the U.S. office. Neil Gong, who answered the company's U.S. phone several times, said he needed to ask China headquarters about scheduling an interview. None was offered.

Wins reported operating revenue of $9.8 million in the fiscal year that ended in June, a drop of 34 percent from the previous year, filings show. The company does about two-thirds of its business in Jinzhong, a city in China's Shanxi province.

Wins became what it is today after it was bought in 2015 by **Sino Mercury Acquisition Corp.**, a special-purpose acquisition company, or SPAC. Sino Mercury was created by Xu and Reifler, with financing from Hao, who became CEO. It was listed on Nasdaq in August 2014. Sino Mercury's sole purpose was to buy or merge with another company.

Reifler had created a number of SPACs at Pali. When Sino Mercury bought Wins Finance Group Ltd., no cash changed hands. Instead, Wins founder Wang Hong became the biggest shareholder in the merged firm. It was a way to get his company listed on a U.S. exchange.

Wins Finance Holdings



As Wins Finance Holdings, the merged company was added to the Russell 2000 in June 2016 during the index's annual reshuffling. Decisions are based on a company's market value, headquarters, and location of assets, among other factors, according to FTSE Russell, which runs the indexes. "There's no subjectivity to the process," says Tim Benedict, a spokesman for **London Stock Exchange Group Plc**, owner of FTSE Russell.

Inclusion in the index can affect stock prices because big investors such as index funds are required to buy. But the shares of Wins didn't jump until five months later. The price increased 15-fold from Nov. 7 through Feb. 8.

This puzzled short sellers, who make money betting that a stock will decline in value. Jacob Ma-Weaver, founder of San Francisco-based Cable Car Capital, says the stock became more susceptible to market manipulation when volume dropped in August. When a stock is thinly traded, a small number of transactions can move the price. Intentionally or not, this can lure other buyers who notice the shares surging.

"Maybe the only people being hurt are short sellers," says Ma-Weaver, who started betting against Wins late last year. "But eventually it's going to be the underlying holders who lose out."

Reifler and Xu say the jump may have been driven by a short squeeze. To bet against a stock, short sellers borrow shares and sell them, hoping to buy them back later at a lower price. In a squeeze, the lenders of the stock ask for it back before the price has dropped. Short sellers try to buy, competing for the few available shares and driving up the price.

Even after Wins was included in the index, insiders and large holders owned most of the shares. As of June, about 10 percent was held by Zhao Peilin and Zhao Jing, co-owners of an investment company in Shanxi, according to a U.S. regulatory filing. Together, their stakes would have been worth $953 million when shares peaked in February. Zhao Peilin declined to comment, and Zhao Jing didn't answer a call or email.

Xu, who resigned as president of Wins in July, last reported a holding that would have been worth $92 million. "I didn't buy, and I didn't sell any Wins shares," he says, declining to say why. Reifler, who sold his stake in June, says he wouldn't sell the stock now if he had it, because ▶

◀ "accusations would be rampant."

Majority shareholder Wang signed a deal on Dec. 13 to sell his 67 percent stake for $19.35 a share. That's a 79 percent discount from where Wins was trading at the end of that day. The buyer is **Freeman FinTech Corp.**, a financial-services company based in Hong Kong. Wins said the deal hasn't gone through because it's being evaluated by the Hong Kong exchange. A spokesman for the exchange declined to comment. Tong Zhao, executive director of Freeman, said in an email the company couldn't disclose further information. Efforts to reach Wang were unsuccessful.

Reifler doesn't seem concerned. "It's a very serious company," he says of Wins. "They would have halted trading had there been a real problem." *—Lily Katz and Zeke Faux, with Bloomberg News*

The bottom line A thinly traded stock made it onto a widely followed index, but that's probably not the reason its price surged.

Bonds

From Russia, With Debt

▶ **Croatia's biggest company owes a lot to a Kremlin-linked bank**

▶ **"Sberbank had to move in to keep it running"**

It took Ivica Todoric 41 years to build a small flower-growing business into a sprawling agricultural and retailing conglomerate that accounts for almost a sixth of Croatia's economy and is its largest employer and biggest owner of farmland. After just two months of market turmoil, he's poised to lose it all.

His company, **Agrokor**, said in January it was having trouble borrowing money at rates it found acceptable, triggering a fire sale by bondholders already fretting over Todoric's ability to service €5.7 billion ($6.2 billion) in debt. Agrokor's top creditor, Moscow-based **Sberbank of Russia PJSC**, quickly offered to help pay the bills. But as the depths of the company's woes become clearer, Sberbank is demanding Todoric's ouster as a condition for any rescue.

"It all unraveled very quickly," says Lutz Röhmeyer, a fund manager at Landesbank Berlin Investment GmbH, which holds Agrokor bonds. "Todoric missed several opportunities to put the company on a sounder financial footing. Sberbank had to move in to keep it running."

Agrokor is a classic tale of undisciplined borrowing in a developing market, but it's also become an affair of state. Sberbank—a lender with close ties to the Kremlin—could determine the fate of the largest enterprise in a European Union and NATO country that's backed sanctions over Russia's actions in Ukraine. But while the Kremlin often uses business ties for political advantage, in this case Sberbank is more likely pursuing its business interests, says Aleksej Gren, a credit analyst at Exotix Partners in London. "Russia may use Agrokor to regain some lost influence in the area," he says. "But more than that, it's the bank trying to protect its investments."

Sberbank's chief executive officer, Herman Gref, says his motives are purely financial, and Croatian officials appear to be taking him at his word. The government has so far supported efforts to salvage the company—which has about $7 billion in annual revenue, 60,000 workers, and legions of suppliers—even at the risk of allowing Sberbank greater influence over the economy. Agrokor and Todoric didn't return calls or emails seeking comment; a representative of Croatia's government declined to comment on the talks or on the role of Russian banks.

Todoric, 66, founded Agrokor as a flower producer in 1976 after Yugoslavia's communist regime introduced market reforms. He pounced on opportunities created by Croatia's independence in 1991 to expand into food and retail, buying up everything from land to newspaper kiosks and turning Agrokor into a multinational with holdings across the former Yugoslav republics. Todoric expanded his empire with debt and long refused to sell any part of his 95 percent stake, appointing his three adult children and other relatives to key positions. About two decades ago, he renovated a 16th-century castle once owned by a

Todoric (left) and Gref at a conference in St. Petersburg, Russia, in June 2016

ILIYA PITALEV/SPUTNIK/AP PHOTO

Croatian count perched in the mountains overlooking Zagreb, where he lives with his extended family.

Croatia's entry into the EU in 2013 hit Agrokor hard, exposing its Konzum supermarkets to greater competition from German and Dutch chains. In 2014, Todoric bought almost 90 percent of Mercator, a struggling retailer based in neighboring Slovenia, financing the acquisition with about €500 million in debt. Mercator failed to generate the expected profits, and loans backing the deal plunged to 20 cents on the euro from more than 80 cents in January, according to data Bloomberg compiled.

Todoric last year worked with Rothschild & Co. to prepare an initial public offering, but the sale never happened, as profits started to dwindle. Despite Sberbank's insistence that Todoric leave, he's seeking another way out of his bind—though things continue to deteriorate. On March 29 another creditor accused Agrokor of accounting irregularities.

As more than half a dozen banks begin the battle over restructuring Agrokor's debt, there are plans afoot for a government administrator to take over in case of bankruptcy, rather than someone appointed by Sberbank. "Todoric loses control of the company either way," says Damir Novotny, head of T&MC Group, a management consultant that works with many Croatian companies. "But if he makes a deal with the creditors, he might retain some role for a while." *—Luca Casiraghi and Jasmina Kuzmanovic, with Henry Meyer*

The bottom line Moscow's political influence may be creeping westward, but a Russian bank's actions in Croatia seem to be all about money.

Edited by Pat Regnier and David Rocks
Bloomberg.com

The little guys are still feeling the pain in Spain 46

Don't let the loss of an important employee kill your company 46

Who says nobody's starting businesses? 47

April 3 — April 9, 2017

Los Angeles's New Circus Act

▶ A startup aspires to build a chain of high-tech arcades for grown-ups

▶ "We are not your most typical nerds. We're not pencil pads and lab coats, but games and lasers"

Two Bit Circus Inc. co-founder and onetime clown Brent Bushnell spends his days playing games. In a converted warehouse in East Los Angeles, the 38-year-old races around a 10-foot-tall hexagonal tower, frantically pressing buttons in an attempt to beat the clock. He scores, high-fiving a guest who guesses, correctly, that it's a giant, multiplayer version of Bop It!, the popular 1990s game that prompts players to twist, crank, spin, and pull knobs and levers.

"Most people are antisocial," Bushnell says. "If you were brought together around games and entertainment, instantly the barriers blast away." He and co-founder Eric Gradman are betting they can lure people away from TVs and phones and into tech-enhanced versions of the Fascination parlors that sprung up at every seaside resort from California to New Jersey in the 1920s. Their investors agree. In January, Two Bit closed a $15 million funding round to build a chain of "micro amusement parks," with the first one scheduled to open in L.A. in early 2018.

You could say Bushnell was born to do this. His dad, Nolan Bushnell, who founded Atari and Chuck E. Cheese, is often called the father of electronic gaming. Nolan never missed a chance to school Brent on the ABCs of running a business. At an ice cream parlor, he'd say, "Let's look at the shop floor economics of this place," the younger Bushnell recalls, and ask him to guesstimate how much the cashiers got paid and how much the refrigerators cost.

Gradman and Bushnell started collaborating in 2008 after meeting through a mutual friend. They quickly bonded over their shared past in the circus and a love of tinkering. "We are not your most typical nerds," Bushnell says. "We're not pencil pads and lab coats, but games and lasers and robots." The two began to meet regularly to build games and eventually started renting out their contraptions as attractions for corporate events. "We literally became a high-tech circus, dragging these games to parties and taking them down at the end," Bushnell says.

After putting on a series of weekend carnivals in a handful of cities, the pair began raising money to open a permanent space. **Intel Corp.** invested in Two Bit Circus after Bushnell and Gradman provided the entertainment at a few of its events. The two companies also have a partnership to make interactive games and builder kits for kids. "With Two Bit, we saw this opportunity to basically disrupt the entertainment industry," says Christine Herron, the director of Intel Capital, the chipmaker's venture arm.

Out-of-home entertainment is a catchall category covering everything from movie theaters and bowling alleys to amusement parks. It's an industry in flux: The Ringling Bros. circus announced it will be shutting down in May after a 146-year run, yet theme parks such as those of **Six Flags Entertainment Corp.** and **Walt Disney Co.** continue to thrive by doing things like marrying old-fashioned roller coasters with virtual-reality special effects. "I think the key is having something that is different and dynamic," says Jefferies analyst Andy Barish. "A static entertainment experience tends to not be sustainable."

Two Bit Circus has raised $21.5 million in venture capital since it incorporated in 2012. (Nolan Bushnell isn't an investor, but he has a seat on the eight-person board.) For their first location, the founders have signed a lease on a 50,000-square-foot warehouse space in Downtown L.A. "Our audience is going to be the millennials," says Kim Schaefer, who leads Two Bit's location scouting. "As we look at rolling this out, we'll be a little more open-minded." That could mean opening outposts in malls and shopping centers, a move the company has also considered.

Among the attractions at Two Bit Circus's Los Angeles space will be robot bartenders and a 30-minute "story room," a variant of the popular type of adventure game in which players have to solve a series of puzzles to exit a locked room. There will also be a 1,000-square-foot virtual-reality arena where guests will compete against one another in video games. Unlike in regular arcade games, which have a limited set of outcomes, the plot lines in the VR games will vary, so visitors will have a reason to come back, Bushnell says. "In one of the episodes, we're trying to get the ambassador home," he says. "The next episode, we're exploring the planet. The next episode, we're in a dogfight with the bad guys. Freaking *Star Trek* did 10 seasons of that!"

"The next episode, we're exploring the planet. The next episode, we're in a dogfight with the bad guys. Freaking *Star Trek* did 10 seasons of that!" —Brent Bushnell

The giant Bop It! stands in the entrance of the company's workshop in East L.A., alongside what looks like a few slabs of wood with a screen on top. A few weeks later these will be transformed into an arcade-style game in which players ▶

PHOTOGRAPH BY YAEL MALKA FOR BLOOMBERG BUSINESSWEEK

Two Bit Circus founders Bushnell (left) and Gradman

Have important employees assemble standard operating procedures

must traverse a minefield.

Photos of inventions past and future line one wall. One showcases a dunk tank that uses fire instead of water. “Fire’s so much more fun,” Bushnell says, “and you don’t die, because you’re wearing a fire suit.” —*Nicole Piper*

The bottom line With backing from Intel and guidance from Atari’s founder, a pair of former clowns are pitching micro amusement parks.

Economics

A Recovery That’s Not Micro Enough

▶ **Spain’s tiny businesses have become a drag on productivity**

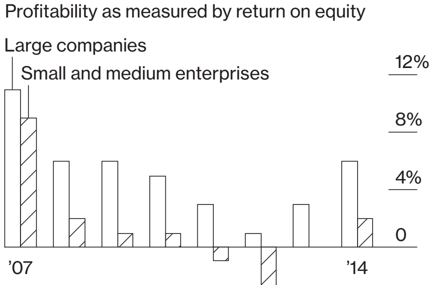
▶ **“They don’t have the will or the way to transform themselves”**

Spain’s robust economic recovery hasn’t buoyed Ricardo Sainz’s half-century-old grocery store in Madrid’s working-class neighborhood of Orcasitas. Sales have fallen from roughly €25,000 a month ($27,000) before the recession began in 2008 to €10,000 today. And he expects them to keep slipping. His faithful older clients are dying, and younger generations prefer the nearby chain supermarket. All his employees have left, and he isn’t replacing them. The shopkeeper works by himself, 11 hours a day, six days a week. “The recovery is helping some,” he says. “But not businesses of my size. The system doesn’t support us.”

Revenue at small and midsize companies in Spain dropped 32 percent from 2007 to 2014, and their head count was down 27 percent on average, according to an IESE Business School study of 1.2 million businesses of various sizes published in November. Sales were steady at their larger counterparts, which increased their workforces by 7 percent.

Spain’s Mom and Pops Are Hurting

Profitability as measured by return on equity



DATA: IESE

Like Sainz’s shop, almost 96 percent of Spain’s 3.2 million businesses are tiny, with no more than nine employees and less than €2 million in annual revenue. These microbusinesses, as they’re known in Spain, account for 33.5 percent of private-sector employment, more than 4 percentage points higher than the European Union average.

A BBVA Foundation analysis from last year noted that Spain’s microbusinesses don’t generate much revenue or last very long, which makes them a drag on productivity. “In most cases, they don’t have the will or the way to transform themselves into small or midsize businesses,” says Rafael Doménech, chief economist for developed economies at BBVA Research. “The question is, how do we get them to keep climbing the ladder of growth? It’s one of the biggest structural challenges the Spanish economy is facing.”

Still smarting from the collapse of his 40-employee office-furniture business in 2014, Juan Carlos Giménez doesn’t aspire to climb the ladder again. He sold his home and drained his savings as his 26-year-old company descended into bankruptcy. Giménez, his wife, and a few colleagues started a consulting company in 2015, so they could make use of their industry expertise to help other furniture makers without having to hire employees or taking on other major fixed costs. It will generate a sliver of the €11 million in annual revenue his former business brought in before the downturn.

Since the crisis began, the government has passed an assortment of laws meant to spark confidence, including measures making it easier for entrepreneurs to hire and fire employees and access credit. They’ve helped, but the approach has been “very piecemeal,” says Gayle Allard, an economist at IE Business School in Madrid. “Entrepreneurs came out of the crisis scared,” says Giménez. “Even though they know people are the most important part of any business, they don’t want to invest in them or take on other risks.”

Financing costs in Spain are the highest among major European countries–and small companies pay significantly more interest than their larger counterparts, according to a December report by the Spanish government and business group CEPYME. A more significant hurdle is getting clients to pay on time, says Antonio Garamendi, CEPYME’s chairman, who estimates that it takes three months on average to settle an account. “This is the problem that chokes small and midsize businesses,” he says. “Instead of concentrating on the future of the business, the owner gets distracted figuring out how to make payroll due tomorrow.”

Madrid-based entrepreneur Javier Goyeneche, who steered his handbag business through bankruptcy before selling it during the crisis, has been underwhelmed by government policies. “If entrepreneurs had received more help, the recovery would be much quicker,” he says. He started a new company, Ecoalf, in 2012 that sells clothing and fashion accessories made of recycled materials. He expects the 30-person operation to come close to breaking even this year. “What’s needed are thousands of companies like this,” he says. “It’s not just about creating businesses. The other part is expanding them. Because if not, they get stuck at a size that makes it difficult for them to survive.” —*Nick Leiber*

The bottom line About 34 percent of Spain’s private-sector jobs are at very small companies, many of which are still hurting from the recession.

Human Resources

How to Prepare for Your Star’s Exit

▶ **The loss of a key employee can devastate a small company**

▶ **“Your productivity could be down 50 percent or more”**

Although **Frahm Farmland** has been run by the same family for six generations, it’s not just another family farm. The 30,000-acre spread in Colby, Kan., is a high-tech agribusiness. “We can run almost the whole farm from iPhones and iPads,” says owner and Chief Executive Officer Lon Frahm.

“We can monitor soil conditions, turn the irrigation on and off. Everything we own steers itself.”

Frahm has only nine employees, each well-versed in those technical aspects. Replacing a worker would mostly require teaching him how to master the technology. But at age 59, Frahm has been thinking, What happens when I can’t walk through the door?

Good to Know Before They Go...

1. A detailed job description
2. Calendar of responsibilities
3. Essential passwords
4. Customer and vendor records
5. Location of important plans and documents
6. Suggested replacements

Managing key-employee risk is crucial for any business’s survival, especially small ones. “It’s a huge risk,” says Wayne Rivers, president of the Family Business Institute, a consulting firm in Raleigh, N.C. “If you’ve got 10 people, and one person’s out, your workforce is down 10 percent, and if it’s a key person, your productivity could be down 50 percent or more.”

One way to address the risk is to take out life insurance on critical employees. Benefits on such policies are paid to the business, not the employee. The funds can be used to pay an executive search firm to find a replacement for the deceased employee, keep the business afloat in the interim, and, in the case of an owner’s death, pay estate taxes on the business.

But insurance has its limits. “The problem with key-man insurance is it only covers somebody dropping dead,” Rivers says. “What if you’re running a small business, and you’ve got a right-hand person who’s really a go-getter, and that person decides to leave and go work for the competition?”

Rivers says that to find and train a replacement, businesses need to draft standard operating procedures, or SOPs, detailing what each essential employee does. “Let’s say your key person is your No. 1 sales guy,” he says. “Someone had better be documenting how he goes about prospecting, nurturing leads, and converting them into sales. Or if the person is your chief financial officer, you need to document what her SOPs are—what she does every day, week, month, quarter. That way, if they do leave you, you’re not caught with your pants down. You’re in a position to bring in a new person and train them on the same SOPs that have proven successful for you.”

Having created SOPs, you should have replacements in mind for key employees, including yourself, in case the worst happens. “Your team of advisers—your lawyer, your accountant, and your financial adviser—they need to know, if you died tomorrow, who do they need to contact to replace you?” says Gary Pittsford, a financial planner at Castle Wealth Advisors who advises small family businesses on succession.

Three years ago, Frahm made arrangements with his lawyer so that in the event of his death, a four-person trust would run the farm until a suitable replacement was found. He has some candidates in mind. “It might be a supplier of mine or a banker,” he says. “I joke that our seed dealer practically has a desk at our operations.”

Businesses also need to prepare if a key employee leaves to start a rival operation, Rivers says. “If you drew a circle of a 5-mile radius around the offices of some of our clients, you could probably identify a half-dozen people that once worked for them that went off to start competing businesses.”

One way to prevent this is to get employees to sign noncompete agreements barring them from working in the same industry for a period of time. But beware: Laws and legal precedents on noncompete agreements vary significantly by state. California, North Dakota, and Oklahoma prohibit them. “For states that allow noncompetes, the rule overall is the agreement needs to be reasonable in scope for both the time period and geography,” says Koray Bulut, an employment lawyer with Goodwin LLP, in San Francisco. One to three years is standard.

Frahm says that in his 30-plus years running the farm, no employee has left for a competitor. “A goal of mine is to become the employer of preference in the community,” he says. To build loyalty, he pays for employees and their families to vacation with him. This year they’ll all be going on a Caribbean cruise. —*Lewis Braham*

The bottom line Insurance policies and noncompete agreements can help protect small businesses if a crucial employee dies or defects.

Edited by Cristina Lindblad
Bloomberg.com

Breakdown

Starting Out

“You people know better than anybody it’s almost impossible now to start a small business,” President Donald Trump told a group of independent business owners on Jan. 30, because banks “don’t loan you money.”

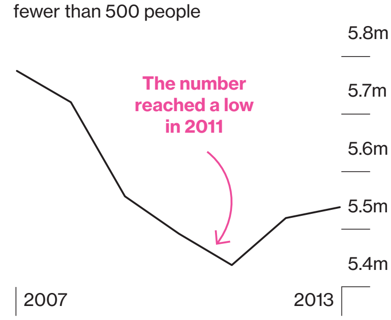
1 Approval rates are up

▶ A U.S. Federal Reserve survey found that 45 percent of small businesses that sought credit in 2015 got all they asked for (up from 38 percent in 2014), and 20 percent were turned down in full (down from 35 percent in 2014).

2 Small businesses are still being born

▶ According to the U.S. Census Bureau, the number of new businesses has grown each year since 2010. In 2013, the last year for which data are available, their ranks grew by 44,454, to top 5.5 million.

Businesses employing fewer than 500 people



Takeaway Small businesses still encounter problems getting credit, but overall conditions have improved since the financial crisis. —*Laurence Arnold*

DATA: U.S. CENSUS BUREAU

TOUGH TIMES AT THE WORLDWIDE LEADER IN

SPORTS

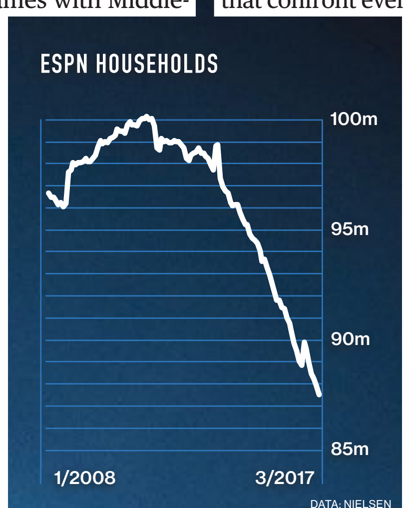
BY IRA BOUDWAY & MAX CHAFKIN

ESPN

The main *SportsCenter* studio at ESPN's headquarters in Bristol, Conn., is a blue-lit box. The ceiling is as high as a cathedral's, and there's enough floor space to land a helicopter. Screens are everywhere. "We have about 150 different monitors in here and, of course, miles of LED lighting," says Aaron LaBerge, the sports network's chief technology officer, during a recent tour. The hosts' desk faces a wall of screens that jut out and recede like a giant chest of drawers. To one side, there's a six-panel touchscreen that can slide apart and come together with the push of a button; a more modest 84-inch touchscreen across the way displays an interactive bracket for the NCAA men's college basketball tournament. The show's producers can also summon virtual screens from the floor so that, say, the shooting stats of Oregon sophomore Tyler Dorsey can appear to viewers to float miraculously in the middle of the room. "It's probably one of the most technically sophisticated broadcast and content centers in the world," LaBerge says of the building that houses this studio and four others.

ESPN broke ground on this $175 million, 194,000-square-foot facility, called Digital Center 2, in 2011. It was billed by executives as "future-proof," capable of adapting to any possible change in the way people watch sports. At the time, ESPN looked indestructible. Its namesake cable channel had just topped 100 million subscribers and was posting record profits for its parent company, Walt Disney Co., even as streaming apps such as Netflix were growing rapidly. Ratings for live sports, unlike almost everything else on TV, were soaring. And ESPN had big games year-round—*Monday Night Football*, college football bowl games, Major League Baseball's opening day, and the NBA playoffs, to name a few. A cover story in this magazine in the fall of 2012 dubbed ESPN the "Everywhere Sports Profit Network."

Five years later the network's profits are shrinking, and the 10,000-square-foot *SportsCenter* studio has already begun to look like a relic. The show's formula, in which well-fed men in suits present highlights from the day's games with Middle-American charm, is less of a draw now that the same highlights are readily available on social media. Viewership for the 6 p.m. edition of *SportsCenter*, a bellwether for the franchise, fell almost 12 percent from 2015 to last year, according to Nielsen. Keith Olbermann, the *SportsCenter*-host-turned-political-commentator, put it bluntly on a podcast last year: "There's just no future in it."



SportsCenter is only part of the problem. ESPN has lost more than 12 million subscribers since 2011, according to Nielsen, and the viewership erosion seems to be accelerating. Last fall, ESPN lost 621,000 subscribers in a single month, the most in the company's history. The losses have helped depress Disney's stock price—down 7 percent since August 2015, despite a big jump in the company's film revenue thanks to a string of hits, including the latest *Star Wars* film, *Rogue One*. John Malone, the cable entrepreneur and chairman of Liberty Media Corp., has publicly suggested that Disney would be better off selling ESPN.

As subscribers leave the network, and often cable altogether, ESPN is stuck with rising costs for the rights to broadcast games. Programming costs will top $8 billion in 2017, according to media researcher Kagan. Most of that money goes to rights fees through deals that extend into the next decade. Last year profits from Disney's cable networks, of which ESPN is the largest, fell for the first time in 14 years. The dip was small, about half a percent, but nonetheless alarming. Rich Greenfield, a media analyst at BTIG Research, says ESPN has been "over-earning," with cable customers paying for the channel as part of their subscription bundle, whether they watch it or not. "It's pretty clear that the years of over-earning are going to end," says Greenfield, who's made a name for himself as an ESPN naysayer. "The question is does it end slowly or fast."

Greenfield's analysis is popular, especially with new media types, but it makes people in Bristol touchy. "I'm really tired of being painted as some sort of failing, sinking ship," *SportsCenter* anchor Scott Van Pelt told the *Washington Post* in September. "It's not like we're losing money, we're just not making as much. It's a giant difference."

ESPN still towers over its rivals in cable programming. Short of criminal enterprise, few business models in the world have been as lucrative. A typical cable (or satellite) bundle costs about $100 per household. In simplified form, when a customer sends in a monthly payment, the cable company sends a cut to each channel included in this bundle. Some channels get paid more than others, and ESPN gets the most. Carriers pay an average of $7.21 per month for every customer who gets ESPN as part of a bundle, according to Kagan. Fox News, by comparison, gets $1.41; Bravo, 30¢.

With almost 90 million homes still getting ESPN, that adds up to $7.8 billion per year. Sister channel ESPN2 chips in an additional billion, and that's all before ad revenue (roughly $2.6 billion a year, according to Kagan) and revenue from the print magazine and website, which is the most trafficked in sports. Last year, Disney's cable networks brought in $16.6 billion in revenue and $6.7 billion in operating profit—43 percent of Disney's total and more than its theme parks and movie studios combined.

In some respects, the challenges facing ESPN are the same that confront every other media company: Young people simply aren't consuming cable TV, newspapers, or magazines in the numbers they once did, and digital outlets still aren't lucrative enough to make up the deficit.

But while most of ESPN's TV peers have courted cord cutters—CBS and Turner Broadcasting, for instance, are allowing anyone to watch some of their March Madness games online for free—ESPN's view cuts against the conventional wisdom in new media. "Everything we do supports the pay television business," says John Kosner, the network's head of digital and print media. The strategy, simply put: Defend the cable-TV bundle at all costs.

On a Tuesday in late March, the big news in the *SportsCenter* studio is New England Patriots quarterback Tom Brady's Super Bowl jersey. After disappearing during the postgame chaos in early February, it turned up in the possession of a media executive in Mexico. ESPN has been chewing over the news all morning. "I'm sort of like, 'Is this really a story?' " says Rob King, a senior vice president responsible for *SportsCenter* and ESPN's news operation. "But it's a story."

At a standing desk in a corner office, King, 54, is staring at a screen that displays what looks like a stock chart. It's ESPN's "Producer Panel," custom software for tracking what viewers are talking about on social media. A blue line represents the Brady story; a yellow one represents the upset by South Carolina over Duke in the college basketball tournament. King hits a few keys and adds Houston Rockets guard James Harden to the mix of trending topics. Harden made news the day before by wading into a debate about rest for NBA players; today he's gaining ground on the missing jersey saga, which makes him prime fodder for the evening broadcast.

"One of the cool things about all this digital disruption is that you can know things about your fans," says King, a former newspaper editor and 13-year veteran of ESPN who took over *SportsCenter* in 2014. "You don't have to guess so much." If you, loyal ESPN viewer, have ever sat in your living room wondering why you're being subjected to yet another Talmudic discussion of "Deflategate," King would argue it's because that's what you asked for.

Although he concedes that sometimes this approach to "social listening," as he calls it, can lead to stories that seem overcooked, King points out that if ESPN ignores what's happening on social media, it will simply lose viewers to Twitter and Facebook. "To me, it's about respecting the audience," he says. "Because they're more sophisticated, and more ready to start digging into their own storylines, than we give them credit for."

King's team began using the social media monitoring software last year as part of a strategy to move *SportsCenter*, which broadcasts live for 14 hours a day, away from a commodity newscast involving scores and highlights and toward a chattier format that more closely resembles talk radio and cable news. In 2015 he installed Van Pelt, one of ESPN's radio stars, in the midnight slot, as a competitor to traditional late-night fare. Along with highlights and updates, Van Pelt delivers straight-to-camera commentary à la Jon Stewart. If Van Pelt thinks that, say, too many NFL teams are relocating, he says so. Viewership of the midnight *SportsCenter* is up about 6 percent since 2015, according to Nielsen, even as other editions have seen their audiences shrink.

Earlier this year, ESPN expanded the experiment, replacing the generic 6 p.m. *SportsCenter* with a new edition anchored by Michael Smith and Jemele Hill, formerly hosts of the ESPN2 show *His & Hers*. Smith and Hill—the show's first African American anchor team—devote long segments to athlete interviews that stray from the usual tell-me-about-that-play territory. "We are layering in personality as a defining character of a show," King says. "We desire to make sure you have this relationship with the brand where you think, Yeah, those are my folks."

KOSNER

PHOTOGRAPH: JC OLIVERA/GETTY IMAGES FOR NATIONAL HISPANIC MEDIA COALITION

DE-FENSE! DE-FENSE!

"Everything we do supports the pay television business," says Kosner. The strategy, simply put: Protect the cable-TV bundle at all costs

To King, and to many in Bristol, *SportsCenter*'s evolution is an example of how ESPN has adapted to the future better than most media companies. "We actually accepted digital distribution as a natural course many, many years ago," King says. "You're not talking to a bunch of people who are wringing their hands over the notion that six months from now, somebody might develop a killer app and we have to figure out how to get into it."

To illustrate his point, King searches in the clutter on his desk and picks up a black-and-red Sanyo flip phone with an ESPN logo above a 1-inch screen. The phone, which ESPN introduced in 2006 as part of a mobile plan that included scores and highlights, is often cited by outsiders as the height of corporate embarrassment. The device cost $150 million to develop, including a $30 million Super Bowl ad, and attracted a grand total of 30,000 customers. ESPN scrapped it after seven months, less than a year before Apple introduced the iPhone. According to the 2011 oral history, *Those Guys Have All the Fun*, ESPN's then-President George Bodenheimer approached Apple Inc. Chief Executive Officer (and Disney board member) Steve Jobs at a Disney board meeting in 2006. "Your phone is the dumbest f---ing idea I have ever heard," Jobs said.

On the other hand, that Super Bowl ad—in which a fan walks zombie-like through a city while staring at his phone, immersing himself in a world full of Formula One, basketball, bass fishing, and every other sport imaginable—foreshadowed how today's fans consume sports. King sees the phone as evidence that ESPN, which initially thrived in the 1980s by embracing the unproven new medium of cable TV, is still in innovation mode. "There is a conventional wisdom that ESPN is going to be somehow disrupted by everybody else," says Kosner. "But most of these things are opportunities."

The Entertainment and Sports Programming Network first went on air on a Friday night in 1979. That evening's lineup, beamed across the country via an RCA satellite, included the very first episode of *SportsCenter* and a slow-pitch softball game between the Kentucky Bourbons and the

Milwaukee Schlitz. The network showed some live college sports, as well as reruns, and niche fare such as bowling and billiards, until it landed a deal with the NBA in 1982. The following year, then-CEO Bill Grimes persuaded Cablevision to pay a dime per household per month for the channel. By 1996 those fees had grown, and ESPN was calling itself "The Worldwide Leader in Sports."

As sports ratings rose and ratings for everything else fell, networks of all stripes began bidding for the rights to games. ESPN spent more and more to stay ahead of the competition. "In a world where you have the ability to control when you watch something, live sports breaks through in a way that's only going to continue to become more valuable," John Skipper, then an ESPN executive who's now the network's president, told *Variety* in 2011. Since then, ESPN has agreed to pay $1.9 billion per year for *Monday Night Football*, $1.4 billion for NBA games, $700 million for MLB, and more than $1 billion for college football and basketball. To keep pace with the rising costs, Skipper negotiated higher fees from carriers.

The aggressiveness backfired. To make the deals, according to *SportsBusiness Journal*, Skipper agreed to relax the demand that carriers include ESPN in almost all of their bundles. Carriers, in turn, began offering customers "skinny bundles" that didn't include the network. Millions of subscribers defected. On an investor call in November, Disney CEO Bob Iger called *SBJ*'s reporting "not factually correct."

ESPN has made some modest efforts to cut costs. It jettisoned 300 of its 8,000 employees in 2015 and is expected to let the contracts of some of its on-camera talent expire this year. But mostly it's tried to make up for subscriber losses elsewhere. "We spend a lot of time talking about the U.S. television industry, but the smartphone market worldwide has two and a half billion people," says Kosner, the digital and print media chief. "That gives us a chance to create an indispensable sports service for anybody, anywhere in the world." Kosner is planning to roll out a Netflix-like interface for a section of the ESPN app that's limited to cable customers. It will be customized to user tastes and will put live games side by side with episodes of Van Pelt's show and ESPN's documentaries, such as the Academy Award-winning *O.J.: Made in America*. "The beauty of Netflix to me is that they've said, 'We're going to make our best stuff available to you anytime you want it,'" Kosner says. "They do it brilliantly, but it's not rocket science."

ESPN is also trying to make it easier for viewers at home to see everything that comes with their cable or satellite subscription. In a long, windowless room in the Bristol complex—a sort of man-cave laboratory—a row of couches faces six huge flatscreen TVs. LaBerge, the CTO, demonstrates how customers with a DirecTV set-top box can, with a tap of the remote, access a menu that offers all of the company's channels (ESPN, ESPN2, ESPN News, etc.), plus an array of internet streaming options, including extra games, replays, and the O.J. documentary. In the future, says LaBerge, the network will tailor this menu to a specific viewer's interests. "It could focus on your favorite teams, on things that we know you like."

Rather than trying to reinvent the business model, ESPN's futurists have focused on improving the experience for cable viewers. The Pylon Cam, for example, packs digital cameras into the football end zone markers to make it easier for viewers to see if a touchdown has been scored. There's also something called Project Jarvis, named after the computer interface in *Iron Man*. Still in development, Jarvis is a large glass panel that will allow *SportsCenter* hosts to face the camera while they manipulate graphics via touchscreen. Today, if hosts want to, say, fill out an NCAA bracket on TV, they have to turn their backs to the audience. Jarvis involves motion trackers, lasers, and an ultraviolet projector. It may seem like a lot of effort to spare *SportsCenter* anchors a crick in the neck, but LaBerge says it's worth it. "If we perfected it," he says, "it would be used all the time."

The executive consensus in Bristol is that the threat from cord cutting is greatly exaggerated. Although the audience for traditional satellite and cable is declining, there's a raft of new services—including Google's YouTube TV, Dish Network's Sling TV, Sony's PlayStation Vue, and a soon-to-be-launched one from Hulu—that are offering channel packages that look suspiciously like cable bundles, and that uniformly include ESPN. Aimed at millennials, these online services are designed for smartphones and devices such as Roku and AppleTV and cost from $20 to $50 a month. Even though these plans are cheaper than a traditional cable subscription, ESPN gets paid its usual $7 per subscriber by Google and the other newcomers, according to people with knowledge of the agreements. So far, more than a million subscribers have signed up, a figure not yet reflected in Nielsen data. "We think that this wave that we are seeing is really a signal of what is to come, and what the future will be," Iger said on a February earnings call.

Other media companies, most notably HBO, have confronted cord cutting by offering their programming "over the top," which is TV-speak for "on the internet." More than 2 million people pay $15 a month for access to the HBO Now app, but that strategy doesn't translate to ESPN. The network's programming costs are far greater than those of HBO—the budget for an entire season

WINNER IS COMING?

The budget for an entire season of HBO's *Game of Thrones* is around $100 million—less than what ESPN pays to air a single *Monday Night Football* game

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*COST SHARED BETWEEN ESPN AND FOX. DATA: ESPN.COM; STREET & SMITH'S SPORTS BUSINESS JOURNAL; MLB.COM; NEW YORK TIMES; WASHINGTON POST

of *Game of Thrones* costs around $100 million, or less than what ESPN pays for the rights to air a single *Monday Night Football* game—and ESPN's customers are accustomed to getting the network at no additional charge as part of their cable package. If ESPN were to charge $15 a month for a standalone streaming channel, it would need more than 43 million subscribers to match the money it collects from cable carriers. HBO has about 35 million total subscribers in the U.S., including cable and over the top.

Last August, Disney made a more dramatic move, paying $1 billion for a one-third stake in BAMTech, a streaming business spun off by Major League Baseball that specializes in distributing live events for sports leagues and other media companies. The same day, Disney said BAMTech would launch ESPN's first standalone subscription service. The announcement, followed by MLB and Disney's decision to hire Michael Paull, the former head of Amazon.com Inc.'s digital video unit, to oversee BAMTech, raised the prospect that ESPN would finally offer its flagship channel to customers outside a traditional cable bundle.

Although ESPN executives acknowledge that this could happen years from now if cable continues to decline, the plan for now is more modest. In February, Iger characterized the new service, which doesn't yet have a name, as "an add-on or adjunct product that consumers can buy on top of what is their normal multichannel package." Executives at both ESPN and MLB say the offering will likely include a mix of baseball and hockey games—though not the marquee matchups that appear on national telecasts today—as well as competitive video gaming, international sports such as cricket and rugby, and college football and basketball games from outside the major conferences. "I think it's a learning exercise more than anything," says BTIG's Greenfield. "This is really them starting to learn the direct-to-consumer business and dealing with customer service, churn, retention, and marketing."

If a combination of hockey, low-wattage college sports, and cricket doesn't quite seem worthy of the Worldwide Leader in Sports, that's by design: ESPN doesn't want its new product to draw viewers away from its very profitable cable channel. And, as Kosner notes, when ESPN began broadcasting in 1979, plenty of people doubted whether anyone would want to watch bowling at two in the morning. "I was in college when ESPN started," he says. "I felt sorry for the people working there."

He's learned since then, he says, not to underestimate the appetites of sports fans. "There are tons and tons of sporting events available around the world that don't make sense on U.S. basic cable. But that doesn't mean there's not a significant interest in them." B

PHOTOGRAPHS: GETTY IMAGES

REMEMBER THAT TIME TRUMP SAID HE SAVED 1,100 JOBS AT A CARRIER PLANT IN INDIANA?

GLOBALIZATION DOESN'T GIVE A DAMN

The union hall for Steelworkers Local 1999

BY BRYAN GRULEY AND RICK CLOUGH

One week before the November election, Gregory Hayes, chairman and chief executive officer of United Technologies Corp., addressed a breakfast audience at the Council on Foreign Relations in New York City. Decrying what he called "political rhetoric" being spouted by a certain presidential candidate, Hayes made an impassioned case for global trade.

"There's a lot of misinformation out there, and in some cases a detachment from reality," he said in his radio-ready baritone. Blaming trade for the loss of U.S. manufacturing jobs is "absolutely wrong," Hayes said, adding, "an isolationist approach will not—I repeat, not—create growth or jobs, nor will it make any country great."

Hayes went on to defend UTC's February 2016 decision to close its Carrier Corp. furnace factory in Indianapolis and ship production to Mexico—a move that had drawn the very public ire of presidential candidate Donald Trump. "This is not a decision that we took lightly," Hayes said. He chuckled at a suggestion that Carrier had become a punching bag for Trump. "The benefits of free trade are obvious to almost everyone," he said. "Once we get past the silly political season, hopefully we can get some adult supervision and readdress it."

A month later, Hayes was sharing a dais with none other than President-elect Trump at that Indianapolis

TRUMP'S HANDLING OF CARRIER WAS "A LITTLE DECISION TO CLOSE THE PLANT, "WE DID THE RIG

factory. Workers cheered as the two announced that Hayes had agreed to keep the plant open. "You are fantastic, Greg," Trump said. So was the irony.

The humdrum residential furnace would seem an unlikely avatar for the complexities of globalization. Who even gives it a thought until it breaks down? But the furnace has become as worldly a product as an automobile or a semiconductor chip, with assembly, parts production, and jobs shifting to China, South Korea, Thailand, and other nations. That makes the Carrier saga two stories. One is about the Indianapolis factory, which was a doomed pawn in the globalization game long before Trump. The other involves the same plant but is about how it could thrive now, albeit with fewer workers. Not many people outside Indiana are still talking about Carrier, but the future of U.S. manufacturing is showing itself there right now.

Here's the essential thing to understand about this business: Furnaces are all pretty much the same, a heater and a blower inside a box. Or as Kyle Peters, an analyst with market-research firm Freedonia Group Inc., says, "There are not any key industry secrets that make one manufacturer better than another." Competitive edge has less to do with products than with the local retailers and contractors that sell and service them. Web-savvy consumers determine what they want and gravitate toward dealers that prove themselves reliable and able to offer good prices.

Relatively simple technology plus huge incentives to hold down costs frequently equals outsourcing. Carrier, like all its competitors in the $60 billion heating, ventilation, and air-conditioning, or HVAC, industry, has reason to move production to wherever it can be done most cheaply. Whether the company is obliged to do so is another matter.

Even in the furnace business, there's innovation. In 1975, President Gerald Ford signed a law authorizing the Department of Energy to set efficiency standards for household appliances. Back then, most furnaces converted about 70 percent of the energy they used into actual heat, wasting 30 percent. Today's best devices squander barely 2 percent. Instead of clattering on and off, state-of-the-art models run continuously to maintain constant temperatures. Combined with air-conditioning units, they can be integrated into programmable holistic HVAC systems, along with Wi-Fi thermostats, humidifiers, solar panels, and air cleaners. Tom Roberts, president of CFM Distributors Inc., a wholesaler of HVAC equipment in Kansas City, Mo., says he sells more 90 percent-efficient furnaces retailing for as much as $5,000 than 80 percenters at $2,000 to $3,000.

Roberts, who's also president of an HVAC industry group known as Hardi, says improvements have been driven less by mandates than by the urge to innovate. "We don't need artificial incentives," he says. His industry, like so many others, bristles at regulation generally. But rules also can generate demand, especially when coupled with federal tax credits or cash rebates. Freedonia Group said in March 2015 that it expected regulations to continue driving sales "toward high-efficiency models, which generally command a pricing premium."

UTC acquired Carrier in a hostile takeover in 1979. Today, Carrier, which itself acquired the Bryant and Payne brands in

Jones (with cigarette) hugs a union member at the hall

UNFAIR," HAYES SAID, BUT AS FOR THE INITIAL
HT THING FOR THE BUSINESS." HE HAS NO REGRETS

1955, is part of UTC's Climate, Controls & Security division, which last year posted $16.9 billion in sales and $3 billion in operating profit. UTC doesn't break out Carrier's financial performance, but Wayne Dale, a United Steelworkers subdistrict director in Indiana, says the company has repeatedly told the union that the Indianapolis plant is "highly profitable." Hayes, 56, said in a brief phone interview in mid-March that the Indy factory was making money, "but it was one of our least profitable in terms of the actual cost of production vs. what we were seeing at other facilities," particularly in Mexico. Trump's hammering of Carrier was "a little unfair," Hayes said, but as for the initial decision to close the plant, "we did the right thing for the business." He has no regrets.

Hayes, formerly UTC's chief financial officer, became CEO in late 2014, following the abrupt resignation of Louis Chenevert, a big-vision sort of leader whose signature initiative was a $10 billion effort to develop a jet engine called a geared turbofan. He also pushed through UTC's $16.5 billion acquisition of aerospace giant Goodrich Corp. The jet engine has helped UTC's Pratt & Whitney division reestablish itself in the narrowbody jetliner market that General Electric Co. dominates.

But Chenevert's dream for the company was a tad too grand. He failed to foresee slowing growth in China and resisted suggestions that he sell the 90-year-old, low-margin Sikorsky Aircraft helicopter unit. In 2014, UTC predicted annual sales approaching $100 billion by 2020; actual sales haven't come close. As the company's performance waned, the board of directors worried Chenevert might be too focused on the 110-foot yacht he was having built for himself in Taiwan, according to news reports at the time. UTC bid him farewell with an exit package valued at a little less than $200 million.

"We've underperformed—full stop," Hayes told investors in his first call as the new boss. "Whatever we need to do to increase shareholder value, we will do those things, no matter how difficult." As CFO he'd become the Wall Street face of UTC, winning over shareholders and analysts with his plain-spoken style. And he'd been in the middle of the challenges Chenevert left behind. The Otis Elevator Co. unit was slumping because of a slowdown in building in China, buyer of more than half the world's elevators. Sikorsky profits were falling. The jet engine project was piling up costs. UTC's stock price had recently dipped below $100 for the first time in a year. The only thing doing consistently well was Carrier's division. It "became kind of the anchor to keep the [overall] numbers running the right way," says analyst Nicholas Heymann of William Blair & Co.

By mid-2015, Hayes had eliminated an entire layer of management and sold Sikorsky. The stock, which had risen after his hiring, got as low as $87. Investors were impatient with the jet engine, which had been in the works for decades and still wasn't being used on commercial flights. Hayes stood by the engine project while trying other ways to placate investors. In October 2015, UTC said it would buy back as much as $16 billion of its shares over two years.

Two months later, Hayes announced a $1.5 billion cost-cutting plan, one of many the company has been through. Of UTC's 42 million square feet of factory space, 22 million were in "high-cost locations," he said, calling it a "very target-rich environment." He didn't mention Indianapolis, but around that time, UTC's board decided the Carrier plant was expendable.

The HVAC industry has been moving out of the U.S. for more than a decade. One by one, most of Carrier's key rivals—including Lennox International, Ingersoll Rand, Rheem Manufacturing, and Nortek—have either closed U.S. assembly plants and moved production to Mexico or simply built new plants there. Some still have robust U.S. assembly operations, such as Lennox's in Marshalltown, Iowa. And Daikin International Ltd. of Japan just completed a $400 million air-conditioner factory near Houston that will employ 4,000 people. A spokesman says the plant follows Daikin's philosophy of making products "in the country where they are installed."

HVAC imports have grown 63 percent since 2006, with those from China and Mexico almost doubling, according to the U.S. Department of Commerce. Carrier itself has been manufacturing in Mexico since 1969 and today employs more than 5,000 workers making commercial rooftop air conditioners and other products—though not furnaces—in Monterrey.

Parts, too, increasingly come from abroad. In his wholesale store in Kansas City, CFM's Roberts only half-jokes, "I'm sure there's something made in the U.S. here, but I can't tell you what it is." At random, he snatches an Emerson Electric Co. transformer off a shelf. "Made in China," he says. Then a different U.S. company's capacitor: "Made in Taiwan." A thermostat: "Designed in Canada, assembled in Mexico."

He finally finds a capacitor made in the U.S., but it wholesales for $9.81, almost twice the price of a Mexican-made one. In a December investor presentation, Lennox CEO Todd Bluedorn said about 45 percent of his company's parts come from outside the U.S. and Canada. He guessed that Carrier's percentage might be higher. A UTC spokesman declined to comment.

HVAC makers have left the U.S. for the same reason countless other businesses have: cheaper labor. Carrier's unionized workers in Indy are paid, on average, about $23 an hour (though more recent hires earn $17). Their Mexican counterparts earn an hourly rate of $3. Absenteeism and turnover in Indiana are considerably higher than at the company's Monterrey operations, Hayes says. He told the Council on Foreign

PREVIOUS SPREAD: WHITTEN SABBATINI/THE NEW YORK TIMES/REDUX; THIS SPREAD: AJ MAST

Relations breakfast that his Mexican rooftop AC plant has "probably one of the best-performing workforces that we have around the globe."

Which isn't to say that Carrier's Indy workers, represented by United Steelworkers Local 1999, aren't productive. They produce 10,000 furnace or fan-coil units a day, or one every seven seconds. According to a 1993 *Hartford Courant* story, the Indianapolis plant back then produced 500,000 furnaces a year with 1,500 workers. Today it can make four times as many furnaces and fan coils with a slightly smaller workforce—and you don't have to explain the significance of that to the members of Local 1999. Studies show that 50 percent to 90 percent of job losses at American factories are attributable to productivity gains linked to automation. Except for a blip during the 2008 recession, industrial production in the U.S. has been on a fairly steady rise for decades. Even if Trump struck three Carrier deals a day for the rest of his term, he wouldn't recoup even half the 7 million American manufacturing jobs lost since that employment peaked in 1979.

Some of the equipment in Carrier's Indianapolis plant is outdated, which can magnify the relative cost of labor, says Michael Hicks, an economics professor at Ball State University in Muncie, Ind. Although labor might represent only 6 percent of the cost of a jet engine, it can exceed 20 percent of the cost of a furnace. And UTC will follow the numbers. In late 2012 the company opened a factory in South Carolina to manufacture elevators previously made in Mexico. UTC determined it made sense to pay higher wages there, because labor accounted for less than 3 percent of product costs and the plant was close to Otis's big East Coast customer base, meaning shipping would be relatively inexpensive.

The long, low, white-and-blue Carrier factory sprawls between Amazon.com Inc. and Target Corp. distribution depots on Indianapolis's west side. Along South Girls School Road, logos for Carrier, Bryant, Payne, and Day & Night festooned a water tank until they were painted over after Trump started berating Carrier. A UTC spokesman says it was routine maintenance.

Workers chew over their fate at the Local 1999 hall, a brick-and-cinder-block throwback next to a railroad track, 6 miles from the factory. There's an ignored No Smoking sign, a framed photo of Bernie Sanders, and a glass case filled with bowling and basketball trophies dating to the 1970s.

On a frosty Wednesday morning in February 2016, Chuck Jones, president of Local 1999, was into one of his first Marlboro Reds of the day when his flip phone rang. Jones, a ruddy 65-year-old, listened as another union official told him Carrier was about to announce that the plant was closing. "I said, 'You gotta be shitting me,' " Jones recalls. "It blindsided us completely."

Moments later, Chris Nelson, Carrier's president of North America HVAC Systems & Service, told workers gathered at the plant that over the next three years their 1,400 jobs would move to Mexico. "Yeah, f--- you," one yelled. After telling the jeering throng "let's quiet down," Nelson said: "Relocating our operations to Monterrey will allow us to maintain high levels of product quality at competitive prices." In a news release, Nelson also cited cost and pricing pressures linked to regulations.

Some workers left in disgust before Nelson finished. The same day, UTC said it would close a plant in Huntington, Ind., that supplies Carrier with circuit boards. That production is moving to Mexico, costing 700 jobs. Media coverage of the twin announcements was limited outside Indiana.

The next day, a three-and-a-half-minute cell phone video of the raucous Indianapolis scene popped up on YouTube. Breitbart News published the video along with a Trump interview in which he lashed out at Ford Motor Co. for plans to expand in Mexico and at Carrier for its Indiana decision. Trump followed up on Twitter: "I am the only one who can fix this. Very sad. Will not happen under my watch!"

While Trump fumed, UTC was preoccupied. Honeywell International Inc. was making private overtures for a merger with UTC, whose stock was at its lowest level in three years. After Honeywell's interest went public, Hayes appeared on CNBC. When the host suggested Trump might look favorably on the deal, Hayes, a registered Republican,

"THIS IS ABOUT CARRIER CHASING WAGES AT $
STOCK BUYBACK AND JUST WENT WHEREVER THEY

Trump at Carrier on Dec. 1. His deal saved 730 jobs, for now said, “He might get the nomination, but that’s it, right?”

Honeywell went away. Trump didn’t. For months he blasted Carrier in tweets and at rallies. He railed at other companies, too, but Carrier got special attention. Trump, whose buildings use a few furnaces, vowed never to buy another Carrier product: “Now I buy Trane.” He promised to slap a 35 percent tariff on Carrier imports from Mexico. He predicted that after he won the election, Carrier would call him and say, “Mr. President, Carrier has decided to stay in Indiana.”

The union offered concessions amounting to a third of the $65 million a year Carrier expected to save by moving. Indiana then-Governor Mike Pence and Democratic Senator Joe Donnelly met separately with Carrier and UTC executives. Pence told RTV6 of Indianapolis that the “rising tide of red tape” in Washington made it impossible for Carrier to keep the plant running.

Donnelly says he asked Carrier executive Nelson and Robert McDonough, who runs UTC’s Climate, Controls & Security division, to cite one regulation that figured in the decision. “They couldn’t,” he says. The executives did confirm that furnaces sent to the U.S. from Mexico would have to comply with the same rules. The company later told the union that regulatory costs didn’t figure into expected savings from the move.

“This is about Carrier chasing wages at $3 an hour,” Donnelly says. “They put together a $16 billion stock buyback and just went wherever they could to try to pick up a few extra pennies.”

NBC Nightly News aired a segment on Carrier two weeks after the election. It quoted TJ Bray, a Carrier veteran who’d voted for Trump. As he sat in Sully’s Bar & Grill, kitty-corner from the plant, Bray dared Trump to “do what you said you were going to do. We’re going to hold you accountable.” The president-elect happened to see the report. Trump would later tell Carrier workers that he didn’t think he’d actually promised to save their jobs. But shortly after seeing Bray on TV, he arranged for a call to Hayes.

Until then, except for what he’d said at the Council on Foreign Relations, Hayes had all but ignored Trump’s bluster, at least publicly. Plans for closing the Carrier plant were moving ahead. Hayes was in Washington when he heard that Trump was looking for him. He flew back to UTC’s headquarters in Farmington, Conn., and took the call in his office. It lasted less than 15 minutes.

Trump asked the CEO to reconsider the Carrier decision. Hayes responded that the plant in Mexico was almost complete and that Carrier was already years behind competitors in shifting furnace making there. As Hayes recalled, “He said, ‘Look, it doesn’t matter. I ran the kind of campaign that I was going to keep those jobs from moving to Mexico, and I want to do just that.’ ” Trump didn’t mention UTC’s billions of dollars in defense contracts, but he didn’t have to. “I was born at night, but not last night,” Hayes told CNBC late last year. And that was weeks before Trump proposed to boost military spending by $54 billion.

A big Carrier banner adorned a stage inside the Indianapolis factory on Dec. 1. Members of a union that had endorsed Hillary Clinton applauded as Trump, Pence, and Hayes told them about the deal to keep the plant alive. Trump singled out Bray—“great guy, handsome guy”—and boasted of saving more than 1,100 jobs.

The number wasn’t quite what it seemed. Included in the total were 300 white-collar jobs that were never scheduled to move. And at the same time, Carrier was sending workers a letter saying fan-coil production would leave for Mexico. The total number of positions saved was closer to 730. Union President Jones told the *Washington Post* that Trump “lied his ass off,” prompting Trump to tweet that Jones was doing “a terrible job.”

Carrier struck a deal with the Indiana Economic Development Corp., a public-private agency chaired at the time by Pence. UTC had declined a similar arrangement in 2014 because, in part, it would have required the plant to add workers. According to the current plan, Carrier will receive up to $7 million in state tax credits and training grants over 10 years—about $1,000 per worker per year, a pittance for UTC, which offers to underwrite four years of college education for any employee.

UTC also pledged to spend $16 million on plant upgrades, including automation. That should make the plant more productive, which in turn could lessen the need to seek dirt-cheap wages. But technology tends to shrink payrolls, and that’s likely to happen at Carrier. “We will take a lot of those jobs that today require very low skill and … eliminate those jobs through automation,” Hayes says. UTC is, in his words, increasingly focused on “middle-skill” jobs, “the guys that assemble jet engines, repair jet engines, build aerospace components.” Carrier’s most advanced furnaces contain a tiny fraction of the 8,000 parts in Pratt & Whitney’s geared turbofan jet engines. The engine’s aluminum-titanium fan blades alone take weeks to manufacture. “You can afford to pay people more because of the value-added work,” says Hayes. “When you’re spending 27 seconds putting three screws into a gas furnace, not a lot of added value in that.”

He offers little comfort to the sorts of workers whose jobs he reluctantly preserved. “If you have a low-skilled job, they’re not safe no matter where you are,” he says. “The forces of globalization are not going to slow down.”

That’s painfully clear in Indiana. Not far from Carrier, Rexnord LLC is closing a bearings plant and shipping production to Mexico. Trump tweeted about it in December: “This is happening all over our country. No more!” Rexnord’s 350 workers are expected to be gone by summer. Elsewhere in the state, auto parts supplier CTS Corp. in Elkhart is sending production to Asia and Mexico, cutting 230 jobs. Welbilt Inc. closed its Sellersburg beverage systems factory in January and sent production to Mexico, eliminating more than 70 jobs. Harman Professional Solutions shifted some operations in Elkhart to Mexico, killing 125 jobs.

Layoffs at UTC’s Huntington plant began recently. The facility will be closed by early 2018. The Carrier fan-coil lines and related jobs will be gone by the end of this year. “I wish I could sit here and say the people are going to be all right,” Chuck Jones says. “That ain’t the f---ing case. A lot of these people’s lives are going to be ruined.” **B**

3 AN HOUR. THEY PUT TOGETHER A $16 BILLION COULD TO TRY TO PICK UP A FEW EXTRA PENNIES”

DANIEL ACKER/BLOOMBERG

ONLY THE BEST TERMS!

An Account of

Clayton Valley

and the Great Nevada

LITHIUM RUSH

THOUSANDS OF ACRES

Of

PREMIUM MINING LAND

Three Hours Northwest of Las Vegas

UNCOVER THE POTENTIAL
of a barren landscape and learn the secret chemistry of nature's miracle mineral

By **Paul Tullis**
Photographs by **Michael Friberg**

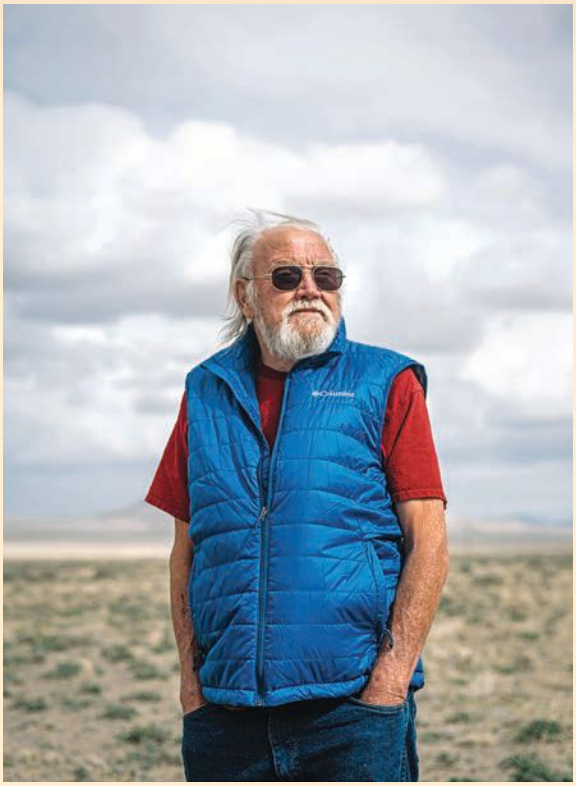
PURIFY ANCIENT BRINE—ALMOST MAGNESIUM-FREE!

IMPRESS SILICON VALLEY GIANTS—APPLE, TESLA, AND MORE!

THE BATTERY OF THE FUTURE

John Rud has been riding the peaks and valleys of the commodities markets around North America since he left the University of Oregon 55 years ago with a master's degree in geology. "The valleys are real broad, and the peaks are real narrow," he likes to say. Copper in Canada. Silver in Texas. Gold in Mexico. Iron in Arizona. Uranium in Utah. In one 18-year stretch, Rud and his wife moved 27 times. "I got to where I could load up a house in a U-Haul truck starting at 4 p.m., be done by midnight, and be on the next job by morning," he says. "I considered that quite a talent." (His wife was rather less impressed and eventually left him.)

Rud—pronounced like the adjective—typically shows up in an area with abundant stores of a natural element that looks set for a price spike, puts his geology skills to work finding a lode, files a claim under the General Mining Act of 1872, and waits for the phone to ring. Once it does, the company he co-owns, GeoXplor Corp., leases its claim to the would-be owner and offers its extraction services. "We're glorified prospectors," Rud says of himself and his business partner, Clive Ashworth. "Some days, not so glorified."


Rud staked claims on tens of thousands of acres in Nevada

On a cold, gray January morning, Rud sits in his white Dodge Ram pickup with his pet Chihuahua mix, B.J., outside the Dinky Diner in Goldfield, Nev. He's on the phone with a drilling-rig operator he hired to dig a well in nearby Clayton Valley. They're trying to get at a mineral-rich brine solution stuck between layers of a porous aquifer created by the explosion of volcanoes in the vicinity about 5 million years ago. "We need some gravel on this road; can you talk to the county about that?" the driller asks. "Yeah, I'll get on 'em," Rud replies.

The rumblings of underground activity are again being felt on the outskirts of Goldfield, the epicenter of an early 20th century mining boom that for a while made it Nevada's largest city. This time the rush isn't for gold or silver or the other traditional minerals that have historically helped fuel the state's economy, but for a metal crucial to what bankers, regulators, and clean-energy advocates see as the imminent transformation of the transportation sector and the electric grid: lithium.

The lightest metal on the periodic table of the elements and a superb conductor, it's what gives the lithium ion batteries in our cell phones, laptops, newer Priuses, and Teslas the ability to recharge more times, last longer, and provide more energy per weight or volume than other battery chemistries. And it's cost-effective: The lithium in a Tesla costs around $500, less than a roof rack. It's also what makes devices explode if their battery-management systems aren't working properly, as seems to be the case in many so-called hoverboards, or there's a manufacturer defect, as with Samsung's Galaxy Note7.

Rud came to this remote region, three hours northwest of Las Vegas, eight years ago. "In my business, you follow the minerals that come in flavor, you might say," he explains, his voice sounding as if the county dumped that gravel down his throat. "We were into a uranium exploration because uranium prices were up. When uranium prices dropped, I started looking around at what's going to be hot next. And I thought the batteries for electric cars were just beginning to be nosed around with. We decided on lithium, and where do you find lithium? Well, Clayton Valley was the only place in North America."

At least six startups have recently placed or leased claims in the area. They join North Carolina-based Albemarle Corp., whose recently acquired Silver Peak mine and processing operation has been unearthing lithium from Clayton Valley's brines since the mid-1960s, for use in glass, ceramics, greases, medical applications, and consumer electronics. Each newcomer is hoping to become the pure-play lithium company that blows up to fill a projected supply shortage.

Banks and consultants such as Deutsche Bank and Macquarie Research are near-unanimous in the belief that the next several years will see an increase of 60 percent to 250 percent in demand for lithium—and that it will sell for 50 percent or more above historical levels. The rise in demand will be driven by batteries for electric vehicles and energy storage for wind and solar plants. UBS Group estimates that electric cars will account for 9.2 percent of global light vehicle sales by 2025, up from only 1 percent today, while analysts at Goldman Sachs Group Inc. have suggested that the market for lithium in energy storage could eventually be bigger than in all other products combined.

Already, the four companies that in 2015 provided 88 percent of the world's lithium can't keep up: Lithium contract prices have increased from $4,000 per metric ton in 2014 to as high as $20,000 today. "From a lithium standpoint, we are pretty much sold out," Albemarle Chief Executive Officer Luke Kissam told investors on an earnings call last year.

That's why a host of junior entrants are scrambling to get into the game. Whoever can figure out the extraction and chemistry required to get lithium out of the ground and into batteries stands to capture a significant share of the market. But as with any commodity, it's a precarious business.

One company that encapsulates the potential—and potential pitfalls—of lithium development is Vancouver-based Lithium X Energy Corp. In mid-2015, after GeoXplor had been hunting in Nevada for five or six years, Rud's partner, Ashworth, who lives in Vancouver, asked his son to set up a meeting with a high school acquaintance, a 27-year-old college dropout and former retail broker named Brian Paes-Braga. Paes-Braga was learning the ropes of venture capital from Frank Giustra, a former CEO of Yorkton Securities Inc., a major resource-development finance company. Ashworth pitched Paes-Braga on getting into lithium, and soon after, Paes-Braga took the idea to Giustra while they vacationed in Greece. The idea was to establish a public company that would combine top mining assets and top management in a well-capitalized company.

Giustra, who was one of Vancouver's first Tesla owners, remembers thinking, "I don't know a lot about lithium, but as a Tesla driver I know I'm never going back to a gas-fired car." He's in a conference room at the offices of his Fiore Group, on the 39th floor of the BMO building in Vancouver; on his wrist is a Shinola watch with the presidential seal, a gift from his pal Bill Clinton.

Paes-Braga proposed looking for lithium in Clayton Valley. "My view about exploration is it's a tough gig," Giustra told his young friend as they sat by a pool overlooking the Mediterranean. "If you're only going to do exploration, you're rolling the dice—it's not that often that economic ore bodies are found."

"Clayton Valley is just a stepping stone," Paes-Braga countered. The long-term plan was to go to South America's "lithium triangle," a region straddling Argentina, Bolivia, and Chile that provides more than half the world's lithium, via companies such as Albemarle, Philadelphia-based FMC Corp., and Chile's SQM.

"You have to know your way around these jurisdictions, and that's sometimes a little tricky," Giustra replied. "How are you going to go about this?"

Paes-Braga mapped out a plan by which the prospective company's presence in Clayton Valley helped it raise money it could use to invest elsewhere. "I liked that idea," Giustra says now.

A month or two after returning from Greece, Paes-Braga booked a flight to Las Vegas and drove up to Goldfield to meet Ashworth and Rud. They showed him claims they'd staked adjacent to Albemarle's and tried to sell Paes-Braga on acquiring them. "Starting at 900 feet down to 1,200 feet, there's a gravel layer," Rud explained. "It's got a huge amount of brine to it."

Lithium can be mined from rocks, as in Australia and China, but in Clayton Valley and the lithium triangle it's extracted from briny aquifers. Wells are drilled to get the brine out, then it's evaporated naturally in large ponds. Sometimes quicklime is added to remove undesirable minerals, such as magnesium, from the liquid; magnesium leaves a film on the surface of the pond, inhibiting the sun's work and slowing evaporation, which increases operational costs. Clayton Valley's brine has a low lithium concentration compared with other sources, but also a low magnesium ratio. "The grades are only in the 60s"—parts per million that are lithium—"but the quantity is large," Rud told his potential clients. And the lithium could be concentrated relatively cheaply, because the water holding it would evaporate fairly quickly in western Nevada's sunny, dry climate.

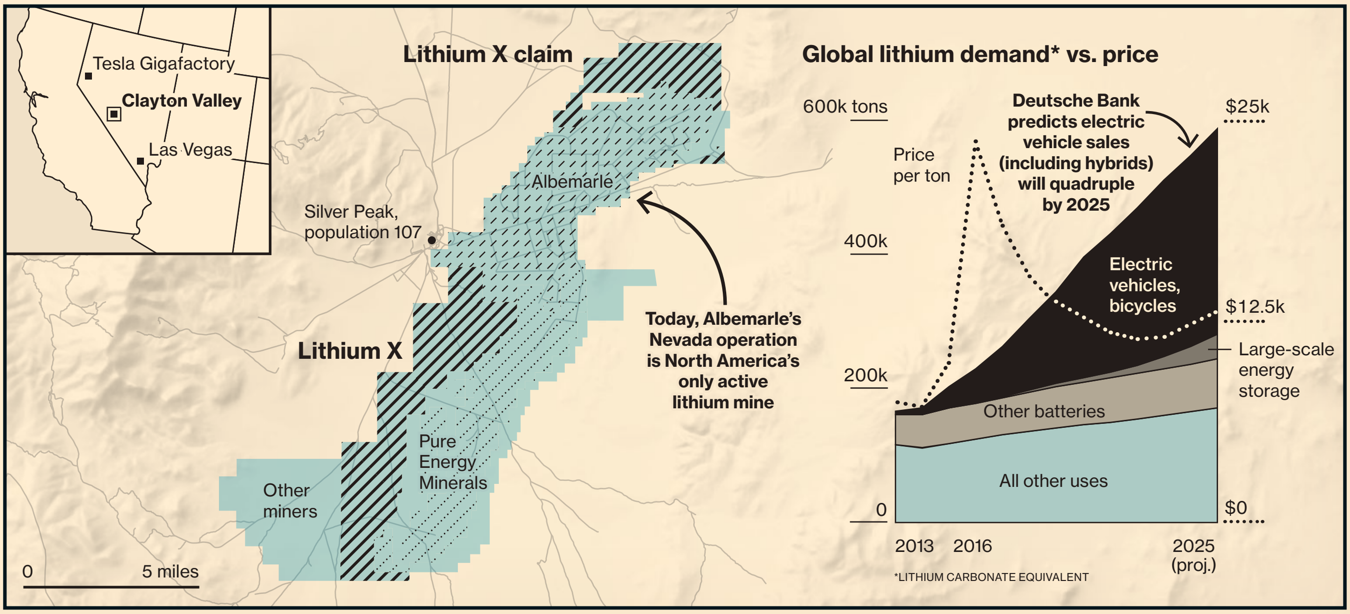
Rud had by then staked tens of thousands of acres in the valley, far above Albemarle's 11,000. They were also well-located; some newcomers were claiming turf along the mountainsides, where little to no lithium is likely to be found. Rud had already leased 9,500 acres to Pure Energy Minerals Ltd., another Vancouver-based pure-play lithium company, which around the same time as Paes-Braga's visit entered into a deal to supply Tesla Inc.'s Gigafactory, 200 miles from Clayton Valley.

> The four companies that in 2015 provided
>
> **88 percent**
>
> of the world's lithium can't keep up

When Paes-Braga's tour was over, the men negotiated terms that gave Lithium X access to what Rud says he believes is some of the richest ground in Clayton Valley, hard up against the claims from which Albemarle has been producing lithium for more than 50 years. GeoXplor would also run operations for the startup, starting with drilling into the gravel layer and testing whatever Rud and Ashworth and their contractors managed to pull out of it.

With the deal in place, Paes-Braga returned to Vancouver, where Giustra opened doors for him at investment banks so he could raise money for Lithium X. Paes-Braga was also looking for talent. In November he hired as executive chairman Paul Matysek, a Vancouver geologist who'd founded, built, and sold mining companies valued at \$2.5 billion over the years, including Lithium One Inc., which had interests in deposits in Argentina. On

The 'It' Mineral



GRAPHIC BY BLOOMBERG BUSINESSWEEK. DATA: EXPLORATION SITES, DEUTSCHE BANK

Nov. 30, Lithium X listed on the Toronto Stock Exchange.

The following March, Paes-Braga's vision of expanding beyond Nevada—and beyond exploration—was realized with the acquisition of 32 claims on about 20,000 acres in Argentina's Sal de los Angeles, inside the lithium triangle. To exploit it, and pave the way for success in Nevada, the company would need technical expertise. "That meant getting Eduardo Morales," Matysek says.

Morales had run the world's most productive lithium deposit, the Salar de Atacama in Chile. At 12,000 feet above sea level, the Atacama Plateau contains the highest-grade lithium brine deposits in the world. Thirty-six years ago, the Chilean government began to recognize the potential riches locked beneath its northeast reaches. An agency set up to develop the resource was looking for engineers, and Morales had recently graduated with a degree in chemical engineering.

On the unforgiving plateau, Morales recalls, "there were no roads, no electricity, nothing—only an Indian village." He and a few other young Chilean engineers worked for years testing the purity of brines in the lab, piloting a plant that could take the slurry that comes out of the evaporating ponds and process it into battery-grade lithium carbonate or lithium hydroxide. He developed a technique for treating the Atacama brine through fractional crystallization, concentrating it step-by-step and precipitating out the undesirable salts. Eventually, the site became an industrial-scale operation. But it wasn't easy. "Nothing works well at 12,000 feet," he says.

Then there was the bureaucracy. "The Chilean government office that was evaluating the project was coming and saying, 'We're not sure about the economics of this project, and we don't see the return, so we should stop.' " Morales remembers. "I said to them, 'Are you aware this is the finest deposit of lithium in the world? What is the meaning of "good" for you?' The guys had no answer to that, so the project went ahead. And it's been the most successful project in the history of the agency."

When Lithium X moves beyond exploration work in Clayton Valley, Morales's experience will be crucial to characterizing the brine and designing a process to recover its lithium and produce lithium salts. For now, the newer companies there are only beginning to encounter the technical and logistical challenges that producers in South America have overcome.

Prime among these for Lithium X is figuring out, with GeoXplor's assistance, how to get at the brine. A used drilling rig goes for about $250,000; new ones are between $2 million and $3 million. "Then you have to buy all the stuff that goes with it, which comes to another 2, 3 million," Rud says. Drilling in Clayton Valley's soft sediments also requires skill and experience. "You've got to get through it without bringing everything in from the side," he explains. "If you get to a sand layer, it's easier for the air to go out the side than go up the hole." That creates a cavern, which can't support the weight of the drilling rig. "You could tip your rig over," Rud says. "Total disaster. We have gone through our share of that."

Lithium X is probably a couple of years behind at least one of its Clayton Valley competitors. Pure Energy Minerals is soon expected to complete its preliminary economic assessment, a statement required by the Toronto Stock Exchange. But even something as apparently innocuous as the liner of the evaporation pond can mess with the concentration process, causing costs to rise. Profitably pulling lithium from the ground and processing it to a quality level battery-materials manufacturers can use is more complicated than panning for gold. "Not everybody can start a plant producing lithium carbonate or lithium hydroxide," says the vice president of Albemarle's lithium division, David Klanecky. "There's a lot of know-how involved in the complexity of the processes—running the chemistry, getting it to concentrate, different specs required by companies we supply to."

The best hope new entrants have of catching Albemarle lies in a process being developed by Tenova SpA, an Italian engineering company. This method, which strips the lithium using an ion-exchange system and returns the water to the ground, would allow companies to skip evaporation ponds, slashing production time from months to hours while yielding a higher concentration of lithium. Pure Energy has a small pilot plant, but so far no one has been able to make the process work at scale. Albemarle isn't trying it because it's concerned that returning water to the aquifer under high pressure could damage the resource or the surrounding environment. But if the technology proves effective and safe, it could help the industry meet the expected wave of demand.

> Profitably pulling lithium from the ground and processing it to a quality level manufacturers can use is more complicated than panning for
>
> GOLD

Three hundred miles due south of Rud's claims, across the Palmetto Mountains and Death Valley, is a former manufacturing hub on the outskirts of Los Angeles County, a small city called Lancaster. Mayor R. Rex Parris, a Republican who believes in climate change, started working years ago to make his city greener. Lancaster set a target to become the first North American municipality to get its carbon emissions to "net zero"—producing from renewable sources as much energy as it consumes—and began pushing to get its workforce, 20 percent of which was unemployed, into green industries. Parris touted the city's skilled labor base, which formerly made parts for the aerospace industry, among other things, in persuading the Chinese battery and auto manufacturer BYD Co. to build its first American bus factory there. The facility, a 125,000-square-foot former RV assembly plant, opened in 2013.

On a recent morning, construction workers in hard hats and orange vests are building a 240,000-square-foot expansion to the plant. A few dozen of BYD's 500 or so factory workers, many sporting Carhartt clothes, work boots, and elaborate tattoos, crowd around a food truck in the parking lot during their lunch break. These men are responsible for making 150 electric buses each year—capacity will grow to 1,000, postexpansion—for customers such as Long Beach Transit, Denver's Regional Transportation District, Stanford University, and the University of California at Irvine. The buses are lithium-intensive; each uses about 8 times as much as an average electric vehicle, which in turn uses about 10,000 times as much as an iPhone.

To make the vehicles, lithium from Nevada or, likely, Argentina, is processed, sent to materials manufacturers to be converted into battery cathodes, then passed on to battery cell makers, and then to one of BYD's battery assembly plants or the company's home base of Shenzhen, before finally being stuffed under the buses for BYD America's customers. The vehicles are more expensive than ones that run on diesel or natural gas, but only initially. After three to five years, "customers save $50,000 to $75,000 per year per bus on fuel and

An employee at Albemarle's Silver Peak processing facility bags the final product

maintenance," says Macy Neshati, senior VP for heavy industries. "The adoption curve for municipalities is really turning steep. Up and down California, it's lighting up. The mayor of Albuquerque got involved as soon as he saw the numbers."

As with coal and Italian soccer teams, the market for electric buses is stronger in China than in the U.S. Since 2015, the Chinese government has been paying half the cost of municipal transport agencies' electric bus purchases, helping nationwide sales grow 315 percent, to 112,000 vehicles, from 2014 to 2015 (though Bloomberg News has reported that officials are considering reducing the subsidy). In Shenzhen, 20 miles north of Hong Kong, thousands of electric buses draw wind power from the grid overnight, when residential and business customers aren't using it, and then disperse it during the day as they drive around the city.

A shift toward electric vehicles is underway in Europe, as well. BMW AG and Daimler AG have each invested hundreds of millions of dollars in electrifying their fleets, moves that help drive German policy, which in turn drives the European Union's. And China's broader electric auto market will soon dwarf them all.

Although electric vehicle adoption has been slower in the U.S. than expected, the price of battery packs has been dropping fast, to the point that auto industry observers see electric cars as poised to become cost-competitive with gas-powered vehicles—and thus to become popular outside the specialty markets of luxury buyers and those seeking green cred. Tesla's soon-to-arrive Model 3 and the Chevy Bolt now in dealerships are priced at about $30,000 after subsidies, but a battery assembly that a few years ago might have cost Tesla $300 per kilowatt hour (a Model S uses 60 to 90 kilowatt hours' worth of lithium ion batteries) today costs General Motors Co. $145 per kilowatt hour for its Bolt. And the figure is hurtling toward $100, the number that HSBC Securities (USA) Inc. and consultant Wood Mackenzie Ltd. agree will make electric vehicles as cheap as gas-powered cars, freeing mass-market EVs from their current dependence on subsidies.

Observers of the energy and utility sectors are united in their belief that the Trump administration won't slow the trends toward electrification of transport and broader reliance on renewables, even if the president follows through on his declared intentions to pull out of the Paris climate accords and to alter fuel efficiency standards finalized in the last days of the Obama administration. "Trump doesn't have unlimited flexibility to eliminate the federal program, and furthermore, California has its own," says Roland Hwang, director of the energy and transportation program at the Natural Resources Defense Council. He maintains—despite the administration's announcement that it will do the auto companies' bidding and EPA Administrator Scott Pruitt's refusal at his confirmation hearing to guarantee the waiver allowing California to shape its own emissions policies—that "they are in for a long, rocky road to roll back clean car standards."

As for energy storage, on March 28, Trump issued an executive order aimed at nullifying Obama's Clean Power Plan, which has been boosting the sector. But undoing those pollution standards will require a process just as arduous as the one that created them. And it will face fervent opposition at every step, from public comments to the courts. Batteries offer flexibility to the grid at a competitive price, and the president can't simply halt solar and wind development in favor of nonrenewable sources such as coal and natural gas—and he certainly can't do so in China, where much of the shift is occurring.

All of which means that lithium is likely here for the foreseeable future. In a few years, Nevada may be supplying a battery market that's almost twice the size of today's, and Lithium X and the other juniors could be chipping away at the big four's domination of lithium production. If that happens, Rud and his Chihuahua will finally be able to settle down. Ⓑ

TAPES ARE BACK IN THE MIX / BE A WINE EXPLORER / KID IN THE CORNER OFFICE / GEN Z TAKES OVER FASHION

ETC

Holla for Challah!

Startups are selling a version of Jewish culture that's light on the Bible, heavy on the Bubbies

By Jennifer Miller. Photographs by Tim O'Connell


Shults performs the traditional Shabbat blessing over the candles

In 2015, while traveling in Israel with 80 young tech professionals, Meghan Holzhauer fell in love with Shabbat dinner, the ancient Friday night tradition in which Jews bless candles, challah, and wine, then share a meal with loved ones. She was so inspired, in fact, that she started spreading the love. In March her travel startup, Canvus, took 40 young professionals to Mexico City, where they celebrated a multicultural Shabbat dinner. She's now organizing a hip-hop Shabbat for 400 people attending a social justice conference in Atlanta in June. "A lot of Jewish rituals are about honoring friends and family," she says. "You feel part of something bigger."

Holzhauer isn't Jewish. She was raised "Christian-light" by nonpracticing parents, she says, and has no interest in converting. As she explains it, a non-Jew finding inspiration in the Sabbath—or traveling to Israel for that matter—isn't so different from the millions of non-Buddhists who practice yoga or go on meditation retreats to India. "It's the latest way that ancient traditions are meeting modern life," she says.

If there ever was a moment when Shabbat was poised to become the new yoga practice, it's now. Interfaith marriage rates among American Jews have jumped from a little more than 40 percent in the 1980s to 58 percent in the period from 2000 to 2013. That's a lot more newlyweds (plus their families and friends) with exposure to Jewish ceremonies and rituals. Call them "Jew-adjacent," "Jew-curious," or just "Jew-ish."

"Jewish culture is in the mainstream, it's popular, and that's something any brand would want to jump on," says Danya Shults, 31, founder of Arq, a lifestyle company that seeks to sell people of all faiths on a trendy, tech-literate, and, above all, accessible version of Jewish traditions. Arq is a portal for interfaith couples, their friends, and their families to find "relevant, inclusive, aesthetically elevated" information and products. It offers holiday-planning guides; Seder plates designed by Isabel Halley, the ceramicist who outfitted the female-only social club the Wing; and interviews with Jewish entrepreneurs, as well as chefs who cook up artisanal halvah and horseradish. There's also an event series, including a weekend retreat in the Catskills in upstate New York that Shults says is "inspired by Jewish summer camp but more *Kinfolk*-y," referring to the elegantly twee lifestyle magazine.


Guests dine informally at Shults's Shabbat

Shults grew up in an observant home, attended a Jewish day school, and became fluent in Hebrew. Then she got engaged to a Presbyterian. "We never really found a [religious] community that matched what we were looking for, especially for me," says Shults's now-husband, Andrew. Many of the synagogues that purported to be inclusive turned out to have an agenda, such as trying to get Andrew to convert or cultivating the couple's political support for Israel.

The troubles didn't end there. Shults tells the story of one non-Jewish friend who went shopping for the couple by Googling "chic Jewish wedding gift" and found the results to be either "totally out of style or far too didactic and preachy." Cool, inclusive presents did exist—Shults knew that much—but they weren't easy to find. Thus, Arq was born. "My ultimate test case was my husband," Shults says. "Would he discover this? Read this? Go to this event?"

Arq may be the most ambitious new company hoping to court the Jew-curious community, but it's not the only one. There are secular dinner and dating platforms that draw on Jewish clichés such as the opinionated mother and the gut-busting holiday meal; resources to plan an interfaith wedding and help an interfaith family find a nonschlocky menorah; companies offering trips that take young secular professionals to Israel; and even a matzo company that aims to make unleavened bread the next pita chip. Most of these outfits are less than three years old. "Not that long ago, it would have felt dirty to talk about branding Jewish culture," says Aliza Kline, executive director of OneTable, a social dining app that helps people of all religious backgrounds celebrate inclusive Shabbat meals.

"JEWISH CULTURE IS ... POPULAR, AND THAT'S SOMETHING ANY BRAND WOULD WANT TO JUMP ON"

Of course, there has long been a mainstream taste for Jewish humor and food (see: *Seinfeld*, bagels, challah French toast), but the fervor is something new. "I see rabbis doing really creative things, saying, 'Come in and try this out,'" says Rabbi Ari Moffic, who directs the Chicago branch of a swiftly growing national network called Interfaith Family. "You can do Jewish," she says, even if you're not Jewish. "You want to unplug? It's called Shabbat, and we're the experts on it."

Moffic understands why this kind of cultural marketing would make many rabbis uncomfortable. As a rule, Jews don't proselytize to non-Jews. But Moffic and the others in the cultural-marketing camp have decided that enlarging the tent is the best way to keep young Jews inside it. "The focus on a single community can so easily become exclusive," says Kline, who estimates that 10 percent to 15 percent of OneTable guests aren't Jewish. "But through technology, we're seeding hundreds of new communities."

That was the idea behind Arq as well. The name, inspired by Noah's Ark, is an allusion to diversity. With so many different animals in one boat, Shults explains, "the best way forward is a compromise." For its model, the company draws on elements from well-established lifestyle portals such as Goop and Food52, up-and-coming jewelry resource Of a Kind, and parenting advice site Fatherly. To varying degrees, these sites fuse e-commerce with storytelling, but they also present themselves as community platforms. For the time being, Shults is relying on brand partnerships and events to support her business. "I don't want to have to scale at an ungodly pace," she says of her decision not to seek funding.

Shults started the company in late 2016, less than a year after quitting her job as director for marketing and community at the venture capital firm Spark Capital LLC, and it has already made several high-profile partnerships. Arq has linked up with the wedding registry company Zola Inc. to curate Jewish presents that don't look as if they come from the synagogue gift shop; with the home design site Apartment Therapy, on a series of Judaica-focused home tours; and with the feminist/LGBTQ-friendly wedding-planning site Catalyst Wedding Co., on an interview series with couples who are diverse in every imaginable way. Arq-branded events have included a couples' salon series in partnership with Honeymoon Israel, a nonprofit that sends "nontraditional" (interfaith, same-sex) couples on trips to Israel, and a women's lunar retreat, based on the ancient Jewish practice of women celebrating one another around the new moon.

In addition, Arq hosts dinners with Bubby. Co-founder Stephanie Volftsun says the tech-enabled matchmaking service is "inspired by the time-tested tradition of the Jewish matchmaking yenta" and aimed at expanding the notion of what a Jewish couple should look like. "We're all about being open to people who are different, which then means that non-Jews are drawn into our food, culture, and traditions," she says.

Not every Jew-ish company has such a social mission, however. The Matzo Project has taken as its task getting unleavened bread out of the ethnic food aisle. "We want it to be more than something that very pious Jews eat at Passover," says co-founder Ashley Albert. The company's offerings include matzo flats and chips in salted, everything, and cinnamon-sugar flavors, as well as a matzo butter crunch bar. It's also about to release a vegan matzo ball soup kit. Like Bubby, Matzo Project has made the Jewish grandma central to its branding—though in its case, she's more Long Island than old country. Each box features a cheeky cartoon granny in pearls and Iris Apfel glasses, with a word bubble that reads, "Would it kill you to try something new?" Albert, who also owns Brooklyn's popular Royal Palms Shuffleboard Club, and her Matzo Project co-founder, Kevin Rodriguez, a former product designer for Vera Wang, have received encouraging feedback on their branding from ethnic Italians and Koreans as well as Jews. "Grandma is sassy, smart, and strong," Albert says. "A lot of people know a version of her."

Products from the Matzo Project, which started a year ago, are available at New York's Eataly and Dylan's Candy Bar, San Francisco's Bi-Rite minichain, and specialty stores in places as far-flung as Wyoming. Most of these retailers, Albert says, "have never carried matzo before." She and Rodriguez have also talked their way into a handful of Whole Foods Markets, but finding a national distributor that gets the mission has been more challenging. Albert understands why people persist in treating matzo as a specialty food. But like the founders of Bubby, OneTable, and Arq, she thinks it's only a matter of time before the foreign becomes familiar. "When I was a kid, pita was a really unusual ethnic food," she says. "It was part of somebody else's culture. Now it's part of all our cultures." Ⓑ

START KVELLING

Five startups to get *verklempt* about

The Matzo Project's high-end flatbread is fit for (kosher) wine and cheese

Bubby brings old-fashioned matchmaking to the app age

Honeymoon Israel helps interfaith couples celebrate their nuptials in the Jewish homeland

Happy Chuppah rents canopies for weddings of all persuasions

OneTable organizes Shabbat dinners in cities across the U.S.

SHULTS: PHOTOGRAPHS BY TIM O'CONNELL FOR BLOOMBERG BUSINESSWEEK; THIS PAGE FROM TOP: COURTESY MATZO PROJECT; COURTESY BUBBY; COURTESY HONEYMOON ISRAEL; COURTESY HAPPY CHUPPAH; ONE TABLE: ELAINE MORAN

TALE OF THE TAPE

The old-school mixtape is making a fighting comeback

By David Sax

The 2014 blockbuster *Guardians of the Galaxy* opens in the year 1988 on planet earth with a small boy listening to a mixtape cassette on a Walkman. Cut to the next scene, "26 years later" on an "abandoned planet": The boy has grown up to be Chris Pratt, still listening to the same old mixtape. It's basically a sight gag—an intergalactic scavenger with a Walkman? Absurd! Except, suddenly, the cassette seems to be back.

Alongside the decade-long resurgence of vinyl records, music sales on cassette increased 74 percent in 2016, from just 74,000 in 2015 to 129,000 last year, according to Nielsen's yearend music report, after the industry all but stopped releasing tapes in about 2000. Most of these sales are familiar chart-topping albums by Justin Bieber and the Weeknd; but as the ranks of tape listeners swell, they're beginning to return to the beloved mixtape as well.

Eric Isaacson has seen the trend blossom as the owner of Mississippi Records, a defiantly independent record store and label in Portland, Ore. Around 2005, he says, "all these kids in the neighborhood started bringing in their own mixtapes," asking if he would sell them. Once sales started to take off, his employees convinced him that Mississippi should record and sell its own compilations on cassette.

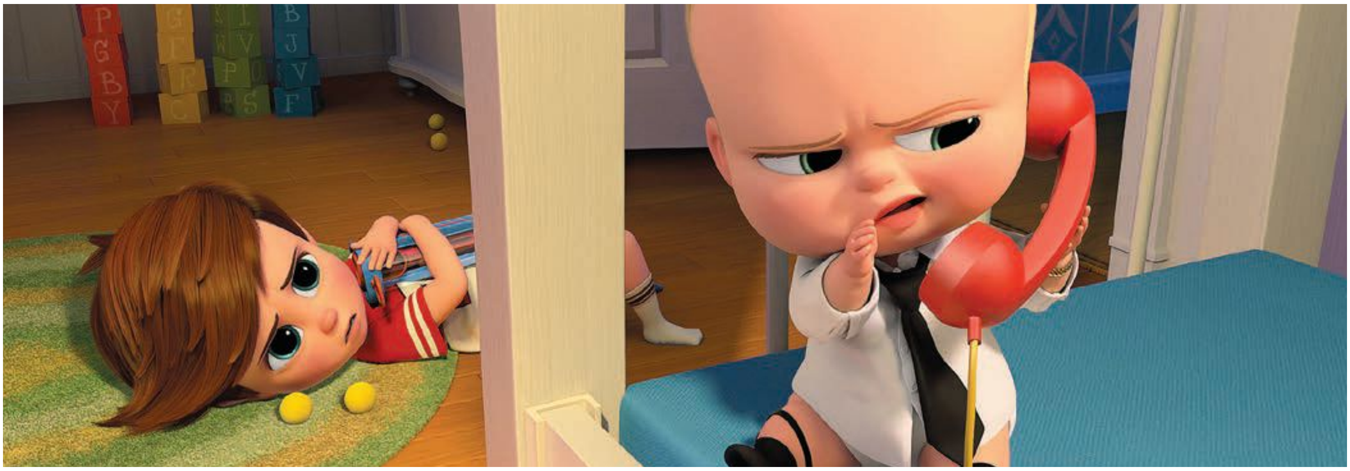
Isaacson has created more than 115 mixtapes from Mississippi's vast trove of obscure vinyl singles, which he told the *Washington Post* in January he also occasionally uses to press new records, tracking down the descendants of artists who've died to make sure they share in the proceeds. Many of his mixtapes are themed by musical genre (*Volume 45–Samba de Morro*) or by the emotions or situations that inspired them (*Volume 7–Trust Your Child: Difficult Children's Music*). Runs of 200 copies typically sell out within a week: At $3 apiece, they're priced just slightly above what they cost to make.

While the appeal of mixtapes for buyers is partly financial—"the tape consumer is really poor," Isaacson says—they're also cool in a way that a Spotify playlist or downloaded mix will never be. "It's the rawest, most junky product you can imagine," he says. For others, some of the thrill may be in tempting fate: The commercial sale of unlicensed music can expose you to damages up to $150,000 per work used, says George Washington University law professor Roger Schechter, who specializes in intellectual property.

Not to be left out, Urban Outfitters Inc. has aggressively cultivated the reemerging market, selling cassettes and players and creating limited-edition mixtapes featuring new music by the likes of Nadastrom, Larry Gus, and Childish Major, which it gives away to customers under promotional agreements with the artists. (If you've never heard of them, that's the point.) It also stocks *Guardians of the Galaxy: Awesome Mix Vol. 1*.

"Nostalgia and music are both key brand pillars for Urban Outfitters," says Stacey Britt Fitzgerald, the company's director for global marketing, so "mixtapes are a natural fit for us." Lucky for them: *Guardians of the Galaxy Vol. 2* comes out in May. Ⓑ

PHOTOGRAPH BY SIGNE PIERCE FOR BLOOMBERG BUSINESSWEEK



COURTESY DREAMWORKS ANIMATION

CHILD IN CHARGE

In The Boss Baby, *infants do corporate battle against puppies, and everybody wins. By David Walters*

Leaders are made; they are not born," Vince Lombardi once famously lied. Some leaders are born—newborn, in fact. They wear tiny power suits, tote tiny briefcases, and get more done before nap time than most people attempt in an entire day. They may not have fine motor skills, primary teeth, or full bladder continence, but the managerial talent and corner-office ambition is baked right in. Must you crawl before you walk in the business world? Sure, if you want to be the oldest senior vice president in play group.

The Boss Baby, the latest animated feature from DreamWorks Animation SKG, directed by Tom McGrath (*Madagascar*), is told from the perspective of Tim Templeton (voiced by Miles Bakshi), an imaginative 7-year-old and delightfully unreliable narrator. Sizing up the motivations of a new sibling (Alec Baldwin) who arrives one day by taxi, Tim sees him as a pint-size corporate raider, staging a hostile takeover of the household, which is bound to involve serious top-down restructuring and the reallocation of parental love and attention. As the baby later confirms to Tim with the cool ruthlessness of any chief executive officer justifying downsizing: "The numbers just don't add up."

But Boss Baby—who's never given a name because, well, you don't call your boss by his first name—eventually reveals a more complex goal: He's a spy dispatched from Baby Corp., a heavenlike place where tots are produced via assembly line (an innocent if oddly clerical alternative to "when a mommy and a daddy love each other very much...") and, if they're lucky, given cushy desk jobs. His mission is to thwart Baby Corp.'s chief rival, Puppy Co., and its leader, Francis E. Francis (Steve Buscemi), before the unveiling of the Forever Puppy, a dog that never gets bigger. "We all laughed at the shar-pei," warns Boss Baby in a presentation to neighborhood children. "And now it's No. 1 in China." Once Tim discovers his little brother's activities, the two join forces to break into Puppy Co. headquarters, steal the top-secret plans, and, they imagine, fulfill their dreams—for the younger, a glorious return to the home office, complete with a promotion and perks (a private potty), and for the elder, the recovery of only-child status. It's a classic win-win scenario, straight out of the HR binder.

THE PRECOCIOUS BABY TROPE IS A HIT WITH KIDS AND ADULTS

Got all that? You probably do; it's a cartoon, after all. For parents, the critical measure of any animated feature is 1) Will this keep my child entertained for 90 minutes? and 2) When we inevitably purchase the DVD, will my head explode on the 112th viewing? The answers are, respectively, yes and no—the precocious baby trope is a hit with kids and adults alike. Baldwin's predictably on-point portrayal borrows a lot from Jack Donaghy (Baldwin's character from the late, great *30 Rock*) and is vaguely reminiscent of another petulant man-child he's recently embodied on *Saturday Night Live*. There's even an allusion to Baldwin's iconic role in *Glengarry Glen Ross*: Although I'd seen it in the trailer, I chuckled when Boss Baby barked at a hungry infant underling, "Put. That. Cookie. Down. Cookies are for closers." The 5-year-old next to me was stone-faced, however. Not a Mamet fan, I guess.

For the ambitious and business-minded, there might even be leadership lessons to glean from *The Boss Baby*: the importance of delegation, cooperation, teamwork, and motivation. ("Whether you think you can or you think you can't, you're right," Boss Baby instructs Tim in a surprisingly effective bike-riding pep talk.) And of course, there's a heartwarming moral in the middle of this cold corporate wasteland: Work-life balance is essential, and family is ultimately more valuable than professional success. It seems DreamWorks knows as well as Baby Corp. what small and cute can do for the bottom line. As a satisfying distraction for both young professionals and really, really young professionals, *The Boss Baby* more than manages. B

France

Used to mean: Bordeaux
New hot spot: Corsica

A rugged Mediterranean island about the size of Connecticut that's French but closer to Italy, Corsica is home to a number of grapes, many rarely found elsewhere. Nielluccíu and sciaccarellu, both reds, and vermentinu, a white, are the most prominent. Sea breezes keep the vineyards from getting too hot, so the wines are surprisingly elegant.

Try: *Domaine de Torraccia Porto Vecchio Rouge 2012* ($25) has an intensely smoky, red-fruit character. *Comte Abbatucci Cuvée Collection Rouge Ministre Impérial 2013* ($98) is aromatic, with notes of anise, plum, rose petals, and campfire.

Germany

Used to mean: Mosel
New hot spot: Pfalz

Riesling grows everywhere in Germany, but with global warming, some of the southern regions are making more room for pinot noir. The Pfalz, stretching south from Mainz toward the French border, has a long, dry autumn because of the Vosges Mountains, which keep the rain at bay.

Try: *Friedrich Becker Pinot Noir 2012* ($22) shows the firm, meaty, ripe character a long autumn creates. *Okonomierat Rebholz Trocken "S" 2010* ($40) is more about cherry and spice aromas; look for "Spätburgunder" (pinot noir in German) on the label.

Italy

Used to mean: Tuscany
New hot spot: Mt. Etna

Growing vines on Sicily's active volcano—a March eruption injured at least 10 people—seems a bit foolhardy, but winemakers have decided it's worth it for the complex red-fruit and earth-tinged wines. The local Nerello Mascalese grape struggles to grow in the tough volcanic soil, producing less but better fruit.

Try: *Tenuta delle Terre Nere Etna Rosso 2015* ($22) has a freshness that's atypical for wines arising from hot growing conditions—usually more sun means more ripeness and less acidity. The Passopisciaro winery produces six Nerellos highlighting different vineyards on the mountain. *Contrada Chiappemacine ("Contrada C")* ($60) is from the lowest elevation, where the richer soils result in a fuller-bodied wine.

New Zealand

Used to mean: Marlborough
New hot spot: Hawke's Bay

Hawke's Bay opens onto the South Pacific from the east coast of New Zealand's North Island. The maritime climate keeps the syrah grown there from getting overripe and turning burly and alcoholic; instead, the wines are concentrated and firm, often with a meaty or spicy character that evokes the syrahs of France's Northern Rhône.

Try: *Te Mata Bullnose Syrah 2014* ($45) is dense with blackberry, black pepper, and violet aromas. Those pepper and floral notes also appear in the *Craggy Range Le Sol Syrah 2013* ($90), a bigger, riper wine.

Uncharted Terroir

Forward-thinking vintners are redrawing the map for oenophiles
By Jim Clarke

Australia
Used to mean: Barossa
New hot spot: Yarra Valley

Next door in Australia, syrah goes by shiraz, a wine sometimes so jammy, soft, and ripe with glycerol (a fermentation byproduct) that it can seem sweet. A few parts of the continent, including Yarra Valley, are trying to fight that reputation by producing refined pinot noir, which thrives in a climate that's only slightly warmer than its original home, Burgundy.

Try: *Mac Forbes 2015 Pinot Noir* ($39), a juicy, fresh wine, hails from right outside Melbourne; southern and near the ocean, the area cools down enough at night to suit the grape. *Timo Mayer Close Planted Pinot Noir 2013* ($100), showing another side of the valley, is silky with raspberry notes and a mélange of exotic spices.

Spain
Used to mean: Rioja
New hot spot: Ribeira Sacra

Mencía, a grape that makes dense, powerful wines in warmer areas, comes out graceful and light in cooler Ribeira Sacra, tucked in the corner of Spain north of Portugal. The steep, terraced vineyards—first carved out by ancient Romans—were abandoned when villagers moved to the city during Francisco Franco's reign. Now, European Union investment and forward-thinking winemakers are bringing this area back to life.

Try: *Algueira Mencía 2015* ($18) is close to pinot noir in style, with a firm texture and aromas of white chocolate and raspberries. *Guimaro Finca Pombeiras Mencía 2014* ($59) is more savory and intense, with white pepper and cinnamon notes.

U.S.
Used to mean: Napa Valley
New hot spot: Paso Robles, Calif.

Tucked into the hills north of San Luis Obispo, Paso Robles has mostly been a source for bigger wineries based elsewhere looking for quality grapes at a good price. Today, enterprising boutique outfits are exploring these vineyards, including historic plantings of zinfandel and petite sirah, as well as more recent plantings of syrah and other Rhône varietals.

Try: *Fableist Petite Sirah 2015* ($20) shows this grape's ability to be full-bodied, dark-fruited, and chocolaty but still lively. *Onx Reckoning 2013* ($54) is a more complex, syrah-based blend; it has a sturdy blackberry core with hints of soy, pepper, and cedar.

Where to go for an out-of-the-way tipple

Chicago: The Publican
Although it claims to be more of a beer hall, the Publican has a short wine list that largely bypasses traditional regions to shine a light on lesser-known parts of Europe.

Houston: Underbelly
Chef Chris Shepherd's list, which includes asides, diatribes, and comic strips, is full of sommeliers' idiosyncratic favorites.

Los Angeles: Augustine Wine Bar
In addition to a rotation of older wines, Augustine features several off-the-radar regions, including Paso Robles.

New York: The NoMad Hotel
Wine Director Thomas Pastuszak gives special attention to Corsica, a region he's visited repeatedly.

San Francisco: SPQR
The list here covers all of central and southern Italy, but Sicily and Mt. Etna in particular take pride of place.

ILLUSTRATION BY MATIJA MEDVED

INSTAGRAM KILLED THE RETAIL STAR

The fashion designers of Generation Z are taking their brands directly to the people
By Ian Frisch

One Sunday in November 2015, Alexandre Daillance (known by his nickname, Millinsky, which he made up), woke up slightly hung over in his Wesleyan University dorm room. Then 18 years old, the Paris-born upstart fashion designer did what any teenager would do first thing in the morning: He grabbed his phone. He had dozens of notifications from Instagram, all showing he'd been tagged in a photograph of Rihanna. Still bleary-eyed, he realized she was wearing one of his hats—a simple baseball cap fronting his slogan "I Came to Break Hearts." Within days he'd sold more than 500 of them. "So many were ordered so quickly that we had to shut down the web store," Millinsky says. Soon celebrities such as rapper Wiz Khalifa and millennial icon Zendaya were wearing his designs. He was overwhelmed.

He also wasn't alone: Millinsky is among a growing horde of superyoung designers using Instagram as their home base. For members of Generation Z—kids who got phones at birth, to whom social media is as important as oxygen—the photo-sharing site is the core of an instinctive methodology for building a brand, garnering a following, and generating sales.

Millinsky designed his first hat in 2015 and began flaunting it on Instagram. In Los Angeles, another teenager, George Khabbaz, liked what he saw and direct-messaged him. Khabbaz had frequented streetwear boutiques since childhood and had become friendly with several of their proprietors. He offered to work his connections and hook up Millinsky with manufacturing (in Seattle) and embroidery (in L.A.). Rather than cut Khabbaz in on part of the business—he was under 18 at the time, too young to sign the legally required paperwork—Millinsky brought him on as a contractor. With €1,000 ($1,085) that he'd earned organizing underground hip-hop parties in Paris, Millinsky's label, Nasaseasons, was born. "I didn't really know how fashion worked," he says, "but I knew social media. And as a teenage fashion designer, that's all I needed."

In the year and a half since his big break, his brand has blown up. It's carried by more than a dozen retailers worldwide, including high-end streetwear stores Colette in Paris and FourTwoFour on Fairfax in L.A., plus Barneys in New York and Harvey Nichols in London, where the hats cost $50 to $70 depending on their design. Millinsky's strategy is to use retail stores to create exclusivity—thus elevating the brand—rather than rely on them for financial stability. "We make sure that our products are sold out quickly through retailers," he says. "We create rarity, and then—boom!—we have waves of clientele coming to our website directly, no middleman necessary."

This low-budget, social-media-fueled approach has yielded other success stories. Twin brothers Chet and Betts DeHart started their line, Lucid FC, six years ago, when they were 14. Like Millinsky's, their designs have been spotted on Rihanna, which helped goose their sales. Shane Gonzales's Midnight Studios started on Instagram in 2014 when he was 19, and now the label has almost 92,000 followers. "These people need to see that a certain piece looks amazing on someone like them or built like them to gain trust in the product to purchase it online," he says. The social media success has attracted collaborators including designer Virgil Abloh, whose label Off-White is a favorite of Kim Kardashian and rappers Kanye West and A$AP Rocky.

Instagram continues to be the cornerstone of Millinsky's business. Shortly after the Rihanna sighting in 2015 (she's since been photographed in his hats a handful of times), Urban Outfitters Inc. made an offer: It wanted almost 10,000 hats—more than 10 times the volume Millinsky was dealing with at the time. He brushed off the company. "It would have killed the underground aspect of the brand," he says. In September, Urban repeated its offer. Was he interested? "I told them my definitive answer," he says. "It was simple: No." B

COURTESY NASASEASONS

CHRIS ALTCHEK

29, co-founder and chief executive officer, Mic, New York

What's your job?
I'm the CEO of a fast-moving digital media company. That means I'm bouncing around, staying in tune with what's happening in the world. I work with a lot of our advertising and distribution partners, too.

How do you dress for work?
Comfortably—that's priority No. 1. I have to get on airplanes, then wear those clothes to a big presentation or fancy function and not look too out of place.

A jacket is good for that.
I like this one because it's somewhere between a sweater and a jacket. I can wear it in a formal or relaxed environment and bring it on an airplane without wrinkling it.

How did you find it?
I have a very trendy sister who knows what I should and shouldn't be wearing. Anything cool I own has her fingerprints on it.

Did she get you those sunglasses?
She actually did.

Anything special about the shirt?
It's supercomfortable and versatile enough that I can wear it with a jacket or without.

Do you always get to wear jeans?
I do. Finding jeans that fit is challenging, because I have a funky body—I'm skinny, but I have big legs. These are stretchy and slim without being too tight. They're basically jeggings for men.

Do you wear your sneakers for exercise or only to the office?
They're meant for skateboarding, but I don't wear them for anything but going out and about. Recently I've seen other people wearing them, which is too bad. For a long time it was like they were my shoes alone.

PHOTOGRAPH BY B. O'BRIEN FOR BLOOMBERG BUSINESSWEEK

Interview by Jason Chen

How Did I Get Here?

DAVE BURWICK

President and chief executive officer, Peet's Coffee & Tea

Dancing with his mother, Myrna, 1969

"I was an only child of divorced parents, and my grandfather really served as a surrogate father. He was an M.D., and I wanted to be like him."

Education

St. John's High School, Shrewsbury, Mass., class of 1979

Middlebury College, Middlebury, Vt., class of 1983

Harvard Business School, class of 1989

"I went in pre-med and came back a history major. What I really wanted to do was some sort of international business thing."

Middlebury lacrosse team photo, 1981

"It was mostly a bunch of idiots who are still my friends."

Work Experience

1983–87
Account supervisor, Miller Communications

"My big client was Ashton-Tate, one of the big software companies. Then we opened some new West Coast businesses, so I raised my hand and moved to L.A. for a couple years."

1989–2001
Brand manager and director for Mountain Dew, vice president for media for promotions and sports marketing, senior VP for carbonated soft drinks, Pepsi-Cola North America

"I decided between jobs at Pepsi and Microsoft. I have friends who went to Microsoft who would send me charts of the stock and what it did from 1989 to present-day."

"My claim to fame was Mountain Dew, taking this sleepy, country brand that was not on the radar and turning it into something huge and really fun."

With his wife, Carey, in Edinburgh, 1989

2002–05, 2008–09
SVP, chief marketing officer, Pepsi-Cola North America

2006–08
President, Pepsi-QTG Canada, PepsiCo

"Britney Spears would often be photographed drinking Dr Pepper, which was embarrassing. I made cards listing every Pepsi beverage, and I said to her, 'At home you can do whatever you want, but in public, you have to drink one of these.'"

2010–12
President of North America, Weight Watchers International

"For me, it was proving to myself that I could take the skills I learned at Pepsi and apply them somewhere else, that I didn't stay at Pepsi too long."

2013–Present
President and CEO, Peet's Coffee & Tea

With soccer player Abby Wambach, 2016

"Coffee is an incredible business: Everybody drinks coffee, and it's growing rapidly. We're going to open stores in Shanghai this year, and we just launched ready-to-drink cold brew in the Bay Area. Frappuccino was boomers, and millennials are drinking cold brew."

Life Lessons

1. "You get to a point in your career where you don't like anybody you work for. People who get to that level are generally not very likable people." **2.** "Don't wait until you're an old man to start helping people find their opportunities." **3.** "Purpose is powerful."

Courtesy subject (5). Getty Images (1)

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