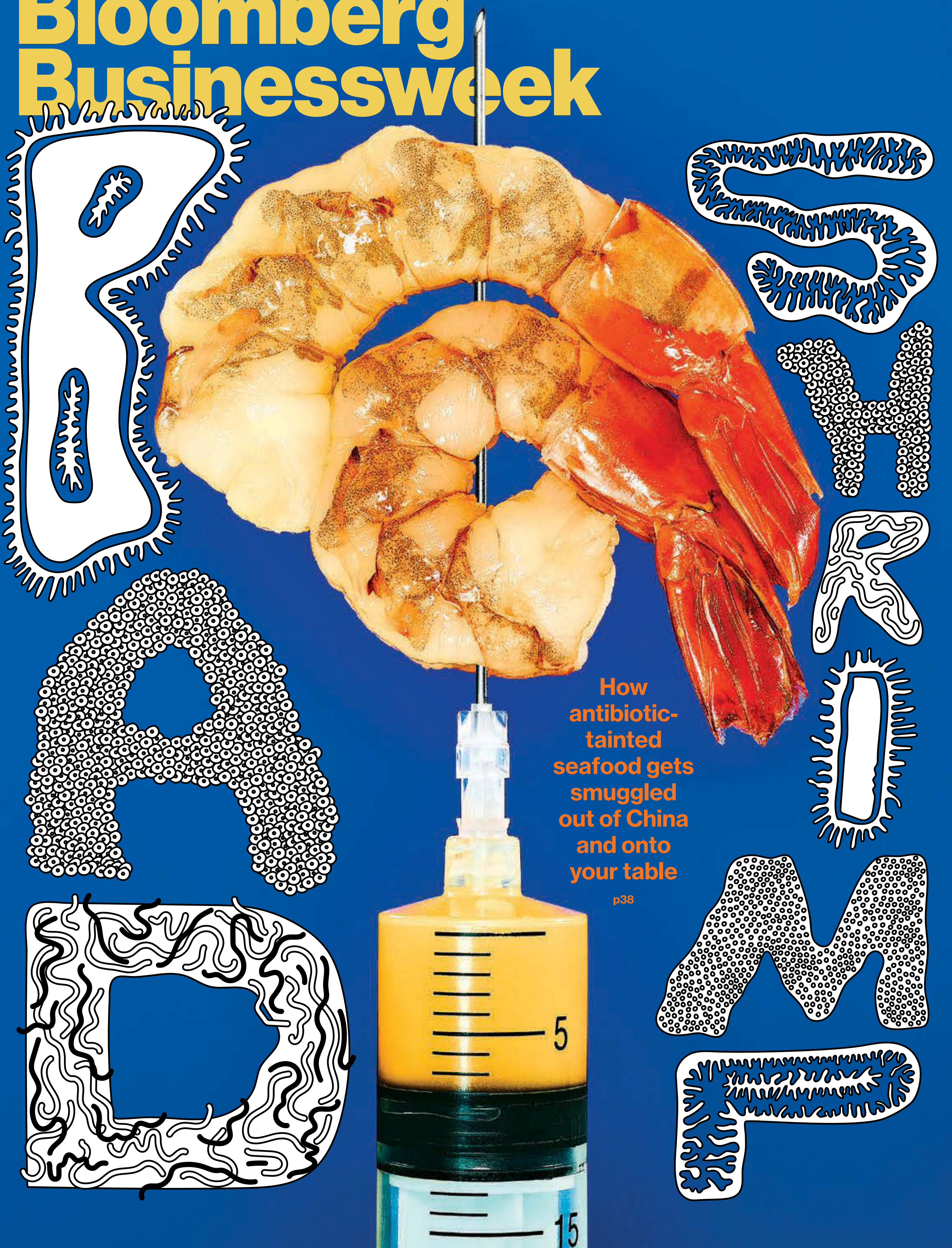
December 19 — December 25, 2016 | bloomberg.com

Bloomberg Businessweek

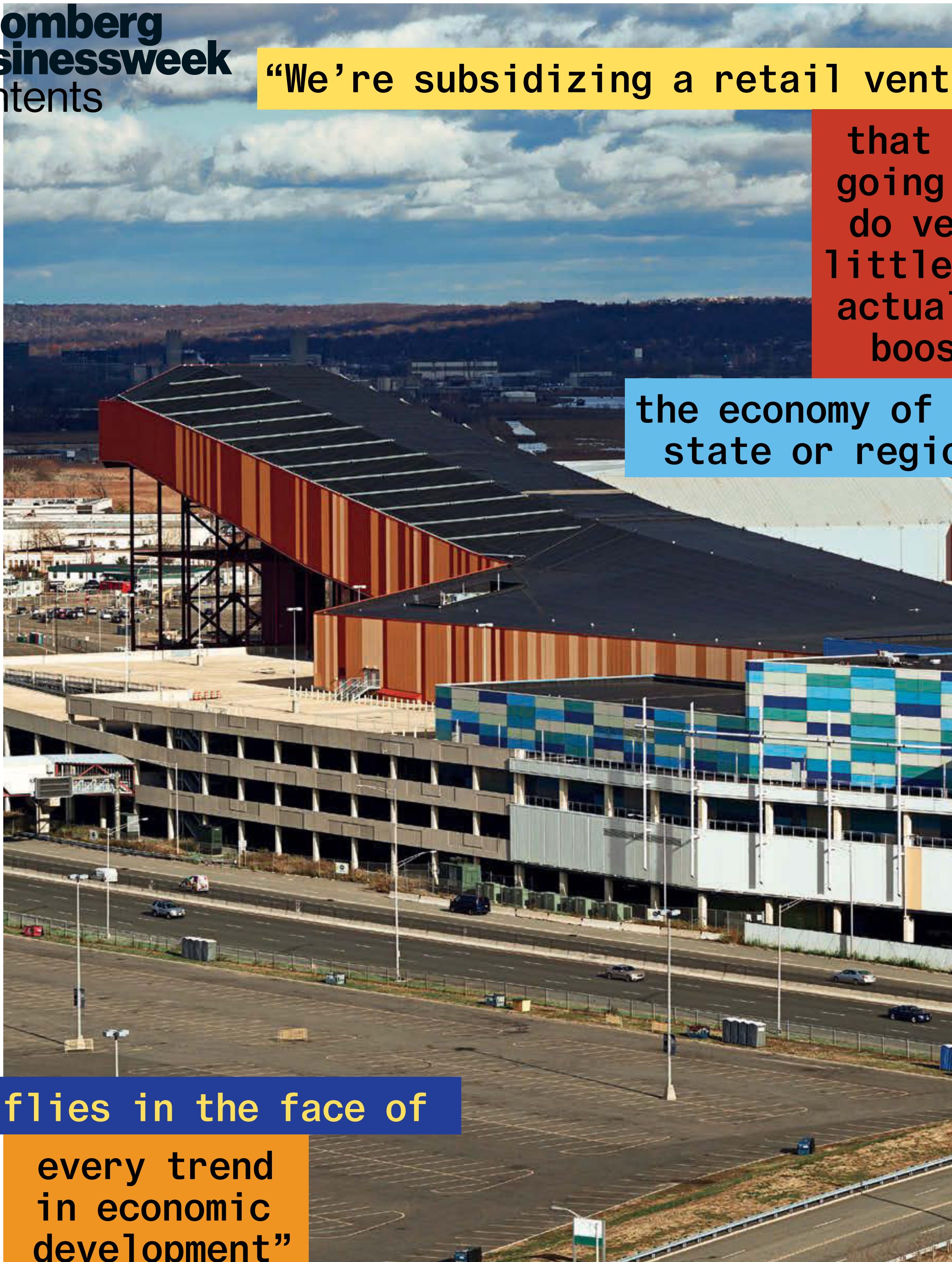


How antibiotic-tainted seafood gets smuggled out of China and onto your table

p38

Bloomberg Businessweek

Contents



"We're subsidizing a retail venture that is going to do very little to actually boost the economy of the state or region. It flies in the face of every trend in economic development"

p44

"We have purposefully not invested in some new equipment because ... we don't have the talent to operate and maintain it"

p13

"My kids can live here. There are no bombs"

p16

"Sea-level rise is happening, and we have to adapt. And I'm sure that the folks at Mar-a-Lago are going to want to adapt, too"

p26

PHOTOGRAPH BY ADRIAN GAUT FOR BLOOMBERG BUSINESSWEEK

Bloomberg Businessweek

December 19 — December 25, 2016

Opening Remarks Using Obama's tools for creating climate rules, Trump could undo them 6

Bloomberg View The powerful levers in the Iran deal • How to boost U.S. life expectancy 8

Movers ▲A first for U.S. offshore wind farms ▼More change at Chipotle 11

Global Economics

The other U.S. deficits: Skilled workers and machines for them to use 13

Koreans are ready to rumble with the *chaebol* 15

Across Germany, the welcome cry of newborns 16

The tide of overseas investments by Chinese companies may ebb 17

Companies/Industries

Bringing in an outsider to rescue big, bloated VW 19

More boomers choose the long goodbye 20

The art of selling edible body paints online in India 21

At these prices, what's a long layover in China's interior? 22

Politics/Policy

The "disability belts" of rural America expand where jobs disappear 24

Trump's State Department choice has his own baggage with Beijing 26

Palm Beach, home to Trump's Mar-a-Lago, isn't waiting to confront the rising sea 26

Technology

Boot camps for coding that skip the basic training 29

What do Exxon, the Clinton initiative, megachurches, and bull riders have in common? Their live-stream provider 30

Charlie Rose talks to cybersecurity commission leaders Tom Donilon and Sam Palmisano 31

Using blockchain to create digital security for the cloud 32

Innovation: This 2-foot-tall, 200-pound lawn-care robot clears snow, too 33

Markets/Finance

A closer look at the bank that Treasury pick Steve Mnuchin helped turn around 34

JPMorgan traders make loans bankers may fear 35

Bonds are sinking, rates are rising—is the new normal now old hat? 36

As Vancouver cools its real estate market, Seattle's and Toronto's get hotter 37

Features

Shrimp Scampicillin Why your seafood platter may be full of antibiotics 38

Runaway American Dream New Jersey's never-ending megamall project 44

Rembrandt Goes Cruising Park West Gallery is far from a conventional auctioneer 50

Etc.

Soundkick and other startups are trying to make the live-music experience rock 57

The Critic: You'll be more productive if you take tiny doses of LSD, according to a memoir 60

Travel: Sleep masks, cocktail kits, and other ideas for making flying more civilized 62

Fashion: This winter, you can never wear too much plaid 64

Marketing: Skip the beauty counter and order your fragrances online 66

What I Wear to Work: The CEO of Barry's Bootcamp is not one for a subtle puffer 67

How Did I Get Here? Nancy Kanter, general manager of Disney Junior, made her debut in a Johnson floor wax ad 68

Cover Trail

How the cover gets made

❶

"The story is about shrimp, they're—"

"YUM!"

"They're being grown in—"

"God, I love shrimp. Absolutely love those delicious little critters."

"They're being grown in farms that—"

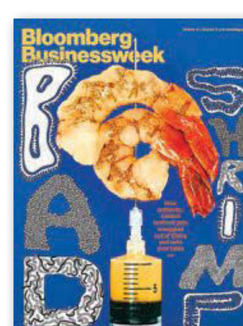
"Shrimp cocktail is my favorite. Also love shrimp scampi, peel-and-eat shrimp, garlic shrimp, shrimp po'boys, popcorn shrimp, seafood paella, and pretty much any type of pasta with shrimp. Also, in some restaurants they serve you bloody marys with a little shrimp on top. I don't even like bloody marys, so I order one, eat the shrimp, and then give the rest to a friend."

"I'm going to step away now. Why don't you read the story and we can talk again in a few hours."

"Looking forward to it!"

(Two hours later)

"Oh, God. Why, God, why?"



COVER AND COVER TRAIL: PHOTOGRAPH BY JAMIE CHUNG FOR BLOOMBERG BUSINESSWEEK; FOOD STYLIST: MAGGIE RUGGIERO; TYPOGRAPHY: SIMON ABRANOWICZ


KOREA
TOURISM
ORGANIZATION
KOREA PROMISES
INSPIRATION FOR SUCCESS
A country with a stunning natural environment
and convenient urban infrastructure.
Where time-honored tradition and cutting-edge digital technology coexist.
Everything is at your service based on our extensive experience.
Success starts in Korea
KOREA, BEYOND MEETINGS
WWW.KOREACONVENTION.ORG

Index

People/Companies

A

A.T. Kearney 66
AB InBev (BUD) 11
Access Industries 58
Adele 58
Adler, Renata 68
Air China (601111:CH) 22
AirHelp 63
Alemany, Ellen 34
Ali, Russab 63
Allianz (ALV:GR) 36
Amazon.com (AMZN) 11, 30
American Airlines (AAL) 22
American Fisheries 40
Amundi (AMUN:FP) 11
Asahi (2502:JP) 11
Asiana Airlines (020560:KS) 22

B

Bank of Japan (8301:JP) 36
Bankhaus Metzler 19
Barry's Bootcamp 67
Batkin, Bruce 35
Berberick, Tammy 63
Berchtold, Joe 58
Beyoncé 58
BlackRock (BLK) 36
Blavatnik, Len 58
Blue Archipelago 40
BMW (BMW:GR) 19
Boeing (BA) 8, 11, 22
Bon Secours Virginia Health System 20
Bose 62
Boston Consulting Group 13
Bradford, Thomas 26
Bremen Castings 13

C

Carnival (CCL) 52
Cathay Pacific Airways (293:HK) 22
Celik, Bora 58
Chesney, Kenny 58
China Eastern Airlines (CEA) 22

44 Chris Christie

China National Petroleum 26
China Southern Airlines (ZNH) 22
Chipotle Mexican Grill (CMG) 11
Choi Soon-sil 15
Christie, Chris 44
Christie's 52
Chu Jin-hyung 15
Cilliers, Dillon 52
CIT Group (CIT) 34
Clapper, Jim 31
CLSA Securities Korea 15
Continental (CON:GR) 19
Course Report 29
Crestcom International 63

D

Dafoe, Willem 68
Daniel, John 20
Davidowitz & Associates 45
Davidowitz, Howard 45
Davis, Alexis 63
Deepwater Wind 11
DeLong, Cody 58
Delta Air Lines (DAL) 22
Dev Bootcamp (GHC) 29
DHP Family 58
Dimon, Jamie 35
Do Amore 63

38 A pig farm in Guangdong

Donilon, Tom 31
DoubleLine Capital 36
Drake 58
DreamWorks (CMCSA) 45

E

EBay (EBAY) 11
El-Erian, Mohamed 36
Ells, Steve 11
Eminem 58
Ericsson (ERIC) 32
EveryoneSocial 63
Ewen, Andrew 33
Expedia (EXPE) 22
ExxonMobil (XOM) 11, 26, 30

F

Facebook (FB) 21, 30
Fannie Mae 34
First Horizon National (FHN) 20
Flynn, Michael 26
Freebird 63

G

Gates, Bill 11
Gault, Mike 32
General Electric (GE) 11, 32
General Motors (GM) 19
Ghermezian, Don 45
Ghermezian, Eskandar 45
Ghermezian, Nader 45
Gidali, Sagi 63
Glasspro 13
Glazer, Jeffrey 11
Goldman Sachs (GS) 11, 34
Gonzalez, Joey 67
Google (GOOG) 11, 21, 29, 30
Goulding, Ellie 58
Greenstone, Michael 6
Griffin, Elle 63
Guardtime 32
Gundlach, Jeffrey 36

H

H.K. Productions 63
Hainan Airlines (600221:CH) 22
Hanjin Shipping (117930:KS) 15
Hanwha Investment & Securities (003530:KS) 15
Hawthorne for Men 66
Hayles, Carol 34
Heritage Pharmaceuticals 11
Hermès (RMS:FP) 45
Hertzberg, Jesse 30
HFZ Capital Group 35
Hill, French 24
Himmatramka, Krish 63
HSBC (HSBC) 36
Hu, Fred 17
Hyundai Motor (005380:KS) 15

I

IBISWorld 58
IBM (IBM) 31
IDC 33
IMG Worldwide 30
Infuse 29
Isom, Robert 22

J

James, Nicholas 29
Janus Capital Group (JNS) 22
Jeong, Brian 66
JetSmarter 11
Jolley, Sandy 34
Jones, Dean 37
Jones, Matt 58
JPMorgan Chase (JPM) 35
Jukely 58
Juwai.com 37

K

Kanter, Nancy 68
Kinkade, Thomas 52
Kobi 33
Korean Air Lines (003490:KS) 22
Korman, Eric 66
Kroll Bond Rating Agency 34

L

Lagarde, Christine 11
Lego 45
Live Nation (LYV) 58
Livestream 30
Lockheed Martin (LMT) 11, 32
Lotte Group 15
Luby, Christine 66

M

Mack Real Estate Credit Strategies 35
Mattis, James 26
Max, Peter 52
Mayfield 21
McCain, John 26
McCartney, Paul 58
McDonald, Matthew 34
McIsaac, Adam 58
Microsoft (MSFT) 11
Milborne Real Estate 37
Milborne, Hunter 37
Mita Group 40
Mnuchin, Steven 34
Moody's Analytics (MCO) 15
Moran, Monty 11
MTV (VIAB) 58
Müller, Matthias 19

N

Neiman Marcus 11
New Vernon Capital 21
New York Life 36
Nickelodeon (VIAB) 45
Nidra 63
Norwegian Cruise (NCLH) 52
NPD Group 66

O

Oaktree Capital Management (OAK) 35
Obama, Barack 6, 8, 13
Ocean Rancho 40
OneWest Bank (CIT) 34
Osterloh, Bernd 19
Otting, Joseph 34
Oxford Economics 17

58 Rihanna

PQR

Pacino, Al 68
Palmisano, Sam 31
Park Geun-hye 15
Park Jie-won 15
Park West Gallery 52
Perry, Katy 58
Perry, Rick 6, 11
Phlur 66
Pilgrim's (PPC) 24
Pimco (ALV:GR) 36
Pinrose 66
Pioneer Investments 11
Primavera Capital Group 17
Pruitt, Scott 6, 26
Putin, Vladimir 26, 31
Qantas Airways (QAN:AU) 22
Ralph Lauren (RL) 30
Rand Corp. 16
Realogics Sotheby's International Realty 37
Rhodium Group 17
Rihanna 58
Rivertrail Boat 24
Robin 58
Rogers, Mike 31
Rosneft (ROSN:LI) 26
Royal Caribbean (RCL) 52
Rubio, Marco 26

S

SaferVPN 63
Salesforce.com (CRM) 29
Samsung Electronics (005930:KS) 11, 15
Saraiya, Samir 21
Scaglione, Albert 52
Sealed Air (SEE) 13
Sedran, Thomas 19
Senger, Christian 19
Shanghai Chongyang Investment Management 22
Shelton, Blake 58
Shin Dong-bin 15
Shumate, Erika 66
Simon Property Group (SPG) 45
Singapore Airlines (SIA:SP) 22
Singer & Bassuk Organization 35
Skytrax 22
Smartkarma 15
SMC Digital Marketing 63
Songkick 58
Sotheby's (BID) 52
Sound Rink 58
SoundCloud 58
Spaly, Brian 66
Spin Master (TOY:CN) 11
Spotify 30, 58
Steelcase (SCS) 20
Sunstein, Cass 6
Swann Auction Galleries 52
Swift, Taylor 58

T

Tan, Ronnie 40
Tasty Goody Chinese Fast Food 40
Terra Capital Partners 35
Tesla (TSLA) 19, 30
That's Personal 21
Ticketfly (P) 29
Tiesto 58
Tillerson, Rex 11, 26
Tough Mudder 30
Toyota (TM) 19
Triple Five 35, 45
Trump Organization 45
Trump, Donald 6, 8, 11, 13, 16, 17, 26, 34, 36
Twitter (TWTR) 30

UVW

U.S. Bank (USB) 29
Uber 11
UBS (UBS) 36
UniCredit (UCG:IM) 11
United Continental Holdings (UAL) 22
UOB Kay Hian (UOBK:SP) 22
Volex (VLX:LN) 24
Volkswagen (VOW:GR) 19
Waelbers, Steven 33
Waldman, Ayelet 60
Wall, Daniel 52
Walmart (WMT) 24
Walt Disney (DIS) 52, 68
Walter Investment Management (WAC) 34
Wang Yilin 26
Warner Music Group 58
Waymo 11
WeChat (700:HK) 37
West, Kanye 11
Wiegel Tool Works 13
Wiegel, Aaron 13
Wong, Phillip 66
Woods, Darren 11
Wyden, Ron 34

XYZ

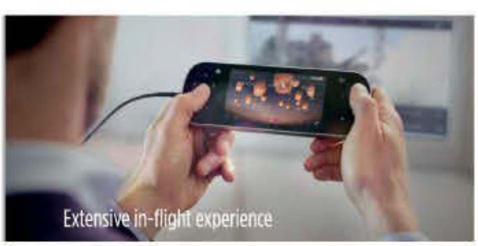
Xi Jinping 26
Yellen, Janet 13
Zhanjiang Newpro Foods 40
Zillow 37
Zinke, Ryan 11

How to Contact Bloomberg Businessweek

Editorial 212 617-8120 **Ad Sales** 212 617-2900
Address 731 Lexington Ave., New York, NY 10022
E-mail bwreader@bloomberg.net **Fax** 212 617-9065
Subscription Customer Service URL businessweekmag.com/service
Reprints/Permissions 800 290-5460 x100 or e-mail businessweekreprints@theygsgroup.com

Letters to the Editor can be sent by e-mail, fax or regular mail. They should include address, phone number(s), and the e-mail address if available. Connections with the subject of the letter should be disclosed, and we reserve the right to edit for sense, style and space.

ANTIBIOTICS: PHOTOGRAPH BY FORBES CONRAD FOR BLOOMBERG BUSINESSWEEK; CHRISTIE: MICHAEL REAVES/GETTY IMAGES; RIHANNA: KRISTA KENNELL/GETTY IMAGESGETTY IMAGES

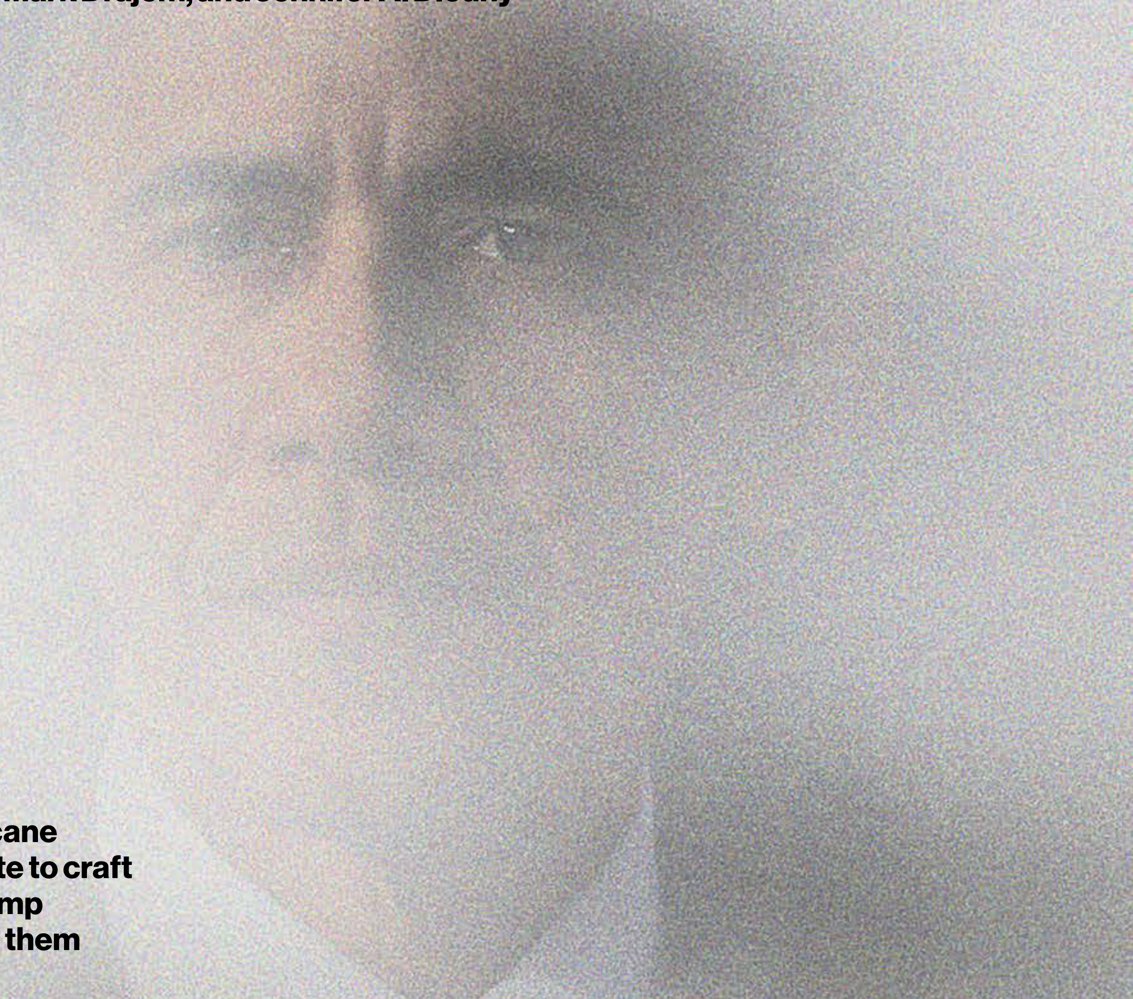

Extensive in-flight experience


Specially designed Bohca sleeping set for a sound sleep


Carefully crafted menu from our Flying Chefs

How Climate Rules Might Fade Away

By Matthew Philips, Mark Drajem, and Jennifer A. Dlouhy



Obama used an arcane carbon cost estimate to craft his regulations. Trump could use it to undo them

In February 2009, a month after Barack Obama took office, two academics sat across from each other in the White House mess hall. Over a club sandwich, Michael Greenstone, a White House economist, and Cass Sunstein, Obama's top regulatory officer, decided that the executive branch needed to figure out how to estimate the economic damage from climate change. With the recession in full swing, they were rightly skeptical about the chances that Congress would pass a nationwide cap-and-trade bill. Greenstone and Sunstein knew they needed a Plan B: a way to regulate carbon emissions without going through Congress.

Over the next year, a team of economists, scientists, and lawyers from across the federal government convened to come up with a dollar amount for the economic cost of carbon emissions. Whatever value they hit upon would be used to determine the scope of regulations aimed at reducing the damage from climate change. The bigger the estimate, the more costly the rules meant to address it could be. After a year of modeling different scenarios, the team came up with a central estimate of $21 per metric ton, which is to say that by their calculations, every ton of carbon emitted into the atmosphere imposed $21 of economic cost. It has since been raised to around $40 a ton.

This calculation, known as the Social Cost of Carbon (SCC), serves as the linchpin for much of the climate-related rules imposed by the White House over the past eight years. From capping the carbon emissions of power plants to cutting down on the amount of electricity used by the digital clock on a microwave, the SCC has given the Obama administration the legal justification to argue that the benefits these rules provide to society outweigh the costs they impose on industry.

It turns out that the same calculation used to justify so much of Obama's climate agenda could be used by President-elect Donald Trump to undo a significant portion of it. As Trump nominates people who favor fossil fuels and oppose climate regulation to top positions in his cabinet, including Oklahoma Attorney General Scott Pruitt to head the Environmental Protection Agency and former Texas Governor Rick Perry to lead the Department of Energy, it seems clear that one of his primary objectives will be to dismantle much of Obama's climate and clean energy legacy. He already appears to be focusing on the SCC.

On Dec. 7, the Department of Energy received a memo from the Trump transition team asking a litany of questions, many of which focused on identifying agency employees and contractors who worked on climate rules. Among its 74 questions, the memo includes a number of detailed requests about the Social Cost of Carbon: who worked on it, what methodology was used to calculate it, and what e-mails and materials could be provided that were associated with it. (A Trump transition official later disavowed the memo, telling CNN it "was not authorized.")

Trump can't undo the SCC by fiat. There is established case law requiring the government to account for the impact of carbon, and if he just repealed it, environmentalists would almost certainly sue. "Unfortunately, you can't just pull this thing up by the roots," says Marlo Lewis, a senior fellow at the Competitive Enterprise Institute (CEI), a free-market think tank in Washington. "While that might actually be a great idea on the merits, you have to address the court cases that will be litigated."

There are other ways for Trump to undercut the SCC. By tweaking some of the assumptions and calculations that are baked into its model, the Trump administration could pretty much render it irrelevant, or even skew it to the point that carbon emissions come out as a benefit instead of a cost.

The SCC models rely on a "discount rate" to state the harm from global warming in today's dollars. The higher the discount rate, the lower the estimate of harm. That's because the costs incurred by burning carbon lie mostly in the distant future, while the benefits (heat, electricity, etc.) are enjoyed today. A high discount rate shrinks the estimates of future costs but doesn't affect present-day benefits. The team put together by Greenstone and Sunstein used a discount rate of 3 percent to come up with its central estimate of $21 a ton for damage inflicted by carbon. But changing that discount just slightly produces big swings in the overall cost of carbon, turning a number that's pushing broad changes in everything from appliances to coal leasing decisions into one that would have little or no impact on policy.

According to a 2013 government update on the SCC, by applying a discount rate of 5 percent, the cost of carbon in 2020 comes out to $12 a ton; using a 2.5 percent rate, it's $65. A 7 percent discount rate, which has been used by the EPA for other regulatory analysis, could actually lead to a negative carbon cost, which would seem to imply that carbon emissions are beneficial. "Once you start to dig into how the numbers are constructed, I cannot fathom how anyone could think it has any basis in reality," says Daniel Simmons, vice president for policy at the American Energy Alliance and a member of the Trump transition team focusing on the Energy Department. "Depending on what the discount rate is, you go from a large number to a negative number, with some very reasonable assumptions."

Greenstone, who left the White House in 2010 and now teaches economics at the University of Chicago, insists that his team operated under a self-imposed "veil of ignorance" and made decisions without trying to make the final cost of carbon higher or lower. He concedes there is a broad range of values to ascribe to carbon but says that, if anything, they were too conservative in their cost estimates, and that it should be higher than it is. "Just because it can't be written on the back of a napkin doesn't mean the Social Cost of Carbon is not real," says Greenstone.

Most serious policymakers believe the SCC is a valid concept, says Jeff Holmstead, a former senior EPA official under George W. Bush. "The problem is that the number is so malleable, you can almost put it wherever you want." Putting a specific value on it, Holmstead says, "gives artificial precision to something that is highly uncertain."

The Social Cost of Carbon underpins a large portion of Obama's climate policies

Another issue for those who question the Obama administration's SCC: It estimates the global costs and benefits of carbon emissions, rather than just focusing on the impact to the U.S. Critics argue that this pushes the cost of carbon much higher and that the calculation should instead be limited to the U.S.; that would lower the cost by more than 70 percent, says the CEI's Lewis. But to some, it makes sense to use a global estimate for the SCC, since climate change is worldwide. "This gets at a very basic economic concept of protecting the global commons and the natural resources we all share," says Kenneth Gillingham, who served as senior economist at the Council of Economic Advisers in the White House in 2015 and now teaches economics at Yale.

Still, by narrowing the calculation to the U.S., Trump could certainly produce a lower cost of carbon. Asked in an e-mail whether the new administration would raise the discount rate or narrow the scope of the SCC to the U.S., one person shaping Trump energy and environmental policy replied, "What prevents us from doing both?"

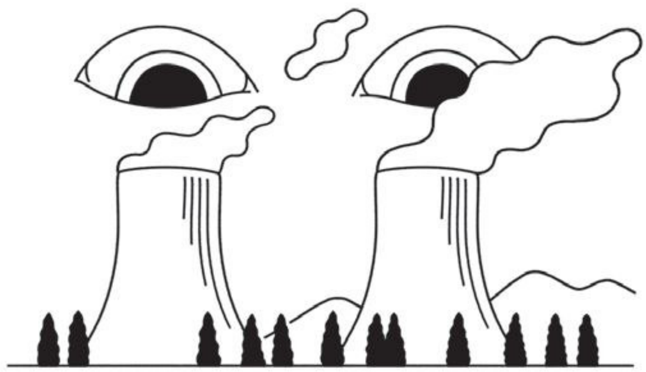
At an energy summit sponsored by the Heritage Foundation and the Texas Public Policy Foundation on Dec. 8, David Kreutzer, a senior research fellow in energy economics and climate change at Heritage and a member of Trump's EPA transition team, laid out one of the primary arguments against the SCC. "Believe it or not, these models look out to the year 2300. That's like effectively asking, 'If you turn your light switch on today, how much damage will that do in 2300?' That's way beyond when any macroeconomic model can be trusted."

For climate economists, that doesn't mean you shouldn't try. Frances Moore, an assistant professor at the University of California at Davis, has co-authored a paper that suggests the cost of carbon should be much higher, closer to $200 a ton, or about five times higher than current estimates. "It comes down to whether or not you value the future," she says. "Arguing for a lower number means you inherently don't." B

To read Mohamed A. El-Erian on making the stock market rally last and Jonathan Bernstein on Trump's "popularity," go to
Bloombergview.com

Keeping the Deal and Cracking Down on Iran

Trump doesn't need to ditch a hard-won agreement to get Tehran to behave



As a candidate, Donald Trump said his "No. 1 priority" was to dismantle the "disastrous" nuclear deal with Iran. Tempting as that may be, he should resist. Instead, the man who fancies himself the world's greatest negotiator should use U.S. leverage to hold Iran to the letter of the agreement.

This is the hard work of diplomacy, which takes place mostly out of public view and off Twitter. At least Trump's job will be made easier by Congress, which just extended the Iran Sanctions Act, allowing the U.S. to punish Iranian entities involved with terrorism, illegal weapons, and human-rights violations. Trump can and should also end the de facto policy of looking the other way at Iran's early infringements of the pact, such as the recent revelation that it had exceeded the deal's cap on how much heavy water it's allowed to stockpile.

Trump should make clear he'll have no tolerance for even minor transgressions such as this. The administration should go to the five other nations that signed the deal to negotiate an across-the-board response, such as reinstituting sanctions on some Iranian companies. If those nations demur, the U.S. can then level the sanctions unilaterally.

In the long term, the six nations should try to negotiate changes in both the nuclear pact itself and the related side agreements. Iran may well be willing to come to the table. It complains that it's seen little of the estimated $100 billion of its assets that had been frozen in foreign banks, because of other U.S. sanctions and rules making it hard to "dollarize" the funds for transfer. In addition, the hoped-for rush of investment by European energy companies–and the banks that accompany them–has been slow to materialize.

As for U.S. investment, so far only Boeing has received a waiver to enter the Iranian market, and even that could be revoked should Iran continue to support terrorist groups such as Hezbollah. Many Iranian companies are also hampered in doing global business by U.S. money-laundering laws.

All this gives the parties to the agreement plenty of leverage with Iran. They could ask for changes to the deal itself, such as a stricter limit on the number of centrifuges Iran is allowed to use for "civilian" nuclear research and a longer ban on its production of weapons-grade fuel. More feasible is a renegotiation of the side deal on inspections of suspected nuclear sites by the International Atomic Energy Agency. The system relies too much on Iranian self-reporting and allows Iran to delay inspectors for up to 54 days after a request to visit a site.

Outside the context of the deal, Trump should use U.S. sanctions more forcefully to crack down on Iran's illegal ballistic missiles. He should also expand on President Obama's effort to better arm Saudi Arabia and other Gulf allies, particularly their antimissile defenses.

Making America (Measurably) Great

The CDC's statistics on life expectancy are sobering but also a prod to shape health policy

Is there a way to measure a country's overall success? Gross domestic product indicates how well the economy is working. Labor force participation rates and median wages are a gauge of how workers are faring. Newer measures of happiness, pride, and other intangibles may fill in some details.

There's one metric, however, that speaks volumes about how well a country or society operates: life expectancy. Last year average life expectancy in the U.S. fell for the first time since 1993, according to a report from the Centers for Disease Control and Prevention. That should come as a wake-up call.

The CDC report doesn't say what's causing the decline, but it offers three clues. Life span declined only among the non-elderly. The cause of death that increased most, after Alzheimer's, was unintentional injury. And death rates rose most among whites. All these point to the opioid addiction epidemic.

State and federal efforts to stem the epidemic have clearly been inadequate. Donald Trump has pledged to restrict the flow of drugs into the country, approve more treatments for addiction, and provide more services for people with substance-abuse problems. Legislation that Congress passed to provide more money to states to fight overdoses may also help. Trump and Congress should also work to improve drug courts and overcome resistance by doctors to treat addiction.

Yet Trump will also want to consider how his other promises might impede progress. The obvious concern is his pledge to do away with the Affordable Care Act, which has extended health insurance to at least 20 million people who didn't have it before and free preventive care to tens of millions more. The ACA also mandates insurance plans cover substance abuse, something a third of individual plans previously didn't.

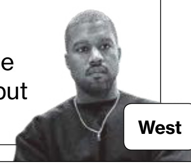
Policies have consequences, and the CDC numbers show a way to improve on the American success story.

ILLUSTRATION BY TOMI UM

Movers

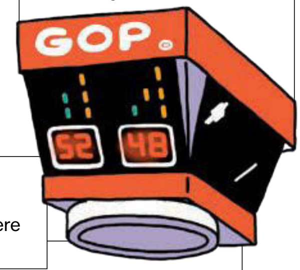
By Kyle Stock

▲ **Team Trump drafted a few more players**. The president-elect tapped ExxonMobil CEO Rex Tillerson as secretary of state, former Texas Governor Rick Perry as energy secretary, and Montana Representative Ryan Zinke as secretary of the interior. Donald Trump met with Kanye West but did not pick him for a cabinet position.



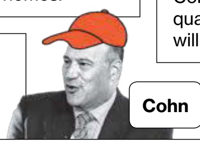
▲ **America's first offshore wind farm** started spinning near the coast of Rhode Island. The five turbines, developed by Deepwater Wind and sourced from General Electric, will generate enough electricity to power 17,000 homes.

▲ Republican John Kennedy **won the Louisiana runoff election**, cementing the GOP's Senate majority at 52 seats.



▲ The Federal Reserve's Open Market Committee **raised the benchmark rate** by a quarter of a percentage point and signaled there will be more hikes next year.

▲ Google spun off Waymo, its seven-year-old self-driving car unit. In San Francisco, Uber started **picking up passengers in self-driving cars**, expanding a pilot program that began in Pittsburgh.



▲ Goldman Sachs's Gary Cohn is giving up the COO job **to become Trump's chief economic adviser**. It will take two men to fill his shoes: David Solomon, co-head of the investment banking unit, and CFO Harvey Schwartz will share COO duties. At Exxon, heir apparent Darren Woods was elevated to the top job.

Ups

$1b

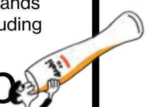
▲ Microsoft co-founder Bill Gates joined with 19 other wealthy individuals to launch **Breakthrough Energy Ventures, a billion-dollar investment fund to foster advances in clean energy production**. (*Bloomberg Businessweek* owner Michael Bloomberg is an investor.)

▲ Amazon.com made its **first commercial delivery by drone**, to a man near Cambridge, U.K., who ordered a bag of popcorn and a Fire TV stick. The trip took **13** minutes.

Iran ordered 80 Boeing passenger planes

$16.6b

Asahi bought a bunch of AB InBev brands in Europe, including Pilsner Urquell



$7.8b

Amundi acquired Pioneer Investments, UniCredit's asset management shop

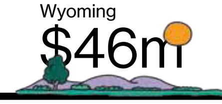
$4.1b

JetSmarter, an app for booking private planes, raised a round of capital at a unicorn valuation

$1.5b

The National Park Service added a 640-acre tract to Grand Teton National Park in Wyoming

$46m



Downs

"Most of what I did, with very few exceptions, can be understood without having any idea what game theory is."

▼ **Thomas Schelling, an economist and Nobel laureate**, who died at age 95. Schelling was best-known for using game theory to inform U.S. negotiating strategies during the Cold War.

▼ Samsung Electronics announced it **will kill all Galaxy Note 7 smartphones** starting on Dec. 19. Despite the handset's propensity to burst into flames, about 7 percent of Note 7 owners have failed to trade theirs in.

▼ Chipotle Mexican Grill co-CEO Monty Moran stepped down, **ceding full control of the struggling burrito empire** to founder Steve Ells.

▼ Christine Lagarde, managing director of the International Monetary Fund, went on trial in Paris. She faces **criminal charges that, when she was France's finance minister, her negligence resulted in the misuse of public funds**. If convicted, she could spend up to a year in prison.

▼ The U.S. Department of Justice **accused two pharma executives of fixing prices on generic drugs**, the first action in a probe that spans a dozen companies. Jeffrey Glazer, former CEO of Heritage Pharmaceuticals, and Jason Malek, an ex-president, were charged.

▼ Civilians in the Syrian city of Aleppo were **massacred as a cease-fire broke down** between advancing government forces and small pockets of rebels. Citing "credible reports," the United Nations said women and children were rounded up and executed.

▼ Parents worldwide panicked as they struggled to find **one of the hottest toys of the holiday season**, a fuzzy talking bird called the Hatchimal. The spoils go to Canada's Spin Master... and the opportunists flipping the toys on EBay for multiples of its $60 sticker price.

Neiman Marcus posted a wider-than-expected loss in its latest quarter, as sales slumped 8 percent

$23.5m

UniCredit plans massive job cuts in a bid to reduce costs

14k

CalPERS, the largest U.S. pension fund, prepared to lower its long-standing annual return target

7.5%

Lockheed Martin shares plunged on Dec. 12 after Trump complained about the price tag on its F-35 fighter jet

–5.5%

U.S. retail sales in November barely budged from a month earlier. Grinchy!

0.1%

ILLUSTRATIONS BY OSCAR BOLTON GREEN; SYRIA: GEORGE OURFALIAN/AFP/GETTY IMAGES; GETTY IMAGES (5)

Korea's president is on her way out. Are the chaebol next? 15

Germany's immigrants bring along a valuable commodity: Babies! 16

Chinese capital flight gets grounded 17

December 19 — December 25, 2016

Wanted: Forklift Driver

***Also Wanted: Forklift

▶ **A shortage of workers and investment could soon hinder the economy**

▶ **"We've moved from…cyclical, demand-side recovery to structural, supply-side stagnation"**

All Paul Heinauer wants is a few good auto-glass installers, no experience necessary. The only requirements are mechanical aptitude, a clean driving record, U.S. citizenship or a green card, friendliness, and honesty; pay starts at $12 an hour and goes up to $70,000 a year including overtime and bonuses. So few people are applying that Heinauer, the owner of **Glasspro** in North Charleston, S.C., went to Blessed Sacrament Church in Charleston on Dec. 11 to make a pitch after the Spanish-language Mass. "I've spent the majority of my time trying to recruit within the last year," he says.

Futurists have been saying for a while that the U.S. is hurtling toward a jobless economy, with driverless long-haul trucks and cashier-free brick-and-mortar Amazon stores. Someday, maybe. Right now the problem isn't too many workers who can't find jobs. It's too many jobs that can't find workers.

The U.S. economy is going through a sea change in which the main constraint isn't demand but supply. There's plenty of consumer demand for goods and services, but companies lack the workers to satisfy it. Workers, in turn, don't have the tools they need to do their jobs, because business investment in modern machines, software, and buildings has been weak. Government is also to blame: Congested roads, bridges, and ports are evidence of chronic public underinvestment in the infrastructure that supports growth. "We've moved from a period of cyclical, demand-side recovery to structural, supply-side stagnation," says Robert Atkinson, president of ▶

GETTY IMAGES (2)

◀ the Information Technology and Innovation Foundation (ITIF).

This has big implications for President-elect Donald Trump. When Barack Obama took office at the height of the financial crisis, the U.S. economy had abundant spare capacity; all it needed was someone to use it. Hence the roughly $800 billion American Recovery and Reinvestment Act, which boosted demand but added to a big—and unpopular—federal budget deficit.

Labor has grown scarcer since 2008

Trump takes office at a time when Keynesian stimulus is no longer the most urgent need. The slack is mostly gone. The president-elect's aim of roughly doubling annual growth "is nearly impossible to achieve over a sustained period, absent transformative factors outside the government's control," the Committee for a Responsible Federal Budget, an anti-deficit group, wrote in a Dec. 9 blog post. Tax cuts and government spending increases will backfire if all they do is rev up demand temporarily, and Trump's plan to expel undocumented aliens would shrink the workforce, depressing growth.

What could work, economists say, are government policies, including strategic tax cuts, focused on fixing the supply side of the economy. These would include education and training to lift the productivity of the American workforce; more and better equipment for workers to use; and infrastructure spending to clear traffic jams and other bottlenecks, not just put shovels into people's hands.

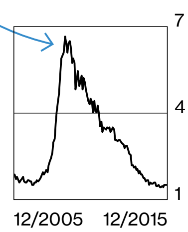
The change in the economy is most obvious in the labor market. The U.S. unemployment rate fell in November, to 4.6 percent—well below the 5.8 percent average since monthly record keeping began in 1948. The number of unemployed people per job opening is down to just 1.4, from a high of 6.6 in July 2009, according to the Bureau of Labor Statistics. Thirty-one percent of small businesses have jobs they can't fill, according to a November survey by the National Federation of Independent Business. That's tied for the most since 2001. Tight labor markets "could slow down the economy in the next couple years," says Gad Levanon, chief North America economist at the Conference Board, a business research group.

Sealed Air, the maker of Bubble Wrap IB and other cleaning and packaging products, commissioned a study of company shortages. Energy, water, and land came up, but the No. 1 answer around the world was skilled labor, says Ron Cotterman, Sealed Air's vice president for sustainability. "That was a real surprise to us," he says.

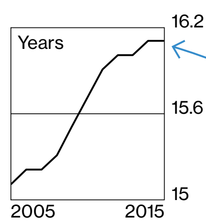
At the end of 2009 it took Aaron Wiegel less than a week to fill an opening for a skilled labor position at **Wiegel Tool Works**, a precision-metal-stamping company in Wood Dale, Ill. "Today it's a matter of months, and that's if I can find someone," says Wiegel, the company's president. Most are job-switchers. "These aren't people coming off of unemployment."

Working With Less

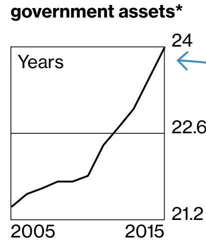
Unemployed people per job opening



Average age of business equipment



Average age of government assets*



Some economists question how tight the labor market is. "In the early 1950s, the unemployment rate fell below 3 percent," Deutsche Bank Chief U.S. Economist Joseph LaVorgna pointed out in a note to clients on Dec. 13. Foreign competition is continuing to depress wages in many sectors, he says. Average hourly earnings grew only 2.4 percent over the past year, below the sum of inflation and productivity growth, says Elise Gould, a senior economist at the Economic Policy Institute. On the other hand, the Wage Growth Tracker of the Federal Reserve Bank of Atlanta, which tracks pay for the same workers over time, reached an eight-year high of 3.9 percent in November. Strength in jobs helped persuade the Federal Reserve to announce a quarter-point increase in the target range of the fed funds rate, to 0.5 percent to 0.75 percent, on Dec. 14.

Outdated equipment is a second constraint on growth. That seemed like less of a problem in the years after the financial crisis. If anything, unions and politicians worried that new machines would displace workers. But now that unemployment is low, more business investment would clearly help workers, not hurt them. By making them more productive, it would allow them to command higher pay without hurting a company's profit margin or causing inflation. The sluggish wage growth of the past eight years is partially a result of the slow improvement in labor productivity, which in turn is a consequence of weak investment by businesses in "labor-augmenting" technology such as improved software. "Many manufacturers lack a sense of urgency" about adopting digital technologies, Boston Consulting Group said on Dec. 12, based on a survey of 380 U.S. executives and managers.

On paper, U.S. industry still has plenty of capacity; according to the Federal Reserve, the utilization rate was just 75 percent in November, below the long-term average. But some of that capacity is old. The stock of nonresidential equipment assets per worker—stuff like computers and machine tools—fell 23 percent from 1995 to 2014, according to Bureau of Economic Analysis data. "Why would we expect workers to be more productive when they have fewer or less valuable tools?" asks the ITIF's Atkinson. In companies' defense, it doesn't make sense for them to put in machines their workers can't handle. "We have purposefully not invested in some new equipment because ... we don't have the talent to operate and maintain it," says JB Brown, president of **Bremen Castings**, a foundry and machine shop in Bremen, Ind.

The third area where scarcity is becoming an issue is public investment. For all the talk about spending on infrastructure, it hasn't been happening, partly because the states and localities that do a lot of it have cut back to balance their budgets, as required by state law. Investment has barely offset the deterioration of the old stuff, whether sewers, water conduits, levees, or highways. The average age of fixed assets owned by governments rose from less than 21 years in 2000 to 24 years in 2015.

Businesses and governments are underinvesting in equipment and infrastructure

Federal Reserve Chair Janet Yellen has been slow to raise interest rates for fear of choking off demand. In an October speech, she mused about the "high-pressure economy" theory, which says that an extended period of very low unemployment pulls workers in from the margins of society, ultimately beefing up the supply side of the economy. That could work. But, depressingly, today's low jobless rate hasn't done much to pull in workers: The labor force participation rate for men of prime working age (25 to 54) is lower than it was during the 2007-09 recession. The supply side of the U.S. economy is clearly coming under strain. *—Peter Coy and Matthew Philips*

The bottom line A triple shortage in skilled labor, business equipment, and public infrastructure could foil Trump's plans for 4 percent economic growth.

Power

South Korea Tries to Curb the Chaebol

▶ **Legislators grill leaders of the huge conglomerates about bribes**

▶ **"Executives should go to jail and be punished"**

Even before South Korean prosecutors tied the *chaebol* to the influence-peddling scandal that culminated with the Dec. 9 impeachment of President Park Geun-hye, 2016 was a year to forget for the conglomerates that dominate the economy. The country's biggest container line, **Hanjin Shipping**, filed for bankruptcy protection in August, stranding an estimated $14 billion of goods at sea. The top automaker, **Hyundai Motor**, suffered 3 trillion won ($2.6 billion) in lost production from labor disputes, including a three-week wage strike in September and October. Prosecutors in October indicted five members of retail giant **Lotte Group**'s founding family, including Chairman Shin Dong-bin, on charges including tax evasion and embezzlement. In the most embarrassing setback, mighty **Samsung Electronics** in October killed its Note 7 smartphone after the handsets kept exploding or catching fire. Samsung says the debacle will cost Korea's premier chaebol more than $5 billion.

9.5%

Share of South Korea's 2015 GDP accounted for by the five largest chaebol, according to research firm CEOScore

Then came the news about chaebol favors for Park confidante Choi Soon-sil, including tens of millions of dollars in donations to her foundations. On Dec. 6 lawmakers summoned the heads of nine conglomerates to testify about alleged corruption among the political and business elite. None of the nine groups has been charged with wrongdoing. The testimony has released the pent-up anger of a population struggling with the transition to a slow-growth era.

Economists expect South Korean gross domestic product this year to expand 2.7 percent, marking the first five-year period with growth below 3.5 percent since the 1950s. Manufacturers are suffering from the slowdown in China, South Korea's top export market, and soft demand elsewhere. Export growth has declined in 21 of the past 23 months. Youth unemployment is 9.3 percent, in part because rigid labor laws discourage employers from hiring young graduates. "Without some serious restructuring," says Emily Dabbs, an economist for Moody's Analytics in Sydney, the outlook "is going to be quite weak."

Koreans are struggling to boost their living standard—despite clocking an average of 2,113 hours on the job last year, behind only Mexico among Organization for Economic Cooperation and Development countries. Monthly household incomes for urban salary and wage earners grew 1.7 percent in the third quarter from a year earlier. As recently as 2012, income growth regularly topped 5 percent. Many jobs are low-paying temporary positions without the insurance, pensions, and other benefits regular workers enjoy. Temporary employees, who make up one-third of the workforce, earn on average about 41 percent of what a full-fledged employee does. "In Korea, many nonregular workers or in-house subcontract workers find themselves in a no-man's-land," according to an OECD report published in July, "holding jobs that are in practice neither well-protected by labour laws nor by social protection schemes."

The confluence of business failures, political scandal, economic malaise, and the emergence of a more cynical generation threatens to upend a system that made South Korea a global industrial powerhouse. Since the end of military rule in the late 1980s, an unwritten social compact has allowed corruption among the political and corporate elite as long as ordinary Koreans enjoyed solid economic growth. As the economy matures and inequality grows, that deal is fraying. "The back-scratching alliance of the government and businesses" needs to end, says Lim Jin-hui, a 19-year-old student at Dongguk University in Seoul who joined an anti-Park protest before the Dec. 9 impeachment vote. ▶

Protesters march in Seoul

KYODO/AP PHOTO; *BUILDINGS, ROADS, SEWERS, ETC.; DATA: BUREAU OF LABOR STATISTICS, BUREAU OF ECONOMIC ANALYSIS

◀ "This cozy relationship must stop."

Older Koreans are joining young adult activists demanding more accountability. "Some of the chaebol executives should go to jail and be punished," says software engineer Cho Pum-suk, 38, who marched with Lim and hundreds of thousands of other Koreans in protests.

Emboldened by their victory over Park, members of the opposition People's Party are promising not to stop with impeachment, saying reform must include measures to reduce the influence of the chaebol. National Assembly members have said they intend to question chaebol executives about controversial government decisions such as the awarding of duty-free retail licenses to several chaebol affiliates.

More scrutiny will follow, with the People's Party proposing limits on the cross-shareholding structures that allow chaebol to maintain control of the component companies in their sprawling empires. Impeachment "will open a new era for Korea, an era where chaebol-politician ties are cut," said Park Jie-won, the party's floor leader in the National Assembly, on the day Park was ousted.

The families in charge of the chaebol managed to survive earlier storms. The Constitutional Court of Korea has up to six months to rule on the National Assembly's decision to impeach Park; corporate executives are hoping populist anger against them will subside if she leaves office before her term expires in 2018. "These companies and their leaders know if they keep their heads down for a little bit, it's very hard to dislodge them," says David Kang, director of the Korean Studies Institute at the University of Southern California. The chaebol know how to play tough: They "operate basically like they are gangsters," Chu Jin-hyung, former chief executive officer of **Hanwha Investment & Securities**, told lawmakers. "Whoever goes against their wishes, they punish that person to make sure others follow their orders."

The renewed skepticism about the chaebol could yet lead to greater support for reforms to provide more rights to minority shareholders in chaebol-affiliated companies; discourage the conglomerates from hoarding cash; and limit their ability to invest in noncore businesses. The impact of such reform would be as big as the transition to democracy in the late 1980s, says Paul Choi, head of research for CLSA Securities Korea. "Most people want to end the collusion between politics and chaebol," he says.

With presidential elections likely next year, the conglomerates face one of their most challenging political environments. Chaebol reforms, according to Park Sanghyun, an analyst for research firm Smartkarma, "will get a lot of public support in the next 12 months." —*Bruce Einhorn, Peter Pae, Jungah Lee, Kanga Kong, and Abhishek Vishnoi*

The bottom line The collusion between politicians and the chaebol in South Korea may come to an end in the wake of President Park's impeachment.

Demographics

Germany's Maternity Wards Are Booked

▶ **Immigrants are helping spur a badly needed baby boom**

▶ **In developed countries, "there's a dearth of millennials" giving birth**

As Germany wrestles with the political and economic fallout of surging immigration, one thing has become clear. The foreigners are giving the country something it needs: more babies.

In 2015, Germany's birthrate rose to 1.5 per woman, the highest in 33 years. The state statistics service attributed the increase mainly to foreign-born mothers, who accounted for a record-high 1 in 5 births. German-born moms have an average of 1.4 kids; for foreign-born women, the figure is higher than 1.9. "It's much easier to be a family and have kids here," says Basima Shhadat, who gave birth to a daughter in Munich in 2015, a year after arriving from Syria with her husband and five sons. Four other sons died in Syria, she says. "My kids can live here. There are no bombs."

The birth surge is encouraging news for Germany, which has the world's lowest birthrate. As in many developed countries, "there's a dearth of millennials" having babies to replenish the ranks of workers who help finance pensions and health care for retirees, says Stijn Hoorens, a Rand Corp. demographer in Brussels. Immigrants are generally in their childbearing years, and once established in their host countries they tend to have bigger families than native-born counterparts, Hoorens says.

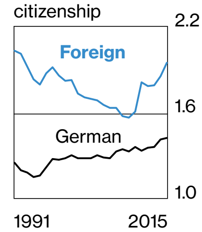
In the U.S. a recent study by the Pew Research Center found that foreign-born women now account for 23 percent of births, though immigrants represent only 14 percent of the population. "Were it not for the increase in births to immigrant women, the annual number of U.S. births would have declined since 1970," the study said.

Germany has Europe's largest immigrant population, including 3 million with Turkish roots. The country is still short of the 2.1 babies for every woman of childbearing age that demographers say is needed to prevent population decline. The recent influx of refugees could help with that, as most come from countries such as Afghanistan and Syria, where average family sizes exceed those in Europe, Hoorens says.

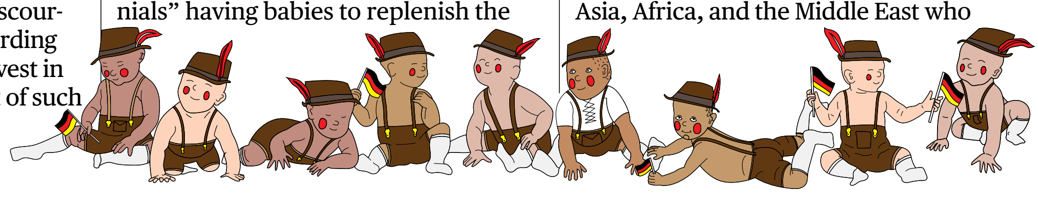
Births had started to inch upward even before the arrival of almost 2 million refugees over the past three years. Thomas Bernar, head of the maternity clinic at the Helios Kliniken hospital in Pforzheim, a heavily immigrant city, says his clinic had logged almost 1,600 deliveries in 2016 as of Dec. 9, more than the total 1,479 for all of 2015. The hospital is expanding its maternity ward from 17 to 24 beds and hiring more midwives and doctors.

Fertility Rates in Germany

By mother's citizenship



The boom may not last: Second-generation immigrants tend to adopt the childbearing habits of their host countries. The birthrate among Mexican-born women in the U.S., for example, has fallen more than 26 percent over the past decade, according to Pew. That decline has been offset by more-recent immigrants from Asia, Africa, and the Middle East who



tend to have more children. This raises the question of what impact President-elect Donald Trump's anti-immigrant position will have on the birthrate.

Reiner Klingholz, head of the Berlin Institute for Population and Development, contends that Germany shouldn't rely on immigration alone to prevent population decline. More important, he says, are family policies such as more generous parental leave and financial help with schooling—measures the German government has started to implement. —*Carol Matlack, with Naomi Kresge and Oliver Sachgau*

The bottom line Immigrants to Germany could fill the gap that marks the difference between shrinking and stabilizing the population.

Mergers & Acquisitions

Beijing Moves to Curb Overseas Investments

▶ **Efforts to contain capital flight threaten to gum up dealmaking**

▶ **"The credibility of China Inc. will be badly damaged"**

For years, China has encouraged its companies to make acquisitions overseas to gain access to new technology, brands, and management expertise. Under its "Go Abroad" policy, or *zou chuqu*, Beijing has loosened approval requirements for international deals and eased capital controls. In the first 10 months of 2016, outbound direct investment by Chinese enterprises reached $146 billion, up 53.3 percent from the same period a year ago, according to China's Ministry of Commerce.

That push may stall as Chinese regulators redouble efforts to clamp down on capital flight amid concern that a weakening currency could further spur outflows. China is planning sweeping curbs on its companies' overseas acquisitions, including barring most foreign investments of $10 billion or more, people with knowledge of the matter told Bloomberg in late November. Officials won't approve requests to bring yuan overseas for conversion into foreign currency without a valid business reason, according to people with knowledge of new measures drafted by the People's Bank of China. China's bureaucrats have also weighed in publicly: We will "crack down on false overseas investment activities," while ensuring "the legitimacy and authenticity of overseas direct investment," the State Administration of Foreign Exchange said in a Nov. 29 statement reported by Xinhua, China's official news agency.

Chinese authorities are "closely monitoring" transactions in areas such as real estate, hotels, studios, entertainment, and sports clubs for evidence of "irrational overseas investment tendencies," according to a Xinhua story that quoted Dec. 6 statements made by officials from the National Development and Reform Commission, the Ministry of Commerce, and other agencies. The pointed warnings come after months of quieter efforts to control cross-border money flows, including most recently a limit on the amount holders of China-issued cards can withdraw at a time from ATMs in Macau.

"The Chinese government has long been encouraging more active participation by Chinese companies in global markets, and the central bank has been liberalizing investment rules. This is a setback," says Fred Hu, chairman and founder of Primavera Capital Group, a Beijing-based investment firm. "This is going to create tremendous uncertainty and slow down outbound investment by all Chinese companies. The credibility of China Inc. will be badly damaged."

Concern that Chinese businesses are spiriting money abroad under the guise of foreign investment has grown among Chinese officials, particularly since financial outflows surged following a surprise 1.8 percent devaluation of the yuan in August 2015, says Thilo Hanemann, director and economist at the Rhodium Group, a New York-based consulting firm that monitors Chinese investment abroad.

The yuan fell to an eight-year low of 6.87 against the dollar in November, and China's financial authorities worry a too-rapid depreciation could encourage even more money to flee. "Policymakers are willing to see the currency weaken somewhat, but not too much," says Louis Kuijs, head of Asia economics at Oxford Economics in Hong Kong. A strengthening dollar—a byproduct of Donald Trump's election—and the U.S. Federal Reserve's Dec. 14 rate hike will put more pressure on the Chinese currency, Kuijs says.

Companies that invest outside their core business area and those that expand abroad rapidly will draw particular scrutiny from regulators, according to a foreign exchange official quoted in a Dec. 8 Xinhua story. Still, Beijing "will continue to support capable and qualified businesses to carry out outbound investment activities," said the official.

Despite such assurances, the recent pronouncements could damp Chinese companies' appetite for foreign ventures and the willingness of Chinese and international banks to finance future deals, says Primavera's Hu. Also, officials may be more cautious about approving transactions in the runup to next fall's Communist Party Congress, a once-every-five-years event that can make or break a cadre's career. "The current environment incentivizes local officials to play it safe, and they could just freeze investment deals," says Rhodium's Hanemann, who adds that a 20 percent to 30 percent drop in deal value would be manageable, but there's substantial risk of a much larger drop. "The question is, how are these rules going to be implemented, and will they lead to a crash in Chinese outbound investment?"

Beijing's U-turn comes at a time when legislators in the U.S., Australia, and other countries are voicing anxiety that national security could be compromised by deals that give Chinese companies with government connections control over cutting-edge technology or resources including oil, coal, and agricultural land. Confronted with so much uncertainty, American and European companies may decide to turn down offers from Chinese investors, says Dan Harris, a lawyer at Harris Bricken in Seattle who works on cross-border deals. "If I'm a seller and there's a Chinese company that can pay $50 million and an American company that will pay $45 million, I would think long and hard about taking the $50 million," he says. —*Dexter Roberts, with Bloomberg News*

The bottom line Beijing policymakers have warned that Chinese companies involved in foreign transactions will face increased scrutiny.

Edited by Christopher Power and Cristina Lindblad
Bloomberg.com

Retiring a little bit at a time 20

How do you sell vibrators in India? 21

Cheap Chinese airfares rankle the majors 22

Reinventing These Wheels

▶ Volkswagen set aside $19.3 billion to cover its emissions scandal—now it wants to remake itself

▶ “My job is to step on a lot of people’s toes”

In November 2014 the captains of Germany’s auto industry gathered at a 19th-floor private club with sweeping views of Berlin for a ceremony honoring the year’s best cars. As dozens of corporate A-listers glad-handed and sipped wine, Porsche Chief Executive Officer Matthias Müller received three Golden Steering Wheel awards—part of **Volkswagen**’s six-trophy haul. But the most valuable thing he may have picked up that evening was the business card of Thomas Sedran, a former consultant who’s also served as the interim CEO at General Motors’ Opel unit.

Shortly after being appointed VW’s CEO a year later, Müller rang up Sedran. The company had acknowledged rigging 11 million diesel vehicles to cheat on emissions tests and was now reviled for besmirching the hallowed made-in-Germany brand. Recalling Sedran’s work in restructuring GM’s European operations, including the politically sensitive task of closing a German Opel factory, Müller invited him to Volkswagen’s Wolfsburg headquarters.

For decades, few had challenged convention at VW, and Müller wanted an outsider who might give him unvarnished opinions. Sedran outlined how VW could absorb the blow from the scandal while still investing in the changes disrupting the industry. Less than a month later, Müller hired Sedran for the newly created position of strategy chief, tasked with eliminating inefficiencies and remapping the direction of a colossus with 620,000 workers, 121 factories, 13 brands ranging from the budget Skoda to the extravagant Lamborghini, and development spending that exceeds Apple’s. “When Müller called me, I thought, Awesome! What a chance,” Sedran says. “My job is to step on a lot of people’s toes.”

VW needs some toe-stepping, or even stomping. Like all big automakers, the company must invest billions to adapt to the shift to electric cars and self-driving technology. Yet VW has other burdens: Its flagship brand is barely profitable, and it faces criminal investigations, hundreds of lawsuits, and incalculable damage to its image from the emissions cheating. Even as VW has set aside €18.2 billion ($19.3 billion) for fines and repairs, its market value has dropped by €10.3 billion—more than 13 percent—and its U.S. sales are off by 10 percent this year.

Overcoming the scandal will involve more than simply paying damages and rolling out electric cars. Müller is using the rehabilitation as a catalyst for a sweeping overhaul. He’s instituted English as an official language—a small but notable change for a multinational. And he says VW must redefine its rigid, top-down management and soften an atmosphere of fear. “We need the courage to make mistakes,” he says. “If we can combine the new world with the old, we’ll be successful.”

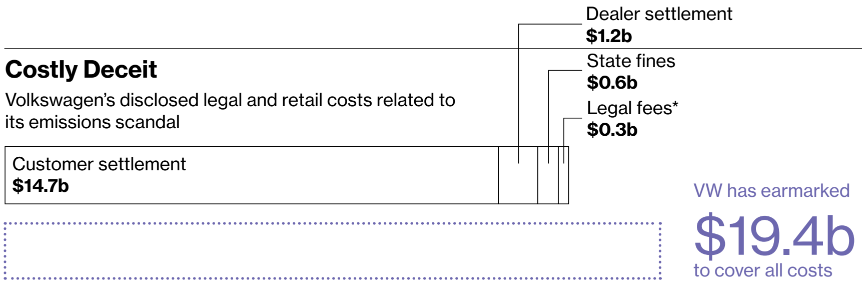
Hiring a newcomer like Sedran was an early sign of Müller’s intention to combine those worlds and overcome the company’s conservative instincts. A small cadre of executives with ties going back decades has long overseen VW’s management. And a majority of seats on the supervisory board are held by employee representatives and officials from its home state of Lower Saxony, who often ally to protect jobs. To implement any real change at VW, “you need ▶

Müller

FROM TOP: ILLUSTRATION BY CAROLINE DAVID; THOMAS NIEDERMUELLER/GETTY IMAGES

Costly Deceit

Volkswagen's disclosed legal and retail costs related to its emissions scandal



◀ a lot of negotiations to ensure political support and the backing of labor," says Jürgen Pieper, head of research at Bankhaus Metzler.

For a company built around mobility, VW is surprisingly static, with a record of success that never necessitated hard analysis of its Byzantine organization. Its Wolfsburg facility—a jumble of manufacturing halls and office buildings that covers an area as big as Monaco—was established by the Nazis in the 1930s to turn out a "people's car." Its state backing and isolation from other German industrial centers contributed to an insular culture with its own set of rituals.

There are clubby benefits like the "Service Factory"—3,400 caterers and custodians paid the same wages to serve sandwiches and sodas as workers who assemble Golfs and Tiguans. An in-house butcher churns out more than **7 million sausages** a year, and a garden center fills employees' flower orders. And traditionally there's been an extreme deference to authority, with underlings exiting elevators to make way for top brass, and lunches in the executive dining room delivered under shining silver domes.

Müller and Sedran have curtailed the powers of the Product Strategy Committee, or PSK, a politburo that lorded over every aspect of development. Before the change, teams from engineering, sales, and finance shared responsibility; the PSK settled the inevitable disputes—and often added features sought by the engineers, leading to ballooning costs and complexity. Today, the manager in charge of a model line must ensure that any new option will generate enough profit to justify its expense.

Sedran has pushed for Volkswagen to streamline the group's sprawling component operations, which include about 70,000 workers at more than two dozen locations. That angered some managers, because it threatened to take away lucrative parts businesses from some brands, but the move is aimed at finding groupwide savings. "The burdens are enormous," Sedran says. "We need discipline to stay the course."

A key area for reform will be labor costs. Volkswagen employs about 80 percent more people than **Toyota** to produce roughly the same number of vehicles. In November, VW reached a landmark labor deal, with the powerful workers' council agreeing to cut as many as 30,000 jobs and trim the company's annual costs by €3.7 billion by 2020. "We know things must be done differently, but it has to be fair," says Bernd Osterloh, Volkswagen's works council chief.

That's an acknowledgment that the shift to an era of electric-powered robo-taxis will likely mean fewer people churning out transmissions and engines and more software developers and cloud-computing experts. Volkswagen hasn't shown itself to be adept at dealing with that kind of transition, but there are green shoots. In a dull concrete building in Wolfsburg, about 100 people are working on the company's response to **Tesla**'s $35,000 Model 3, due next year.

Heading the push to sell as many as 3 million electric cars annually within a decade is Christian Senger, another new recruit, from BMW and parts maker Continental. The 42-year-old has eschewed a private office, taking a desk in the corner of what looks like a public school classroom. A dozen workstations salvaged from other facilities are arrayed along the windows, and the only privacy is found in a cramped meeting room wedged into a corner. "If you want a parking spot with your name on it, you can look elsewhere," Senger says.

Ultimately, the challenge isn't just succeeding with a single high-profile project but leveraging Volkswagen's size while curbing complexity. In recent years, the automaker's portfolio ballooned to more than 330 models; the Golf was burdened with 89 choices for the steering wheel and two dozen radiator grilles. The company is starting to reduce the bloat, as the VW brand plans to eliminate about 15,000 parts variants and cut car prototypes by at least a third.

It's also invested $300 million in a taxi-hailing app called Gett, which will form the nucleus of Moia, a new "mobility services" brand. Such moves are emblematic of the kind of change VW will need if it's to thrive when battery-powered vehicles are the norm and fewer customers buy cars, instead relying on Uber-like services to get around. "We're undergoing three-dimensional change," says Sedran. "In all areas, we're making progress." —*Christoph Rauwald and Chris Reiter*

The bottom line Volkswagen, which employs about 80 percent more people to build the same number of cars as Toyota, is trying to be leaner.

Workplace

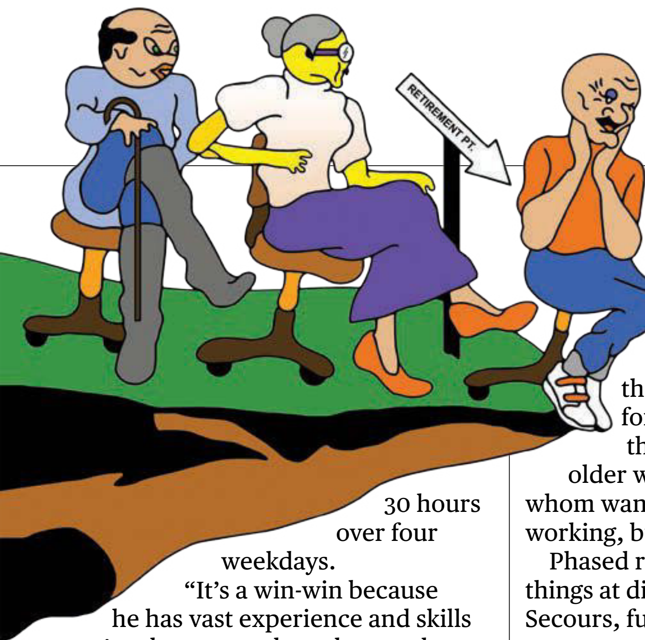
The Same Gold Watch, It Just Arrives Later

▶ Phased retirement lets businesses keep veteran workers a bit longer

▶ "It's a win-win because he has ... skills we're short on"

David Warsen has refurbished hundreds of machines at **Steelcase**'s Kentwood, Mich., plant, from 50-year-old presses to new laser cutting equipment. When a press stopped operating recently, the 39-year veteran at the office furniture maker, a principal electrician, diagnosed and fixed the problem in minutes. So his boss was relieved when Warsen, who turns 65 in February, decided to take advantage of the company's phased retirement program rather than simply end his career. Instead of the six-day-a-week schedule he used to work, including many Saturdays when production lines are down and equipment is repaired, Warsen puts in

FROM LEFT: JULIAN STRATENSCHULTE/AP IMAGES; ILLUSTRATION BY BRIE MORENO; *MAXIMUM PROJECTED BY COMPANY; DATA COMPILED BY BLOOMBERG



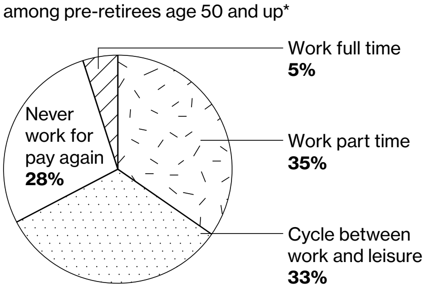
30 hours over four weekdays.

"It's a win-win because he has vast experience and skills we're short on and need to teach younger workers, and he doesn't have to go cold turkey into retirement," says Steve Kempker, manager of skilled trades at the plant, where a quarter of the 800 workers will be eligible to retire over the next three to five years. "This gives me an opportunity to slow down from a very intense work schedule," says Warsen, who's spending more time golfing and biking, "so I can get used to my next chapter."

With 10,000 baby boomers turning 65 each day, businesses are scrambling to find ways to slow an exodus of the most experienced employees and ensure that they pass along their knowledge before they leave. Companies from Steelcase to **First Horizon National** in Memphis and **Bon Secours Virginia Health System** in Richmond are offering older workers part-time jobs and flexible schedules to ease them into retirement. Fourteen percent of U.S. companies offered either a formal or informal phased retirement program this year, up from 10 percent in 2012, according to the Society for Human Resource Management.

Redefining the Golden Years

Preferred work status in retirement years among pre-retirees age 50 and up*



SURVEY COMPLETED MARCH 2014; *FIGURES ADD TO MORE THAN 100 BECAUSE OF ROUNDING; DATA: BANK OF AMERICA/MERRILL LYNCH, AGEWAVE

"There's a need for more companies to do this if they want to preserve their best practices, innovations, and customer relations," says Paul Irving, chairman of the Milken Institute Center for the Future of Aging. "And there's receptivity among older workers, a majority of whom want to stay engaged and keep working, but in new ways."

Phased retirement means different things at different companies. At Bon Secours, full-time employees of retirement age can switch to schedules of 16 to 24 hours a week. At First Horizon, employees within three years of retirement can reduce their schedules to 20 to 30 hours weekly if their duties can be performed in that amount of time, they're willing to mentor successors, and they commit to staying on for one to three years.

"It makes sense to have a transition instead of a sudden departure, especially for leaders," says John Daniel, executive vice president. A 35-year veteran on his staff is about to start working a reduced schedule while her successor is chosen and will stay on to offer guidance. "She's got decades of knowledge about people and processes, and I don't want that walking out the door, even though it will cost us a bit more to keep her and also hire her replacement," Daniel says.

Realizing that it soon would face a tsunami of retiring boomers, especially in its IT and manufacturing departments, Steelcase started offering phased retirement in 2012. Currently about 800 employees, 15 percent of its U.S. workforce, are eligible to retire based on age and years of service. So far, 47 have elected phased departures.

Those interested must propose the jobs they want to do—for at least six months and no more than two years—and why they think the arrangement will benefit the company. One manager got approval to work just one day a week to complete a project while mentoring his successor. "We're asking employees to make a business case about how they'll handle this and why it's good for both them and us," says Laurent Bernard, vice president for global talent management.

Such arrangements require adjustments from both veteran employees and managers. At Steelcase, electrician Warsen has had to get used to not being the go-to guy when problems arise and "sometimes feeling outside the mainstream of the department," he says. "The good part is seeing that others can take charge. It's like a parent letting go of a child."

He and his boss initially disagreed about his schedule. He'd wanted to leave early on Thursdays and take Fridays off, but "that didn't fit with our workflow," says Kempker. The two finally agreed Warsen wouldn't work Mondays and would have three-day weekends, but would be at the plant on the busiest days.

For Kempker, retaining skilled older employees like Warsen is crucial. The plant, which manufactures more than 5,000 desks, tables, and file cabinets a day, has an apprentice program for millennials, but there's a shortage of Generation X workers. "We've got a big gap in the middle, so we have to keep talented people in their 60s a little longer," says Kempker, who has three employees doing phased retirement. "It's like maintenance on a piece of equipment: You can't just close your eyes to the problem and wait for it to break down." —*Carol Hymowitz*

The bottom line About 14 percent of U.S. companies let workers ease out of jobs with formal or informal phased retirement plans.

E-Commerce

A Startup That Dare Not Speak Its Name

▶ **That's Personal has a problem: Its adult products seem too racy**

▶ **"Will this category do well? Sure! Is it investable? Difficult to say"**

Indian e-commerce startup **That's Personal** boasts the kind of financial metrics venture capitalists typically salivate over: a consistent doubling of annual sales, gross margins exceeding 50 percent, low customer acquisition costs, and strong repeat traffic. Yet not a single big-name investor has bitten. ▶

◀ The likely reason: That's Personal sells adult products online—edible body paints, slinky lingerie, erotic board games—in a land where many people consider such items taboo.

Founder Samir Saraiya is betting that gradually liberalizing attitudes toward sex will lead to a boom in what he calls sexual wellness products. Yet more than two millennia after the publication of the *Kama Sutra*, much of Indian society remains prudish. As a result, Saraiya is struggling to persuade skittish venture firms to plow $5 million into his three-year-old company. Investors say the regulatory environment is uncertain and fear Indian officials will shut That's Personal down if it runs afoul of conservative sensitivities. This is a nation, after all, where even dating apps have been criticized for being unseemly.

Rajiv Sahney, who runs the India offices of New Vernon Capital, participated in a round of funding 18 months ago that raised $1 million. He says getting others to pony up will be a challenge. "There are people in India with a view on what India is and what India should be," he says. Even potential backers who deem the online adult segment a winner have been deaf to Saraiya's entreaties. "Will this category do well?" asks Nikhil Khattau, managing director at the India unit of Silicon Valley venture firm Mayfield. "Sure! Is it investable? Difficult to say."

Saraiya remains undaunted, trudging to venture firm offices with a bagful of merchandise. "Investors need to be educated on what this category is all about, what is a cream, what is a lubricant, and what is the product range we stock," he says.

When Saraiya quit running Microsoft's Southeast Asia business development office in 2011 to join India's e-commerce revolution, he quickly discovered that every big e-commerce segment already featured a dozen or more players. Then inspiration struck. Too mortified to buy condoms in the store opposite his apartment building, he traveled to a distant neighborhood where no one knew him. He figured at least a few hundred million of his countrymen faced the same predicament. "That was it," he says. "I decided to solve my own problem."

Saraiya roped in two of his Microsoft buddies as angel investors and jumped into what he calls "discreet e-commerce." Let others promote convenience, price, and choice. He would sell privacy: "Buy from me and nobody will know."

He went to a lawyer's office to get clarity on the rules. "While it is illegal to import and sell quote-unquote obscene products in India, the rules dealing with obscenity make no reference to adult products, the lawyer told me," Saraiya says. To keep officials at bay, all the merchandise would have to conform to a statute forbidding any form of nudity on the packaging. The lawyer liked the concept so much that he invested and became a co-founder when Thatspersonal.com launched in January 2013.

Saraiya's biggest challenge was still to come: how to break the news about his entrepreneurial exploits to friends and relatives. He solved the problem in part by calling the company Digital E-life and printed only that name on his business card. "My children are 4 and 9, and when someone asks them what does your father do, they innocently say he runs Digital E-life," he says.

$1
million

Amount raised in a 2015 angel round of funding for That's Personal's online adult products business

The country's changing demographics seem to be working to That's Personal's advantage. Almost three-quarters of India's 1.3 billion citizens are under 45—many of them digitally savvy and willing to try new things. More than 40 percent of the company's customers are women, and one of its most popular products is women's intimate shaving cream. "In India people glare at a woman if she smokes," Saraiya says. "Can you imagine a woman walking into a store and asking for this cream?"

Advertising has been a challenge because strict rules govern what merchants can show online. Google users in India must turn off their "safe search" option to view the ads. Facebook bans such words as "massager" and "vibrator" in the country. That's Personal has made an art of discretion. To thwart prying relatives or domestic helpers, packages are unmarked and the invoices euphemistic. Racy lingerie is "one-piece apparel"; massage cream is a "one-piece novelty item." Some customers who live with their parents or extended families have even asked That's Personal to relabel the products. Saraiya is considering providing such a service—for a fee. —*Saritha Rai*

The bottom line Selling adult products openly is a challenge in conservative India. But e-commerce site That's Personal is doubling sales every year.

Airlines

China Challenges the Giants With Low Fares

▶ **Its discounters are hurting established long-haul lines**

▶ **"Chinese airlines are still hardly scratching the surface"**

Most travelers wouldn't choose to kill four empty hours at Guangzhou Baiyun International Airport waiting for a **China Southern Airlines** connection to Sydney. But for Gina Capella, it was a no-brainer. The Boston resident and her friend saved hundreds of dollars last year taking China Southern instead of a nonstop flight from Seoul with **Korean Air Lines** or **Asiana Airlines**. "We didn't mind the layover because it was so much cheaper," she says. "Like, almost half the price."

Chinese airlines are flooding the world with some of the lowest long-haul fares ever seen—think **Air China**'s $399 round-trip flash sale from New York to Tokyo, Seoul, and Hong Kong in July. International operators from **Delta Air Lines** and **American Airlines** in the U.S. to **Cathay Pacific Airways** and Korean Air in Asia are feeling the squeeze from the fast-expanding reach of mainland carriers.

China's three biggest carriers—Air China, **China Eastern Airlines**, and China Southern—are state-controlled. Along with offering cheap fares on popular routes long dominated by major airlines, the discounters are adding hundreds of overseas flights a year from lesser-known mainland Chinese cities such as Chengdu and

TEH ENG KOON/GETTY IMAGES

Crowds at Beijing Capital International Airport

Chongqing to airports across Asia and to Europe, the U.S., and Canada. “Chinese airlines are still hardly scratching the surface of their potential, not just in China but globally,” says Will Horton, an analyst at the CAPA Centre for Aviation. “If an airline today cannot compete with or grow alongside a Chinese airline, the future will be bleak.”

According to CAPA, mainland Chinese airlines, led by Air China and **Hainan Airlines**, have opened 75 long-haul routes since 2006. More than two-thirds of those routes were opened only in the past two years. The Chinese carriers’ expansion has taken a toll on rivals. First-half profit at Cathay plummeted 82 percent as Chinese travelers bypassed the airline’s Hong Kong hub to reach overseas destinations directly. American Airlines President Robert Isom said in October that the carrier was experiencing “continued weakness in China” as excess capacity seeps into its new routes from Los Angeles to Hong Kong, Tokyo-Haneda, Sydney, and Auckland.

A round trip on China Eastern between New York and Bangkok, via Shanghai, recently cost $570.06. That’s about $145 less than flying with United Airlines through Hong Kong. On Expedia, flying from Seattle to Hong Kong in mid-February with Hainan via Beijing is 19 percent cheaper than on American Airlines.

“U.S. airlines dominated the China-U.S. route in the past, but now it’s the Chinese airlines,” says Chen Suming, an analyst at Shanghai Chongyang Investment Management. “Most of the new air travelers are from China, not the U.S.”

The fare competition can be particularly fierce to destinations in Southeast Asia and Australia. China Southern is selling February flights from Sydney to Seoul via Guangzhou for $588.30, according to Webjet.com. That’s 38 percent less than flying direct with **Qantas Airways**.

Of course, price isn’t everything. Cathay and **Singapore Airlines** both have five-star ratings for product and service from airline rater Skytrax. Hainan is the only mainland carrier among the world’s nine top-rated airlines. Air China has three stars.

For years, the easiest way to get to a second- or third-tier city on the Chinese mainland was to fly to long-established transit centers such as Hong Kong and take a local connection. Now Chinese carriers in these cities are bypassing hubs and flying directly to destinations abroad. That poses a threat to airlines such as Cathay and Singapore Air, which have built huge businesses connecting fliers through their hubs.

In December, Hainan began nonstop flights between Beijing and Las Vegas, the airline’s 10th North American destination. Hainan also serves eight European cities. Meanwhile, British Airways will halt its London-Chengdu service in January because it says it’s not commercially viable. “While it might not work for foreign carriers to fly to second-tier cities like Chengdu and Xiamen, it will still work for the Chinese because the originating market is very big,” says K Ajith, an analyst at UOB Kay Hian in Singapore.

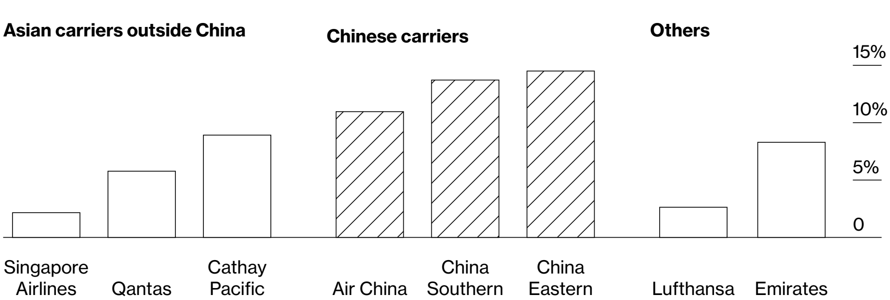
There’s little chance the inundation will end anytime soon. The number of international air routes from China jumped 35 percent, to 660, last year, according to the Civil Aviation Administration of China. By 2021, Chinese will be the top visitors to America, the U.S. National Travel and Tourism Office predicts. One consequence of that growth: Chinese airlines will need 6,810 new planes valued at $1 trillion in the next two decades to meet travel demand, according to Boeing.

U.S. airlines are seeking to bolster ties with Chinese carriers and share in that bounty. Delta invested $450 million in China Eastern in 2015 for a 3.6 percent stake. And **United Continental Holdings** this year signed a deal with Air China to improve connections and enhance frequent-flier benefits between the airlines.

Regulatory limits could slow the Chinese onslaught in some key markets. While capacity growth on routes between the U.S. and Shanghai, Beijing, or Guangzhou has been “off the charts,” says Kris Kelley, an airline analyst at Janus Capital Group, Chinese airlines have already hit the ceiling on adding routes under the current agreement between the two nations. But Australia on Dec. 4 announced an agreement with China to remove all capacity restrictions. And in October, Britain agreed to double the number of flights between U.K. cities and China. —*Angus Whitley and Kyunghee Park, with Michael Sasso, Mary Schlangenstein, and Dong Lyu*

Beasts of the East

Growth in systemwide traffic* in the most recent fiscal year



DATA COMPILED BY BLOOMBERG. *TRAFFIC IS REVENUE PASSENGER MILES, CALCULATED BY MULTIPLYING THE NUMBER OF PAYING PASSENGERS ABOARD A FLIGHT BY THE DISTANCE TRAVELED

The bottom line China’s airlines are using low fares and nonstop service to second-tier mainland cities to win business from established carriers.

Edited by James E. Ellis
Bloomberg.com

The Disabled American Worker

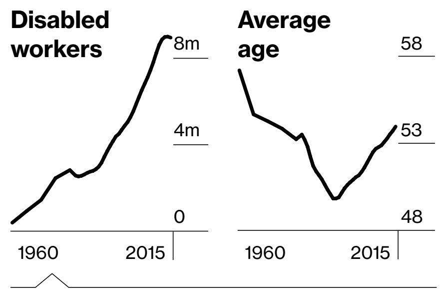
▶ **Where jobs vanish, disability insurance is the safety net**

▶ **"I talk to people who could work, and they're crying"**

If you've paid into Social Security, become injured or sick, and can no longer earn more than $1,130 a month, you can get a monthly subsidy from Social Security's Disability Insurance Trust Fund. In 1990 fewer than 2.5 percent of working-age Americans were "on the check." By 2015 the number stood at 5.2 percent. That growth has left the fund in periodic need of rescues by Congress—most recently in 2015, when the Bipartisan Budget Act shifted money from Social Security's old-age survivors' fund to extend the solvency of the disability fund to 2023.

"None of us should be surprised that the cost of the program was rising," says Stephen Goss, Social Security's chief actuary. He says the program's growth is mostly a consequence of demographic change. Older workers are more likely to get sick, and as women have entered the workforce, they too have become eligible for benefits.

The geographic distribution of people on disability tells a different, but complementary, story: Workers who might have endured pain for a physical job apply for disability when jobs disappear. This has created what



some economists call "disability belts"—rural areas in Appalachia, the Deep South, and along the Arkansas-Missouri border.

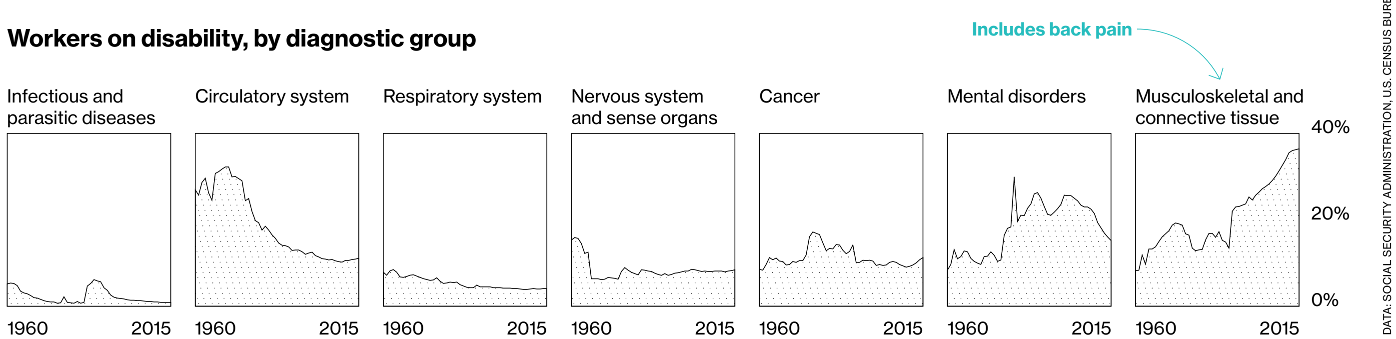
In a 2013 paper, David Autor, an economist at MIT, and his co-authors wrote that Social Security disability insurance was the single biggest source of federal transfers into areas that had been directly affected by trade with China and Mexico. Dan Black, now at the University of Chicago, found in a 2004 paper that growth in disability claims in Appalachia dramatically outpaced those in the rest of the country. Although it's not designed to, Autor says, Social Security disability benefits function as unemployment insurance.

In 1956, when the disability insurance fund was created, qualification was based on a list of accepted medical conditions. In 1984, Congress broadened the criteria, giving more weight to chronic pain and mental disorders. The qualification process also became more subjective. Now, rather than check diagnostic conditions against a list, the process determines whether applicants are able to perform work that's available. "It's not as if you go to the doctor, the doctor says, 'I'm sorry, son, you've got disability,' " Autor says. "It's a social construct, because it's about whether you can work."

In Van Buren County, Ark., 11.3 percent of working-age adults get federal disability benefits, putting it in the top 5 percent nationally. It's been a tough decade for the county. In 2006, **Volex** moved a plant that made electrical cable to Hermosillo, Mexico. **Pilgrim's** closed its poultry processing plant in 2008, eliminating 300 jobs. That same year, a tornado destroyed **Rivertrail Boat**, which had employed 30 people. There's a **Walmart** Supercenter on the state highway, but in Clinton, the county seat, about half the shops on Main Street are shuttered.

Resident Christa Cossey found work at age 20 as a long-haul truck driver, a well-paid job for someone without a college degree. Now 51, she's been on disability since 2008 because of ailments related to her years of driving: obesity, asthma, atypical chest pain, diabetes, fibromyalgia, high blood pressure, and arthritis in her neck, shoulders, elbows, wrists, and fingers. She also suffers from degenerative disc disease, degenerative joint disease, and bulging discs in her lower back.

During her approval process, a

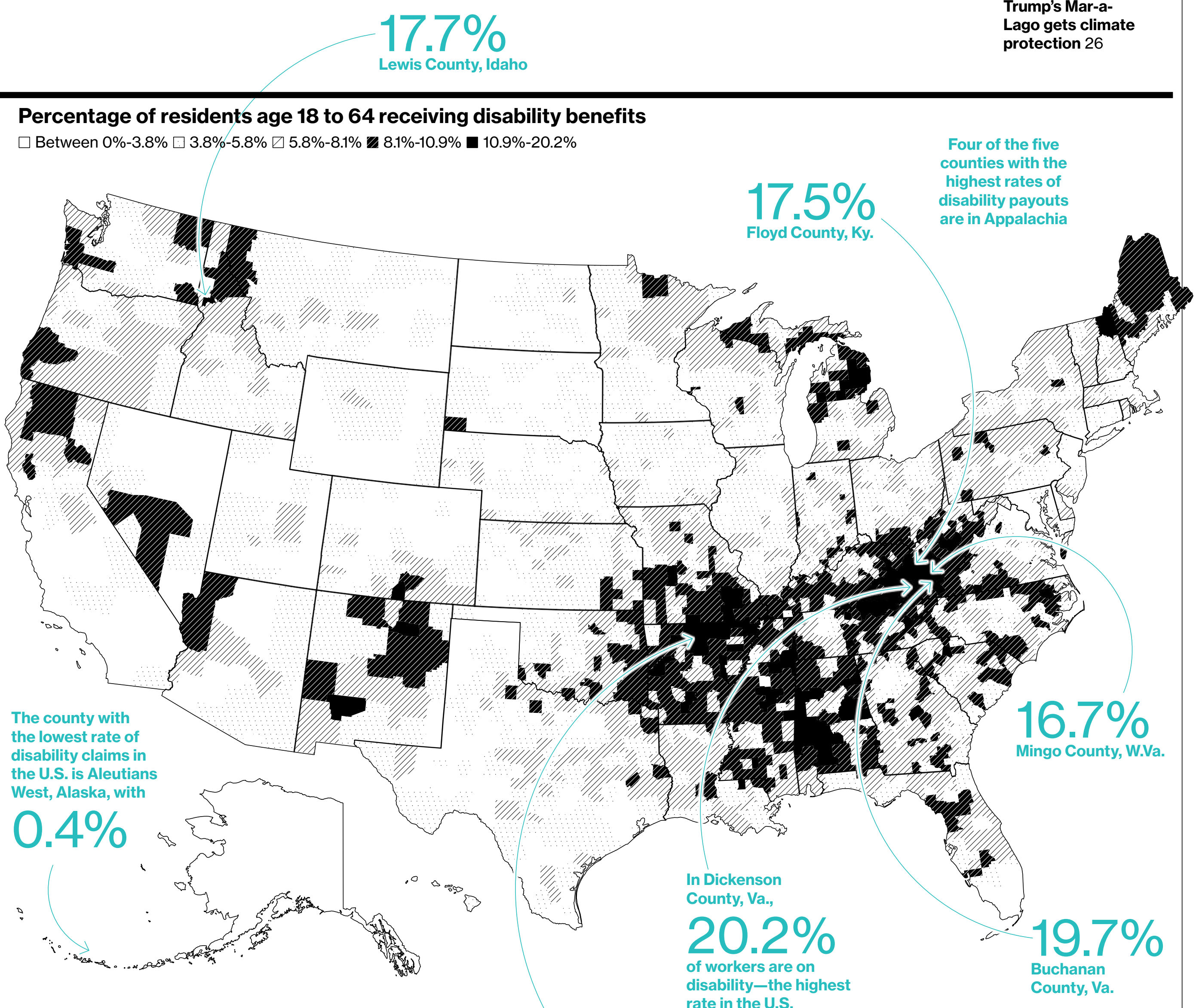


Diplomacy, Exxon-style 26

Trump's Mar-a-Lago gets climate protection 26

Percentage of residents age 18 to 64 receiving disability benefits

☐ Between 0%-3.8% ☐ 3.8%-5.8% ▨ 5.8%-8.1% ▩ 8.1%-10.9% ■ 10.9%-20.2%



vocational expert testified that Cossey could perform sedentary work, such as at a call center, with frequent breaks. No jobs fitting that description are available in Van Buren County, and Cossey and her husband–who gets disability payments for his cerebral palsy–don't want to move away from family. Instead, she supplements her $1,000 disability check with part-time work as a "secret shopper," checking up on retail employees. She makes less than $810 a month. "I would work as much as my body would let me," she says. "I went from making over a thousand dollars a week to making less than that a month. It was hard."

Shannon Cleveland, a nonprofit employee who's paid through a grant from the Social Security Administration to help people on disability navigate the complicated rules for going back to work, says the way the program is structured can trap people who live in low-wage areas like Van Buren County. Recipients are often hesitant to look for full-time employment because they don't want to risk losing the financial cushion and access to health care that disability insurance provides. "It's scary to try to work," says Cleveland, herself a quadriplegic after surviving a car accident at 17. "I talk to people who could work, and they're crying."

Interest from Congress tends to spike when the disability fund is almost out of money. In 2015 it required Social Security's Office of the Inspector General (OIG) to open joint fraud investigation offices with local officials in all 50 states. These offices first opened in the late 1990s. In 2013 fraud made up a little more than 70 percent of the OIG's caseload; it's now 86 percent. But outright fraud is unlikely to explain all the program's growth. The OIG reports that its fraud units saved the fund $416 million in 2015; total payments that year were $89 billion.

In the coming Congress, Republican Representative French Hill, who represents Van Buren County, plans to reintroduce a disability insurance reform bill he wrote after hearing ▶

◀ Autor, the MIT economist, present his analysis of the program—a talk that echoed things Hill had heard from folks back home. The bill would require more frequent reviews of disability recipients with nonpermanent conditions. It would also allow recipients to keep some of the subsidy even after they're employed rather than being cut off. "The cliff aspect of it is a frustrating flaw in many federal safety net programs," Hill says. Asked whether he thinks lagging economic growth helps explain why so many of his constituents have turned to disability insurance, he answers, "Undeniably." But, he adds, "that's not a reason not to think critically about the program." —*Brendan Greeley*

The bottom line Economists believe declining job prospects and an aging workforce, not fraud, explain the growth of disability claims.

Cabinet

Will Beijing Also Have A Friend at State?

▶ **Exxon CEO Rex Tillerson is Trump's pick for top diplomat**

▶ **"This type of diplomacy believes in mutual business interests"**

With two decades of dealmaking in Russia, Rex Tillerson has close ties with Russian President Vladimir Putin. The **ExxonMobil** chief, who's been nominated by Donald Trump to head the U.S. Department of State, met then-Premier Putin in 1999. In 2011, Putin presided over the signing of a deal between Exxon, the biggest U.S. oil company, and state-owned **Rosneft** that gave Exxon access to oil in the Arctic. Two years later he awarded Tillerson the Order of Friendship, one of the country's highest honors for foreigners. Like others Trump picked for his cabinet—including national security adviser Michael Flynn and retired General James Mattis, who's been tapped for the Department of Defense—Tillerson has been warmly received by the Kremlin. "This is a fantastic team," says Sergei Markov, a consultant to Putin's staff. "These are people that Russia can do business with."

That's prompted questions from Republicans on the Senate Foreign Relations Committee, which will decide in January whether Tillerson's nomination will proceed to a full confirmation vote. Arizona Senator John McCain said in a statement he has "concerns about what kind of business we do with a butcher, a murderer, a thug, which is exactly what Vladimir Putin is." Florida Senator Marco Rubio also raised concerns about Tillerson's potential conflicts of interest.

"This is a fantastic team. These are people that Russia can do business with."
—Putin consultant Sergei Markov

What hasn't yet drawn public scrutiny is Tillerson's long relationship with Beijing, which has included tension over Exxon's activities in the contested South China Sea. In 2009, Exxon bought the rights to jointly explore almost 14 million acres there with Vietnam's national oil company. China warned Exxon about its exploration activities with Vietnam, according to leaked U.S. diplomatic cables released by WikiLeaks. In 2014, China parked an exploration rig near Vietnam, setting off clashes at sea. Representatives of Exxon didn't immediately reply to e-mailed questions. The company has previously said that details of exploration projects are confidential.

Trump's protocol-breaking phone call with Taiwan's president and his Twitter attacks on China have sparked friction. Fu Mengzi, vice president of the State Security Ministry-backed China Institutes of Contemporary International Relations, says a Trump-Tillerson team would shift the U.S. from the security-focused diplomacy of the Obama administration toward economic diplomacy. "This type of diplomacy believes in mutual business interests and transactional equality, which holds value for China," Fu says.

Exxon has been doing business in China for more than a century. Its predecessor Standard Oil sold kerosene there in the 1890s. It was one of the first multinational companies to jump when China opened its door to foreign investment in the late 1970s. Exxon has investments in exploration and drilling in China and invests in chemical companies in several provinces. Tillerson spoke at the opening ceremony of a $4.5 billion joint venture refinery in the eastern province of Fujian in 2009, when then-Vice President Xi Jinping sent a congratulatory message.

Tillerson went to China earlier this year and saw Wang Yilin, chairman of **China National Petroleum**. CNPC's website showed a photo of them shaking hands and smiling. Foreign Ministry spokesman Geng Shuang, speaking at a briefing on Dec. 13, said China is willing to work with whomever becomes secretary of state: "We hope that departments in charge of foreign affairs of our two countries can enhance communication and cooperation." —*Ting Shi, David Tweed, and Aibing Guo, with Ilya Arkhipov, Chris Blake, Joe Carroll, and Henry Meyer*

The bottom line Trump's secretary of state nominee, Rex Tillerson, has a complicated relationship with China.

Climate Change

Trump's Tax Bill For Global Warming

▶ **Floridians in Palm Beach spend millions to deal with rising seas**

▶ **"Three feet of water-level change would severely impact us"**

Donald Trump shelled out $409,759 for property taxes in 2016 on Mar-a-Lago, his oceanfront club above billionaire's row in Palm Beach, Fla. Some of those tax dollars will go toward combating the ravages of climate change, a phenomenon the president-elect has dismissed as a hoax. Trump tweeted in 2012 that "the concept of global warming was created by and for the Chinese" to make U.S. industry less competitive. In early December he told Fox News that "nobody really

$410k
Trump's yearly property taxes for his Mar-a-Lago resort in Palm Beach

$120m
Palm Beach spending on infrastructure including pumps to deal with higher sea levels

knows" whether climate change is real. He's picked Oklahoma Attorney General Scott Pruitt, a staunch denier of climate change, to run the U.S. Environmental Protection Agency.

That's not stopping officials in Palm Beach from preparing to deal with its effects. This year, the town overhauled 12 pumping stations to push storm runoff up a huge pipe to the Intracoastal Waterway under a 20-year, $120 million infrastructure plan to deal with increased rainfall and street flooding, among other issues. Palm Beach's system can now suck up almost 1 million gallons of runoff a minute. "I just deal with the reality that sea levels are rising," says Palm Beach Town Manager Thomas Bradford. "I don't want to rile people up about it."

A bike path along the Intracoastal Waterway floods when the full moon and high seas cause so-called king tides, which have grown more intense. Brackish water bubbles out of the ground, forced up by pressure on the water table from rising sea levels. According to Palm Beach County's online climate-change mapping tool, the back quarter or so of Mar-a-Lago's verdant, palm-tree-lined grounds would flood if sea levels rise two to three feet. The town recently changed the construction code to require higher seawalls around homes built on the water because of the threat of higher seas.

In 2015 the county created a department dedicated to staving off the effects of climate change and hired Natalie Schneider to be its first climate-change and sustainability coordinator. The county is planning to add two more people to her department in 2017. "These are all very complex issues that I know some people have trouble understanding," says Schneider, a marine policy and planning specialist. "We're anticipating the extremes will get more extreme, and we have to get everyone engaged in preparing for that."

Palm Beach County has participated since 2010 in joint planning with neighboring Broward, Miami-Dade, and Monroe counties under the Southeast Florida Regional Climate Change Compact. According to a report produced by the group, sea levels in the region could increase from the 2010 mean level as much as seven inches by 2030 and two feet by 2060.

As much as $557 million of property in Palm Beach County is vulnerable assuming a one foot increase in sea level. That worries Robin Bernstein, a Mar-a-Lago member who's president of an insurance brokerage. The barrier island that the town sits on is only two blocks wide where she lives. "So you can imagine, three feet of water-level change would severely impact us," she says. Yet Bernstein, a Republican, says she's not bothered by Trump's stated position on climate change. "What I trust in Donald Trump is that he will look at all sides of an issue," she says. "He will surround himself with the best and the brightest people and find ways to come up with creative solutions to combat today's and tomorrow's problems."

John Morgan, director for environmental services in Delray Beach, south of Palm Beach, isn't waiting for Trump to come around. The ocean is already crashing over bulkheads and swamping marinas. Morgan estimates the town sees 30 to 45 days a year of street flooding caused by king tides; it used to be just a few days a year. Like Palm Beach, Delray is spending millions of dollars to install special valves and pumps to keep rising seas out of storm sewers. There are plans to raise seawalls. "Sea-level rise is happening, and we have to adapt," Morgan says. "And I'm sure that the folks at Mar-a-Lago are going to want to adapt, too." —*Michael Smith and Jonathan Levin*

The bottom line Trump has rejected the science of climate change, but a quarter of his Mar-a-Lago resort could be lost to the sea in coming decades.

Edited by Allison Hoffman
Bloomberg.com

FROM LEFT: MIKHAIL KLIMENTYEV/GETTY IMAGES; ROBERT STEVENS

Who's staked a claim in the live-streaming gold rush 30
Using blockchain to safeguard the cloud 32
Charlie Rose talks to Tom Donilon and Sam Palmisano 31
Innovation: A bot that mows, rakes, and blows snow 33

December 19 — December 25, 2016

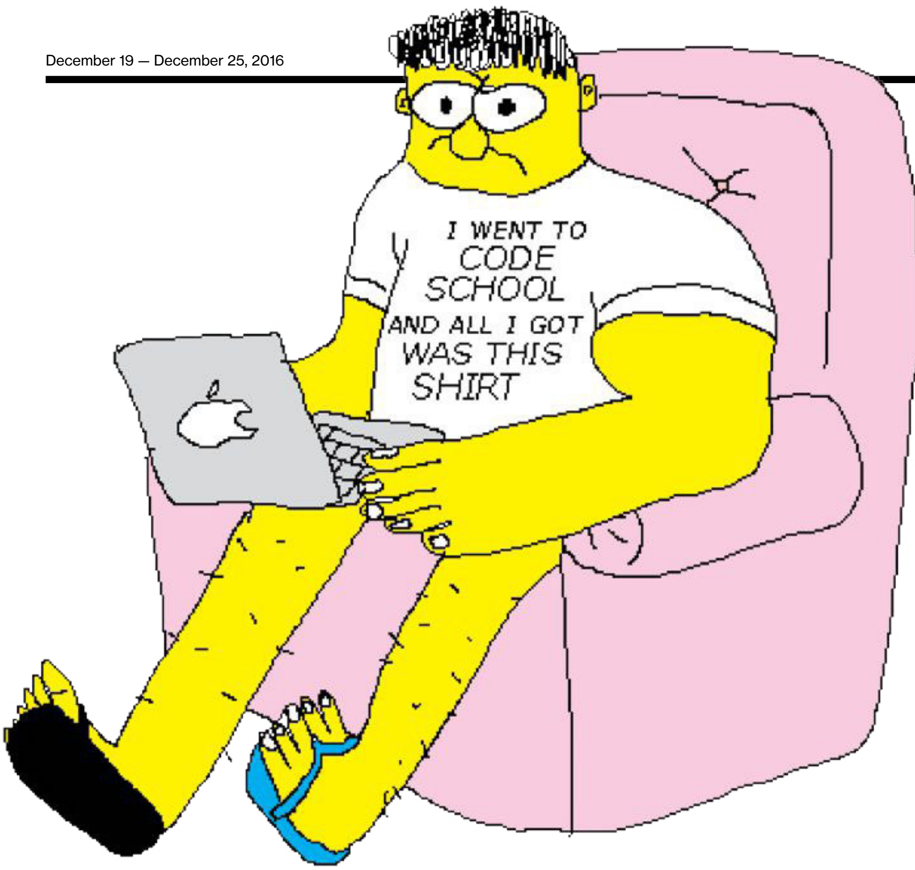


ILLUSTRATION BY 731

Code School's Out

▶ A shuttered school exposes flaws in the boot-camp model

▶ "Regulation is pretty much minimal"

Two years ago, Jose Contreras had the worst job interview of his life. Most recently a theater technician, he was meeting with the chief technology officer at a business-research startup, a real chance to break into coding. Contreras had a lot at stake: At 25, he'd just paid $14,400 for a three-month crash course in software development at **Coding House**, one of the non-degree-granting programming boot camps that had recently sprung up across the country, wooing students with visions of new jobs and big salary bumps.

Coding House, located in the Bay Area, didn't quite give Contreras what he wanted. During his interview, which had a technical focus—typical in the software world—he struggled to solve basic problems involving JavaScript, a programming language that was a subject of the course he'd taken. "Given you can't answer this question," he recalls the interviewer saying, "you should ask for a refund."

Eventually, Contreras did, and he wasn't alone. Last month, the Bureau for Private Postsecondary Education, the regulator that oversees code schools in California, ordered Coding House to shut down and give refunds to all of its students, and it fined founder Nicholas James $50,000. Among the BPPE's complaints: James lied about the benefits of his courses for graduates' job prospects. He also continued running the school for years without approval from the regulator, which had denied his formal request to operate.

Coding House has suspended its programs while it appeals the decision. James said in an e-mailed statement, "Our aim was to change the way education was delivered, and we made some great strides and helped many people change their lives, learn how to code, and get a great job."

Coding House offers an extreme example of what employers, recruiters, and more than a dozen graduates of various boot camps say has been a common experience. About 18,000 people will graduate this year from the 91 full-time coding boot camps in the U.S. and Canada, researcher Course Report estimates. (Two years ago the numbers were 6,000 and 43.) A handful are free or almost free for students, but most charge an average of more than $11,000, and some take cuts of students' future salaries.

The 12- to 14-week programs typically bill themselves as a fast way for struggling liberal arts types to shift to more lucrative careers and an easy answer for companies that can't find enough programmers. Often, though, the boot camps don't provide enough of an education to ready students for the jobs they want.

"Our experience has found that most graduates from these programs are not quite prepared for software engineering roles at **Google** without additional training or previous programming roles in the industry," says Maggie Johnson, Google's director of education and university relations. Mark Dinan, a recruiter who works with companies including **Salesforce.com**, says many have told him not to bother sending code school grads. "These tech boot camps are a freaking joke," he says.

A Course Report survey published in September, which included responses from a self-selecting group of 1,143 code school students who completed their studies before Aug. 12, 2016, showed that more than a quarter weren't employed in a full-time coding job. Only about half the respondents found a job within 60 days of finishing; one-third ▶

$11k

Average cost of a code school, according to Course Report

◀ didn't have one after 90 days.

There have been success stories. In January 2015, Randall Kanna graduated from **Dev Bootcamp**, which opened in 2012 as one of the first for-profit code schools, and she quickly landed a job as a software engineer at **Ticketfly**, now owned by Pandora Media. She says her salary increased by $75,000 from her previous job in marketing. "It completely changed my life," she says.

But success isn't as guaranteed as code schools often make it sound. In 2013, Dev Bootcamp, now owned by Kaplan, claimed more than 90 percent of its grads found jobs within three months of graduation, with average salaries of about $83,000. It has since removed those figures from its website and says industry numbers can be misleading out of context.

At Coding House, the school's website claimed 95 percent of graduates got hired within two months at an average salary of $91,000, and it listed 21 companies, including **U.S. Bank** and startup **Infuse**, on a page titled Where Our Graduates Work Now. The BPPE review of Coding House data showed only 57 graduates reported employment and salary information, and only two were hired by any of the 21 companies the code school cited.

California requires for-profit schools to seek government approval, but most of the 28 code academies in the state haven't completed the process and haven't faced repercussions. Few schools have independent auditors verify their job-placement rates. "Regulation is pretty much minimal," says Bob Shireman, a senior fellow at think tank Century Foundation who studies for-profit schools.

The environment at Coding House, according to the BPPE allegations, was chaotic, and many students say they've been shocked by the extent of the regulator's findings. The school, where students also lived, moved among several houses in residential neighborhoods—most recently in Pleasanton, Calif.—violating zoning rules. To avoid drawing attention, students were told to stay inside with the blinds drawn.

One night at the school, a male student allegedly sexually assaulted a female student, according to the BPPE report. The student says she was sleeping when her classmate climbed into her bed and began groping her. She fended him off but left the school a few weeks later, partly because of the attendant trauma, and has filed a formal complaint with the regulator. Starting in September, Coding House demanded that students sign agreements prohibiting them from publicly or privately disparaging the school. According to the BPPE report, those agreements are illegal.

28

The number of code academies in California, most of which lack government approval

Contreras and other students say software languages they signed up to learn were dropped from their courses midway through without advance notice, and some teachers had little experience.

The former theater technician eventually got his refund, in $1,000 increments transferred via PayPal last year, after agreeing to take down a blog post that was critical of James's school. And he ultimately got a job programming—in the education industry. He builds apps for Texas Tech University, where he's working toward a master's degree in computer science. As for Coding House, he says, "I'm just glad it's over." *—Sarah McBride*

The bottom line The available data on code school graduates often don't match up with the schools' rosy claims.

Social Media

Everybody Must Get Streamed

▶ **The live-broadcasting trend boosts business for video experts**

▶ **"We believe our audience expects high-quality programming"**

Suddenly, it seems, the whole world is live-streaming. Thanks to **Facebook**, **Google** (YouTube), **Amazon.com** (Twitch), and **Twitter** (Periscope), anyone even vaguely interested in broadcasting live video online can figure out how to do it. The sales pitches from these companies are simple: stream first, ask questions later. And as with the heyday of blogging a decade ago, the live-streaming gold rush means there's money for anyone selling shovels. In this case, that translates to the technical hardware, software, and know-how needed to make amateur live video look more professional.

One of the early leaders in this growing subset of America's online video ad market is the aptly named **Livestream**, a Brooklyn, N.Y., startup that's raised $17 million since its 2007 founding. Livestream sells its 10,000 clients editing software, analytics, and consulting services, including help with production, that range from $99 a month for one-man shows to upwards of $1,199 a month for custom corporate gigs. "We can take you through the whole customer journey, from dipping your toe in for the first time to stepping up your game to a full multicamera production," says Chief Executive Officer Jesse Hertzberg. "You can plug in our system and be live very quickly."

Typically, an interested business would have to piece together its own hardware and software from specialized sellers. Hertzberg says Livestream's advantage is combining everything in one package. **ExxonMobil**, **Tesla**, **Spotify**, **IMG Worldwide**, and **Ralph Lauren** are among its corporate customers, streaming meetings to remote offices and the occasional product launch to the public. Other clients include municipal governments (including Chicago), universities (Yale, Rhode Island School of Design), conference holders (the Clinton Global Initiative, the World Economic Forum), cultural institutions (the New York Philharmonic), megachurches (Champions Centre), and the odd sports league (Professional Bull Riders).

Experiments on Facebook and YouTube tend to be the gateway drug. For free, "YouTube Live gives away a lot of what we do," Hertzberg says. "That's awesome, but there's no support. We invest heavily in our customer service." That means, among other things, embedding live broadcasts on clients' websites, managing their Facebook Live streams, and charging viewers or selling ads via automated markets if clients want. Sometimes, Livestream buys display ads on websites that just show a customer's stream, a service it calls "audience booster." ▶

GETTY IMAGES (2)

Charlie Rose talks about...

Cybersecurity

Former National Security Adviser Tom Donilon and retired IBM CEO Sam Palmisano, leaders of the national cybersecurity commission, discuss Russia's role in the presidential election and the path to a safer digital future

Tom, as national security adviser you dealt with Putin. You have the president calling for an investigation. What's going on?
Donilon: First of all, the investigations are fully appropriate at this point. Last spring and summer you had private-sector organizations saying that entities that had a long association with the Russian intelligence services were responsible for hacking into the Democratic National Committee. Then you had an extraordinary thing happen in October: The director of national intelligence, General Jim Clapper, announced that the Russian Federation, directed from the government itself, was involved in hacking related to the election. You had Mike Rogers, head of NSA, say that you had a country—and it was clearly Russia—that had tried to interfere in the election to try to get specific effects. This is information warfare. It's part of a broader kind of confrontation that we're having with Putin's Russia.

"It's part of a broader kind of confrontation that we're having with Putin's Russia"

Do the motives of the Russians matter more here? Or is it their ability to hack into important places?
Donilon: We're not debating that it was necessary to the outcome of the election here. We've had an election, we're going to go forward. But it is important, as Sam said, for the country to know what the vulnerabilities were here from a technical perspective. And it's important from a strategic perspective to know whether or not the Russian Federation, at Vladimir Putin's direction or the direction of his senior people, tried to interfere in the election.

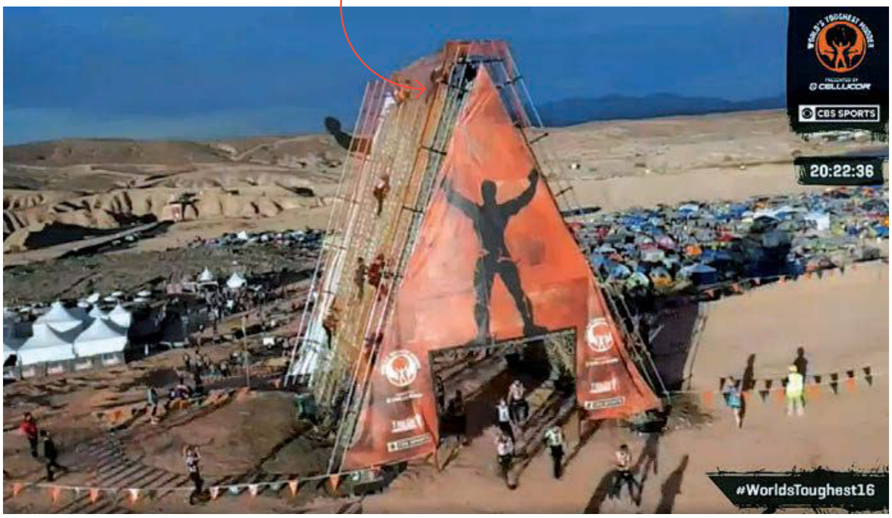
How does this compare to recent Chinese hacking?
Donilon: I want to separate out the two cases. One case is state-sponsored, cyber-enabled theft of intellectual and other property. China has interest because they want to be a large e-commerce country. It's another thing if it turns out to be the case here that a foreign power engages in theft of information and then uses the information for warfare purposes, Charlie, as to have an effect in the real world.

What does your commission recommend? How do you stop this?
Palmisano: There are some things that can be done immediately, as far as establishing a collaborative initiative between the private sector and the public sector around things like identity management. So, making it harder for them to identify or hack you. Then, the internet of things: how to make those cameras, sensors—whatever—more secure so that whether you have a thermostat in your house or use a Fitbit, they're more secure and the standards exist and security is designed in on Day One. Address those two things first: how they get access to us as individuals who are sloppy with our passwords or through those devices no one associates as being computers.

My impression is that large companies are hit all the time by hackers. Is that fair to say?
Palmisano: But they're better at [security]. Financial services—with as much focus as hackers put on financial services—probably is the best. Technology companies are also extremely good. But then you have to put the banks right up there with them. They're very, very good. Our vulnerability is the midsize companies. They have to adopt the same standards that the large guys already have.

How do you keep the internet of things from becoming a way in for hackers?
Palmisano: Think about the energy star. When there was a big focus on energy several years ago, there was a star on [efficient] electronic devices. We'll have a cyber star. When you, as a consumer, purchase a software product or a device with this star, you at least know that it competes at some level of the standard of security. The incentives are interesting. We've debated this at length in the commission. It should be market-driven, vs. heavily regulated, because this stuff moves too fast.

Livestream's Tough Mudder broadcast drew a million views



◀ Livestream also sells its own gear. It often suggests corporate clients buy a handful of its coffee-mug-size Mevo cameras, which retail for $399 and can be mounted inconspicuously on stands near the edge of a stage and controlled with an iPhone app. Whoever's operating the app can pan across a set, zoom in, or switch cameras. The goal, says Hertzberg, is to avoid the fixed-camera monotony common to low-end live video.

In November, **Tough Mudder** used Livestream's in-house production team to stream cliff jumps and commando crawls from one of its extreme 24-hour obstacle courses in the desert outside Las Vegas. It racked up a million views. "We're not trying to build our own TV production company," says Jesse Bull, a Tough Mudder executive. "But we believe our audience expects high-quality programming."

Livestream's industrial-chic headquarters feature glossy cement floors and exposed brick walls, interspersed with murals by local artists. Many of its 180 staffers eat at Fitzcarraldo, an attached cafe named for the surreal Werner Herzog film. Hertzberg, who joined the company last year after stints at Etsy and Squarespace, says the company is self-sufficient and revenue is up almost 50 percent in 2016, though he wouldn't provide specifics.

While the boom in live video shows no sign of ending, some early adopters have become disillusioned. "Unless you are a celebrity, big business or brand, or there is some huge breaking news story, the chances are live-streaming from whichever service you use will do nothing for you or your business," social media consultant Mark Shaw recently wrote on his eponymous blog, announcing that he was finished with live-streams after doing about 700. "There are just too many other things we can all be doing."

Still, Greg Dumas, pastor of the Crossing Church, says the medium helps amplify his message. "From a business standpoint, multiplication of the Gospel happens best with the permeation of a new region," says Dumas, who uses Livestream to broadcast services from a handful of Florida churches to a weekly audience of about 1,200. "You can't use something that is subpar from what your teenage kids are watching at home." —*Felix Gillette*

The bottom line Startup Livestream is selling preachers, wannabe stars, and ExxonMobil on tools to improve their online video broadcasts.

Cybersecurity

Cloud Armor That's Not Quite So Fluffy

▶ **Blockchain-style ledgers can log changes to files stored online**

▶ **"My suspicion is that everybody's going to have to do this"**

The tiny Baltic nation of Estonia is a strong contender for the title of most digital society. Its citizens can vote, file income taxes, check health records, and register a business in a matter of minutes, all from their living rooms. Skype was born there, as was the early file-sharing software Kazaa. So Estonia was a natural home for **Guardtime**, whose unique approach to cybersecurity is rooted in blockchain, the digital-ledger software underlying electronic currencies like bitcoin.

Guardtime developed its technology to address one of the risks that came with Estonia's leap into e-governance, a newfound vulnerability to hackers and data loss. The company sees fresh opportunity in a similar transition that affects every government and most businesses: the move into the cloud.

The advantages of cloud computing come with a serious downside. Storing and managing data cheaply on remote servers means that, at the end of the day, users don't fully control their own files. "There's no ability to audit what's going on, there's no legal recourse when things go wrong, and they simply have to trust the cloud service provider," says Guardtime Chief Executive Officer Mike Gault.

Whether you're worried about a document stored on a cloud server or the software that makes a machine run, Guardtime's technology fingerprints that data, creating 80-digit numeric strings to represent different parts of it. Its software then encrypts them into unique codes added to its blockchain. The encryption software runs simultaneously on a network of approved computers, which notice changes to the codes if anyone tries to access the data and can alert security staff.

Gault says it took even him about six months to fully understand Guardtime's technology, but customers whose top priority is data security seem to get it. They include **General Electric**, defense contractor **Lockheed Martin**, and several government departments in Estonia, including the health agency, which maintains more than 1 million citizens' records.

"My suspicion is that everybody's going to have to do this over the next several years," says Jason Hoffman, cloud chief at networking-equipment maker **Ericsson**, which uses Guardtime to monitor its cloud hardware and software. "It's the digital equivalent of signing a contract and notarizing that signed contract, then registering that signed contract with the notary and your lawyer," he says.

Guardtime was founded in 2007

FROM LEFT: LIVESTREAM; COURTESY YARDBOT (4) after a cyber attack disabled Estonian government and business networks. The hack prompted Estonian cryptographers Ahto Buldas and Mart Saarepera to try securing government data with a digital time-stamping technique they'd developed. Saarepera talked Gault into quitting his job as a derivatives trader in Japan to help start Guardtime. They'd met in the 1990s, when Gault was studying quantum computing.

The employee-owned company has more than 100 people in Estonia's two biggest cities, Tallinn and Tartu; Irvine, Calif.; and Amsterdam. Tim Fitzpatrick, president of the company, says customer contracts worth tens of millions of dollars in annual revenue cover Guardtime's costs, but he declined to provide more financial specifics. Some users pay a few cents apiece for Guardtime to verify or monitor a small number of documents. On the high end is a custom system called Black Lantern, which can cost $10 million or more to set up for military clients and other complex jobs.

Blockchain-based systems can be gamed, too. The one underpinning digital currency Ethereum suffered a $60 million hack this year. Gault says such incidents are the fault of sloppy developers, not blockchain.

Careful development has helped Guardtime stand out in an increasingly crowded field, enough that the Defense Advanced Research Projects Agency (Darpa), the Pentagon's research arm, has dedicated $1.8 million to putting the company's system through its paces. Tim Booher, manager of Darpa's Information Innovation Office, says the study is meant to mathematically prove Guardtime's technology works as advertised, which could help persuade U.S. government customers to adopt it. He's optimistic.

"They did their homework very carefully," Booher says. "I haven't found anyone else that uses this efficient of a construct and has the IT and demonstrated history of years of this working in a real government and at massive scale." —*Dune Lawrence*

The bottom line Employee-owned Guardtime, whose software is rooted in blockchain, is the Pentagon's early leader for cloud security.

Edited by Jeff Muskus
Bloomberg.com

Innovation

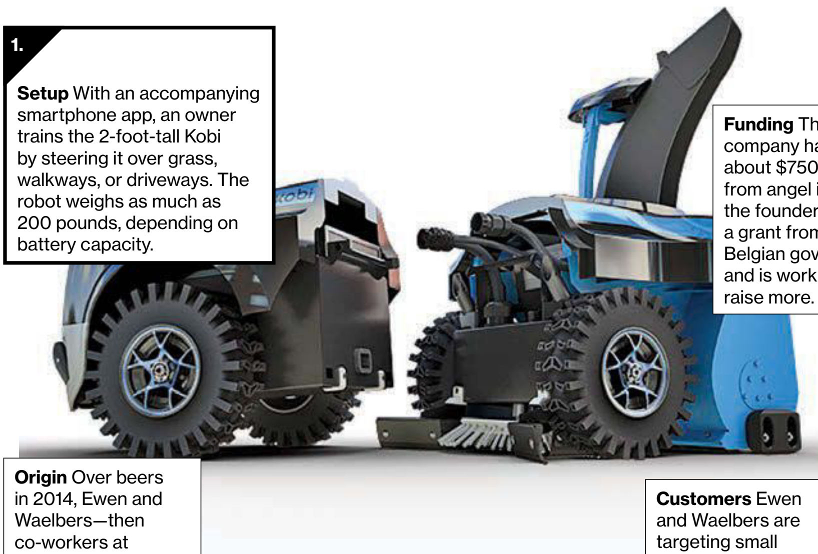
Yardbot

Form and function
The Kobi robot uses interchangeable attachments to autonomously mow, remove leaves, and clear snow once it has, Roomba-like, learned its route.

Innovators Andrew Ewen and Steven Waelbers

Ages 49 and 30

Co-founders of Kobi Co., a year-old New York startup with five employees



1.

Setup With an accompanying smartphone app, an owner trains the 2-foot-tall Kobi by steering it over grass, walkways, or driveways. The robot weighs as much as 200 pounds, depending on battery capacity.

Funding The company has raised about $750,000 from angel investors, the founders, and a grant from the Belgian government and is working to raise more.

Origin Over beers in 2014, Ewen and Waelbers—then co-workers at the same bank—discussed a snow-clearing robot that Waelbers, a lifelong hobbyist, had been developing. The two men quit to start Kobi out of Ewen's Long Island garage the next year.

Customers Ewen and Waelbers are targeting small businesses and homeowners who don't want to maintain their own properties or hire landscapers.

2.

Use Once trained, the robot can mow, mulch, collect leaves, or blow snow by itself, using one of three attachments. Cameras, GPS, and sensors keep it on track and away from people and other obstacles. Its recharging station is included.

Rivals While other robots can mow grass or clean gutters, Kobi's leaf- and snowblowing are unique.

Next Steps

The company plans to get feedback on 10 early production models from beta testers starting this month and to sell the robot for $4,000 through dealers in early 2017. John Santagate, an analyst at researcher IDC, says modular robots are the future and that the Kobi is setting the bar for lawn-care bots. "I'm excited to follow them," he says, "and see where this goes."
—*Michael Belfiore*

December 19 — December 25, 2016

The Mess Steven Mnuchin

▶ Loose ends at a bank that Trump's pick for Treasury helped to run

▶ "The reverse mortgage is an icky business"

When Donald Trump announced his choice for Treasury secretary last month, he called Steven Mnuchin a "world-class financier," citing business successes such as his profitable turnaround of a California bank.

But soon after Mnuchin sold **OneWest Bank** last year, problems emerged that may tarnish his record there. The U.S. Department of Housing and Urban Development opened an investigation into foreclosure practices in a division that handles loans to senior citizens. Accountants determined the unit's books were a mess. Eventually, the bank's new owner, **CIT Group**, discovered a shortfall of more than $230 million. "I want to express our disappointment," CIT Chief Executive Officer Ellen Alemany told investors in July. "We have a new management team in place, and they're making good progress in implementing practices to strengthen the controls and procedures."

The old management team had included Mnuchin. He stepped down as CIT's vice chairman in March. When he left, less than a year into a three-year employment contract, he received about $10.9 million in severance—an amount consistent with what he would have been entitled to if he had been fired, according to regulatory filings. He remained on the board until this month.

Three people with knowledge of the departure say it wasn't related to the troubled unit, Financial Freedom. Rather, they say, Mnuchin was one of more than a dozen executives who left as Alemany prepared to take over and install her own team. Mnuchin, who declined to comment through a spokesman, may have personally received about $380 million in sale proceeds and dividends from OneWest, according to Bloomberg calculations.

CIT said in November the accounting issue probably won't be cleaned up by the end of the year and that it's begun talks to resolve the HUD investigation. Meanwhile, it's been trying to sell the unit. Matt Klein, a spokesman for CIT, says the company "will continue to implement enhancements to strengthen controls and practices of the legacy Financial Freedom business." A spokesman for HUD declined to comment.

While Mnuchin can count on the support of the Republican majority in the Senate for confirmation, Democrats have signaled a tough fight. Ron Wyden of Oregon, the top Democrat on the Senate Finance Committee, which vets and confirms appointments at the Department of the Treasury, described Mnuchin's leadership at OneWest as "profiting off the victims of predatory lending."

During the go-go years of the mortgage boom—before Mnuchin's involvement in the bank—Financial Freedom was one of the biggest providers of reverse mortgages. These government-backed loans allow Americans over 62 to borrow against the value of their homes. They don't have to pay interest and can stay in the home until they die. Then a sale of the property can be used to repay the debt.

In 2009, Mnuchin led a team of investors that bought the remains of a failed bank

The loans were often marketed aggressively, especially before the housing collapse. Financial Freedom commercials featured the actor James Garner. Sometimes lenders encouraged a borrower to remove a spouse under the age of 62 from the home's title, setting the stage for a potential foreclosure on an elderly widow or widower when the borrower died, according to a 2012 report by the Consumer Financial Protection Bureau. "The reverse mortgage is an icky business," says Christopher Whalen, head of research at Kroll Bond Rating Agency in New York, noting big banks such as Wells Fargo stopped selling the product in recent years.

Financial Freedom was part of Pasadena, Calif.-based IndyMac Bancorp, which collapsed and was seized by the Federal Deposit Insurance Corp. in 2008. Enter Mnuchin, a former **Goldman Sachs** executive who later ran a hedge fund. He led a team of investors, including George Soros and John Paulson, that bought the remains of IndyMac in 2009 with the help of billions of dollars' worth of government incentives.

Mnuchin renamed the bank OneWest. He slowed reverse-mortgage lending and stopped making new loans in 2011. From then on, Financial Freedom operated as a servicer, managing mortgages on behalf of investors such as Fannie Mae that owned the loans. Financial Freedom would collect on loans when they came due, often in the event of a death, and foreclose if necessary. It's carried out 16,220 foreclosures since 2009,

Bonding with bears: A new long-term relationship 36

The Vancouver boom shifts south 37

in Left Behind

or about 39 percent of the country's reverse-mortgage foreclosures, according to HUD data obtained by the California Reinvestment Coalition, a nonprofit that monitors banks and has accused OneWest of foreclosing too aggressively.

The HUD investigation revolves around an issue called curtailment of interest. The loans that Financial Freedom services are backed by insurance from the Federal Housing Administration, an arm of HUD. When a mortgage comes due, servicers must meet deadlines to complete tasks such as getting an appraisal and starting the foreclosure process. If they miss them, they aren't entitled to earn interest from the FHA while waiting for the agency to pay a claim, which can take years. In industry parlance, the interest payments are "curtailed."

$380
million

Estimated sale proceeds and dividends Steven Mnuchin may have received from OneWest

In 2013, Matthew McDonald, an executive at another servicer, Walter Investment Management, filed a whistle-blower complaint claiming his employer was bilking the government of tens of millions of dollars by routinely missing deadlines and then falsely claiming it met them to maximize FHA compensation. The government took up his case and settled with Walter Investment for $29.6 million. The company neither admitted nor denied wrongdoing.

McDonald said in his complaint that Financial Freedom was doing the same thing, though he didn't have any firsthand evidence. Around the time it settled with Walter last year, HUD issued the first of several subpoenas relating to the curtailment of interest at Financial Freedom. Then, in February, CIT disclosed its auditors found a "material weakness in internal controls" at Financial Freedom.

That led to the discovery of the $230 million shortfall. As CIT Chief Financial Officer Carol Hayles explained on a conference call, the Financial Freedom unit hadn't been accurately tracking how much interest it was entitled to from FHA insurance claims and had overestimated how much it would get.

In a roundabout way, the possibility that Financial Freedom might have been foreclosing too slowly to meet federal deadlines bolsters the case OneWest executives have made in defending their foreclosure record. At a hearing in California last year, then-OneWest Bank CEO Joseph Otting portrayed the lender as merely carrying out the government insurance program's aggressive timeline. "The vast majority of criticism of our servicing practices are really criticisms of the regulations," he said at the hearing.

That argument doesn't satisfy critics such as Sandy Jolley, who battled Financial Freedom over her parents' reverse mortgage and later became a consultant who is sometimes paid for her advice to other borrowers. Financial Freedom seems bent on foreclosing on borrowers as fast as possible, she says. After she tried unsuccessfully in court to void the loan on her mother's home in Thousand Oaks, Calif., Financial Freedom in 2010 tried to foreclose by claiming that the mother no longer lived there, even though she did, Jolley says. At the time, her mother was widowed, in her 80s, and suffering from Alzheimer's disease. CIT declined to comment on the case.

"When you have nowhere to turn and you are being wrongfully threatened with foreclosure and displacement from your home, that stress can be overwhelming," says Jolley. Financial Freedom finally completed the foreclosure in 2013, she says, after her mother died. —*Zachary Mider and Saleha Mohsin*

The bottom line Steven Mnuchin made a lot of money at his last job, but now the company is sorting through an accounting problem.

Banking

JPMorgan Traders Get Into Property Deals

▶ **They're making risky loans as commercial banks show caution**

▶ **"A smart lender can step up and find an opportunity"**

Real estate developers who can't get funding from regular bankers at **JPMorgan Chase** may have another option: JPMorgan's trading desk.

There, a group of traders that normally makes deals to sell mortgage-backed securities is also directly underwriting loans not suitable for bundling into bonds, such as those for big construction projects, according to people with knowledge of the matter. The desk has been involved in deals to fund Manhattan condominiums and a troubled mall in New Jersey.

Traditional commercial lenders have been pulling back from construction loans, which carry bigger risks but also pay higher yields than normal mortgages. Even the commercial banking side of JPMorgan, where loans are typically made, has been cautious about property deals after a six-year surge in prices. But traders in the company's investment banking group are taking ▶

DREW ANGERER/GETTY IMAGES

◀ advantage of developers' demand for funding. "They're lending into a higher-risk area when we're clearly at an inflection point in the cycle," says Mark Williams, a former Federal Reserve examiner who lectures on financial risk at Boston University.

Why are commercial bankers and traders looking at risk differently? One reason may be that the commercial bank is more likely to keep the loans it makes on its balance sheet: It loses if they go sour. The trading desk hangs on to a piece of the loans—usually 10 percent to 40 percent—and sells the remainder to other investors, according to one of the people with knowledge of the desk's moves.

Such loans "make up a small fraction of our business," says Brian Marchiony, a JPMorgan spokesman. "But if an opportunity comes along where we can help finance a project for a client in a smart and thoughtful way, we're going to do it."

Since prices have risen more than 20 percent above their 2007 peak, bank regulators have warned of a potential bubble in commercial real estate. JPMorgan Chief Executive Officer Jamie Dimon in early December acknowledged risks in the market and said the company has always been cautious in real estate, with its commercial bank focusing on relatively stable investments such as multifamily housing.

Many banks are more careful about construction lending than they were a year ago. "The environment is more challenging than it's been in my career," says Bruce Batkin, CEO of Terra Capital Partners, a real estate debt fund. "Borrowers are having an enormously hard time getting the proceeds they need."

Doug Petno, who leads JPMorgan's commercial bank, said at an investor conference in November the market is "at the later stages" of an upswing and warned that financing for luxury condos is vulnerable to an economic slowdown. Yet the trading group has been involved in those types of loans. JPMorgan teamed with **Oaktree Capital Management** to provide a $500 million loan to **HFZ Capital Group**, according to people with knowledge of the matter. The three-year loan is linked to four properties converted from rentals to high-end condos.

The deal's payoff is tied to the sale of unsold inventory. At a time when many builders are struggling to sell new units, this may be seen as a relatively risky wager, according to Scott Singer, president of the Singer & Bassuk Organization, an investment firm that specializes in real estate financing, which isn't involved in the deal. The lenders would be well compensated for such uncertainty. "A smart lender can step up and find an opportunity to put money in a deal," he says.

JPMorgan's investment bank is also leading a $1.5 billion loan to resurrect the 2.9 million-square-foot American Dream complex in New Jersey's Meadowlands (page 44). Canadian company **Triple Five Worldwide** is the third developer to take a stab at creating a shopping and entertainment mecca on the former landfill, after more than a decade of delays.

Peter Sotoloff, chief investment officer of **Mack Real Estate Credit Strategies**, which joined the JPMorgan group on a deal to build a Times Square hotel, says JPMorgan is "very careful and conservative in the risks that they are willing to take." But a trader's idea of caution may differ from that of a commercial banker. —*Sarah Mulholland and Hugh Son*

The bottom line JPMorgan traders see attractive yields to be had from construction loans, and they don't have to bear all the risk.

Investing

What Happened to the New Normal for Bonds?

▶ **Trump's election has investors rethinking their worldview**

▶ **Instead of stasis, "it's going to tip one way or the other"**

Back when he was the chief executive officer of bond-fund giant Pacific Investment Management Co., better known as Pimco, Mohamed El-Erian popularized the term "new normal" to describe the long period of slow growth the world faced in the wake of the 2008 financial crisis. Others called it "secular stagnation." By any name it was an idea that powered a bond bull market: Since low growth implied low inflation and low interest rates, investors were willing to accept razor-thin yields on bonds. For example, yields on the 10-year Treasury closed at a record low 1.36 percent on July 8. Bond prices rise as yields fall, and vice versa.

If there's one thing that's clear about Donald Trump, it's that he's not the status quo. For now, markets are taking an optimistic view about the effects of Trump's calls for deregulation, tax reform, and infrastructure spending. In the U.S. stock market, that's translated into a rally. Bond investors, on the other hand, began selling in anticipation of higher inflation and interest rates. Their bet was confirmed on Dec. 14 when the Federal Reserve raised short-term rates a quarter point.

"Important shifts around real growth, around inflation, around policy all suggest that the move in bond yields we are seeing now can be sustained." —*BlackRock's Richard Turnill*

The yield on 10-year Treasuries has gone above 2.5 percent—meaning the bonds lost 5.4 percent of their value from Election Day to Dec. 13. The 30-year Treasury, which is more sensitive to changing expectations about rates, fell more than 10 percent. The long bond recently saw a 20 percent loss over five months, meeting one definition of a bear market. It's the first since 2009. "That is a large chunk of loss on something that, until recently, was deemed as risk-free," said Giuseppe Nuti, head of U.S. rates trading at UBS.

"It is something fundamental that has changed," says Richard Turnill, global chief investment strategist at BlackRock. "Important shifts around real growth, around inflation, around policy all suggest that the move in bond yields we're seeing now can be sustained. I believe we've seen the low point for yields."

Jeffrey Gundlach, chief executive officer of DoubleLine Capital said in a Dec. 13 webcast that Treasury yields may hit 6 percent by the end of Trump's four-year term. Since that would mean higher borrowing costs throughout the economy, if yields hit even 3 percent in 2017, he said, losses may spread beyond bonds and into stocks and real estate.

El-Erian agrees investors have to rethink their assumptions. "I don't see the new normal lasting," he says. That doesn't mean El-Erian, who's now chief economic adviser for Allianz and a columnist for Bloomberg View,

ILLUSTRATION BY 731

thinks the economy is on a smooth upward path. He says "it's going to tip one way or the other"—toward more growth or into financial volatility.

Trump is already drawing criticism from China, the largest foreign holder of U.S. Treasuries, for flouting protocol by directly speaking with the leader of Taiwan. Rising barriers in the global marketplace might tip the U.S. into a recession, which, if history is any guide, is overdue anyway. Analysts at HSBC have argued that yields could fall again in late 2017 as the economy hits headwinds such as an aging global workforce and high debt loads.

Much of the rest of the world remains stuck in slow growth, with low rates to match. The Bank of Japan wants to keep the country's 10-year debt locked in at a zero percent yield, and in Switzerland buyers of 10-year government bonds get a negative yield—they pay to lend out their money. That should make the yield on U.S. bonds look attractive to global investors, bolstering demand.

For many individuals who hold bond funds, the market's change of heart has meant losses. But it also means they'll earn more interest income, says Thomas Girard, head of fixed-income investors for New York Life. "As a long-term investor in the marketplace," he says, "I'd much rather buy 10-year Treasuries at 2.5 percent than 1.36 percent." *—Brian Chappatta and John Gittelsohn*

The bottom line U.S. investors are feeling good about growth, which is bad for bond prices. But they may be ignoring global economic risks.

Real Estate

Chinese Buyers Move On From Vancouver

▶ **A tax on foreign investors makes Seattle and Toronto look better**

▶ **"Chinese money isn't going to sit and wait"**

Just a few days after British Columbia announced a 15 percent tax on foreigners buying property in the Vancouver area, Seattle real estate broker Lili Shang received a WeChat message from a wealthy Chinese businessman who wanted to sell a home in Canada and buy one in her area. After a week of looking, he purchased a $1 million property in Bellevue, across Lake Washington from Seattle. He soon returned to buy two more, including a $2.2 million house in Clyde Hill paid for with a single cashier's check.

Shang says she's been inundated with similar requests from China and Hong Kong since August, when the government in British Columbia began its effort to cool soaring real estate values in Vancouver. Chinese investors, who represent a huge pool of foreign capital, are looking for places to put their cash as a hedge against a weakening yuan and rising prices at home. "The tax was the trigger of this new wave of investment now coming to Seattle," Shang says. "Why pay more for the same thing?"

Demand has shifted south of the border and also within Canada. Inquiries from China about home purchases have jumped in Seattle and Toronto since the tax was announced, according to Juwai.com, China's largest overseas property website.

For investors who own property in Vancouver, where prices for detached homes have doubled in a decade, Seattle is a lure because it's on the water and only a few hours away by car. It's also more affordable than other West Coast destinations. Toronto, one of the world's financial capitals, already has a base of foreign investment in condominiums. "Chinese money isn't going to sit and wait," says David Ley, a geography professor at the University of British Columbia who focuses on housing.

While there are no figures specifically showing purchases by offshore buyers, brokers say demand in Seattle and Toronto has been robust, particularly for the high-end properties Chinese investors tend to favor. Single-family home prices in King County, where Seattle is located, jumped 10 percent in November from a year earlier, data from the local Realtors association show. In Toronto the average home price rose 23 percent in November from a year earlier, while sales soared 17 percent, according to the local real estate board. Vancouver home sales, meanwhile, have plunged since July.

Dean Jones, chief executive officer of Realogics Sotheby's International

Where Chinese Buyers Are Looking

Change from prior year in inquiries about home purchases on China's top overseas property website

	August	September
Vancouver	▼81%	▼34%
Seattle	▲63%	▲93%
Toronto	▲54%	▲86%

DATA: JUWAI.COM

Realty in Seattle, which specializes in high-end properties, estimates that about half the homes his firm sells in the city's suburbs go to Chinese buyers. Many of the transactions required the use of interpreters, international banks, and multiple escrow deposits. "This is Vancouver 2.0," says Jones, who lived in the Canadian city about two decades ago, when the influx of Asian capital accelerated. "A lot of the same motivations and goals are being replicated in Seattle."

There are other dynamics boosting home prices in the area, such as limited supply, says Svenja Gudell, chief economist at Seattle-based Zillow. Even before the new tax north of the border, the Seattle metropolitan area saw a 50 percent jump in housing prices over the past five years, thanks in part to a booming technology industry. "I can easily buy the story that we're seeing a ton of foreign buyers here," Gudell says. "I just don't think they're all from Vancouver."

In Toronto, Hunter Milborne, CEO of Milborne Real Estate, says the Vancouver tax rippled through the market quickly. The week it was announced, he went to dinner with about a dozen Chinese bankers. Talk was devoted to the tax, and diners mentioned clients who were closing their Vancouver accounts and moving their investment activity to Toronto.

"The key point for Chinese investors is still, 'Let's move that money out of China. You never know what will happen to it,'" says Gordon Houlden, director of the China Institute at the University of Alberta. "So they'll go to Seattle or Toronto." *—Katia Dmitrieva*

The bottom line Efforts to cool Vancouver's expensive real estate market may be shifting Chinese cash to other cities.

Edited by Pat Regnier
Bloomberg.com

ON CHINESE AQUACULTURE FARMS,

AS ARE THE PIGS, WHOSE WASTE FEEDS THE FISH.

THE FISH ARE PUMPED WITH ANTIBIOTICS,

SO LET'S TALK ABOUT THAT SEAFOOD PLATTER

BY JASON GALE, LYDIA MULVANY, AND MONTE REEL
PHOTOGRAPHS BY FORBES CONRAD

Previous spread: Aquaculture and pig farms in Datianlang in Guangdong

From the air, the Pearl River Delta in southern China's Guangdong province resembles a mass of human cells under a microscope. Hundreds of thousands of tiny rectangular blocks, all of them shades of green, are clustered between cities and waterways. Livestock pens are scattered among the thousands of seafood farms that form the heart of the country's aquaculture industry, the largest in the world.

Beside one of those fish farms near Zhaoqing, on a muggy day in June, a farmhand wearing a broad-brimmed straw hat hoses down the cement floor of a piggery where white and roan hogs sniff and snort. The dirty water from the pens flows into a metal pipe, which empties directly into a pond shared by dozens of geese. As the yellowish-brown water splashes from the pipe, tilapia flap and jump, hungry for an afternoon feeding.

Chinese agriculture has thrived for thousands of years on this kind of recycling—the nutrients that fatten the pigs and geese also feed the fish. But the introduction of antibiotics into animal feed has transformed ecological efficiency into a threat to global public health.

At another farm, in Jiangmen, a farmer scatters a scoop of grain to rouse her slumbering swine, penned on the edge of a pond with 20,000 Mandarin fish. The feed contains three kinds of antibiotics, including colistin, which in humans is considered an antibiotic of last resort. Colistin is banned for swine use in the U.S., but until November, when the Chinese government finally clamped down, it was used extensively in animal feed in China. Vials and containers for nine other antibiotics lie around the 20-sow piggery—on shelves, in shopping bags, and atop trash piles. Seven of those drugs have been deemed critically important for human medicine by the World Health Organization.

The overuse of antibiotics has transformed what had been a hypothetical menace into a clear and present one: superbugs, bacteria that are highly resistant to antibiotics. By British government estimates, about 700,000 people die each year from antibiotic-resistant infections worldwide. If trends continue, that number is expected to soar to 10 million a year globally by 2050—more people than currently die from cancer.

In November 2015 scientists reported the discovery of a colistin-resistant gene in China that can turn a dozen or more types of bacteria into superbugs. Since then the gene has been found in patients, food, and environmental samples in more than 20 countries, including at least four patients in the U.S. Food, it now appears, can be a crucial vector. "People eating their shrimp cocktails and paella may be getting more than they bargained for," says Dr. Martin Blaser, a professor of microbiology and an infectious diseases physician at New York University Langone Medical Center who chairs President Barack Obama's advisory panel for combating antibiotic-resistant bacteria. "The penetration of antibiotics through the food chain is a big problem."

Research has found that as much as 90 percent of the antibiotics administered to pigs pass undegraded through their urine and feces. This has a direct impact on farmed seafood. The waste from the pigpens at the Jiangmen farm flowing into the ponds, for example, exposes the fish to almost the same doses of medicine the livestock get—and that's in addition to the antibiotics added to the water to prevent and treat aquatic disease outbreaks. The fish pond drains into a canal connected to the West River, which eventually empties into the Pearl River estuary, on which sit Guangzhou, Shenzhen, Hong Kong, and Macau. The estuary receives 193 metric tons (213 tons) of antibiotics a year, Chinese scientists estimated in 2013.

The $90 billion aquaculture trade accounts for almost half of all seafood harvested or caught, according to the United Nations. China supplies almost 60 percent of the global total and is the biggest exporter. U.S. food regulators have known about the country's antibiotic problem for more than a decade. The Food and Drug Administration intensified its monitoring of imported farm-raised seafood from China in the fall of 2006 and found a quarter of the samples tested contained residues of unapproved drugs and unsafe food additives. The following June an import alert was applied to all farm-raised shrimp and several other kinds of seafood from China, allowing the agency to detain the products at port until each shipment is proved, through laboratory analysis, to be untainted.

But antibiotic-contaminated seafood keeps turning up at U.S. ports, as well as in restaurants and grocery stores. That's because the distribution networks that move the seafood around the world are often as murky as the waters in which the fish are raised. Federal agencies trying to protect public health face multiple adversaries: microbes rapidly evolving to defeat antibiotics and shadowy seafood companies that quickly adapt to health regulations to circumvent them, moving dirty seafood around the world in much the same way criminal organizations launder dirty money.

The Chinese government is well aware that the use of antibiotics has gotten out of hand. In 2011 it initiated a campaign to reduce antibiotic use in humans, and since then the sale of antibiotics in Shanghai has fallen 31 percent. As last month's ban on colistin suggests, there's a new seriousness about antibiotic use in agricultural production as well. Nevertheless, China's rates of drug resistance remain among the highest in the world. Surveys across the country have found 42 percent to 83 percent of healthy people carry in their bowels bacteria that produce extended-spectrum beta-lactamases, or ESBLs, which create reservoirs of potential pathogens that can destroy penicillin and most of its variants. The aquaculture products sold in Shanghai teem with bacteria that can't be killed by common antibiotics. In almost a third of random seafood samples collected in Shanghai from 2006 to 2011, researchers found salmonella, a major cause of gastroenteritis in people. A closer examination of the germs showed that 43 percent of the samples harbored multidrug-resistant strains of bacteria.

Over the past year, scientists have tracked the spread of colistin-resistant bacteria throughout Asia, Europe, and the Western Hemisphere. In May the first report of an American infected with a colistin-resistant superbug was announced. More U.S. cases were reported in June and July. By August researchers were announcing that American patients had been infected with a strain of bacteria that had developed resistance to colistin and carbapenems, another type of antibiotic often used to treat patients in hospitals with multidrug-resistant infections.

Initially, the resistant bacteria from breeding grounds such as China were believed to spread mostly by international travel. Michael Mulvey, head of antimicrobial resistance at the National Microbiology Laboratory in Winnipeg, Manitoba, was among the first to realize that seafood could also be a vector. In 2015, Mulvey's lab secured funding for a study that enabled him and his colleagues to run a test for carbapenem-resistant bacteria on 1,328 samples of seafood collected from Canadian retail outlets from 2011 to 2015. Eight, or 0.6 percent, tested positive; all came from Southeast Asia. The findings meant that some of the planet's most difficult-to-treat bacteria could be lingering in people's refrigerators or on their kitchen countertops. "We are trying to make the case right now that it's there, it's in our seafood," Mulvey says.

Since the early 1990s, the average amount of shrimp Americans eat annually has doubled, turning what was once a specialty dish into the country's single most popular seafood. As recently as the 1980s, most of the shrimp consumed in the U.S. was raised domestically, primarily off the Gulf Coast. From 1990 to 2006, shrimp import volumes doubled. They've since leveled out at roughly 1.3 billion pounds annually, and today about 90 percent of the shrimp eaten in America comes from abroad. China's share of imports touched an 11-year high in 2003 at 16 percent of the market. (It's now 5.6 percent.) In 2004, the U.S. Department of Commerce announced a 112 percent tariff on Chinese shrimp, effective 2005—a response to complaints of domestic producers that insisted Chinese suppliers were selling seafood below market prices. In 2007 came the import alert.

Malaysia jumped in to pick up the slack. In 2004 imports of Malaysian shrimp rose tenfold, according to U.S. government figures. They remained elevated for a decade, peaking at about 5 percent of the market in 2008 and 2011.

There's reason to doubt that all that Malaysian shrimp is Malaysian. Ronnie Tan, vice president of Blue Archipelago, Malaysia's largest seafood producer, says that depending on the year either three or four shrimp producers—including his own company—operate in the country. Malaysia produced about 32,000 tons of shrimp in 2015, he says; about 18,000 tons were consumed domestically, and about 12,000 tons went to Singapore. That would leave little legitimate Malaysian shrimp to go to the rest of the world. Yet according to U.S. Department of Agriculture figures, imports from Malaysia during the past decade have exceeded 20,000 metric tons a year on average.

It's a mystery that may be explained, at least partially, by examining the business practices of Jun Yang, a Chinese-born entrepreneur based in Texas. Homeland Security Investigations, a part of U.S. Immigrations and Customs Enforcement, first knew him as a honey broker. The agency arrested him in 2012 (then unarrested him so that he could cooperate with the investigation, then arrested him again) and charged him with making false claims about the honey he was selling. It was harvested in China but was passed through Malaysia, where it acquired Malaysian certificates of origin. This illegal transshipping, as the maneuver is called, allowed him to avoid paying almost $38 million in antidumping duties. The investigators untangled a network of shell companies that seemed designed solely to deceive U.S. regulators. In November 2013, Yang was convicted and sentenced to three years in federal prison.

The investigators also determined that Yang's main business wasn't honey—it was seafood. His company brokered shrimp for a Houston company called American Fisheries. At the time of Yang's first arrest, some of the shipments were still in cold-storage facilities. The feds required him, as part of his cooperation, to send samples to a laboratory for analysis. Five shipments tested positive for nitrofurans, a class of antibiotics banned in the U.S. Those tainted shrimp were eventually destroyed. All the tainted shipments had been labeled as products of Malaysia.

Despite Yang's cooperation with the government in the shrimp investigation, his information wasn't used to make a case. But American Fisheries itself may have provided a way to track the apparent transshipping scheme. In May 2013, American Fisheries sued Yang, saying it had received only $6.1 million of the $12.1 million Yang owed it for 74 shipments of shrimp, weighing as much as 28,000 kilograms (62,000 pounds) each, from June 2011 to January 2012. That case, still pending in Texas, as well as Yang's countersuit against American Fisheries, has uncovered a trove of documents that detail how a Shanghai-based company hatched a plan to get its Chinese-farmed shrimp into America.

In 2005, about nine months after the U.S. antidumping tariffs on Chinese shrimp went into effect, a group of seafood executives gathered in a Shanghai conference room. Many knew one another from when they'd all worked for Shanghai Fisheries, a large company overseen by the government. The executives agreed to create a venture that would focus primarily on exporting shrimp to the U.S., despite the new tariff. They would finance and control the company from China, but it would be incorporated in Texas. That was the beginning of American Fisheries.

A worker on the Datianlang farm sets out to feed the fish. The feed is laced with antibiotics.

Antibiotic medicines at a veterinary pharmacy in Jiangmen.

Some of the same executives also controlled a Shanghai Fisheries subsidiary called Guangzhou Lingshan, a seafood packing plant in the Pearl River Delta, and the plant was buying shrimp. By 2006 the company had purchased 3,000 tons of it from farmers around the town of Da'ao, according to local newspaper reports.

Guangzhou Lingshan built a lab inside the complex to test the quality of its shrimp, and the facility was considered one of the best in the region. Even so, former executives with the company say shrimp tainted with antibiotic traces made it into the company's stock. "You know what China was like," says Lv Wei, who worked for Guangzhou Lingshan in the trade department for nine years before leaving in 2013. Almost two-thirds of the shrimp that went through the packing facility ended up with American Fisheries, she says. "They all went through Malaysia." Shanghai Fisheries declined to comment on Guangzhou Lingshan.

No paperwork connected to those 2011 and 2012 shipments of Malaysian-labeled shrimp indicated they might have originated in China. The certificates of origin were signed by officials at the Penang Malay Chamber of Commerce. On a day in August, a man named Mohd Noordin Ismail sits at a desk in the reception room of the chamber's offices in the seaside district of George Town. Bespectacled and wearing chunky gold rings on his fingers, Mohd Noordin has a foot-high stack of documents teetering in front of him. He says he's worked at the chamber of commerce for 40 years, and his duties include signing certificates of origin for products produced in Malaysia and then exported. The certification process, as he describes it, is built on trust. He's presented with documents provided by exporters, and he rubber-stamps the certificates under the assumption that the documents are genuine and correct. He doesn't verify their authenticity.

"We cannot trace if the shrimp is coming from Thailand or from China or from other countries," Mohd Noordin says. "We cannot trace."

The documents that bear his signature indicate the shrimp sent to American Fisheries was farmed at two Malaysian aquaculture facilities, Chai Kee Aquatic and Aiman Aquatic. But none of the addresses listed on those forms correspond to an aquaculture facility or to a place where shrimp could have been raised. On two separate import documents, the same address is listed as the harvesting site for both Chai Kee and Aiman Aquatic. That address corresponds to a long block of gated residential compounds. No ponds are visible on any of the properties. A woman who answers the door at one of the houses says her son was in the seafood business, but she says no aquaculture facilities could be found on her property or elsewhere in the neighborhood. Another address listed on the documents for Chai Kee doesn't appear on Google Maps, and neither the local police nor officials at the post office can locate the street named on the forms.

Mohd Noordin says it's possible the certificates of origin and his signature could have been forgeries and that the forms never passed his desk. Malaysia's shrimp industry is relatively small, but he says he'd never heard of either Chai Kee or Aiman. Since 2008, when the European Union temporarily banned imports from the country after several shipments tested positive for antibiotic residues and heavy metal content, only a few companies legitimately export shrimp to America, according to Mohd Noordin and others in the industry. Tan of Blue Archipelago says that while he has no direct evidence of transshipping activities, it's commonly speculated by seafood producers in Malaysia that Chinese producers use Malaysian companies—both legitimate producers and shell companies that exist only on paper—to sneak their shrimp into the U.S.

The American Fisheries court documents suggest the company and its various distributors carefully monitored the status of the shrimp shipments it brought into the U.S. and communicated via e-mail and telephone. Once the shrimp was on a ship bound for America, ownership of the shipment was transferred to a U.S.-registered company called YZ Marine.

"WE CANNOT TRACE IF THE SHRIMP IS COMING FROM THAILAND OR FROM CHINA OR FROM OTHER COUNTRIES. WE CANNOT TRACE"

On paper, the company doesn't seem connected to American Fisheries and its executives in Shanghai. But the court documents show that Feng Shao, president of American Fisheries, had access to YZ Marine's bank account and wrote a number of checks on it.

Lawyers for American Fisheries didn't respond to interview requests for this story, but in court documents related to the Yang suit they've denied the company illegally transshipped goods via Malaysia. They've acknowledged, however, that the company was fully financed and staffed via China and that its employees worked in Texas on three-month rotations because they lacked long-term U.S. work visas. Court records also show that when one shipment of Malaysian-labeled shrimp arrived in the U.S. at a lighter weight than anticipated, a member of the American Fisheries staff checked with Guangzhou Lingshan—the facility in the Pearl River Delta—to ask if there had been a packing mistake.

The groups lobbying hardest for intensified scrutiny of imported shrimp and fish are, unsurprisingly, the American producers of seafood. The Southern Shrimp Alliance, a trade organization of U.S. shrimp producers, says the U.S. market is awash in fraudulently labeled and unsafe seafood. "What we have learned is that there are well-developed channels for getting massive amounts of food and other consumer goods into this market while evading U.S. laws," says John Williams, the organization's executive director.

Critics of increased inspection say it would cause gridlock at U.S. ports. "Think of all the trucks going by on an interstate, and you have a cop pulling people over for speeding," says Peter Quinter, a customs and international trade lawyer in Miami. "You can't pull everyone over.... Hiring more FDA officers is not the answer; it's like shutting down the highway."

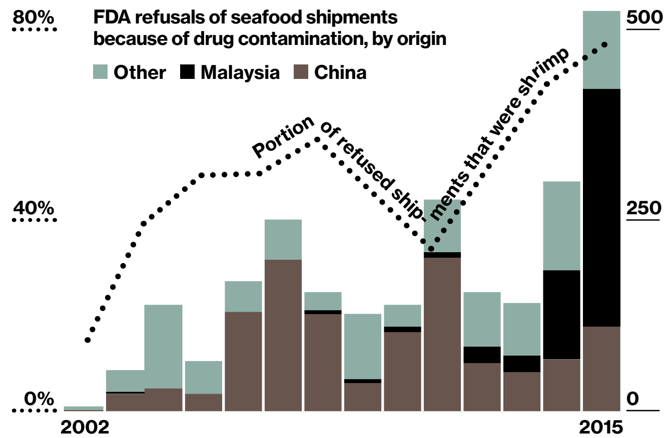
Arguments of that nature didn't stop the U.S. catfish industry from successfully pushing for more oversight on imports, a move that could provide a model for shrimp companies. For years the catfish industry argued that the FDA's testing protocol, which analyzes only 1 percent to 2 percent of incoming seafood, didn't adequately protect consumers. With the help of allies in Congress, catfish farmers got the USDA to take over import inspections from the FDA. The USDA's Food Safety and Inspection Service, which will inspect all catfish imports by September 2017, began conducting preliminary, noncomprehensive inspections this spring, and proponents are thrilled by a slew of recent enforcement actions.

In April the FDA issued an import alert that said its district offices could detain and test all imports of shrimp and prawns from Peninsular Malaysia, a region that includes Penang. Malaysia's Ministry of Health responded by announcing that it would tighten controls at processing plants and assume the authority to issue certificates of origin from chambers of commerce. The U.S. in the past year has started at least two investigations involving Chinese shrimp producers suspected of shipping their seafood through Malaysia, according to a U.S. Immigration and Customs Enforcement official who is familiar with the investigations. Both probes are ongoing.

The FDA alert has virtually halted Malaysian shrimp imports. But that doesn't mean tainted Chinese shrimp aren't making it into the U.S. Industry and trade experts say many companies transship Chinese shrimp by following the American Fisheries model, each of them creating disposable import companies that can simply fold, or reincorporate under another name, at the first sign of regulatory scrutiny. Over the years, when Malaysian shrimp exporters were added to the FDA's "red list"—meaning their shipments would have to be stopped at U.S. ports—the

DEADLIEST CATCH

In 2011, 75 percent of drug-contaminated shrimp shipments entering the U.S. originated in China, vs. 6 percent from Malaysia. By 2015, Malaysia accounted for 77 percent.



DATA: U.S. FOOD AND DRUG ADMINISTRATION

companies didn't try to clear their names, as companies from other countries did, says Nathan Rickard, an attorney specializing in international trade whose clients include the Southern Shrimp Alliance. They just incorporated new entities with new names to do the same work.

It appears now that dirty shrimp is being routed through different countries. One that might be taking Malaysia's place as an international transshipping hub is Ecuador, domestic shrimp producers say.

"The import alert was a huge step forward to prevent contaminated shrimp from getting to U.S. consumers, but we have also seen significant shifts in trade patterns indicating new routes and methods for getting bad shrimp into the U.S. market," says Williams, of the Southern Shrimp Alliance. "As long as there are distributors, retailers, and restaurants that, provided that the price is low, do not know and do not care where their shrimp is coming from, we expect to see shrimp-trade fraud."

A recent case illustrates the domestic producers' concerns. Ocean Rancho, a company based in Rancho Cucamonga, Calif., has imported Malaysian shrimp. The company was formed by a man named Kai Hua Tan, an employee of a shrimp-farming company in mainland China called Zhanjiang Newpro Foods. Tan also has links to Tasty Goody Chinese Fast Food, a chain of 11 restaurants in California. In November 2014 the U.S. Department of Commerce said it had obtained documents showing that Zhanjiang Newpro had evaded tariffs using a transshipping scheme. When the company refused to answer questions about its operations during a review, the department imposed antidumping penalties. Ocean Rancho declared bankruptcy and dissolved, citing about $1.6 million in duties owed to U.S. Customs and Border Protection. (Tan didn't respond to voicemails left at his listed phone number, or to phone calls and e-mails to Tasty Goody.)

Around the same time, a new company, Mita Group, formed. It has the same address and phone number Ocean Rancho used on shipping documents. No one answering the phone there would speak with a reporter. Last year, Mita Group imported at least 700,000 pounds of shrimp—from Ecuador. B
—*With Wenxin Fan and Pooi Koon Chong*

Supermall,

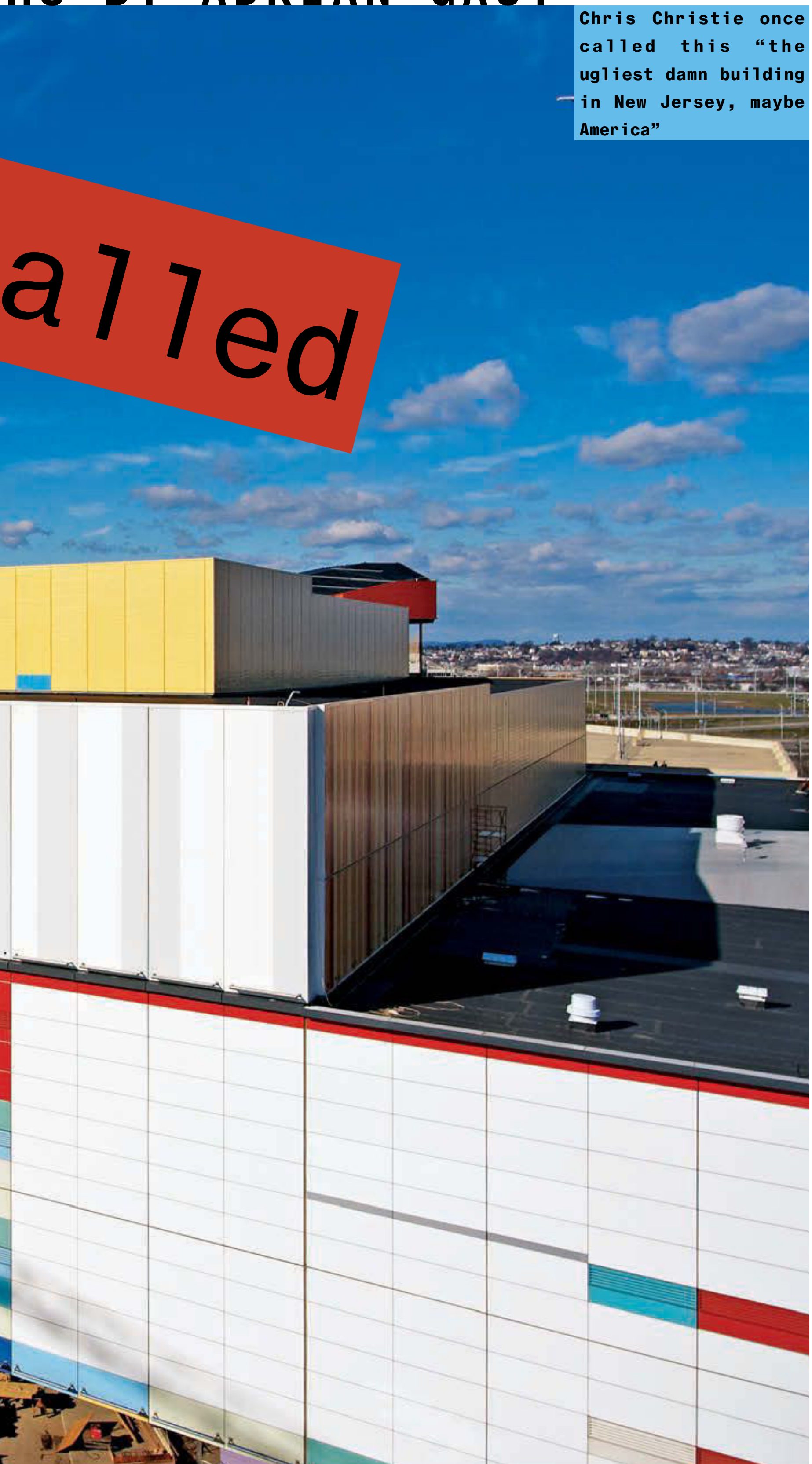
BY SUSAN BERFIELD,
ILYA MARRITZ, AND
JOHN REITMEYER

PHOTOGRAP

Superst

THIS NEW JERSEY MEGAMALL WILL HAVE A SKI HILL, A HELIPAD, AND ALL THE HERMÈS YOU CAN BUY—SOMEDAY, MAYBE. TWELVE YEARS AND $2 BILLION AFTER GROUND BROKE, IT'S ONLY A QUARTER BUILT

HS BY ADRIAN GAUT



Chris Christie once called this "the ugliest damn building in New Jersey, maybe America"

Don Ghermezian wants to pitch us on the American Dream, but he has a few conditions. First, we're not allowed to record his eight-minute presentation. Second, we can ask him only a few questions, at the end. Third, if they're about his family, he won't say much. "This is a $4.8 billion dollar project that will be the center of the universe," he says, promising we'll be impressed. If not, "you'll be the first ever to leave here without thinking, 'Holy shit. These guys are incredible.'"

Ghermezian is speaking in the New Jersey Meadowlands offices of Triple Five, a family business that owns North America's two biggest shopping centers: West Edmonton Mall and Mall of America. Triple Five are the incredible guys in question; Ghermezian is the company's president. The future center of the universe is across the turnpike, a 91-acre tract of filled-in wetlands now home to a structure Governor Chris Christie, something of an expert on dismal spectacles, called "the ugliest damn building in New Jersey, maybe America."

The first thing Ghermezian means for us to understand is that his family isn't building a mall. Online shopping is killing malls; American Dream is one of only two in the country being built from the ground up. Its extravagant attractions make it "internet-proof," says Ghermezian, who is in his 40s and wears a big watch and expensive sneakers. Beyond its 450 shops and restaurants, half of the 3 million-square-foot complex will be devoted to entertainment: a DreamWorks water park, a Nickelodeon theme park, a Legoland, a ski slope, an aquarium, a performing arts space, a movie theater, an ice rink, a miniature golf course, and a kosher food hall, all enclosed in a glass bubble.

"We're spending a billion dollars on a water park and amusement park," he says. "It's there to push traffic to the stores." This isn't just a tenet of megamall economics; it's a design feature. To get to the American Dream's indoor ski lift, visitors will have to walk through a faux Alpine village that consists mostly of boutiques.

Ghermezian expects the mall to be the highest-grossing in the country. "On par with Dubai" is how he puts it, referring to the huge mall in the United Arab Emirates' largest city. He says American Dream's retail space is already 70 percent leased, although the mall won't open for two more years.

We are barraged with fanciful details about gardens, waterfalls, and Champagne and caviar bars. The concierge service and helipad. The cobblestones meant to evoke Paris. The electronic tracking system parents can use for their kids. The fountain that will somehow part every two hours, allowing two members of Cirque du Soleil to emerge and perform acrobatics for seven minutes. The stores have to be "experiential," Ghermezian says. They'll also be really big. Fourteen retailers are building their largest outlets in American Dream. He can't name many

As construction proceeds at American Dream, pipes for the water park are being fitted out. The ski slope, built years ago, awaits snow and people

names, but he does mention Hermès, which will open an 8,000-sq.-ft. store with a 30-foot glass facade.

When he finally wraps up, some 30 minutes beyond the promised eight, it's question time. Mega-infrastructure funded by public-private partnerships is in the air, thanks to another wealthy real estate developer, Donald Trump, and we want to know whether this project, if it comes off, will be good for New Jersey. The state has approved incentives that could be worth almost $1 billion, which will back $1.15 billion in municipal bonds. Triple Five says it will raise an additional $1.5 billion in private funding to complete the mall.

"We're creating tens of thousands of jobs. We're creating an incredible tax base and revenue for the state of New Jersey. We are going to be bringing 45 million people here," Ghermezian says. Projects of this magnitude have to be partnerships, which just take longer. "I know it will succeed, because I've built them twice before," he says. "I didn't need to come to New Jersey. I didn't need to build another project."

Before the American Dream was the American Dream, it was Xanadu. When ground broke on the site in 2004, hundreds of guests attended a million-dollar party, with martinis in one tent and artificial snow in another. Xanadu's developer, Mills Corp., completed most of the main building before running out of money in 2006. A second developer ran aground in the Great Recession. The Trump Organization, among others, decided against taking on Xanadu, which sat vacant and ridiculed, having already cost developers $2 billion.

The Ghermezians announced their arrival in 2011 with a rousing news conference soundtracked by Bruce Springsteen's *The Rising*. Armed with the state's promise of financial assistance, they soon redesigned and expanded the proposed complex, renaming it American Dream Meadowlands—a meticulously designed pleasure dome that would draw visitors the world over. The first opening date came and went in 2014. At least two more have passed since. The latest promise: fall 2018.

For now, the site features only the blue-and-white-tiled building and a giant enclosed ramp—the ski slope, minus snow or people. On the eastern edges, tall reeds grow in the marsh; in the summer, kayakers tour the waterways behind it. Each year, 100 million or so vehicles pass by on three highways that converge on the site. MetLife Stadium sits across the asphalt. The Manhattan skyline lies just beyond.

Nader Ghermezian, Triple Five's chairman, once told the *New York Times* that winning a Triple Five project "is the best thing that could happen to any city in the world." But the Ghermezians have been trying for decades to build a third megamall—in Canada, Germany, China, Japan, Russia, Niagara Falls, Las Vegas, and suburban Maryland. In most places their plans collapsed because of economics or politics. Howard Davidowitz, chairman of the retail consulting firm Davidowitz & Associates, believes American Dream can succeed. But, he says, it has "killed everybody who's ever been involved."

The Ghermezian family story, the one they don't often talk about, begins in Central Asia in the early 20th century. Jacob Ghermezian, Don's grandfather, operated a large bazaar in the Uzbek city of Samarkand, until the Russian Revolution abolished private property. He moved to Tehran and built a real estate fortune whose centerpiece was a complex with shopping, entertainment, apartments, and offices—purportedly the largest structure in the city at the time.

In the 1950s, amid political and economic uncertainty, Jacob, his wife, Miriam, and their four sons—Nader, Raphael, Bahman, and Eskandar, who is Don's father—left Iran for North America. They set up a business trading Persian rugs, eventually making their way to the Western Canadian city of Edmonton. The family named their company Triple Five in 1972: The Triple stood for three generations of Ghermezians, the Five for Jacob and his four sons. The men worked in adjoining offices with shared phone lines and lived in adjacent homes connected by covered walkways. Don and his cousins grew up in the business, and they're raising their children in it, too. Some 120 family members are involved in the company, which owns commercial property throughout North America and has expanded into nuclear energy engineering, biotech, and private equity. The Ghermezians are worth at least $2.5 billion, according to the Bloomberg Billionaires Index.

The father and sons opened West Edmonton Mall on the wintry prairie in 1981, and over the next several years expanded it to include the world's largest indoor water park, a triple-loop roller coaster called the Mindbender, an ice rink, a faux Bourbon Street, and a lagoon with a huge pirate ship. "Anything that they saw, they tried," says Adam Finn, a professor emeritus at the University of Alberta School of Business. "In the early days they had a menagerie at the mall, bears and tigers and lions in cages. Then they did away with that. They had a dolphin show there, too. Then they gave up on that." They visited Disney theme parks and returned to build a submarine ride in the lagoon, advertising that their underwater fleet was bigger than the Canadian Navy's. (The submarines are gone now, too.) At one point the mall held five world records, including one for the largest parking lot.

"This is going to be here for 100 y

As the family built and expanded their fantasyland—for years, that was the name of the mall's hotel and amusement park;

they changed the latter after Disney sued—Edmonton didn't know what to make of them. An economic development official told *Maclean's* magazine that they ran at a faster, more intense pace than those around them. When they sought bids from vendors, they'd bargain aggressively. When they needed a decision, they'd call repeatedly. "They had to get planning permission to take over land zoned for residential use. They had to get height restrictions overturned to build the roller coaster inside," says Finn. "There was a lot of concern that they would use any tactic to get their way."

When the brothers asked the city for millions in tax concessions to help them build the indoor amusement park, Mayor Laurence Decore told *Maclean's*, they "provided less documentation supporting their proposal than would a group of Boy Scouts asking for a $1,000 grant." Still, they won much of what they requested.

Triple Five soon exported its strategy to other cities, promising broad benefits while suggesting that without public money or incentives, the malls wouldn't be built. In the mid-'80s, with West Edmonton Mall bringing in almost 28 million visitors a year, the Ghermezians bid to build a second, $650 million mall, on a 78-acre site in Bloomington, Minn. "We outlined what we wanted from the city and what we wanted from the state," says Deane Eldredge, Triple Five's former head of marketing. "It was the same thing we were asking for from Edmonton—infrastructure, tax concessions. I genuinely believe the projects only work with those kind of concessions. Government enthusiasm is huge."

ears,"

says Don Ghermezian.

"One more year doesn't matter"

The enthusiasm in Minnesota was initially muted. "The Ghermezians' goal appears to be to build the best possible project with the most public dollars. My goal is to build the best possible project with the least public dollars," Michael Freeman, a state senator, said at the time. Undaunted, Nader Ghermezian held a news conference in Bloomington. "You will have all the shoppers from New York, Rome, Los Angeles, and Paris coming here," he said. "I bring you the moon, and you don't want it?" To encourage government support, the family displayed one of its custom-built submarines in front of Bloomington City Hall. They also flew the entire state legislative assembly to Edmonton, says Eldredge, and put them up at the Fantasyland Hotel. "I think seeing West Edmonton was the deciding factor," she says. Bloomington agreed to a $60 million aid package and other concessions, and signed a deal to break ground in the spring of 1987.

Like most real estate developers, the Ghermezians depend on other people's money to build. The larger the project, the riskier it is to investors, because the steep initial cost comes far in advance of the revenue. After a difficult quest to find their share of the funding for the Mall of America, the family brought in Simon Property Group, the biggest mall developer in the country, to help. It worked: The mall opened in 1992 with a ceremony that featured Ray Charles singing *America the Beautiful*. Triple Five bought Simon out in 2006, after a legal dispute, making it the sole owner of the property, which is now worth almost $4 billion, according to one independent consulting firm. The center has more than 500 shops, an amusement park, an aquarium, a Lego play area, a performance venue, and a wedding chapel. It's the biggest mall in the country—critics have called it the "sprawl of America"—though not as big as the one in Edmonton.

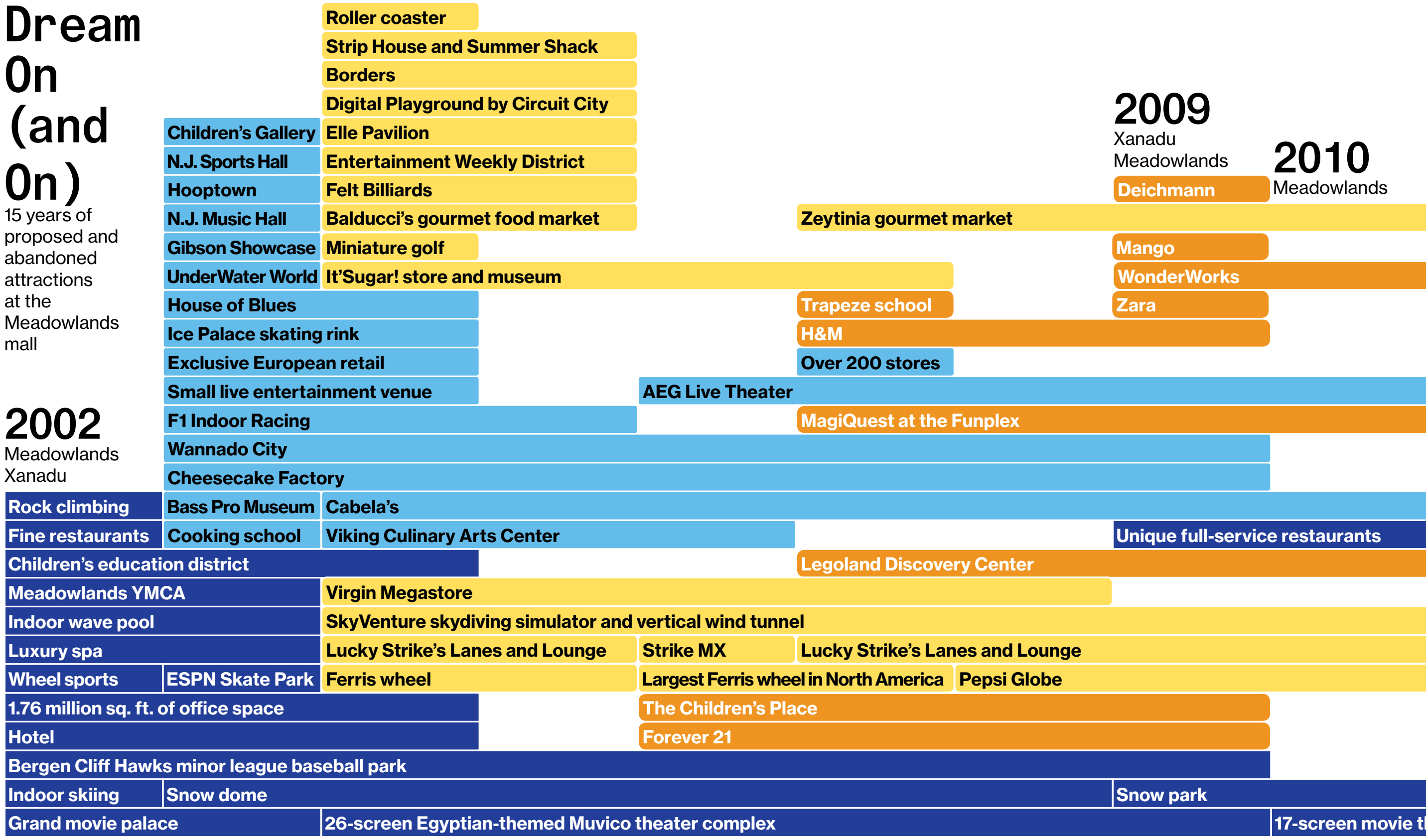
A third mall has proved far more elusive. Starting in the mid-'80s, Saul Katz, who was a senior executive at Triple Five, began scouting places as far-flung as Japan, the Soviet Union, and West Germany. In Oberhausen, then a small, economically depressed city near the Rhine, Triple Five proposed to build a C$1.8 billion shopping and entertainment complex. But it wanted the government to construct a rail line and rent half of a new on-site convention center. Nothing came of it in the end—market conditions got in the way, Katz says.

In 1987, the Ghermezians won $400 million in incentives from New York to build a $1.2 billion megamall, also called Fantasyland, in Niagara Falls. As part of a campaign to lure the development, thousands of residents had sent the family postcards saying "Wish you were here." Sean Kirst, a local columnist, suspects the family was more interested in securing an equally generous deal across the border. "It was shadow play," he says. After a year, the family walked away with nothing built on either side of the falls.

Triple Five says its false starts reflect a need to be "selective." But

Dream On (and On)

15 years of proposed and abandoned attractions at the Meadowlands mall



more often it's the cities that have balked. In the mid-'90s, for instance, the family made its first pitch to build an American Dream mall, a $600 million complex in Silver Spring, Md., outside Washington, D.C. The city was hoping to revitalize its downtown, but Doug Duncan, who then headed the county government, says every time officials met with the Ghermezians, they wanted to change the deal's terms. "I think they expected us, out of desperation, to just keep putting more public money into the project," he says. When Triple Five didn't seem able to raise the funds they needed, Duncan killed the deal. "They were angry," he says. "They said the only thing missing was political will.... I said the only thing missing is private money."

Norman Krone, who consulted for Triple Five in China for two years beginning in 2008, tells a similar story. He says he presented the Ghermezians with several potential projects, and even a few nearly complete deals. "But I never got a project done," he says, "because they would never commit any money of their own." The company says that's normal: Each side always wants the other to pay more.

In 2010, not long after the Ghermezians abandoned plans for an $800 million mall outside Las Vegas, Governor Christie welcomed them to the Meadowlands. He was a year into his first term and eyeing a second, the recession's effects were still being felt, and locals had taken to calling the abandoned mall "Xanadon't." In short, New Jersey was ready to cooperate.

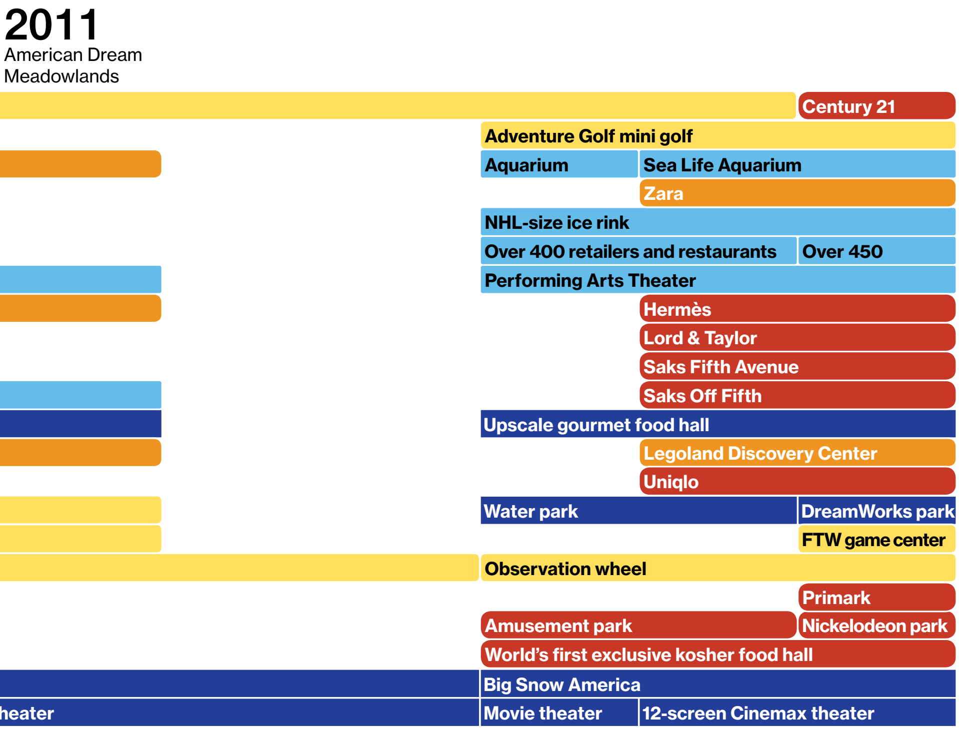
The following year, the state and Triple Five agreed on a complicated financing arrangement that included tax breaks and tax-exempt municipal bonds backed by future revenue from the mall. The deal became more generous as the project expanded, stalled, and resumed again: The $200 million in future tax benefits has almost doubled. Counting local redevelopment tax breaks, the incentives could rise to about $1 billion. Triple Five's contribution to the project, meanwhile, also has almost doubled, to more than $350 million, according to the company. Estimates of the benefits to New Jersey have grown, too. Triple Five now expects American Dream to create 23,000 construction jobs and an equal number of permanent jobs, together bringing in $183 million in annual taxes. It expects the total tax benefit to be about $3.5 billion over two decades.

The family often says that the malls in Edmonton and Bloomington contribute a combined $3 billion annually to the local economies, bringing in almost 70 million visitors a year. But those malls have advantages that American Dream won't have. For one, they're in small municipalities that don't have the massive shopping-and-entertainment complex that is New York City a short train ride away. Winters are also long in Minnesota and Alberta, and local governments benefit from the attention. "It's given Bloomington an identity," says Schane Rudlang, head of the local port authority. He adds that the city is satisfied with the payoff: "The majority of people in the Minneapolis and St. Paul area thought the Mall of America was going to be a ghost town—that it was going to be a giant 4 million square feet of blight. That obviously didn't happen."

But almost 25 years after the mall opened, Bloomington is finding, as Edmonton has, that Triple Five still expects the government to help out when it expands. Most recently the company received $35 million in infrastructure support for a $350 million project to build a hotel, offices, and luxury retail space. Negotiations are under way to add attractions that would bring its floor space closer to the 50-50 shopping-to-entertainment balance that American Dream aims for. (The current ratio at Mall of America and West Edmonton Mall is closer to 85-15.) Asked if he can foresee a time when the city of Bloomington won't be on the hook for funding, Rudlang says, "I truly hope we get to that point. We're not there yet, because these projects are not financeable in the way we want them to be without public assistance."

The New Jersey Economic Development Authority estimated in 2015 that American Dream would provide a net benefit of $730 million over two decades—much less

COURTESY THE JEWISH ARCHIVES AND HISTORICAL SOCIETY OF EDMONTON AND NORTHERN ALBERTA chairs George Washington University's Center for Real Estate and Urban Analysis. "It comes together quickly or it doesn't come together."



DATA: COMPANY REPORTS, ARCHIVE.ORG, NORTHJERSEY.COM, NEW YORK TIMES, BUSINESSWIRE, LAW 360

than Triple Five predicts. The state's job-creation calculations are also less optimistic: After factoring in retail job losses elsewhere, it places the number of new jobs at around 11,000, not 23,000. It also estimates that a typical retail or amusement park job at American Dream will pay an average of $19,500 a year, not enough to rent a one-bedroom apartment in surrounding Bergen County. "It strikes me that we're subsidizing a retail venture that is going to do very little to actually boost the economy of the state or region," says Jon Whiten, the vice president of New Jersey Policy Perspective, a nonprofit advocating economic fairness. "It flies in the face of every trend in economic development. They're all about locating a sense of place and space. This is the exact opposite. We think it's doomed to not go well."

After six years in the Meadowlands, Don Ghermezian has heard the skepticism, the criticism, the indifference. "I think this project will bring a great sense of pride," he says. "There's no negativity on my part for the people in New Jersey who don't feel the way I do. I can't expect them to feel that way because they haven't seen what we plan to unveil. They just don't know what's coming." When we ask about the delays—some self-inflicted, others unexpected—he says, "This is going to be here for 100 years. One more year doesn't matter."


Jacob and Miriam Ghermezian and their sons in the late 1990s

This autumn, Triple Five pressed New Jersey to give final approval for the sale of $1.15 billion in high-yield, high-risk municipal bonds, which the company said it needed to close a $1.5 billion private construction loan. In turn, some of that money was required to settle a prior loan due on Nov. 4. In a court filing, the company's chief financial officer described the situation as dire, noting that missing the deadline could mean default, foreclosure, and "the likely failure altogether of American Dream." New Jersey approved the bonds in time, but Triple Five didn't put them on the market right away. State officials then said the municipal bonds would be offered by the end of November. They weren't. Ghermezian says the private funding will be in place by yearend, and the bonds will go on sale in January.

Typically, financing for successful projects comes together like "a magnet gathering up little pieces of metal," says Christopher Leinberger, an experienced developer who chairs George Washington University's Center for Real Estate and Urban Analysis. "It comes together quickly or it doesn't come together."

Amid the missed dates and new promises, Triple Five arranges a tour to show that American Dream is moving forward. None of the Ghermezians is available to lead it. Instead, there's a site manager wearing a hard hat with a Xanadu logo and a safety vest with Mills Corp., the mall's first developer, stitched on it. He's not to be quoted, nor can he answer questions. We climb a spare metal staircase to view the water park and amusement park, which will connect to the mall by a glass walkway; for now about three dozen workers are pouring the concrete floors. Steel and rebar are stacked up, and the seven tower cranes, idle for months, are manned. A request to go inside the main building—where Triple Five says 300 or so workers are busy—is turned down.

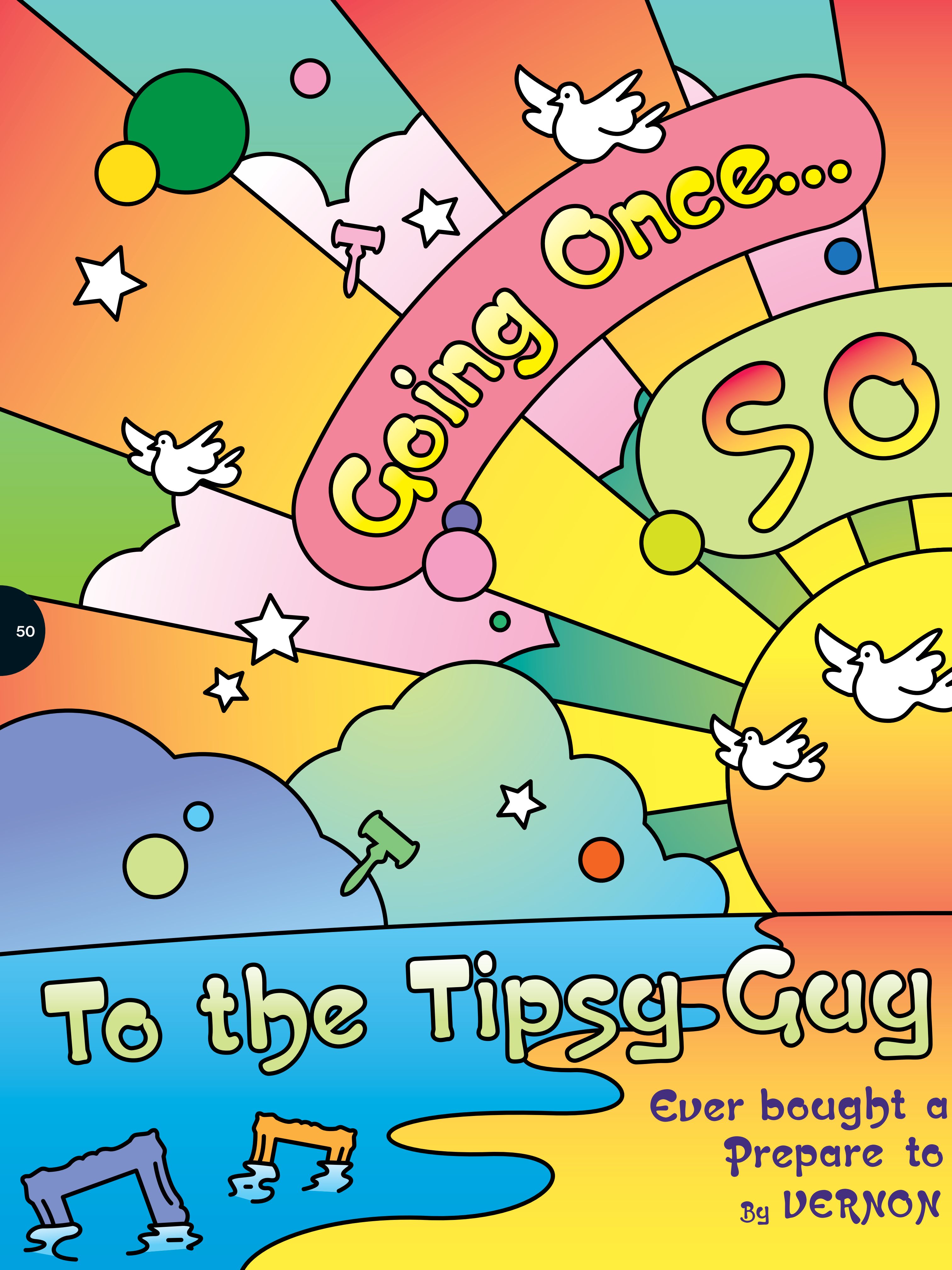
It's something, but it certainly doesn't look like the country's biggest retail construction project. Triple Five estimates that the site is 25 percent complete. Sevin Yildiz, who teaches at Barnard College's urban studies program and is writing a book about the Meadowlands, says that for officials, perpetual incompleteness might be preferable to failure. "I don't think the state believes the promises of the developers anymore, but it's too huge to fail," she says. "That's what keeps it going."

Don Ghermezian dismisses any suggestion that the family might abandon New Jersey. "There was no project that we've come as far as we've come with American Dream and decided to step back. There's no fear on my part that American Dream will not get built," he says.

If not, well, there's always another Dream to pursue. A year and a half ago, Triple Five announced a potential fourth mall, this one on 190 acres of undeveloped land near Miami. "It is our intent that this project—American Dream Miami—will exceed our other world-famous projects in all respects," Triple Five said in a statement. It's preparing the way: Last winter, a state senator who also represents the company as a lawyer sponsored legislation that could divert property tax revenue toward infrastructure that companies are usually responsible for. And absent government support? "I do not need to build here," Eskandar told officials in April 2015. "We are a family that is very well off."

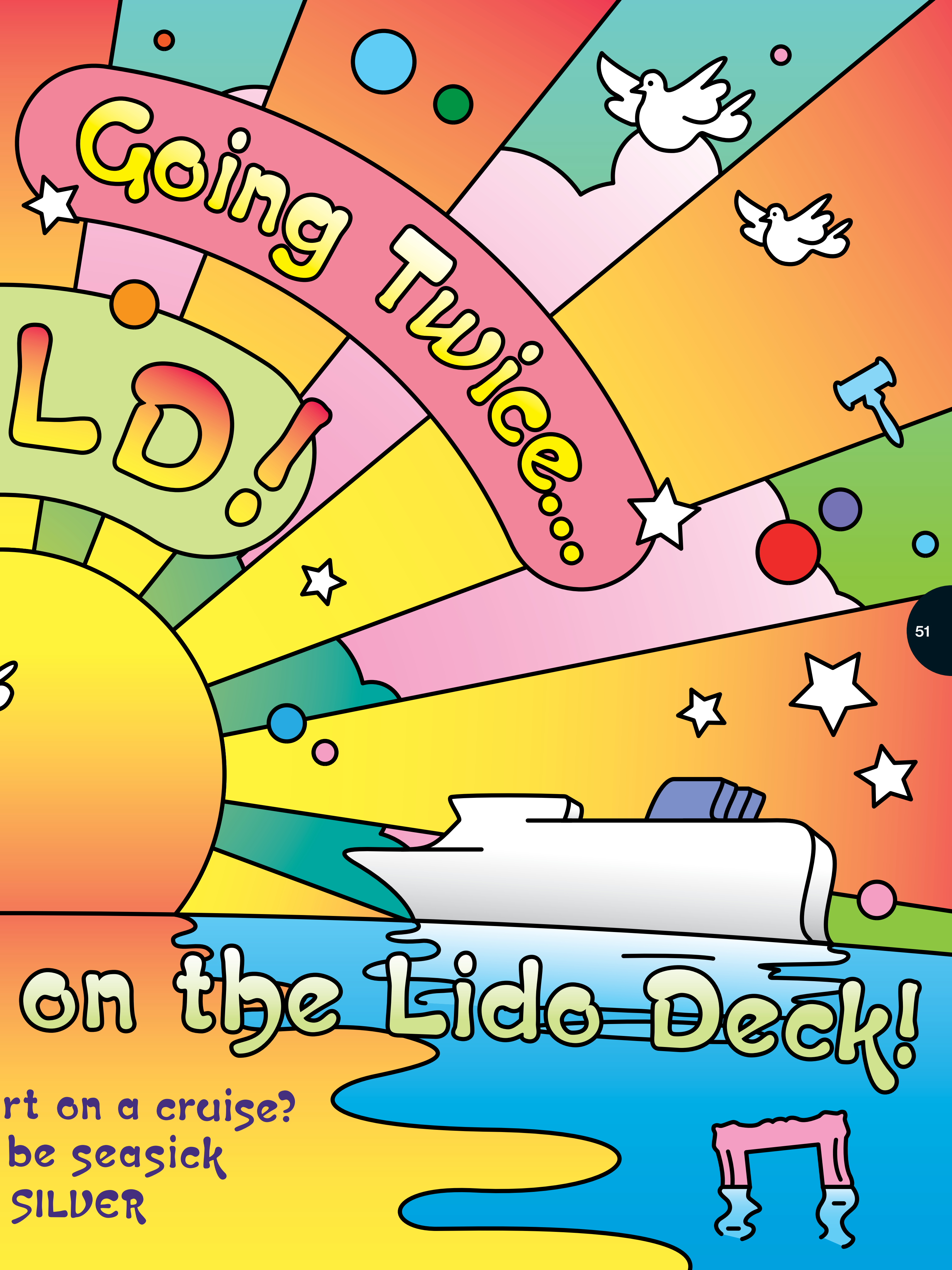
The Miami Dream, Don Ghermezian says, is years away. Ⓑ

This story is a reporting collaboration of Bloomberg Businessweek, *NJ Spotlight, and WNYC.*



Going Once... SO To the Tipsy Guy

Ever bought a
Prepare to
By VERNON



Going Twice... LD! on the Lido Deck!

rt on a cruise?
be seasick
SILVER

Among the passengers gathered for the art auction, the guy sitting in front of me seemed the most likely to have attended just for the free booze. The advertisements left in our staterooms had promised Champagne, and amid the smart polo shirts and sundresses, this middle-aged man stood out as exceptionally casual: a white tank top with a faded "Virginia Beach" graphic, black athletic shorts, and a blue baseball cap pulled down close to his eyeglasses. It was 11:15 a.m., and our cruise ship, the *Norwegian Epic*, was transiting the strait between Sardinia and Corsica, taking almost 6,000 passengers and crew on an eastward course to mainland Italy. As the auction staff ushered in potential bidders, a waiter approached with a silver tray of bubbly. The man in the tank top scooped up a flute. "Breakfast!" he said.

Before bidding could start, the auctioneer instructed us to explore scores of artworks set up on easels around the room—impressionistic seasides, twee cottages by Thomas Kinkade, the Statue of Liberty as rendered by Peter Max, and a surreal composition featuring an anthropomorphic cocktail olive.

My Champagne-sampling neighbor's name was Chuck Bialon, from Pittsburgh. He said he'd been to dozens of these auctions over the years and whispered a warning: "It's a shell game." Gallery staff milled about within earshot, offering potential collectors special prebid prices at what they said were steep discounts. Bialon, his voice lowered, outlined the hidden danger. The spotty onboard Wi-Fi made it next to impossible to Google around for fair-market prices, he said—and also made it unlikely passengers would learn that the company running the auction, Park West Gallery, has long been accused by angry customers of selling overpriced art as investments.

Still, Bialon added, there was that time he'd bought a Rembrandt. Paid almost $12,000 for it on a Carnival cruise of the western Caribbean. Hangs on his dining room wall. I wanted to ask more, but the head auctioneer had seen me taking notes. For the moment, I needed to move along and mingle with others. The whiff of scandal surrounding high-seas art auctions was the reason I was on the *Epic*.

Park West was founded in 1969, is based outside Detroit, and boasts it's the world's biggest art gallery. It sells pictures and sculptures at thousands of live auctions held on more than 100 ships each year. Norwegian, Royal Caribbean, and Carnival all host Park West. And they all get a cut of the revenue. Park West has had annual sales as high as $400 million and counted more than 2 million customers.

With those big numbers come bitter complaints. Starting in 2008, a series of lawsuits have alleged abusive sales practices, including forged Salvador Dalí signatures and promises of investment gains. At least 21 Park West customers filed 11 legal claims across the U.S., according to a 2012 court filing the gallery made in a separate insurance dispute. Six of those class-action customer lawsuits were merged into a single, multidistrict litigation at Seattle's U.S. District Court, according to a signed 2013 declaration Park West's founder made in the insurance case. The core claim was that Park West sold art at inflated prices by using high-pressure tricks, appraisals based on no valid methodology, and false claims of authenticity. Price lists in the court record show passengers spent tens of thousands of dollars on works that

Hammer time at a Park West maritime auction

weren't one-of-a-kind originals. "The scheme targeted individuals who, while unawares relaxing on their vacations, are wined and dined by Park West and Cruise Line employees and are subjected to Defendants' art fraud scheme," a 2010 plaintiffs' filing in the lawsuit said. Park West called the suit baseless but in 2011 agreed to a settlement that it says included partial refunds and the return of some art. The auction house says it's changed some of its practices, including offering returns within 40 days and exchanges within 40 months.

Norwegian and the rest of the cruise lines have continued to give Park West access to their captive audience of bored, boozed-up, and broadband-deprived passengers. Fresh lawsuits against the gallery have followed. In one instance, Rane Mazzeo, a brow-and-body waxer from Las Vegas, thought she'd conquered the art market when she stepped off a Norwegian ship on a spring day in 2011. She'd spent $29,809 with Park West while at sea; the auction house had given her appraisals that claimed the works were worth much more. Three years later, Mazzeo got an independent appraisal that put the actual market value at a third of what she'd paid. Mazzeo, 55, sued Park West in September 2015 for fraudulent misrepresentation. The company disputed the claims and was awarded legal fees after winning a motion to compel arbitration. The lawsuit was dismissed, and the parties settled their dispute. (Mazzeo declined to comment.) Norwegian, Royal Caribbean, and Carnival say they've required more consumer protections from Park West.

Despite the litigation, Park West says art sales have never been better. The gallery's perseverance was either an amazing corporate rebound or evidence they'd never done wrong. To find out, I booked a windowless cabin on the *Epic* for a counterclockwise voyage around the Mediterranean, from Italy to France to Spain and back again. Yes, I would be drawing a salary while on a weeklong cruise. But there were certain risks: In 2009, the captain of a Royal Caribbean ship had ordered his security force to put a New York teacher ashore—in Oslo, in the middle of his cruise—after he printed a leaflet warning fellow passengers about the Park West lawsuits. "One minute I was playing table tennis with my son, the next I was being escorted away," he told the *Independent* newspaper. Royal Caribbean said at the time it removed the passenger because he continued to be difficult after being warned

PREVIOUS SPREAD: ILLUSTRATION BY 731; THIS SPREAD, FROM TOP: COURTESY PARK WEST GALLERY; COURTESY NORWEGIAN CRUISE LINE

he was violating the guest conduct policy. To avoid such a fate, I wouldn't advertise my mission. But neither would I conceal it, if asked.

The *Epic*, like most modern cruise ships, is a shopping mall embedded in a floating hotel. At the top is Deck 15, with swimming pools, three water slides, and the main buffet restaurant. Decks 5 through 7, linked by escalators and staircases, contain restaurants, casinos, an atrium lobby, a pub with a bowling alley, theaters, boutiques, and a Cavern Club that's home to an excellent Beatles cover band. Park West had its gallery in the forward section of Deck 5, a wood-paneled space about the size of a tennis court, rigged with spotlights that shone on a set of pictures that changed daily. Positioned next to two banks of elevators, the space drew a constant flow of cruisers. The auctions themselves were conducted in various venues around the ship.

One day at sea, just before I came aboard, Scott Bisset walked into a midday auction in the *Epic*'s Bliss Ultra Lounge, a disco and cocktail bar with chain-mail curtains for walls and a small karaoke stage at the back. Bisset and his wife, Sharyn Miller, later told me that his outfit—board shorts and a yellow tank top—was part of a savvy strategy. "You don't want them to think you have money," Miller said. "Prices can go up." They are an international couple: Although they live in Dubai, he's from the U.K., where they own a house, and she spends time tending cattle at her family home in New Zealand. With Park West, Bisset and Miller said they knew what they were doing. They'd bought at an auction on a previous cruise and were happy return customers.

After registering for a bid card that would be their auction paddle, Bisset, 48, and Miller, 51, walked the perimeter of the disco, examining the 300 pictures on display. They spotted four they liked, including a "limited edition" Kinkade lighthouse and a landscape of a bridge in France by the Chinese-born, North Carolina-based Daniel Wall. According to Park West's website, Wall is the founder of a movement called "intense impressionism." Before the auction started, Park West offered to combine the four works into a single lot and negotiated with Bisset and Miller a starting bid of $5,100. The figure was a steep discount from the gallery's suggested retail price.

Everyone took seats so that bidding could begin. At a podium on the disco's stage, the chief auctioneer, Dillon Cilliers, read highlights from the terms and conditions printed on each bid card, emphasizing Item 1, which said "all sales are final" in bold, capital letters.

The *Norwegian Epic*

The bidding was fast-paced, with Cilliers, a South African in a snappy suit, speaking in auctioneer patter and banging a wooden gavel on the side of his podium. Bisset and Miller's lot came up. To "win," they would only need for there to be no competing bids—and there weren't. Sold, for $5,100! "It isn't an auction as such, is it?" Miller said afterward. Nevertheless, she added, "I think we saved three grand." Bisset and Miller also bought another Wall, of New York's Central Park ($570), and a second Kinkade lighthouse ($1,150).

It was on canvas, but was it a painting? It was difficult to say. Up close, you could see daubs and brushstrokes that gave the picture three-dimensional texture in a few places. "I think they call them a serigraph," Miller said. "He highlights and paints different parts of it."

Mostly, Park West doesn't sell works that are unique in the sense that most casual collectors might understand. With a few high-end exceptions, it sells what are, essentially, reproductions with individual embellishments, such as a signature. The official terms include *giclée*, a type of inkjet print; serigraph, or silk-screen; and "mixed media," which, in most of the Peter Max works, are paper lithographs with dabs of paint added. It took days of me hanging around the gallery and attending auctions to understand this—and I've covered art sales for years as a journalist, with the benefit of a Ph.D. in archaeology. Seeing actual brushstrokes threw me off. I finally saw in the Park West catalog, a copy of which is placed in every *Epic* stateroom, that the "intense impressionist" pictures were actually "hand embellished giclée on canvas."

In fact, according to the company, most of Park West's art is mass-produced to some degree. Those Kinkades Miller bid on? She won't be getting the exact ones. Instead, she'll get others from the same series, sent from Park West's Florida framing and shipping facility. That way, the shipboard floor samples can stay where they are. It's spelled out in the terms and conditions, Item 16: If you buy an embellished or mixed media work, "you likely will instead receive a unique work that is a variation of the example displayed." Bisset, who works as the finance director of a company in Dubai, had read the fine print. "I know these pictures are not originals," he said. "I know they are limited-edition copies. I've either got to want them or not."

In all, Bisset and Miller spent $7,079 that afternoon. By evening, the rush had worn off. Reality hit as the couple sat on their stateroom's balcony taking in the sea air, Miller sipping a Jack Daniel's and lemonade while her husband drank Grolsch. "We suddenly thought, How much have we spent?" Miller said. "We need to start buying originals if we're going to be spending that kind of money. Something where there's not another copy of it."

We were anchored off Cannes when the good stuff went up on the walls of Deck 5. There was a signed, numbered Joan Miró lithograph of colored squiggles, a Henri Matisse print, and a few black-and-white Marc Chagall etchings. The biggest display was a set of six Salvador Dalí prints I immediately recognized—and couldn't believe were being sold. In the 1940s, Dalí had collaborated with Walt Disney on a short film, *Destino*, for which the surrealist master drew some storyboards. The project wasn't completed during either of their lifetimes but was later revived by Disney's nephew Roy, whose animators turned out a seven-minute film in 2003. For the release, Disney created a set of numbered prints based on frames of the film. By 2008, Park West was offering a set of six *Destino* prints for $11,000, discounted from what it said was an appraisal value of $22,000.

Years later, those valuations didn't hold up. A quick Google check (we were in port, and I had phone reception) showed recent auction estimates of $200 to $300 per *Destino* print. On Craigslist, someone with a set that had passed through Park

West was trying to offload five for $4,000, including the company's frames and certificates of authenticity. The *Destino*s also showed up in the class-action litigation against Park West; the plaintiffs cited a Dalí expert who valued the prints at $100 each.

On the *Epic*, I was eager to learn how much Park West was asking and returned that evening for a VIP reception. Park West galleristas and their guests were decked out in cocktail dresses, jackets, and ties. A table was laid out with crackers, cubed cheese, and more Champagne. Several times I heard a staff member say "I love your dress" to a potential collector.

Bisset and Miller were there, invited because they'd been big spenders. As Miller checked out the newly hung pictures, her husband was at Cilliers's desk in the back, watching a video on a laptop. It was a promo for artist Chris DeRubeis, with narration that described him as the pioneer of "abstract sensualism." A little later, Bisset examined some serigraphs by Anatole Krasnyansky, pointing out the recurring Venetian carnival motif in each. Cilliers complimented his customer's eye. "That's what makes him *him*," the auctioneer said.

I asked a staffer for prices on the Miró, which I really liked, and the Dalí *Destino* set. She checked a price list in a binder. The Miró was $14,000, and the Dalí *Destino* set could be mine for $14,900.

The irony of spending day after day examining hand-embellished giclées in the Mediterranean was that at every port, we could easily find some of the finest art humanity has ever produced. Before boarding the *Epic* in Rome, I'd caught the train to the port at St. Peter's Basilica, steps from Michelangelo's Sistine Chapel. The next day we hit Tuscany, where shore excursions included trips to Florence's Uffizi Gallery, with Botticelli's *Birth of Venus*. In Cannes, I took the train to Nice to see the Chagalls. And in Barcelona, I went to the hilltop Joan Miró Foundation's museum, hoping to learn more about the lithograph of his I'd seen aboard. The museum gift shop had some similar pieces for about $400, but they weren't signed.

The next day, during the crossing to Naples, was the day I met Bialon, owner of the Rembrandt. He wasn't there for the free booze after all. He was interested in a Kinkade on canvas for his house and had arranged a prebid for about $1,200, he said. That's when my note taking finally became too obvious. Cilliers, the chief auctioneer, said he'd noticed I was writing a lot. I fessed up and waited for nautical security to swarm.

Instead, Cilliers's first reaction was to seem embarrassed that I hadn't seen enough big sales. Americans are Park West's target market, he said, and they made up only about 10 percent of the *Epic*'s manifest. If I wanted to see how well they normally do, Cilliers said, I should check out a cruise from New York. Otherwise, for any comment I'd need to contact headquarters. And that was it. I wasn't sent to Oslo.

About 40 people showed up to that day's sale, in a lounge called Le Bistro. Wearing a dark suit and lime-green tie, Cilliers told newcomers that if they wanted the free Champagne or raffle tickets, they needed to sign up for a bid card. Once they were seated, he made clear he wanted buyers, not oglers. "If you're here to watch the show," he said, "you're in the wrong place." A waiter passed flutes of mimosas and Champagne. "This isn't television," Cilliers said, pointing to his eyes and then back at the audience. "I can see you."

Cilliers started with a Peter Max of a man holding an umbrella—a "one-of-a-kind" on canvas. Estimated retail was $23,800, he said, but he'd start bidding at $20,000. After a flurry of unintelligible auctionese, Cilliers banged his gavel on the side of the podium and asked for a round of applause for the Max. It hadn't sold, but that didn't seem to be the point. He'd conditioned the crowd into thinking anything under five figures might be a bargain.

Soon, Cilliers racked up sales. A bronze statue of a cat, retail $6,400, went to a sole bidder for $4,900. Then a trio of pictures came to the block, valued at $19,150. An American couple had arranged a first bid of $9,790 and was hoping nobody pushed it higher. Cilliers searched the room for competitors, found none, and banged his wooden hammer. The room erupted with applause. The husband, the back of his buzz-cut neck flushed red, beamed with relief.

Cilliers also sold a vellum manuscript page, with red and black Latin script on it that he described as "a piece of history," to another lone bidder for $4,100, as well as a giclée of leopards by Andrew Bone to a man wearing a Yankees T-shirt for $1,025. (When I spoke to the Yankees fan later, he referred to the purchase as a "painting on canvas," and I didn't have the heart to tell him otherwise.)

The American couple's $9,790 purchase had earned them the close attention of Park West staff. One perched herself over their shoulders, whispering. Minutes later, Cilliers offered a Romero Britto picture, saying it was worth up to $4,200 but could be had for a bid of $1,390. The couple, now the toasts of Le Bistro, nodded. Cilliers banged the gavel as his assistant offered the couple more Champagne.

Amid the auction lots came games. Park West is known for sprinkling in diversions like raffles and mystery items. (At one auction I won a gift box with a watch, pen, and case for business cards. I gave it to the Filipino man who cleaned my stateroom.) Another tactic is bidding by elimination. I watched as an assistant brought out a print valued at $300, and Cilliers asked anyone willing to pay $5 to raise his bid card. "If you don't have $5," he said, "I'll give you $5." Almost every card in the room went up. Cilliers started to increase the price, and a few cards went down each time. At $70, I counted eight bid cards still up, when he abruptly concluded the bidding,

Onboard gallery

COURTESY PARK WEST GALLERY

The exact picture we saw wasn't really for sale. Park West had hundreds, if not thousands, of identical copies in its warehouse

taking in a quick $560. It would've been confusing for anyone who didn't understand that that exact picture wasn't for sale—that Park West had hundreds, possibly thousands, of identical copies from the print run in its warehouse. (Some sore winners of such rounds later told me they'd thought the game would continue until there was a single remaining bidder, leaving them time to drop out.)

To finish off with a bang, Cilliers filled the stage with five Peter Max pictures worth, he said, $31,460—but available for $9,999. No takers. He added a sixth image to the bargain. It was of the Statue of Liberty surrounded by votive candles, flowers, and an American flag.

"What was yesterday?" Cilliers asked the crowd.

"Monday!" they shouted.

Cilliers, with a beleaguered look, reminded them that it had been the anniversary of Sept. 11. He continued sweetening the deal with more pictures, until there were 10 Maxes in all, still for $9,999. No one bid, and the crowd filed out toward the casino.

When the *Epic* returned me to Rome, the first thing I did at my desk was research whether the Miró lithograph I'd admired was a good deal at $14,000. It turned out to be part of a set of 39 sold by Christie's in London in March 2015 for the equivalent of about $96,000 at the time. Just 13 were signed. The most generous valuation I could come up with—assigning a value of zero to the unsigned ones—put the price of a single signed picture at $7,400. Later I found a precise figure: In 2011, Swann Auction Galleries in New York had sold one of the Mirós for $3,360, including fees. Sure, prices shift from year to year. But had I paid what could be seen as Park West's 317 percent markup, I'd have joined their roster of unhappy customers.

Being safely off the ship, I got in touch with Park West's founder and chief executive officer, Albert Scaglione. "We're not out there cheating people," he said over the phone. Scaglione said that since the lawsuits he's beefed up his compliance department, which reviews videos of every auction. He disputed that Park West's prices are inflated, arguing they're the market prices for his way of selling art. "We're not Sotheby's or Christie's," he said.

Scaglione, 77, did say he was sympathetic about the confusion during auctions regarding whether works were original paintings. "It's often garbled, it goes too fast," he said, suggesting he might introduce better signs explaining things. The seemingly high prices for prints that went for less on land? "You might find one in an obscure auction in Austria that sold for a third," he said. "These things aren't always available." The Dalí *Destino* prints? Park West had set its prices as the exclusive marketer of the prints, he said, and any other prices are, at best, from "people who bought from us, who are selling," he said. He also said, "how do you know it's not a forged *Destino*?"

I told Scaglione that I'd noticed one reform on the *Epic*: Not once did I hear the auctioneers make promises of investment return. In fact, the two times I asked about price appreciation, separate staffers gave the same response: "We can't predict the future." Scaglione told me, "The place we're at now is so nice. Did we ever have an auctioneer selling art as an investment? We did. We fired them."

One thing Scaglione didn't want to discuss was Park West's 2011 settlement. I had found, buried in the docket for a separate case, the amount the company had paid to resolve the matter, including legal fees and damages: $1,154,435.47. During a good year, that would be a single day of revenue. It explained a lot about the company's durability.

Rembrandt was the last Park West mystery to solve. Bialon had said he'd tell me the whole story when he got back to his house in Pennsylvania, where the retired computer systems analyst spends his time breeding tropical fish in 40 aquariums he keeps in his basement. By phone, he said he picked up the Old Master on a Park West cruise seven years ago. It was a self-portrait etching of the artist wearing a flat cap. It had been printed in the 1800s from copper plates that Rembrandt van Rijn made during his lifetime in the 1600s, according to the Park West appraisal that came with the picture. The document valued the etching at $11,800, the same Bialon had paid for it.

But nowhere did the appraisal say where the etching had come from—its provenance. Now Bialon wanted to know. "The thing has been sitting around for a couple hundred years," he said. "*Somebody* had it." In late September, Bialon called Park West, gave them the registration number off the appraisal, and asked if they could send him the picture's history. At first Bialon was told he'd get the information in the mail in a week. When nothing arrived, he called and got bounced around, only to be told he'd get a certificate of authenticity and nothing more.

When I spoke to Scaglione, he was aware of Bialon's case and was firm about refusing him the provenance. "We get things from families, we get them from clients," he said. "We do not and will not provide the sources."

The day before this article went to press, Scaglione sent me an e-mail. It was another chance to observe how Park West operates. During our earlier phone call he had requested that I not use an audio recorder. Now he revealed that he'd been using a recorder on his end and suggested I submit for his verification "anything whatsoever that I said." Scaglione also wrote, "[W]e have video tapes of all the auctions you attended" on the *Epic*. "We have a video of each work of art that came up and when you took notes and when you did not." In at least this one respect, Park West has learned to value the art of authentication. B

FLYING FANCIER / BETTER LIVING THROUGH LSD / PLAID WITH A SIDE OF PLAID / SKIP THE BEAUTY COUNTER

ETC

SONGKICK IS GOING TO IMPROVE THE LIVE-MUSIC EXPERIENCE—OR MATT JONES IS GOING TO DIE TRYING

BY DEVIN LEONARD

PHOTOGRAPH BY ALEX F. WEBB

THE SHOW MUST GO ON

So your favorite band is coming to town. Sweet! You show up at the venue, stand in line for 20 minutes, get patted down by a really unofficial-seeming security guard—then spend $12 for a warming Bud Light in a plastic cup before making your way to a seat (if the concert hall even has them), only to find that someone the height of Kristaps Porzingis has purchased the one directly in front of you. By the time the beer has run its course, the opening act is still tuning up; better stand in line for the bathroom now, before the toilet paper runs out. That's if you're even able to get a ticket. A report by the New York Attorney General's Office earlier this year revealed that venues often hold back as much as 20 percent of seats for insiders when a big act comes to town. After credit card company presales, there might be only a handful of tickets left. For a July 2014 Katy Perry concert at the Barclays Center in Brooklyn, the report found, only 12 percent of seats were still available at the official on-sale date. A moderately enterprising scalper using automated software can scavenge whatever's left at the rate of more than 1,000 tickets a minute.

Hard to imagine why you haven't tried going to see any bands recently, right?

Matt Jones, the chief executive officer of Songkick, an app-based concert-discovery and ticket-sales company in Brooklyn, wants to give you a reason to try again. An exuberant 30-year-old with unkempt brown hair and a Jay Leno-esque chin, he's one of a number of startup CEOs trying to use technology to reshape concerts, the last bastion of authenticity in the music business. Unlike the recorded-music industry, which has been disintermediated by companies such as Spotify and lost much of its analog-era charm, the concert business, especially in the U.S., is still dominated by artists, venue owners, and ticketing companies, who all retain much of their historical clout, something audiences have just had to accept until now. Recently, Songkick polled some of its 15 million monthly visitors on the most abhorred concert misbehaviors and posted a warning on the company blog: "Arrive late, drunk, and push to the front at your absolute peril. The scorn of the entire Songkick user base awaits you!"

That user base gets offered tickets for A-list acts, Songkick clients such as Adele and Metallica. Jones says Songkick has patented software that can tell the difference between a real ticket buyer and a ticket-hoarding bot. It's a sad reality that beating a bot is a win, but Songkick is operating in a difficult business. Live entertainment, including theatrical performances, is expected to generate $26 billion in the U.S. this year, according to market researcher IBISWorld. But while Perry sells out arenas, Jones points to a widely accepted statistic in the concert industry that as many as 40 percent of all tickets go unsold. He says Songkick can get more people to go to shows, driving up the industry's sales. "If you look at recorded music, the market has declined, but it's arguably coming back now," thanks to Spotify, Jones says. "Technology has not played its part in live yet, and that's really what we are trying to do."

40%

Estimated share of live-entertainment tickets that go unsold each year

The son of a contractor, Jones grew up outside London, in Essex, and became a music obsessive after an uncle turned him on to Joy Division, the Pixies, and other bands. "My main goal when I was 16 was never to pay for a concert ticket," he says. "That was a big thing, because I would go to six shows a week." One way to make that happen was to join the industry. At 18, Jones started a concert promotion company, SPC Live, which he ran out of his bedroom in his mother's house. It rented small halls in second-tier cities such as Brighton, Cambridge, and Oxford, putting on shows by future stars including Adele and Ellie Goulding. "I knew Ellie and all those people before they had agents, before they had managers," he says.

12%

Share of tickets available at the on-sale date for a July 2014 Katy Perry concert in Brooklyn, N.Y.

Jones was astonished to find out how little control artists have over ticket sales. So in 2008 he created a pioneering side business called CrowdSurge. It let acts sell as many as 20 percent of all seats from their websites, according to several English music industry executives. (Jones declined to discuss specific percentages.) "Nobody made the effort to give artists that freedom before those guys," says Daniel Ealam, director of live at DHP Family, an English entertainment company. To make its bones, CrowdSurge typically charged a modest 10 percent fee on each ticket.

A gifted salesman, Jones had little trouble signing up acts. His beloved Pixies became a customer. "It was nice to see a company come along that could take a great deal of the heavy lifting off our plate," says Richard Jones, the band's manager. In 2011, Matt Jones raised $2.4 million for CrowdSurge from Warner Music Chairman Len Blavatnik's company, Access Industries. The same year, Jones opened CrowdSurge's first New York office. "We got it to a point where we had hundreds of artists—Paul McCartney, the Rolling Stones, Kenny Chesney, Blake Shelton—and even big guns in the EDM [electronic dance music] business, like Tiesto," Jones says. In 2015 he merged CrowdSurge with Songkick, then an English concert-discovery service that let users track their favorite bands' shows and provided listings for Spotify, MTV, and SoundCloud. (Songkick was co-founded in 2007 by Ian Hogarth, who remains co-chairman of the combined company's board.) Jones raised an additional $16 million from Access and several other groups.

It was relatively easy for Jones to disrupt the live-music business in Britain. "You can have 10 vendors selling tickets for one show in London," he says. But in the U.S., ticket sellers bid for exclusive rights to handle sales at the largest venues. The market has long been dominated by Ticketmaster, which *Pollstar* magazine estimates has contracts with 80 percent of the biggest concert halls. Ticketmaster, which allows artists to sell only 8 percent of their own tickets to members of their official fan clubs, consolidated its power over the market in 2010 when it merged with Live Nation, the world's largest live-music promotion company.

Live Nation wasn't interested in being disrupted. As far as it's concerned, it paid a lot of money for its contracts, so why let some upstart take a cut of the business? "When you have people who come along and simply say, 'Hey, I want some tickets for free because my business model says if I get tickets for free that *you* pay for, I can sell them and make money,' I get that," says Joe Berchtold, Live Nation's chief operating officer. "But it's not sustainable for us."

Live Nation says Songkick violated the 8 percent rule by selling those tickets to the general public. It also alleges that Jones tried to extract a higher percentage of tickets from the company by getting managers of his clients to threaten to cancel their shows. Songkick says Live Nation was the heavy, refusing to release tickets to Jones's company, in some cases, unless it tacked on Ticketmaster's surcharge, which it says could be as high as 80 percent. (Ticketmaster denies this.) Finally, Songkick filed a federal lawsuit in December 2015 against Live Nation, calling it a monopoly. Live Nation countersued, accusing Jones of trying to build a business "on a combination of free-riding and blatant theft." In May, U.S. District Judge Dale Fischer denied Songkick's request for a preliminary injunction, saying it had "failed to show virtually any likelihood of success on the merits" of its case. Bob Lefsetz, author of the *Lefsetz Letter*, a widely read industry publication, says Songkick's plan to wrestle tickets away from Ticketmaster was doomed from the start: "I have no sympathy for Songkick. They have a flawed business model. They are delusional." Jones declines to comment on the lawsuit.

Songkick may be facing an existential threat in the U.S., but it's not the only startup in America out to reinvent the concert industry. Adam McIsaac, a former Songkick executive, now runs Robin, a five-month-old, Toronto-based "concierge service" for concertgoers. Users create a bucket list of artists they want to see, which Robin then takes to bands, hall owners, and ticket companies and finds a way to get tickets at face value. "Our aspiration is that purchasing your own ticket will become almost as odd an experience as cobbling your own boot," McIsaac says. Eventually, Robin wants to provide customers with a car service, preconcert dinner reservations, and a place to enjoy a nightcap after the encore. It might find them babysitters, too. "I've heard from our users that they definitely want assistance with that," McIsaac says.

"TECHNOLOGY HAS NOT PLAYED ITS PART IN LIVE YET, AND THAT'S REALLY WHAT WE ARE TRYING TO DO"

There's also Jukely, a New York startup with a Netflix-like approach to concerts. In 2015 it launched a live-music subscription service in 16 cities enabling users to attend a concert every night, if they have the stamina, for $25 a month. How can it charge so little? Jukely founder Bora Celik says his company has cut deals with smaller venues outside the Live Nation-Ticketmaster universe to offer their unsold ticket inventory. Primarily, Celik says, Jukely offers users the chance to see lesser-known acts. Still, 1,300 subscribers got to see a Halloween performance in New York by Skrillex, the EDM star. "It's a big behavioral change," Celik says of his model. "We're still in the early days."

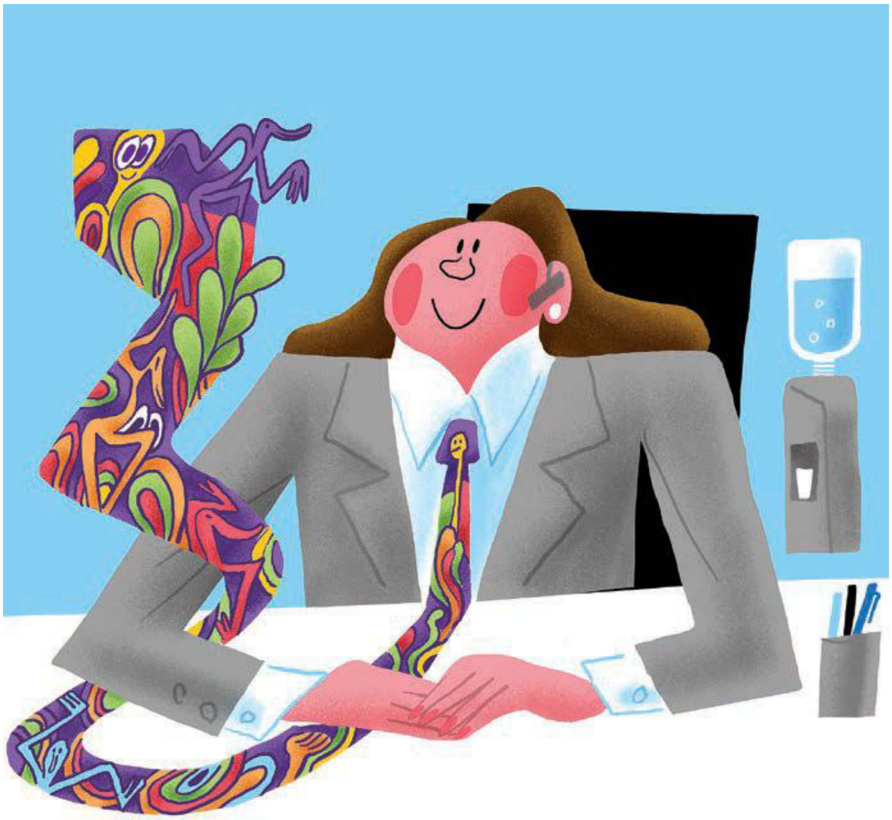
Sound Rink, a startup in Portland, Maine, is also expanding the idea of what it means to attend a show. For anywhere from $20 to $300 on top of the actual ticket price, the company will let you have coffee with members of your favorite band, eat dinner with them, listen to an acoustic set on their bus, or just stand backstage while they perform. Cody DeLong, Sound Rink's CEO, says you shouldn't have to pay huge amounts to get face time with big stars. "Taylor Swift does a lot of VIP packages," he says. "She charges $400, and she can sell 100 a show."

Even Live Nation is trying to elevate the concert experience. It's letting people buy tickets via Spotify, just as Songkick does. It's also selling craft beer at shows and having uniformed employees direct ticket holders to concession stands with the shortest lines.

Jones is optimistic; he says the company still has a future in the U.S. Regardless of the lawsuit's eventual outcome, he has plenty to do: Songkick recently sold more than 50 percent of Adele's tickets for her four big shows at London's Wembley Stadium next summer with less than 2 percent being scalped. "What they've done has been brilliant," says Lucy Dickins, a U.K.-based agent whose clients include Adele and Mumford & Sons. Jones has also fashioned himself as something of an evangelist, shedding light on how tough it is to get into shows and how that could be changed. "It's kind of the reason why I started this," he says. "I was like, 'This can't be the way it is. It's so backwards.'" B

THE 10 MOST FOLLOWED ARTISTS ON SONGKICK

1. COLDPLAY
   2,033,758 FOLLOWERS
2. U2
   1,938,446
3. RIHANNA
   1,888,928
4. EMINEM
   1,728,567
5. ADELE
   1,648,972
6. MAROON 5
   1,599,383
7. KANYE WEST
   1,514,801
8. DRAKE
   1,508,283
9. KATY PERRY
   1,498,670
10. BEYONCE
    1,415,365



NOT A NORMAL WORK TRIP

Writer Ayelet Waldman experiments with microdosing and becomes "weirdly productive." By Carrie Battan

In the mid-1700s, Benjamin Franklin developed a strange habit: Almost every morning before he began to work, he'd stand at his window, nude, taking an "air bath." Franklin was no exhibitionist: He was a Revolutionary Era life hacker determined to optimize his happiness and output through ritualized, self-administered experiments on brain and body. As human impulses go, the drive to self-improve is just as fundamental as the need for sex or food; these days, the internet can help you find your air bath and improve upon multitudes of problems—and even introduce you to some you never knew you had.

Few understand this better than Ayelet Waldman, a 52-year-old novelist, essayist, and former federal public defender who's turned mining her own well-being and psychological landscape into a part-time job. *A Really Good Day* ($25.95, Knopf) is the document of her boldest effort to fix herself: taking "microdoses" of LSD, a practice she discovered in a 2011 book by psychedelic researcher James Fadiman. According to his guidelines, microdosers should take 10 micrograms of LSD every three days, a quantity well under the threshold at which a user experiences hallucinations. If they do this, microdosing proponents claim, they'll be rewarded with an improved mood, deeper insights, and unprecedented focus and creativity.

Waldman's problems, including mood swings and anxiety, were relatively ordinary. But she worried that, as she headed into menopause, the hairline cracks in her emotional health threatened to disrupt her marriage and livelihood. She acquired a dropper bottle of liquid LSD from a professor friend-of-a-friend and began a 30-day microdosing regimen, which she chronicles in daily journal entries.

While the drug's effects were "subperceptual"—they didn't interrupt her everyday experiences—Waldman reports feeling "activated" on the days she dosed. She suffered from occasional LSD-induced insomnia and stomachaches, but her chronic shoulder pain dissipated. She fought less with her husband and reveled in the joy her children provided. She wasn't as irritable and, perhaps most crucially, vastly more efficient: Even on days she felt cranky, she was "weirdly productive," she jots down in her log. Most of her time was spent on this book. "Found myself so effortlessly in the flow that I didn't even notice time passing," she writes. "I see why people microdose as an alternative to Adderall."

There's no hard data on the prevalence of microdosing nor any clinical studies of its effects, but growing participation in Reddit threads suggests the practice is expanding rapidly among the achievement-addicted. Despite the therapeutic benefits, Waldman resists the impulse to write a cheerleading tale of self-discovery; instead, she becomes an historian of drug use and policy.

Drawing on her experience as a public defender, she weaves together memoir and advocacy, jumping rapidly between starry-eyed passages about romantic love and dense, journalistic writing. It's part *Eat Pray Love,* part *The New Jim Crow,* the latter of which Waldman references explicitly when discussing America's history of racially discriminatory drug policies. At times, her leaps are too ambitious, and she struggles to make smooth transitions between emotional self-interrogation and grander political ideas. (It's a rare thing to wish a first-person book were more navel gazing.) But mostly it's a relief to read a drug book that's edifying and not merely a collection of someone's wacky capers while under the influence.

Waldman insists her experiment was never about connecting to a higher power or undergoing a spiritual awakening. But she certainly has motivations beyond self-tinkering: She uses her experience as a neurotic, middle-aged mother of four to normalize drug use that would otherwise be stigmatized and to argue that substances such as LSD should be decriminalized and reframed in our culture. The delight of this book is good proof that she's right. Ⓑ

ILLUSTRATION BY BENEDIK KALTENBORN


या दाता गरीब नवाज


#haveKINDLEwillTRAVEL
JAIPUR, INDIA ARAVIND ADIGA, *THE WHITE TIGER: A NOVEL* @AMAZONKINDLE


किराणा का सामान, मेवा देशी घी
गुड़, शक्कर,
amazon

And Away We Go

Tips and tricks to keep you jolly if you're flying this holiday season

Catch Him If You Can

Sam Grobart puts four flight-ready products to the test

BUY THIS STUFF*
*Well, most of it

Bose has finally married its noise-canceling technology to wireless earbuds. The comfortable, packable, Bluetooth-enabled **Bose QuietControl 30 wireless headphones** drown out a hefty amount of rattle and hum. Controls on the headset (or an accompanying app) let you adjust noise reduction on the fly, so you can confirm you want the minipretzels without popping out the buds. With 10 hours of battery life, the QC30s are the next-best thing to a first-class upgrade. *$300; bose.com*

One of the few joys of flying is the salty familiarity of an in-flight Mr & Mrs T bloody mary. But you can put the craft in aircraft with a **Carry On cocktail kit**. New variations of these sardine-size tins provide the mixes and garnishes to make hot toddies and, yes, bloodies. (Note the sealed packet of pickles.) You need only ask for one of those tiny bottles of liquor from the beverage cart—watch your feet and elbows. *$24; wandpdesign.com*

From the baggage carousel of Dr. Moreau comes **Micro luggage**, an unholy union of scooter and carry-on. Flawed in many ways—it's heavy, there's no external pocket, interior pockets spill open, there's no steering—the Micro seems designed for that Elysian airport where a rider would never collide with a bag or get mocked by a crowd for looking like a schmuck. *$300; microkickboard.com*

PHOTOGRAPH BY CHRISTOPHER LEAMAN FOR BLOOMBERG BUSINESSWEEK

Need help dozing off on that red-eye? Buy a sleep mask—but not just any sleep mask. The **Nidra deep rest mask** might make you look bug-eyed, but it doesn't put any pressure on your eyelids and lashes, allowing you to blink freely. With this, the headphones, and a cocktail or three, you should be blissfully unconscious by the time the captain turns off the "fasten seat belt" sign. *$12; amazon.com*

TAKE THIS ADVICE

Don't Wake Me Unless There's Snacks

Six executives' survival strategies for a long flight. By Katie Morell

"I treat long flights like a day at a spa–a chance to recharge. I wear black leggings and a tank top layered with a cashmere sweater, which looks professional enough but feels like pajamas. Then I bring warm, fuzzy socks to change into. I also come prepared for a picnic, with prosciutto, cheese, bread, and olives. Once on the plane, I put on my socks, buy a bottle of red wine, and settle in."

Elle Griffin
Head of marketing, EveryoneSocial

"I travel frequently on trips that take more than 24 hours and make them bearable by doing three things: First, I put in a special food request ahead of time to avoid redundant meals. Second, I'll watch a movie or TV show for one hour and then work for one hour, on repeat. Third, if I'm flying business or first class, I'll walk back to economy and sit down in an empty seat for 5 or 10 minutes to remind myself how comfortable my seat is."

Krish Himmatramka
Founder, Do Amore

"I was on a flight from Tel Aviv to New York City, and instead of watching a movie, I decided to use Tinder's passport feature, which allows you to virtually place yourself in a different city. I placed myself in New York and later managed to meet some women for dates and see the city through locals' eyes."

Sagi Gidali
Co-founder and chief product officer, SaferVPN

"I will often book an aisle seat, but if I forget, I'll wait for the person in that seat to arrive and tell them I recently had ACL surgery and need the aisle seat to stretch my leg. To be fair, I did have ACL surgery, but it was two years ago. The scar is still visible, so if anyone asks, I show it to them, and that usually does the trick."

Russab Ali
Founder, SMC Digital Marketing

"I'll put on an eye mask with a Post-it attached that reads, 'Please don't wake me unless there's an emergency or snacks.' I came up with the idea when I was on a flight to Paris and the passenger next to me asked me to remove my headphones because he had a few questions. I did, and that person ended up giving me a lecture for the duration of the flight."

Alexis Davis
Founder and CEO, H.K. Productions

"To try to fall asleep, I give a friendly smile to those around me as I put on my noise-canceling headphones to show that I will not be chatting. I watch a movie. After that, I put eye covers on. I do single-nostril breathing, then listen to something like ocean waves as I try to imagine myself sleeping. If that doesn't get me to sleep, I'll do it all over again."

Tammy Berberick
President and chief executive officer, Crestcom International

GO TO THESE SITES

In Case of Emergency

Two startups that can help when the airline gods conspire against you. By Andrew Sessa

Flying during the holidays often feels like prime proving ground for Murphy's Law: Anything that can go wrong with your flight will. But two companies are trying to make the ordeal less awful.

Let's say your flight is canceled or delayed more than four hours, or you miss your connection. Normally you'd have to rebook with your airline by either waiting in line at the airport or calling customer service, which is really enjoyable. **Freebird** (getfreebird.com) lets you rebook on any domestic carrier, not only the one that screwed you. You register an itinerary at least two days before your trip and pay $19 if you're on a one-way ticket or $34 if you're on a round-trip flight. If your plans are disrupted, Freebird will send you a text with a link to new flights you can get on; pick one and that's it—you're off.

But what about your pain and suffering? **AirHelp** (airhelp.com) streamlines the process of filing a claim with any domestic or European Union airline to get money you're potentially owed for being inconvenienced—as much as $680, depending on the country's air-passenger rights regulations. AirHelp then updates you on the status of the claim and takes a 25 percent cut of whatever you get.

CHECK THIS OUT

Stave off winter's chill with layered plaids. By Shibon Kennedy

Smith + Mara diamond suspender earring and solid gold suspender earring
$460 and $150; smithandmara.com

6397 Lori shirt
$375; ssense.com

Christopher Kane Night Vision blazer
Price on request; similar styles available at christopherkane.com

If you want to mix colors, make sure plaids are drawn to the same scale; if you'd rather mix big and small, keep it all in the same tonal family

A.P.C. Saanen sweater
$575; apc.fr

Gucci tartan '60s coat
$3,280; gucci.com

Wooster + Lardini mixed-stripe cotton shirt
$225; barneys.com

Jennifer Fisher Brass XL Flow bracelet
$975; jenniferfisherjewelry.com

Rhié Multi-pane skirt
$475; rhiestudio.com

Hermès Slim d'Hermès steel case, black alligator strap watch
$7,650; usa.hermes.com

Falke dot tights
$45; bloomingdales.com

ATM Anthony Thomas Melillo Melange Ponte Moto pants
$395; shop.atmcollection.com

Jimmy Choo Lacey velvet shoes
$875; jimmychoo.com

This nods to the classic buffalo plaid, but the more complex design elevates it above your typical lumberjack coat

Tod's black leather wingtip lug sole shoes
$765; tods.com

PHOTOGRAPH BY JAMES RYANG FOR BLOOMBERG BUSINESSWEEK; SET DESIGN AND PROP STYLIST: CHLOE DALEY; HAIR AND MAKEUP: SHAUN THOMAS GIBSON/DT BEAUTY

THE SWEET SCENT OF SUCCESS

Hawthorne and a handful of online-only fragrance startups smell money. By Jon Roth

Fragrances are a $4 billion annual market, with men accounting for a quarter of it, according to consulting firm A.T. Kearney. But Brian Jeong thinks the way guys go about buying scents—having a sales associate assault their olfactory senses—stinks. His fix? Delivering proprietary colognes to men who won't have to wander any farther than their phone to order the stuff, at prices that beat the beauty counters. Jeong's company, Hawthorne for Men, is the latest in a category of digital-native fragrance boutiques banking on the proposition that you'll pay money for what you can't smell first.

Step No. 1 is getting guys to pay any money at all, because 43 percent receive their fragrances as gifts, according to market researcher NPD Group. Jeong says he can ensure satisfaction by asking men a few questions. Users enter biometric info (Does your body run hot or cold? Are you a vegetarian or an omnivore?) and choose behavioral and lifestyle leanings (Introvert or extrovert? Hipster or preppy?). Jeong says the data points are relevant because they're based on studies, such as the way body temperature affects how long a scent lasts. He and his co-founder, Phillip Wong, both 27, also surveyed friends and co-workers on their reactions to Hawthorne's 10 original fragrances.

The answers are run through an algorithm that selects two scents—a strong one for "play," a subtle one for "work"—designed by award-winning perfumers. The two 1.7-ounce bottles arrive in about a week and cost $100 total, a big discount off the most successful department-store brands. The best-known fragrance from Hawthorne scentologist Rodrigo Flores-Roux, Neroli Portofino for Tom Ford, is $225 for the same-size bottle. If you're dissatisfied with the picks, a replacement is free. So far the return rate is under 5 percent, Jeong says.

He and Wong know each other from high school, when they started a streetwear line before landing jobs in e-commerce and fashion. Hawthorne, which launched in October, is the first online fragrance seller to tackle the men's market specifically, but it's not the first to put perfume on the internet. Two years ago in San Francisco, Christine Luby, 34, and Erika Shumate, 32, founded Pinrose for the millennial woman who "lives with all five senses." Shumate studied the psychology of scent at Yale and developed a smell quiz of her own; you can buy a proprietary fragrance for $55 or a "Petal Pack" for $30, which includes 25 single-use testers in as many as five scents. There's also unisex scent maker Phlur out of Austin, which began in July. Founder Eric Korman, 45, the former president of Ralph Lauren Digital, presents the six fragrances available on Phlur's site in unique terms: Siano, for example, shown against a backdrop of city lights and scored to tracks by Drake and Hot Chip, is "a pure expression of elation." Shoppers order samples of two scents for $10, a fee that's subtracted from the $85 cost of the bottle they finally choose.

INTROVERT? IT MIGHT AFFECT WHAT'S IN YOUR IDEAL COLOGNE

The companies have raised millions of dollars from Silicon Valley investors—Bonobos co-founder Brian Spaly bought into Pinrose—and each reports high rates of customer satisfaction. Still, not everyone in the industry is sold on the formulaic approach. Jason Fried, who consulted for the technology and innovation office at a top fragrance house (he won't say which) and advised Phlur, is wary of quizzes. "Sense of smell is biological," he says. "People who you would think are very similar will have different preferences."

Having tried all three services (no, I'm not in Pinrose's target demo, but so what?), I can say that each had its own interpretation of what scent would work best for me: Pinrose's Pillowtalk Poet was powdery, Phlur's Greylocke was salty and aquatic, and Hawthorne's Play selection smelled of dry wood and smoke. I liked them all. With their generous return policies, there's little to be lost from giving these a go. Except, maybe, that associate's commission at the perfume counter. Ⓑ

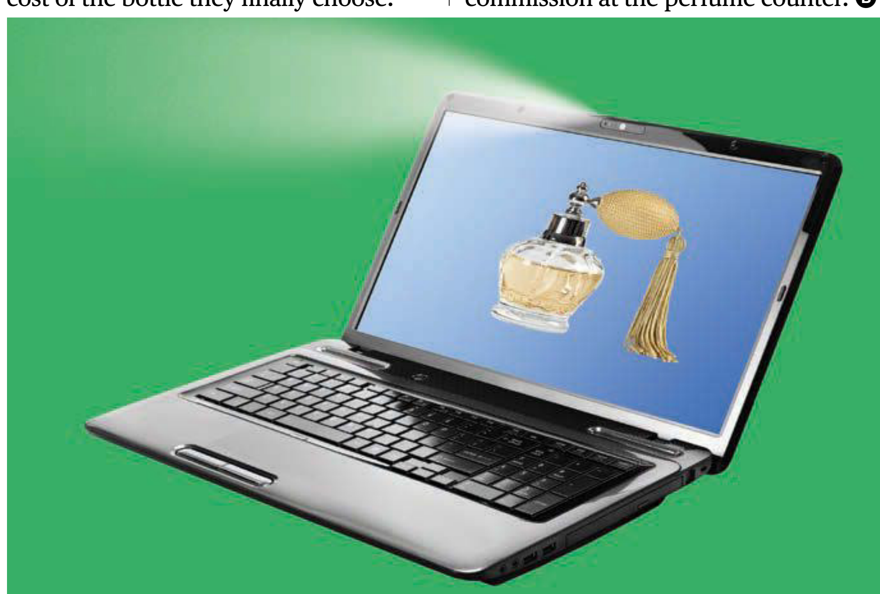


PHOTO ILLUSTRATION BY 731; PHOTOS: GETTY IMAGES (3)

JOEY GONZALEZ

39, chief executive officer, Barry's Bootcamp, Los Angeles

What's a typical workday like for you?
One day I'm locked in a room with our retail team seeing samples—like T-shirts, leggings, tank tops, and shorts for our line of clothing—and another day I'm in my CFO's office going over budgets.

Is that a waffle-knit shirt?
Yeah. It's one of those things that fits perfectly, almost like it was made for my body.

Is there a story behind your watch?
My dad wore a Rolex, and I promised myself that once I got to a certain point in my career, I'd reward myself with one. I got it on a business trip in Hong Kong. I was at the airport at duty-free, and that was it.

How do you dress at Barry's corporate?
In business casual, mostly. But you could show up in workout shorts and a T-shirt, and there's no judgment.

Are your jeans black or gray?
They're black but a little faded. The designer, Olivier Rousteing, does this interesting stitch on men's jeans. It's something of a signature—when you see that, you know that's his mark.

Your jacket is a statement!
I love that it's a camouflage puffer—you hardly see that combo—and it's lightweight, which makes it great to travel with. I posted a photo of myself in this jacket on social media, and I've never had a crazier splash.

It was a hit?
Tons of people were messaging me and commenting on the jacket, asking where I got it. That's never happened to me before.

Your boots look vintage.
They're not. A few years ago, I experimented with actual vintage boots, and they're so uncomfortable—just wood and nails. These have that rock-star look but are so comfortable.

PHOTOGRAPH BY CHRISTOPHER LEAMAN FOR BLOOMBERG BUSINESSWEEK

Interview by Jason Chen

How Did I Get Here?

NANCY KANTER

General manager, executive vice president for original programming, Disney Junior Worldwide

Left, with sister Lindsay, 1960

“My dad was an advertising executive, and he put me and my two sisters in a national Johnson floor wax commercial. I wound up getting residuals, which I never saw until I was in college, and had this nice little nest egg.”

Education

Wellington C. Mepham High School, Bellmore, N.Y., class of 1970

Hunter College, New York, class of 1974

“I took a film class with Renata Adler, the *New Yorker* critic, at her fabulous town house. She would invite her fancy friends–Richard Avedon, one of the Rothschilds–and we would have these sophisticated conversations. I wanted that life.”

With her high school sweetheart and now husband, Joe, 1974

A poster for 1981’s *The Loveless*, starring Willem Dafoe, which Kanter edited

Work Experience

1974–83
Film editor

1984–86
Adjunct professor of film production, Hunter College

1984–93
Independent film producer

1993–98
Executive producer, Children’s Television Workshop

1999–2001
President, Bluecow.com

2001–13
Senior vice president for original programming, general manager, Playhouse Disney U.S./Disney Junior Worldwide

2013–Present
GM, EVP for original programming, Disney Junior Worldwide

“We were screening the first cut of *Dog Day Afternoon* for Al Pacino, Sidney Lumet, and the studio. Waiting for a cab, I hear this giant crunch, and a bus ran over a film can. This was the one and only copy of this film. I thought, I’m going to get on a plane to Mexico. But those cans were heavy for a reason: The reels were bent, but the film was fine.”

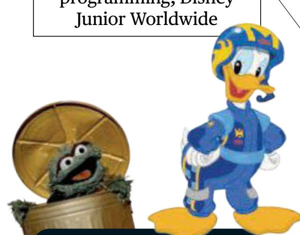
“I had success getting several properties developed and optioned but no success in getting them made. Then I pitched an ABC Afterschool Special and produced it. And then I was a producer.”

In Hawaii with her children, 1994

With Minnie Mouse, 2013

“A guy with a fortune and a love for children’s television found me and said, ‘Do you want to start a kids’ animated educational website?’ Then the market collapsed, so they canceled the IPO. I have lots of worthless stock.”

“*Mickey and the Roadster Racers* will launch next year. We have educational messages, but what’s most important is that kids attach to the story and characters so that those messages come through organically. It’s my job to make sure they’re there.”



Life Lessons

1. “You can be strong, you can be authoritative, but you can also be nice. Make people want to be in a meeting with you.” **2.** “Your only guidepost is what your instincts tell you.” **3.** “When I think, Huh, why didn’t I think of that?, that’s a good indication that a pitch is worth pursuing.”

Courtesy subject (5), Getty Images (2)

Bloomberg Businessweek (USPS 080 900) December 19 – December 25, 2016 (ISSN 0007-7135) H Issue no. 4504 Published weekly, except one week in January, April, June, and August, by Bloomberg L.P. Periodicals postage paid at New York, N.Y., and at additional mailing offices. Executive, Editorial, Circulation, and Advertising Offices: Bloomberg Businessweek, 731 Lexington Avenue, New York, NY 10022. POSTMASTER: Send address changes to Bloomberg Businessweek, P.O. Box 37528, Boone, IA 50037-0528. Canada Post Publication Mail Agreement Number 41989020. Return undeliverable Canadian addresses to DHL Global Mail, 355 Admiral Blvd, Unit4, Mississauga, ON L5T 2N1. E-mail: bwkcustserv@cdsfulfillment.com. QST#1008327064. Registered for GST as Bloomberg L.P. GST #12829 9898 RT0001. Single Copy Sales: Call 800 298-9867 or e-mail: busweek@nrmsinc.com. Subscriber Services: Call 800 635-1200 or log on to our website: http://www.businessweek.com/custserv/manage.htm. Educational Permissions: Copyright Clearance Center at info@copyright.com Reprints & General Permissions: The YGS Group at 800 290-5460 x100 or businessweekreprints@theYGSgroup.com. PRINTED IN THE U.S.A. CPPAP NUMBER 0414N68830

SAMSUNG

See inside from anywhere.

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