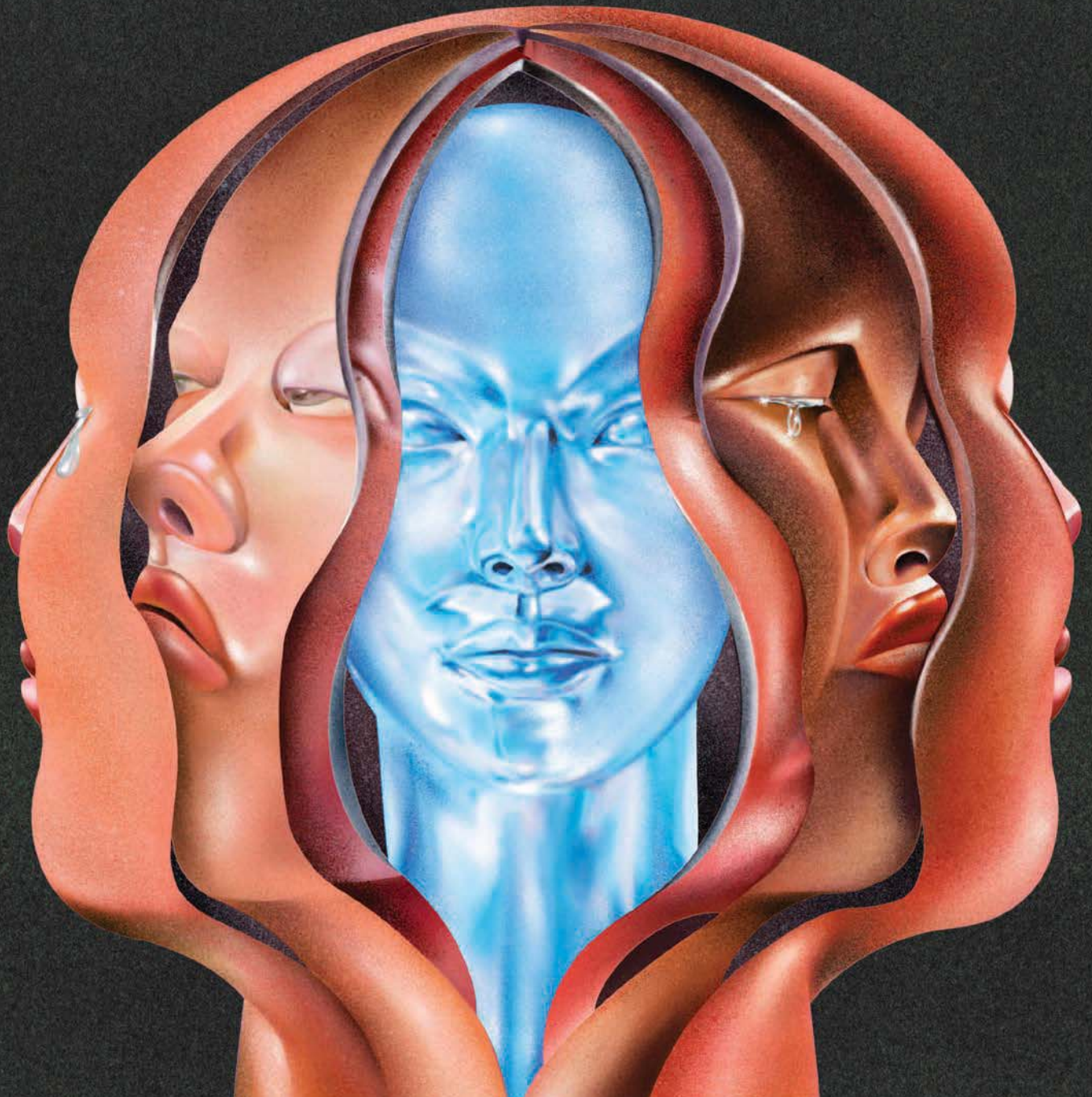


Bloomberg Businessweek

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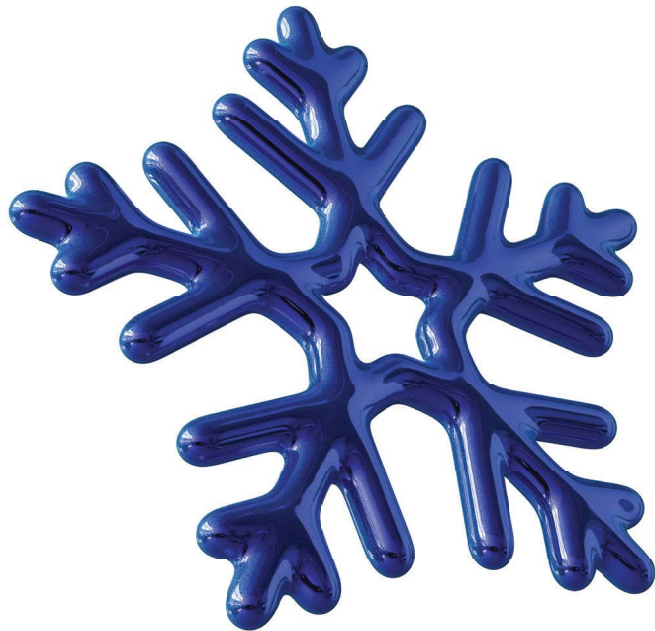
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A Deepfake Horror Story

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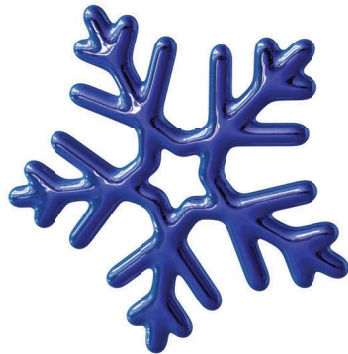
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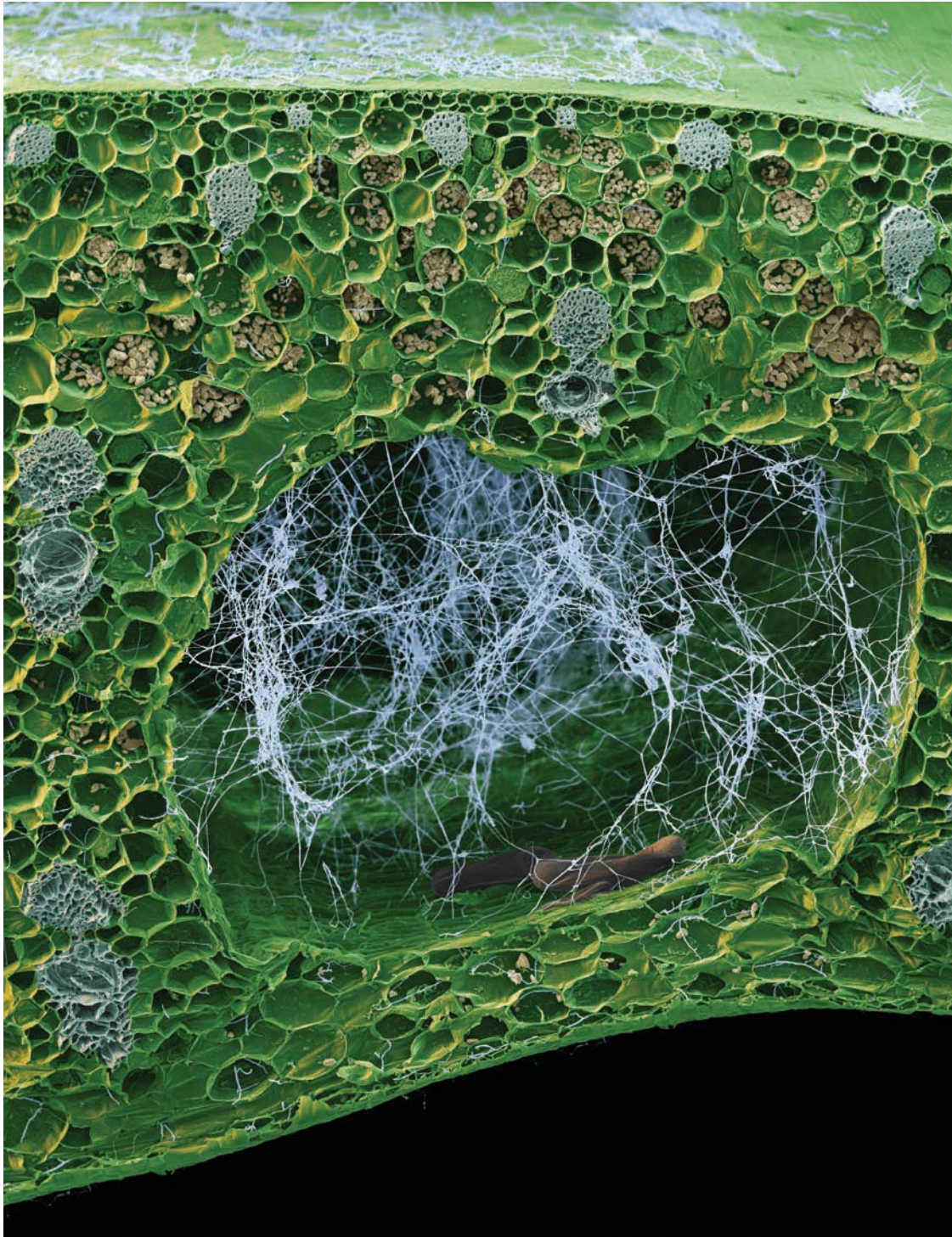
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◀ An electron micrograph image of *Fusarium odoratissimum*, a naturally occurring fungus that kills banana plants

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■ COVER TRAIL

How the cover gets made

1
"So this week's story is about deepfakes."

"These are getting too good. I thought the pope truly was a Balenciaga fan for a few months."

"He did look great in that puff— but the story we're doing is decidedly more dark than that."

"Oh, no..."

"Someone made pornographic deepfakes—1,900 of them—of his high school classmates."

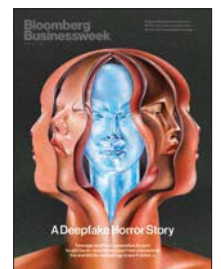
"I'm speechless. Did they find out who did it?"

"They did. But it turns out making fake porn from real images isn't illegal."

"Well, that's upsetting."

"Think we can bring it into an image?"

"Yeah, but it's going to be disturbing."



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Justice in Climate Finance



As the world addresses a myriad of challenges, climate change, with far-reaching implications, has been rightfully pushed to the forefront of the global agenda. However, the pursuit of a comprehensive climate agenda comes with a hefty price tag estimated in the trillions, which calls for collective action and innovative financing solutions to accelerate the transition to low-carbon and climate-resilient development.

Despite a commendable surge in climate pledges in recent years, they remain short of investment in this era of competing priorities. Even when financing is available, it doesn't often flow to the countries that are disproportionately affected by climate change. This is particularly evident in Africa, which contributes around 9% of global GHG and is perhaps the continent most vulnerable to climate change, yet receives less than 5.5% of global climate finance flows. Over 50% of these flows are concentrated in 10 high- to low-middle-income countries.¹

From an investor's perspective, developing countries are associated with high real and perceived risk, large information gaps and the absence of investable projects.

Advancing the climate agenda in these countries will require a multi-pronged approach to reduce the risk and uncertainty associated with climate investments and to clarify objectives, while promoting just financing.

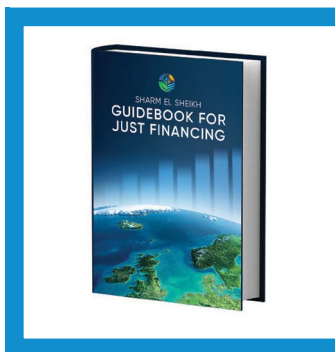
TURNING PLEDGES INTO GREEN DEALS

2022 represented an important milestone for climate action, with Egypt hosting COP27—the "Implementation COP." The event laid the foundation for a more robust climate finance system, and called upon the international community to push forward a transformative agenda that takes into account the development priorities of developing countries, while ensuring equitable access to financial and technical resources.

In efforts to move from pledges to implementation, Egypt made significant strides with the launch of two presidency initiatives during COP27: the Sharm El Sheikh Guidebook for Just Financing, and Egypt's Country Platform for the Nexus of Water, Food and Energy (NWFE *نُؤْفَسِي*). Rooted in the principles of equity and justice, the Guidebook emerged as a collaborative effort to synchronize and leverage the ambitions

of diverse stakeholders, offering a comprehensive roadmap to navigate the intricate landscape of climate finance. It provides guidance on how to enhance the investability of climate projects, and identifies the main components and key stakeholders in the climate governance plan, as well as current gaps.

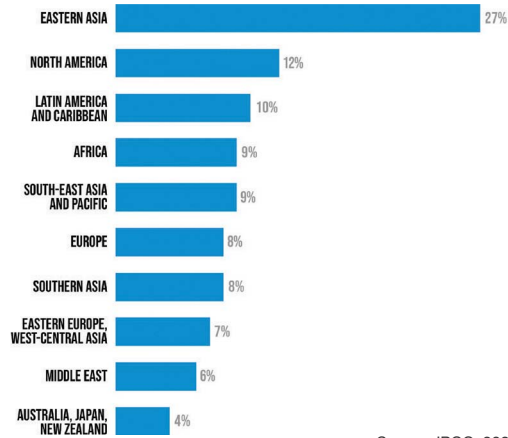
The Guidebook marks an important milestone by introducing the concept of just financing for the first time



Egypt's Sharm El Sheikh Guidebook for Just Financing marks an important milestone by introducing the concept of just financing for the first time on the global stage.

¹Egypt, Morocco, Nigeria, Kenya, Ethiopia, South Africa, Mozambique, Cote d'Ivoire, Tunisia and Ghana

2019 GHG EMISSIONS BY REGION



on the global stage. This novel approach “accounts for historical responsibility for climate change while ensuring equitable access to quality and quantity climate financing that supports resilient development pathways, leaving no one behind.” The Guidebook also lays out a set of 12 core principles that underpin just financing, structured around country ownership, equitable pathways to climate finance and good governance.

FROM POLICY TO PRACTICE

NWFE ^{نُؤْفِي} is a pragmatic manifestation of the guidebook’s principles. It lays out a replicable demonstration of the concept of “country platforms,” anchored by the G20 Eminent Persons Group on Global Financial Governance, which proclaimed in 2018 that country ownership of development objectives should guide the coordinated efforts of all stakeholders to achieve more value-centric, sustainable results.

Guided by the Guidebook’s principles of country ownership—including recognizing the right of countries to develop and industrialize while maintaining ownership over their development trajectories—the NWFE ^{نُؤْفِي} platform underscores Egypt’s commitment to transition toward a low-carbon development pathway. Promoting transparency and mutual accountability, this dynamic platform serves as a conduit to align policy frameworks, mobilize financial and technical resources and foster collaboration among stakeholders to catalyze investments in projects that promote climate resilience and balance mitigation and adaptation. It provides visibility into a pipeline of nine priority projects and highlights key objectives, intended impact and needed

resources, in line with Egypt’s National Climate Change Strategy 2050 and nationally determined contributions (NDCs), as well as the international climate agenda.

NWFE ^{نُؤْفِي} champions equitable pathways to climate finance and a blended finance approach, mobilizing resources to proactively and justly address climate-related socioeconomic challenges. Reflecting the Guidebook’s principle of mainstreaming just finance across all stakeholders to improve access to climate finance from all sources, Egypt’s country platform has strategically leveraged technical cooperation and financing from over 30 stakeholders, harnessing a diverse array of capital sources including debt swaps, guarantees, concessional loans, grants and private investments.

ACHIEVING JUST FINANCING

According to the Sharm El Sheikh Guidebook, just financing can only be achieved when systems that promote transparency and accountability are in place. The NWFE ^{نُؤْفِي} platform reinforces good governance through its steering committee and a robust M&E system that facilitates coordination among all stakeholders, tracks progress toward the mobilization of needed investments and enhances the efficient utilization of climate finance and resources. Through these governance structures, the platform has successfully facilitated harmonious collaboration, exemplified in the recent update of Egypt’s NDCs, which was announced in June 2023. This update aligns seamlessly with the political declaration jointly issued during COP27 by the governments of Egypt, Germany and the US. The revised NDCs are poised to secure grants, debt swaps and concessional finance, as well as catalyze private investments to support the energy pillar of Egypt’s NWFE ^{نُؤْفِي} Country Platform.

Looking ahead to COP28 and beyond, the aforementioned initiatives offer a solid foundation for continued discussions on financing climate adaptation and mitigation efforts, and forging a path where financial inclusivity and viability coexist. As countries gear up for the next conference, it is important to focus on translating the principles outlined in the Sharm El Sheikh Guidebook for Just Financing into concrete actions through country platforms. Multi-stakeholder engagement will be crucial in refining the framework to account for global changes, and in laying the groundwork to attract investments that drive climate action and sustainable development.

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● Retail analysts were underwhelmed by Black Friday, when spending rose just 2.5% from 2022, according to Mastercard SpendingPulse. But Cyber Week lifted their spirits. According to Adobe Digital Insights, the five days from Thanksgiving through Cyber Monday generated \$38 billion, an increase from last year of

7.8%

● The Supreme Court is mulling whether the SEC can fine people without a jury trial.

Currently the US Securities and Exchange Commission can bring "administrative proceedings" before its own administrative law judges, rather than bringing them in regular courts. George Jarkesy, allegedly involved in a boiler-room fraud, fought the SEC's action against him by arguing it should have to sue him in actual court. He won that argument in a federal appeals court in Texas last year.

● Miriam Adelson, widow of casino magnate Sheldon Adelson, is selling \$2b of stock in Las Vegas Sands so the family can acquire a majority stake in the NBA's Dallas Mavericks from Mark Cuban. Cuban will continue to own a part of the team, with multiple media outlets speculating the deal is the latest sign that the 65-year-old tech billionaire plans to run for president.

● War in the Middle East

► Negotiators from Qatar and the US continued to press Israel and Hamas to prolong the truce in Gaza. But Prime Minister Benjamin Netanyahu stressed on Nov. 29 that Israel ultimately intends to resume warfare to eliminate Hamas and the threat it poses. "There is no situation in which we do not go back to fighting until the end. This is my policy."

► Saudi Arabia approached its long-term rival, Iran, with an offer to invest in its sanctions-stricken economy if it stops its regional proxies from turning the Gaza war into a wider conflict.

"Believe me, you do not want to live in my universe."

Ruby Chen, the father of soldier Itay Chen, 18, who was kidnapped near the Gaza border on Oct. 7, speaking at a news conference on Nov. 28. "It's hard to describe the feeling of not knowing if your kid is alive or not. It's a feeling beyond pain."



Khalil Al-Zama'ara (top) hugs his mother at his home north of Hebron in the occupied West Bank on Nov. 27 after being freed from an Israeli jail in an exchange for hostages Hamas released from Gaza. Sahar Kalderon (bottom), 16, who'd been held in Gaza since Oct. 7, embraces a relative in Tel Aviv on Nov. 27.

● ChatGPT, meet Amazon Q.

Amazon.com joins Microsoft and Alphabet's Google in rolling out its own workplace chatbot. Amazon Q is designed to help corporate customers search for information, write code and review business metrics. In an effort to reclaim ground in a field led by its main rivals, Amazon Web Services, the retailer's cloud computing division, is weaving generative artificial intelligence into more products.

● The Mellon Foundation on Nov. 28 announced it had doubled its funding for the Monuments Project, to a \$500m commitment. The project aims to transform the commemorative landscape in the US to better represent its diverse history. So far, Mellon has provided about \$170 million to help preserve or create 80 monuments overlooking often overlooked Americans.

● Charlie Munger died on Nov. 28.



The 99-year-old vice chairman of Berkshire Hathaway was Warren Buffett's closest partner and "right-hand man."

Munger served on many boards during his life and gave hundreds of millions of dollars to various schools, in particular the University of Michigan and Stanford. He was famous for having an ethical approach to investing. "Good businesses are ethical businesses," he told Wesco shareholders in 2009. "A business model that relies on trickery is doomed to fail."

The Supreme Court Needs An Accountable Ethics Code

Holding judges to high ethical standards is essential to the American legal system. The US Supreme Court's recent adoption of an ethics code is an overdue acknowledgment of this reality. But the court's failure to include any enforcement provisions reduces the code to a paper tiger. The public shouldn't fall for it.

Where ethics are concerned, the high court has long taken the approach of adopting "rules for thee but not for me"—requiring all other federal judges to adhere to high standards while exempting itself. Not surprisingly, the justices have exhibited a series of embarrassing ethical lapses, including failing to recuse themselves despite owning stock in companies appearing before them; failing to disclose lavish vacation gifts; using public employees to help promote and sell books; and accepting free accommodations for themselves and guests.

These breaches have led to a public outcry, and rightly so. They stain the court's reputation and reduce public confidence in its authority and independence. At a time when public trust in democratic institutions is low, such failures are all the more intolerable. A Gallup Poll this year showed 71% of the US public had only some or very little confidence in the Supreme Court.

Yet the court's new code could well breed more public cynicism, by continuing to allow its members to sit as their own judge and jury, a standing invitation for misconduct. As one example, the justices have long claimed that disclosure rules that Congress mandated in 1978 didn't apply to valuable gifts they received; such gamesmanship is likely to doom any new self-policing system.

Because the court has refused to take enforcement seriously, Congress should do so. The Constitution provides lawmakers with broad latitude in regulating the judicial branch, and the legislature has a long history of imposing requirements on the high court, including mandating recusals in cases where justices' impartiality could be questioned and requiring disclosure of their financial holdings and outside income.

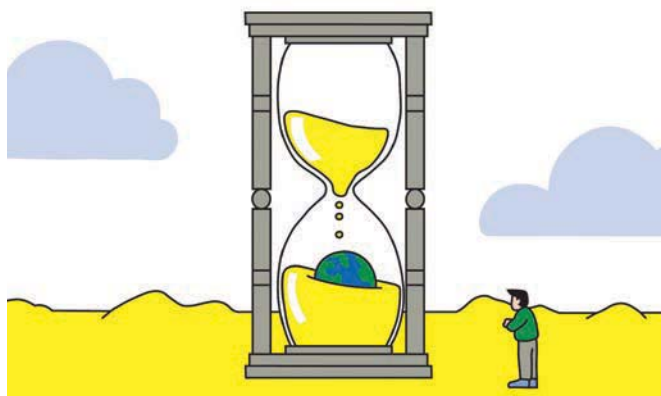
Their judicial decisions are not subject to review, so the justices seem to think their recusal decisions shouldn't be, either. There's no constitutional basis for such a view, and no reason federal judges who review recusal judgments couldn't

also consider the high court's. At the least, the chief justice should be empowered to review and rule on recusal judgments made by other members, and they on his.

Judicial ethics are of paramount importance to democracy. It doesn't speak well of the justices that they've failed to grasp the obligations this imposes on them. And it was an insult to claim, as they did in a patronizing statement, that the new code is merely a matter of clearing up the public's "misunderstanding" about the court's rules.

It's now up to Congress to hold the justices accountable. In drafting legislation, lawmakers should strive for bipartisan consensus—which shouldn't be hard, given the bipartisan nature of the court's ethical breaches. They should also take care not to allow ethics enforcement to become politicized. But they can't let the court's blindness to its own injustice continue unchecked. **B** For more commentary, go to bloomberg.com/opinion

■ AGENDA



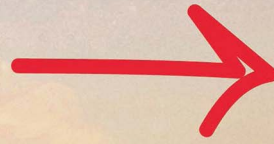
► Good COP, Bad COP

The 28th UN Climate Change Conference wraps up in Dubai on Dec. 12. Controversy around holding COP28 in a fossil fuel powerhouse intensified when it was leaked that the UAE planned to use the event to pitch oil and gas deals.

- The US Bureau of Labor Statistics reports unemployment data for November on Dec. 8. Analysts don't expect joblessness to change from the 3.9% reported in October.
- Germany's Federal Statistical Office reports October's trade balance on Dec. 4. Germany's surplus in September shrank by €1 billion from the previous month, to €16.7 billion.
- Egypt holds its presidential election Dec. 10-12. Incumbent Abdel Fattah el-Sisi, who came to power after a 2013 coup, seeks to extend his rule for another six years.
- The Reserve Bank of Australia sets interest rates—currently 4.35%—on Dec. 5. Analysts, expecting inflation there to fall further, to 3.5% by yearend 2024, say another hike is unlikely.
- Figure skating's 2023-24 Grand Prix and Junior Grand Prix finals begin on Dec. 7 in Beijing. Medals will be awarded in men's and women's singles, pair skating and ice dance.
- Yorgos Lanthimos' steampunk fantasy *Poor Things* opens on Dec. 8. The hypersaturated mashup of *Fifty Shades of Grey* and *Frankenstein* may be the raciest Oscar bait of the year.

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A \$30 Billion Reckoning

● America's path to net-zero carbon emissions is getting narrower

● By David R. Baker, Saijel Kishan and Jennifer A. Dlouhy

No one expected the transition from fossil fuels to be easy. But a year after President Joe Biden's landmark climate law promised billions of dollars for America's switch to clean energy, some of the nation's most ambitious renewable power projects have been shelved, electric car sales are missing targets and investors are fleeing the sector in droves. The result is a \$30 billion collapse in US clean energy stocks in the past six months—a market many investors expected to flourish in the aftermath of the law's passage.

Few industries have been unscathed by soaring interest rates, but perhaps none has been harder hit than renewable energy. For a sector that builds big, expensive facilities such as solar plants and wind farms, high rates cut profit margins enough to sink projects and bankrupt companies. The giddy enthusiasm that followed the Inflation Reduction Act's (IRA) passage evaporated, wiping out a quarter of the market value of US companies in the S&P Global Clean Energy Index in the six months ended on Nov. 27.

It's a meltdown that underscores the obstacles standing in the way of Biden's ambitious climate goals. Along with sky-high financing costs, clean energy companies face the problems of winning over potential neighbors for their projects, securing government permits and plugging into a creaky power grid unable to handle all the renewable power that's planned. Oil and gas producers, meanwhile, are doubling down on plans to keep pumping.

The warnings are clear: America's road to achieving a zero-carbon electricity grid by 2035 is getting rockier by the

day. "We're in the moment of realization now where some of the euphoria has worn off and we're starting to realize it's still not going to be easy," says Eric Scheriff, senior managing director at Capstone, a consulting company in Washington, DC.

The specter of bankruptcies now haunts the sector. Electric-bus maker Proterra Inc. filed for Chapter 11 protection earlier this year, with solar financing company Sunlight Financial Holdings Inc. following soon after.

Deals are falling apart: Private equity-backed Ares Acquisition Corp. abandoned its planned merger with nuclear power technology company X-Energy Reactor Co. in October. And projects have been canceled. Utility owner Avangrid Inc. shelved wind projects in Connecticut and Massachusetts this year, and NuScale Power Corp. abruptly terminated its plans for the first small modular reactor in the US—a technology regarded as key to the sector's potential revival.

For anyone who remembers the last cleantech bust more than a decade ago, it's easy to fear a repeat. "In the final analysis, green investing has to be based on economic realities," says Jerome Dodson, the now-retired founder of Parnassus Investments LLC, one of the world's largest sustainable investment companies, with \$42 billion in assets. He sold his stake in the business in 2021—at the "top of the market," as he puts it—and predicts that wind and solar stocks could fall an additional 15% to 20% in the next six to eight months.

It was only two years ago that Wall Street investors and bankers headed to Scotland for a global climate meeting, waxing lyrical about net-zero emissions goals and the profits to be

made from the shift to cleaner energy. That's a stark contrast to the current mood as the world convenes for another round of climate talks at the United Nations Conference of the Parties, or COP28, summit in Dubai from Nov. 30 to Dec. 12.

American clean energy companies aren't the only ones struggling. China's biggest solar and wind turbine manufacturers recently reported shrinking profits. Danish wind developer Orsted A/S is fighting to recover from a \$4 billion writedown stemming from two abandoned US wind projects.

In many ways, though, the problems are most surprising in the US. Biden's sweeping climate law offers at least \$374 billion in tax credits and other incentives to spur the energy transition. Many saw it as a grand experiment to test whether subsidies, rather than top-down government mandates, would be enough to accelerate a change the planet desperately needs.

Instead, the US remains far off track for reaching Biden's goal of a net-zero economy by 2050. Researchers at BloombergNEF estimate the IRA will get the country only halfway there, cutting annual greenhouse gas emissions from 5.3 gigatons to 2.3 gigatons by midcentury.

Most analysts don't expect clean energy's current difficulties to completely derail the transition. But missing targets will still have major implications for the planet and the global economy, as the extreme weather events that are propelled and magnified by climate change continue to cause enormous damage.

The US is the biggest carbon emitter of all time, responsible for about a quarter of historical greenhouse gases, and it holds the No. 2 spot for today's levels. It's also been considered one of the biggest offenders in rich nations' failure to collectively marshal funds to the developing countries that often experience climate change's worst impacts.

Although Bank of America Corp. analysts estimate the global cost for confronting climate destruction will be roughly \$75 trillion—or \$2.7 trillion a year—between now and 2050, the price tag for inaction is much higher. Doing nothing to address extreme heat, disasters and rising sea levels brings an expense of \$178 trillion, the analysts wrote in a recent report. “My nervousness is that we have high interest rates for a long time, and that slows the transition,” says Chat Reynders, co-founder of Reynders, McVeigh Capital Management, which oversees \$3.5 billion in Boston.

The International Energy Agency recently predicted for the first time that global demand for oil will peak this decade, but it also said that “an undulating plateau lasting for many years” will follow, with emissions remaining too high to limit global warming to 1.5C, a critical tipping point for averting more extreme consequences of global warming.

For its part, the Organization of the Petroleum Exporting Countries predicts oil demand will keep growing for decades. Exxon Mobil Corp. and Chevron Corp. just spent more than \$110 billion combined on two megadeals to secure future oil production. “The timeline we have to get to net-zero is quite short,” says Garvin Jabusch, chief investment officer at Green Alpha Advisors LLC, which oversees about \$400 million.

“Everything that's invested in new exploration, new discovery, new extraction, new burning, new internal combustion engines, new fossil-fired electricity plants—all these long-life assets—puts us much further away from any climate goals.”

Nowhere are the problems facing clean energy more apparent than in the offshore wind industry. Biden's climate plans call for building enough wind farms along the nation's coasts in the next six years to generate 30 gigawatts of electricity, roughly the output of 30 nuclear reactors. But wind developers have had their component costs rise as inflation ripples through their supply chains. High interest rates compound the problem.

Over the next decade, surging costs threaten to add about \$280 billion in capital expenditures for the global offshore wind sector, according to researchers at consulting company EY. Both BNEF and S&P Global Commodity Insights have lowered their projections on how much wind can be added to the grid by 2030.

There are also hurdles in the switch to electric transportation. Higher borrowing costs have made electric vehicles even more expensive, damping sales. Tesla Inc.'s stock price has tumbled about 20% from its 52-week high in July. The companies that deploy EV chargers, such as Blink Charging Co. and ChargePoint Holdings Inc., are nearing penny-stock status.

There are some bright spots, including large-scale solar. Panel costs have been dropping, which squeezes margins for equipment makers but can help increase the speed of installations. Researchers at BNEF estimate that installed capacity jumped more than 50% this year to a new record. Funding for climate tech rose to the highest rate in almost two years in the third quarter, according to BNEF. And BlackRock Inc. CEO Larry Fink, who's been a vocal proponent of embedding environmental objectives in investment decisions, is attending climate talks in Dubai after sitting them out last year, as green investing faced backlash from Republican lawmakers.

“The trends remain in favor of clean energy, even if we're seeing some minor growing pains at the moment,” says Sonia Aggarwal, CEO of consulting company Energy Innovation, who helped develop the IRA while serving as a special assistant to President Biden.

Nevertheless, even with federal support and expectations that interest rates will fall next year, big obstacles remain. Take, for example, the US grid. The energy transition requires vast changes to the interconnected networks of generating plants, transmission lines and substations that make up the grid, which is still designed largely for fossil fuel generation. And there's a massive bottleneck when it comes to the process for approving additions of power to grids. In August more than 1,700GW of wind and solar power projects were stuck in approval queues across the US, according to a federal estimate.

“You need all of the ingredients to make the cake,” Capstone's Scheriff says. “We gained a few ingredients we needed with the IRA, but we've still got to get the others.” **B**



LVMH, Short of Luxury Artisans, Turns to the US

● As demand grows, the parent of Tiffany and Louis Vuitton trains apprentices in America

On a recent afternoon at Tiffany & Co.'s jewelry studio in New York, a dozen or so jewelers filed down gold engagement rings while a tiny vacuum installed at each workstation sucked up the gold dust to melt it down and recycle it. It's a slow, meticulous task, in many ways little different from the process artisans have followed for hundreds of years.

At each station there's a small wood block, with a V-shape carved out in the middle, that's attached to the worktable just below eye level. It's called a

bench pin, and the jewelers place the rings there to file them down. The bench pins of the more experienced jewelers are so worn that they almost look like bits of driftwood. But some have just a few grooves, a sign of the tenure of their owners: apprentices.

Two of the ringmakers at work in the jewelry studio this day are among the eight trainees in Tiffany's two-year apprenticeship program. LVMH Moët Hennessy Louis Vuitton SE and Tiffany have teamed up with New York's Fashion Institute of Technology and Studio Jewelers, a trade school in Manhattan, to give the apprentices theoretical and technical training. They also get practical experience working alongside seasoned Tiffany jewelers. Earlier this year, Tiffany started another program for seven more apprentices, who are taking classes at the Rhode Island School of Design. The jeweler pays the trainees' salaries while they're in the program, and if they master the skills, they'll have the opportunity to remain at Tiffany and craft luxury jewelry.

"We are teaching the next generation of craftspeople how important the details are," says Dana Naberezny, chief innovation officer of jewelry at Tiffany and head of its workshop in Manhattan, as



she walks among the workbenches and shows off a hanging display of hammerlike tools, including one used by the grandfather of one of the jewelers.

Training the next generation of luxe artisans has become a critical mission for Tiffany's parent, LVMH, the French conglomerate that also owns Louis Vuitton, Christian Dior and six dozen other brands. The world's largest luxury company is facing a worker shortage that threatens to curb its production of sought-after handbags, shoes and jewelry, underscoring the broader industry's challenge to balance strong demand for high-end, handmade goods with fading interest in craftsmanship as a career.

LVMH is forecasting that it will have a deficit of 22,000 workers by the end of 2025, a record shortfall. About two-thirds of those positions must be filled by salespeople at LVMH's upscale stores and employees at its hotels around the world. The remaining third are craftspeople and designers—a smaller figure, but one that in many ways is more crucial for the company to address. Much of the appeal of LVMH's most coveted items—a Tiffany engagement ring, a Loewe leather purse, a Hublot watch or a Loro Piana sweater—is that they're at least partially handmade.

The craftsmanship is part of what underpins the items' lofty prices and the company's marketing pitch that it's honoring the heritage of its brands, some founded more than a century ago.

Despite a recent slowdown in the pace of sales at LVMH and other luxury brands, demand for high-end goods is much more robust than it was before the pandemic. That's colliding with a decades-long decline in the number of people who know how to solder and set high-end jewelry, seamlessly stitch handbags that cost more than most people's monthly rent or assemble leather shoes from scratch. With each generation, more workers in the US and Europe have been turning away from this type of manual work, instead preferring positions tied to what's known as the knowledge economy.

LVMH is trying to address its worker shortage by ramping up hands-on training, with the goal of boosting the careers of thousands of artisans in the coming years. "People aren't trained," says Alexandre Boquel, who's in Paris and runs LVMH's apprenticeship program, known as *Métiers d'Excellence*. "We need to find them and train them."



The goal of the apprenticeships, Boquel says, is to "perpetuate the savoir-faire of the group." If he and his colleagues aren't successful at creating a pipeline of skilled workers for the conglomerate, then they won't be able to "sustain the current levels of growth," he adds. ▶

◀ An instructor with an apprentice at the Tiffany & Co. Jewelry Design and Innovation Workshop in New York; jewelry in production at the shop

◀ The difficulty in hiring skilled craftspeople is already hindering the pace of growth at other luxury companies. “We’re looking desperately to hire people,” says Marco Angeloni, chief executive officer of suitmaker Raffaele Caruso SpA. “It’s been my No. 1 headache for the past year.”

Caruso is in Parma, Italy, and turns out men’s suits that can retail for as much as \$5,000 each for some of the world’s top luxury brands. The suits, which the company also sells wholesale, take employees about nine hours to create by hand. The pandemic exacerbated the worker shortage, Angeloni says, because many companies in Italy and elsewhere temporarily shut down or scaled back their production, sending many senior craftspeople into early retirement and forcing junior employees into other industries. Small factories, unable to survive, shut down completely.

During Covid-19, “formal wear seemed doomed—everyone thought the jacket was dead,” Angeloni says. Then demand surged as the pandemic receded. By then, Caruso employed fewer workers, and Angeloni couldn’t outsource some of his production as he usually did; so many small factories were gone or had been bought by major luxury brands eager to guarantee their own source of production. “When demand came back, people weren’t as excited to come back to work as we were expecting,” he says. “Many had changed their lifestyles or industry.”

Angeloni has added 45 workers to Caruso’s staff of 450 since the beginning of the year, including two senior people he asked to come out of retirement to train newcomers. But it’s not enough. If the company had adequate staff, Angeloni estimates, sales could have increased by 70% this year versus last. Instead, they will increase by 30%. “Opportunities have been lost,” he says, “for us and the brands.”

Nicolas Giroto, CEO of Swiss luxury shoe company Bally, says he constantly has about 5 to 10 vacancies for artisans. “The long-term trend for luxury overall is constant growth,” he says. Because hiring isn’t keeping pace, Giroto says, he’s focusing on having each of his company’s artisans learn several steps in the shoemaking process instead of specializing in one—a break with tradition.

As many as 250 separate steps are required to craft Bally’s highest-end shoes. About 20% of the 100 or so artisans in Bally’s atelier in Lugano, Switzerland, have been trained in more than one task. “The more skills they have, the better for the company and the better for themselves,” he says.

LVMH’s apprenticeship strategy—start piquing the interest of potential trainees as students, and expand the program to include more jobs and geographies over time—will be closely watched by other

executives in the luxury industry. The French giant is training 700 apprentices this year, up from 180 in 2018, and it aims to have even more next year.

One-third of LVMH’s new apprentices are “reskilling,” meaning learning new skills that are loosely tied to their current profession, such as a



▲ Tommy Cornielle Rodriguez, one of the craftspeople at the Tiffany workshop

product leader in marketing training to become a jeweler. Before the pandemic, that figure stood at around 10%. Boquel attributes the jump to a desire that arose in France and elsewhere during the pandemic to diminish the grip the digital world has on our life. “A lot of people in France have been thinking that ‘I need to get back to something very tactile, to do something with my hands,’” he says. “It was surprising to see how many 40- to 45-year-olds were contacting us to find a profession as a jeweler.”

Part of Boquel’s work is getting the word out about the breadth of jobs available at LVMH and its 75 brands. He organizes workshops at high schools in France and the US, for example, to introduce young people to the opportunities.

“People don’t know 1% of these professions,” Boquel says. LVMH has 280 careers, he says, including calligraphers for Hennessy’s cognac barrels and artisans at Berluti who sculpt shoe molds known as lasts from a block of hornbeam wood using a knife-like tool called a *paroir*. These artisans then file and smooth down the mold with a rasp, followed by sandpaper—a process that, according to Berluti’s website, emphasizes “the elegant line of the shoe.” A pair of the brand’s Oxfords retails for about \$2,500.

Most of LVMH’s current crop of trainees are in France, Italy and Switzerland, and the company is expanding into other countries, including the US, where it plans to initiate more apprenticeships in addition to the two Tiffany programs. Apprenticeships are a traditional—and still common—way to train workers in countries such

as France, Germany and Switzerland, but they're far less prevalent in the US, says Robert Lerman, who's researched apprenticeships for three decades as a fellow at the Urban Institute, a think tank in Washington. France under President Emmanuel Macron spends billions each year to successfully expand apprenticeships, yet the US invests only about \$300 million annually, Lerman says.

Most apprenticeships in the US focus on training construction workers, electricians and plumbers. If LVMH's rollout is successful, "it would be a great example to other firms in that industry," he says. "It's learning by doing. You can't create jewelry just from a classroom."

In France, it's relatively straightforward to begin an apprenticeship program compared with the US. An apprenticeship tax on companies finances the cost to train apprentices, and employers pay trainees' wages. And there's a plethora of schools tied to the fashion industry, making it easier for LVMH to set up training programs and contact potential apprentices. In the US, though, "we had to build something completely from scratch, inspired by France's concept," Boquel says. —*Jeannette Neumann*

THE BOTTOM LINE Luxury giant LVMH is expanding its apprenticeship programs to satisfy growing demand for high-end goods amid fading interest in craftsmanship as a career.

Chinese Cars Steer Into Mexico

● They've become the biggest-selling imports there, thanks to tech features and cheap prices

When Jorge Ramírez Robledo went to buy a new pickup in October, he encountered an enticing option from a little-known brand in a Mexico City dealership: the JAC Frison T8. At 468,000 pesos (\$27,317), the offering from China's Anhui Jianghuai Automobile Group Co. costs about \$10,000 less than similar trucks from Chevrolet, Ford Motor and Toyota Motor.

After inspecting under the hood of a bright blue model and peeking inside its spacious leather

interior with HD touchscreen, he was impressed with what the vehicle offered for its price. Plus it had a five-year warranty.

"In general, all Chinese brands offer greater technology at a lower cost," he says, standing in front of his new JAC Motors truck. It was his second Chinese vehicle; he'd snapped up a truck from MG Motor, owned by Chinese carmaker SAIC Motor Corp., a few months earlier.

Robledo is among the growing ranks of first-time owners of Chinese-made vehicles in Mexico. Last year the country was the No. 1 importer of Chinese models, and so far in 2023 it trails only Russia, according to data from the China Association of Automobile Manufacturers. Chinese cars accounted for almost 20% of all car sales in Mexico through October, and they're selling faster than those manufactured in any other country, including Mexico.

Chinese car sales in Mexico rose 51% in the first 10 months of the year, with 212,169 sold, data from the Mexican Association of Automotive Distributors shows. Every other foreign country is selling less than half that to Mexican consumers. Almost all of these vehicles are gas-powered, but the trend gives China a coveted foothold in North America as it battles the US for supremacy in automotive sales.

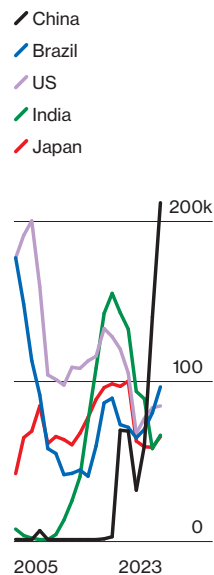
Cars imported from China were practically impossible to find in Mexico until about 2016, when they still made up only a tiny fraction of total sales. Now buyers have a half-dozen brands to choose from in Mexico City and other large metropolitan areas. Chirey, the Mexican arm of Chery Automobile Co. in Wuhu, started selling cars in Mexico just last year, and the parent's Omoda brand followed suit this year. Shoppers can even browse BYD Auto Co. models in some Liverpool department stores across Mexico.

That the vehicles tend to be cheaper is "very important to Mexicans," says David Barrera, director of business development in Monterrey for Banco BASE SA, whose clients include Chinese auto parts companies and vehicle manufacturers. "They don't have as much access to credit as people do in the US."

In addition, China has focused on improving manufacturing quality, and its models are considered to have more advanced technology for the price, says Carlos Alvarado, vice president and strategic adviser for Grupo Prodensa, a consulting firm in Monterrey for foreign investors in manufacturing. "It no longer scares us that the product is made in China," he says. "Every other high-tech product is made in China, like iPhones."

Two major forces colliding at exactly the right time gave China an opening in Mexico. Chinese ►

▼ Car sales in Mexico by country of origin, through October of each year



◀ consumers' big shift toward electric vehicles has left the country's manufacturers with leftover gas-powered ones to sell abroad. And supply chain issues stemming from Covid-19 snarled production of other brands' cars and sent prices soaring, allowing China's Chirey, JAC, SAIC Motor and others to swoop in with more affordable options.

Chinese entrants may have a hard time keeping up momentum as rivals' inventories recover. Stellantis, Nissan Motor and Volkswagen have all seen spikes in sales during a post-pandemic auto boom in Mexico, with light-vehicle sales surging 25% in the first 10 months of the year. And US automakers are building out their Mexican presence to take advantage of President Joe Biden's tax credits for North American-made EVs. Ford, General Motors and Stellantis have each announced plans to expand production in the country, and Tesla Inc. is building a megafactory in Nuevo Leon.

"It's possible that more North American vehicles will quickly begin to enter the Mexican market and displace Chinese competition," says Jesús Carrillo, director of sustainable economics at the Mexico Institute for Competitiveness, a think tank.

Chinese carmakers are looking to Mexico to expand their footprint in other ways, too. JAC has announced expansion plans for its assembly plant in Hidalgo, a joint venture with Mexican billionaire Carlos Slim's Giant Motors. MG Motor is looking to expand its parts distribution center in San Luis Potosí. A half-dozen other Chinese car companies have also in recent years expressed interest in opening manufacturing plants for both EVs and gas-powered vehicles.

Although companies from China have yet to export vehicles from Mexico to the US, parts makers are already doing so. Zhejiang Yinlun Machinery Co., a Chinese supplier of cooling systems for cars and heavy machinery, opened in Nuevo Leon earlier this year and produces parts for GM, Volvo and Tesla, among others.

"Our US customers are very excited that we have a factory here in Mexico, because of the issues between the US and China, and also because of the distance—since Mexico is much closer to the US," says Dava Chou, project director of Yinlun Mexico, speaking over the whirl of factory equipment at the Nuevo Leon factory. The plant is only two hours from the US-Mexico border.

Yinlun plans to almost double its workforce with the opening of a second facility outside Monterrey in Hofusan Industrial Park, where all the tenants are Chinese. The company is looking to source the bulk of its materials from North America—today, about 80% come from China—to take advantage

of US incentives. By building the parts there, the Chinese company evades Trump-era tariffs of as much as 25%, says Scott Chen, chief executive officer of Yinlun TDI LLC, the California-based subsidiary of the Chinese manufacturer. Chen told *Bloomberg Businessweek* that the company is also considering a third Mexican plant in Nuevo Leon.

Hybrid and electric vehicles are still somewhat scarce in Mexico, because of their high cost and the country's relatively incomplete charging infrastructure, but China is becoming dominant in the nascent market. The share of EV and hybrid sales in Mexico has risen from 0.5% in 2016 to 5.5% through August this year, with most of the vehicles coming from China, according to the Mexican Automotive Industry Association. "Chinese companies were able to deliver in less time and with better prices," says Francisco Cabeza, president of the Mexican Association to Promote Electric Vehicles.

Thousands of electric taxis and public buses labeled with the government-created slogan "Soy Eléctrico" ("I'm electric") zip around the smoggy streets of Mexico City. The taxis from Vemo, a Mexican clean mobility startup, are from BYD and JAC; the city-owned buses and trolleys are from Chinese companies Zhengzhou Yutong Bus Co. and Zhongtong Bus.



● The maximum US tariff Chinese auto parts companies can avoid by building parts in Mexico

25%

◀ An Anhui Jianghuai Automobile electric car at its dealership in Mexico City

Mexican shoppers can expect to see more Chinese EVs for sale next year. This summer, BYD formed a partnership with retailer Liverpool to sell its EVs and add charging stations at its ubiquitous stores. The company has also sold electric-truck fleets to major Mexican conglomerates including Bimbo, Cemex, Lala and Coca-Cola Femsa, the Mexican conglomerate's bottling operation.

Stella Li, BYD's Americas CEO, says the Warren Buffett-backed Chinese EV giant has more partnerships in its sights, too. "We are looking to bring Mexico's auto industry to the next level," she says. "We have big plans." —Amy Stillman

THE BOTTOM LINE Vehicles manufactured in China accounted for almost 20% of all new cars sold in Mexico in the first 10 months of 2023. The country trails only Russia in sales of Chinese autos.

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2

TECHNOLOGY

What's Next, Sam?



20

Edited by
Joshua Brustein

● OpenAI's CEO returns with near-unanimous support but some tricky issues to resolve

Sam Altman has shown the world that he's not to be messed with.

Within four days of losing his job as chief executive officer of OpenAI in a surprise boardroom coup, the 38-year-old artificial intelligence phenom won back his position, aided by the support of 730 employees—out of the company's 770-person workforce—who threatened to quit if the board didn't bring back Altman.

Anyone who's ever had a job knows that such overwhelming support for the boss is unusual. "It's a huge testament to the kind of CEO he is," says Alfred Lin, an investor at Sequoia Capital, which invested both in OpenAI and Altman's first startup, Loopt. "There are always going to be detractors. But the fact that he got to around 95% of employees signing the statement is pretty remarkable."

In some ways, Altman has come out of the episode stronger than ever, but the struggle isn't quite over. Altman didn't get back his board seat, and neither did a key ally, co-founder and former OpenAI President Greg Brockman, who was kicked off the board and quit his position in protest shortly after Altman's firing. One of the people who fired Altman, Quora CEO Adam D'Angelo, remains.

There have already been discussions among investors about changing OpenAI's complex governance model, according to sources. Any changes in the structure of the company and its board over the next few months could determine a lot about Altman's power within OpenAI over the long term.

Prior to Altman's firing, OpenAI was considered a stable company, beating the biggest tech giants in the race to develop AI, with Altman cast as its charismatic, savvy leader. Altman is still a widely respected figure who came out on top of an ill-advised coup, but he'll likely continue to face questions about his rift with the board and his business dealings more broadly. "We're just now seeing the whole, complicated, Sam Altman," says tech historian Margaret O'Mara. "Part of this is the reality-check phase of a Silicon Valley leader."

To regain his job, Altman agreed to an internal investigation, among other conditions. The abrupt nature of his firing and a statement from the board saying that Altman hadn't been "consistently candid" in his communications set up expectations for the emergence of a smoking gun. Nothing like that has come out, though there have been

revelations of tensions within OpenAI over his fundraising for an outside chip venture, including seeking funding in the Middle East, and a dispute with former board member Helen Toner over a research paper she'd co-written that was critical of the company. It was Altman's pattern of behavior, rather than a single egregious action, that caused the board to lose trust in him, according to a person with direct knowledge of the board's thinking, who asked not to be named discussing private business matters.

In the wake of Altman's firing, former OpenAI employee Geoffrey Irving publicly accused Altman of lying to him on several occasions when he worked at the company, but he didn't give specifics. Irving didn't respond to a request for comment. Altman's past has received new scrutiny, as well. His longtime mentor, Paul Graham, fired him from his position as president of startup incubator Y Combinator four years ago for putting his own interests ahead of the organization, according to a person with knowledge of the matter who asked not to be named for fear of professional retaliation, confirming a report in the *Washington Post*.

In an internal memo the day after Altman's firing, OpenAI Chief Operating Officer Brad Lightcap said the board's decision wasn't a "response to malfeasance" but came because of a "breakdown in communication between Sam and the board." The company declined to comment further.

People who know and support Altman say he often argues both sides of a debate, which they see as a useful way of exploring ideas but could be misinterpreted as making false promises or confusing people. "Sam uses words fairly precisely in my experience. If he tells you what he plans to do, that's what he plans to do. If he tells you he agrees with you in principle, he does. These are different things from each other. Not everyone groks this," wrote OpenAI researcher Joshua Achiam, on X.

Immediately after being fired, Altman resigned himself to moving on and starting a new company, according to a person familiar with the matter who asked not to be named discussing private matters. Soon after, Brockman and other key employees began resigning and voicing their support for Altman. By Saturday morning, Altman reconsidered after members of the board called him asking if he would consider returning, the person says. OpenAI's main financial backer, Microsoft Corp., gave employees leverage by offering to hire them if they followed through with their threats to quit.

In part, the employee reaction makes sense in simple financial terms. Many OpenAI employees ►

▼ The Board Newcomers



Larry Summers

Summers, former US Treasury Secretary and former chief economist of the World Bank, is a professor and president emeritus at Harvard University. He has said AI will have serious negative impacts on labor and has warned of economic catastrophe if the US "loses its lead" in biotechnology and AI to China. (Summers is a paid contributor to Bloomberg Television.)



Bret Taylor

Taylor, the incoming chairman, is a prominent leader in Silicon Valley who recently stepped down as co-CEO at Salesforce. Previously, he co-created Google Maps, served as CTO at Facebook and founded productivity app Quip. Taylor has experience acting as a board chair in times of transition, which he did at Twitter prior to its acquisition by Elon Musk.

◀ hold equity in the startup, which was recently valued at \$86 billion dollars in a planned tender offer that would give staff a chance to cash out. With Altman no longer CEO, some investors were considering backing out of the deal, giving employees direct financial motivation to urge Altman's return.

But Altman's supporters say he's built credibility among employees by listening to their perspectives, particularly regarding the company's stated values. OpenAI's mission is to create artificial general intelligence—AI systems that are generally smarter than human beings—in a way that benefits humanity. Achiam praised Altman for the way he handled internal dissent. "I remember telling Sam in 2020—in front of other people, at a company office hours—that I thought releasing something was a terrible idea," Achiam wrote on X. "A normal CEO would (should) have fired me. Instead, Sam took me seriously and asked for my advice."

Many employees take this mandate seriously. "We have a common mission to basically 'Build God,' safely, and for the benefit of all humanity—and have a charismatic leader guiding us there," says an OpenAI employee, who requested anonymity to protect professional relationships.

"It's really hard to not get wrapped up in that."

Altman has said he has no equity in OpenAI, a rarity for startup founders. "How many people do you know who would do that?" says Vinod Khosla, an early OpenAI investor. "He's very mission-focused ... and he's proven that beyond a shadow of doubt."

This is particularly notable given the reputation Altman built in his years at Y Combinator as a savvy dealmaker and Silicon Valley superconnector. In the AI frenzy that followed ChatGPT's introduction in November 2022, Altman has turned his charm on world leaders, regulators and the press. Businesspeople often advocate for their industries on the public stage. But Altman has cultivated an image as someone who not only articulates the benefits of AI development but is also clear-eyed about its potential dangers. The OpenAI flap has added a wrinkle to that story, but he retains a sizable fan base in Silicon Valley. "Altman has been embodying a kind of idealism for a lot of people," O'Mara says, "even though he's always been a capitalist." —*Shirin Ghaffary, with Rachel Metz, Lizette Chapman and Sarah McBride*

THE BOTTOM LINE An unsuccessful attempt to remove Sam Altman may have bolstered his reputation, but could yet have structural impact on the company he runs.

The Pre-Coup Board

OpenAI is overhauling its board, with only one of its six members staying on as the company moves forward



Sam Altman

Altman was fired from his job as chief executive officer and removed from OpenAI's board on Nov. 17, with board members alleging that he wasn't being "consistently candid in his communications." Although he was quickly reinstated as CEO after a wave of employee protest, he isn't, for now, returning to the board.



Greg Brockman

Brockman is a co-founder and former president of OpenAI. He was removed from his role as chairman of OpenAI's board when Altman was fired. He then resigned his job, posting a note online saying, "based on today's news, I quit." Staff pressed the board for Brockman's return along with Altman. He's since rejoined the company and has been posting cheerful selfies with employees.



Adam D'Angelo

D'Angelo is the co-founder and CEO of Quora, the online Q&A service. An early Facebook executive, he's also the founder of Poe, a platform that allows people to ask questions from various AI chatbots. D'Angelo, who agreed to Altman's ouster, is the only board member who's staying on.



Tasha McCauley

McCauley is an entrepreneur and a robotics engineer. She's an adjunct senior management scientist at the Rand Corp., according to her LinkedIn profile. McCauley serves on the boards of effective altruist organizations Effective Ventures and 80,000 Hours. She agreed to Altman's ouster.



Ilya Sutskever

Sutskever, a well-respected researcher whose work has focused on neural networks, is a co-founder of OpenAI, its chief scientist and a key player of the coup to remove Altman. Sutskever, who's clashed with Altman over how quickly to develop AI, later wrote that he "deeply" regretted helping oust Altman and said he would do "everything I can to reunite the company."



Helen Toner

Toner is an academic who heads strategy and foundational research grants at Georgetown University's Center for Security & Emerging Technology. Before joining CSET, she lived in Beijing, studying the Chinese AI ecosystem. Altman and Toner had a dispute over a research paper she recently published that was critical of OpenAI. She agreed to remove Altman.

Microsoft Is Just the Copilot

● The tech giant navigates its unusual relationship with OpenAI

Until Nov. 17 the conventional wisdom in Silicon Valley was that Microsoft Corp.'s partnership with OpenAI was an enviable success. The investment boosted Microsoft's cloud computing business, gave it access to OpenAI's best technology, reinvigorated its Bing search engine and helped streamline its artificial intelligence research effort. And because Microsoft owned less than 50% of OpenAI's equity, the company avoided the sort of antitrust scrutiny that has followed it since the 1990s.

But one of the drawbacks of outsourcing key technology to a startup—even one that many people regard as a de facto subsidiary—is that it can blow itself up without so much as a friendly warning. Microsoft found out about the ouster of OpenAI Chief Executive Officer Sam Altman only minutes before the public did, sending executives scrambling and shares sinking. Soon enough, Microsoft CEO Satya Nadella and his deputies helped engineer a dramatic counterpunch, restoring Altman to his job and securing the ouster of the board members who were least aligned with Microsoft's interests. "He was playing three-dimensional consultative chess," says Sheila Gulati, a longtime Microsoft manager who's now a managing director at Tola Capital, a venture capital firm.

The coup and the quick reversal underscore why Microsoft's lead over its primary rivals in AI remains uncertain. OpenAI's newly reconstituted board is planning an investigation into Altman, which could reignite the controversy around him. At the same time, Google, Facebook, Anthropic and other competitors appear to be catching up.

When it put its first billion into OpenAI in 2019, Microsoft didn't receive the protections that outside investors usually get. The startup's for-profit arm sat inside a nonprofit that was ostensibly dedicated to advancing AI software while protecting humanity from any danger should AI development get out of control. It had no fiduciary duty to protect Microsoft's interests, and could ignore the company's wishes in a disagreement over AI safety.

But this understates the leverage Microsoft had in any potential dispute. As OpenAI's primary investor, Microsoft had the right to resell OpenAI's

tech to its corporate customers, and it held an expansive license to use the startup's AI models. Microsoft's Azure cloud computing division also built and houses the supercomputer OpenAI uses to train its models. Microsoft had everything it needed, in other words, to quickly spin up a credible OpenAI clone if things went sideways.

Nadella used his leverage soon after Altman's firing, announcing that Microsoft had hired Altman and former OpenAI President Greg Brockman to start an AI division within the company—and would also hire any OpenAI engineers who chose to defect. This made every OpenAI employee a flight risk and helped bring on the mass resignation threat that led to Altman's reinstatement.

The result allows Microsoft to more or less go

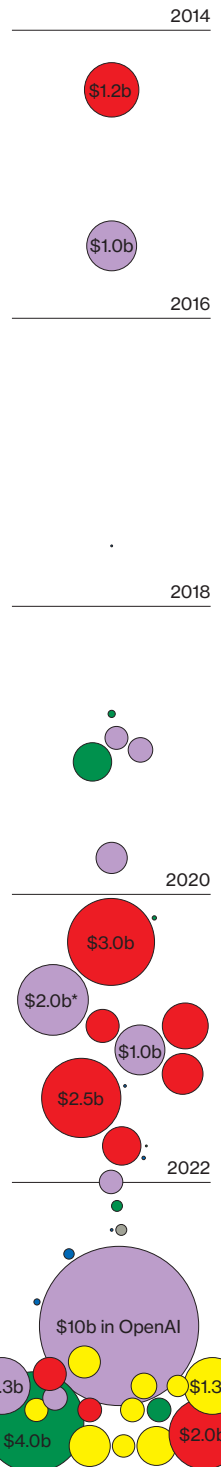


back to business as usual: aggressively adding AI assistants, which Microsoft calls Copilots, to all its software offerings. These AI assistants don't come cheap. Any business that wants one for Word and Excel, for example, will pay an additional \$30 per user per month, roughly doubling what a typical corporate customer pays for Microsoft's office suite. At the same time, free and open-source AI assistants are widely available. Microsoft is banking on customers being willing to pay for the productivity gains from Copilot and the convenience of having it baked into such a wide array of software.

"It's going to show up across all your experiences," says Rajesh Jha, the executive vice president who oversees the product teams for the office suite, Windows and search. Microsoft, he continues, wants to "be the Copilot company." In a way, the product name is apt. Microsoft is betting its future on an uncertain technology, even though it's not clear who—Nadella or OpenAI's board—has the controls. —Max Chafkin and Dina Bass

▼ Largest AI investments by big tech companies and their VC arms

- Alphabet
- Amazon
- Apple
- Meta
- Microsoft
- Nvidia



THE BOTTOM LINE OpenAI can seem like a de facto Microsoft subsidiary, but the tech giant has less control over it than investors often have over the startups in their portfolios.

3

FINANCE

Bashing



Wall Street is amping up efforts to convince Americans they should care about arcane global banking rules

In recent weeks dozens of entrepreneurs have paraded through the US Capitol, carrying signs reading “Stop the Squeeze on Small Businesses” and knocking on the doors of their representatives and senators. Regulations under consideration, they insist, will cut into profits at consignment stores, pizza parlors, auto body shops and more. “This proposal will increase borrowing costs,” Dina Akel, the owner of a New Hampshire bridal boutique, wrote on LinkedIn, making it harder “for small businesses to secure essential funding to hire more workers, and for farmers to take out loans for next year’s crops.”

The ground rules of global banking don’t typically get people outside of a few boardrooms in New York, London and Zurich particularly fired up. But as the financial world debates US proposals tied to what’s called the Basel III Endgame—an international overhaul initiated more than a decade ago in response to the financial crisis of 2008—Wall Street lobbyists are in overdrive and seeking to drag US public opinion along with them.

The debate will take center stage on Dec. 6, when the chief executive officers of Wall Street titans including Goldman Sachs Group, JPMorgan Chase & Co. and Morgan Stanley are set to appear



One group ran a spot during an NFL game, while the financial press is brimming with ads proclaiming the damage the proposals will do. And Goldman Sachs has been peppering participants in a small-business program it runs with emails urging them to help fight the rules. Many, including bridal shop owner Akel and others flocking to the Capitol in recent weeks, have heeded the call.

At the heart of the debate is what's known as the capital ratio: a number dictating how much money banks have to hold as a cushion to absorb unexpected losses. There's general agreement that higher capital requirements would reduce banks' profits from making loans, but regulators say it's uncertain whether they will meaningfully raise interest rates for individual borrowers. One thing is clear: Wall Street is focusing on the potential for a reduction of credit to small businesses and homeowners because that's far more likely to interest Washington policymakers than the most direct initial impact of the proposal—an effective cap on lenders' ability to buy back shares.

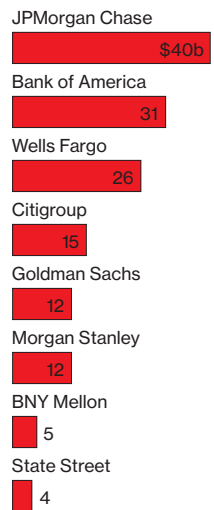
The banks' ultimate goal is to kill or significantly reshape the 1,087-page proposal that the Fed, the Federal Deposit Insurance Corp. and the Office of the Comptroller of the Currency unveiled in July. Short of that, they want to delay implementation. Already, regulators have extended the deadline for comments to mid-January from the end of November, and lenders and trade groups have started compiling dossiers of objections that stretch beyond 100 pages, according to a person familiar with the matter who asked not to be identified discussing private deliberations. If that fails, they're considering legal action against the regulators, according to others. "It is pretty rare to see the large US banks stake out such a strong stance in the media against their prudential regulators," says Randy Benjenk, a partner at law firm Covington & Burling. "This proposal crosses a red line for them."

Michael Barr, the Fed's vice chair for supervision, has spent recent months arguing that banks do, in fact, need to continue bolstering their capital positions, given the damage wrought by the financial crisis: Six million families lost their ▶

at a Senate hearing on banking oversight. They'll seek to convince lawmakers that the new rules are unnecessary and will hurt the economy. "What I would love to know is what they really want to accomplish," JPMorgan Chief Executive Officer Jamie Dimon told investors in September. "If they want banks never to fail, this isn't going to do it."

If approved by US watchdogs, the rules would require big banks to increase their capital cushion by almost 20% to ensure they can survive another crunch. The Federal Reserve and other regulators say the changes can help avoid turmoil such as this year's meltdowns of midsize banks. Bankers note that under various rules implemented in recent years they must already hold twice as much in reserve as they did before the financial crisis. They're now sitting on \$145 billion in excess capital, which would be wiped out—and then some—by the new rules, according to Bloomberg Intelligence.

▼ Excess capital at risk from new regulation



◀ homes to foreclosure, and 10 million people fell into poverty. And despite the additional capital they must now hold, he adds, financial firms are still enormously profitable. He's not wrong: The six biggest US banks have racked up \$1 trillion in earnings over the past decade.

As they've sought to make their case against Basel, bank executives have focused on proposed changes to requirements for residential mortgages. The rules would raise the so-called risk weights for some home loans, including those with smaller down payments, meaning banks would have to hold more money against those assets.

But the titans of Wall Street rarely make the kind of low down-payment loans that would be affected. And in recent years, they've largely been edged out of the US home loan business, with no bank holding more than 3% of the market for originating mortgages, according to industry publication *Inside Mortgage Finance*. They've been unseated by nonbank lenders such as United Wholesale Mortgage LLC and Rocket Cos., which aren't

subject to the same capital requirements as banks. Bank executives have been less vocal about how the rules will affect their vast trading and investment banking operations—which is where they'll likely feel a far greater impact, according to the regulators' proposal.

And then there's Wells Fargo & Co. Until recently, the firm was the biggest bank in home lending. But even before the proposals, it had already started pulling back, and executives have little interest in jumping back into the field. So the rule changes would have scant effect on the bank's mortgage strategy, says Kleber Santos, Wells Fargo's CEO of consumer lending. "I don't think that particular decision by our regulators, if and when it comes," Santos says, "will really change much on what we do in the home lending business." —*Hannah Levitt, Paige Smith and Katherine Griffiths*

"If they want banks never to fail, this isn't going to do it"

THE BOTTOM LINE Regulators say requiring big banks to bolster their capital will make the financial system more resilient, but lenders insist it will stymie the creation of new loans.

The Ambitions of Italy's Money Machine

● Andrea Orcel has €10 billion in hand, and he's ready to spend

A quarter-century ago, a young banker named Andrea Orcel led a team at Merrill Lynch that cobbled together more than a half-dozen midsize banks to create Italy's No. 3 financial firm. Over the following decade, the company now known as UniCredit SpA spent \$65 billion buying lenders across central and eastern Europe to become a regional colossus—and Italy's biggest bank.

Orcel went on to take the top job at UBS Group AG's investment bank. Then came a courtship with Banco Santander SA, which ended in a court ruling that could net Orcel as much as €43 million (\$47 million) after the Spanish lender withdrew an offer for him to become chief executive officer.

In April 2021, Orcel returned to UniCredit—running the bank he helped create, aiming to transform a troubled conglomerate into the

region's leader. "The dream is to respond to Henry Kissinger's question when he said, 'If I want to talk to Europe, whom do I call?'" Orcel told Bloomberg Television's Francine Lacqua. "We would like to be part of that call."

Investors have cheered the 60-year-old Italian's efforts to scale back bureaucracy, close weak business lines and shift resources to more profitable endeavors. He's supercharged UniCredit's earnings and implemented the most generous stock buyback plan of any European bank, planning to hand out at least €6.5 billion for 2023 via dividends and share purchases. That's helped almost triple UniCredit's share price, and today Orcel has €10 billion in funds available for targeted acquisitions or shareholder payouts beyond what's already been promised. Along the way, he's managed to



win one of Europe's biggest paychecks, with total remuneration approaching €10 million a year.

Orcel is confident UniCredit can continue to thrive, but the next steps will be harder. Some of its profit growth can be attributed to rising interest rates, and that tailwind is likely to ease as the European Central Bank scales back efforts to fight inflation and customers demand greater interest on their savings. Despite the culling, he still presides over an empire of smaller businesses across central and eastern Europe. That's left Orcel with a hodgepodge of inherited computer systems, which means further streamlining will be more complicated than what he's managed so far. And recession looms in Germany, where UniCredit owns the former HypoVereinsbank.

Orcel took the helm after a period of turmoil that saw UniCredit become a byword for the fragmentation that plagues European banking: limited profitability stemming from operations spread across localized markets that make it hard to boost efficiency. His predecessor, Jean-Pierre Mustier, implemented a painful downsizing, raised some €13 billion in fresh capital and offloaded piles of bad debt. While that created a foundation for growth, UniCredit lost its position as Italy's leader to Intesa Sanpaolo SpA, and after a clash with the board on strategy, Mustier stepped down. "This was a bank

that had lost confidence in itself, lost external credibility," Orcel says.

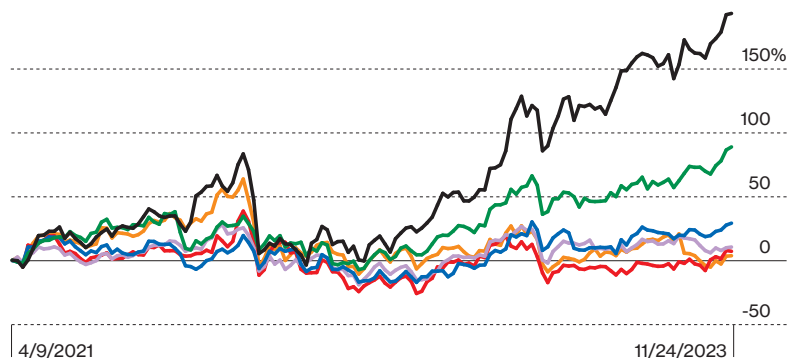
Despite his pedigree in investment banking, Orcel has yet to secure a major deal, even as some outsiders push for a mega-acquisition that would catapult UniCredit into the top echelon of global finance. Orcel in 2021 backed out of an agreement to acquire the Italian government's stake in Banca Monte dei Paschi di Siena SpA, but he says he's on the lookout for other purchases that might ►

▲ Orcel in London in November

The Orcel Effect

Change in stock price

UniCredit BBVA Santander BNP Paribas Deutsche Bank Société Générale



DATA: BLOOMBERG

◀ further boost the bank's valuation. Although nothing so far has had sufficient appeal, he's clearly amenable to the idea of a landmark deal. "Europe needs banks with market capitalizations ahead of \$100 billion if we want this economic bloc to hold vis-à-vis the US or China," he says.

Orcel has shed almost 10,000 jobs—about 12% of the bank's total workforce—particularly at its corporate centers in Milan and Munich, leaving some staff uneasy, employees say. And his hard-charging nature—he's known for calling subordinates in the wee hours—isn't to everyone's taste. He's direct and demanding, and he has an investment banker's readiness to keep everything in flux until a deal is finalized, deliberately fostering uncertainty, according to several former colleagues, who asked not to be named speaking about personal matters.

But Orcel's fans say his determination, coupled with a willingness to do the unexpected, make him a natural leader. While cutting at headquarters, he invested in branches and employee training. And he has regularly visited smaller offices across Europe to meet with bosses, middle managers and entry-level employees, bringing a new feeling of enthusiasm among some staff. "He's totally committed in everything he does," says Marina Natale, a former UniCredit chief financial officer who's known Orcel since his time at Merrill.

And customers say he has an investment banker's relentless focus on their needs, something that's not always automatic in retail lending. Orcel has "made a real break with the past," says Massimo Perotti, CEO of Sanlorenzo SpA, a luxury yacht maker and a major client of both UniCredit and Intesa. "I can see a huge difference in the approach," he says. "I feel like I matter."

Orcel exhibits an alpha-male persona, sometimes water-skiing near London at dawn or surfing off the coast of Portugal, where he has a home. That's made him the subject of snarky asides, with some employees dubbing him "Chuck," after the martial arts actor Chuck Norris. Others call him *Megadirettore Galattico*, a reference to a 1970s Italian satire about downtrodden corporate workers and their overweening boss.

During his stint at UBS, Orcel transitioned from dealmaking to restructuring as the Swiss lender was forced to dramatically downsize its investment bank following a rogue trading scandal and a government bailout. He oversaw thousands of job cuts, setting the stage for a pivot to wealth management that ushered in a decade of stability. His experience at the Zurich lender helped put UBS in a position to rescue its stricken neighbor, Credit Suisse, last March—and honed the skills Orcel needed to run a complex

commercial bank like UniCredit. "You can work anywhere," he says, "but certain principles always remain the same."

Beyond job cuts and efficiency tweaks, the thrust of UniCredit's strategic direction is to use fee-generating businesses (insurance, payments and asset management) as a second profit engine, bringing more products in-house rather than subcontracting them to outsiders. "We need to grow in the right places—where do we want to gain market share?" he says. "This is not very dissimilar to what I did at UBS. We piled on in equities, where we were strong, and pulled back on fixed income, where we weren't."

Europe has long suffered from too many lenders competing for depositors and clients. But rules over the management of capital and liquidity can lower incentives for cross-border deals, a concern even for regulators who've sought, but failed, to create a true banking union. Orcel argues that his network can offer a template for reaching a scale that most of his rivals only dream of. "I can do domestic acquisition or combination in 13 countries," he says. "What you would call cross-border, I would call domestic."

For now, though, he says he's happy to focus on smaller purchases to bolster the bank's potential, with a constant eye on raising revenue and the overall value of the firm. A November deal for the Greek government's stake in Athens-based Alpha Bank for about €300 million was his first foray outside Italy since taking charge.

Orcel makes clear that investors should expect this tactic to continue, provided the right opportunities appear. He's also upbeat on the bank's profitability growth, even with the looming slowdown in interest income. In the coming years, he says, UniCredit will continue ratcheting up its targets from a 2023 goal of €7.5 billion in net profit and revenue topping €22 billion.

A bigger acquisition would be tougher, as UniCredit's valuation is lower than most relevant peers. Orcel admits that UniCredit's share price takes those kinds of deals off the table for now. And it's unclear whether his shareholders, generally pleased with the reliable payouts they're getting, would really welcome a megadeal. But if his plan to turbocharge the bank's valuation comes off, he says he'll be ready. "If it's not the right terms, if it's not the right way, it's better not to do it," he says. But "if we were to do something, we are extremely confident that we can extract the value from it."

—Sonia Sirletti

“Europe needs banks with market capitalizations ahead of \$100 billion if we want this economic bloc to hold vis-à-vis the US or China”

THE BOTTOM LINE By supercharging UniCredit's earnings and promising to hand out at least €6.5 billion a year to shareholders, Orcel has nearly tripled the bank's share price since taking over.

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Auf Wiedersehen, Big Stimulus

● Germany and other European nations are coming under pressure to rein in spending

In case anyone doubted that Europe's era of extra-large stimulus was over, its biggest economy just abruptly slammed the brakes on government spending.

Stymied by a ruling from Germany's top court, the country's political leaders are in crisis mode as they recalibrate their budget for this year and rethink their strategy for managing public finances.

The legal issue centers on the deployment of special funds that aren't part of the federal budget to support large-scale investments. Successive governments have resorted to this tactic to get around a constitutionally enshrined "debt brake" that places stringent limits on the size of government deficits and public borrowing. The case in question focused on repurposing Covid-19 emergency funds for greening and modernizing the economy.

The ruling in the southwestern German city of Karlsruhe on Nov. 15 effectively disabled one of those special vehicles and implicitly cast doubt on hundreds of billions of euros in other financing. Back in Berlin, Chancellor Olaf Scholz's three-party coalition is now agonizing over how its whole program to make the economy climate-friendly can proceed.

It's a coincidence, but notable, that the crisis is happening just as countries around the region, Germany included, are supposed to embrace a period of leaner government after years of spending freely to fight the Covid pandemic and the Ukraine war-induced energy crisis that followed.

With those emergencies addressed for now, the European Union's long-standing rule limiting budget deficits to 3% of gross domestic product and public

debt to 60% of GDP is supposed to kick in again in January. Finance ministers from the bloc's 27 members are wrangling over the details, but the bigger picture is clear: Borrowing can't be allowed to run amok anymore.

"We've had this huge amount of fiscal stimulus," said Jason Davis, a portfolio manager at JPMorgan Chase Bank, in a Nov. 23 interview on Bloomberg Television. "Whether the rules come back in January or they're not organized until the middle of next year, we still think there will be pressure for economies to tighten budgets."

Governments are starting to fall in line, prodded by markedly higher debt servicing costs and scrutiny from investors and debt ratings companies. Longer-term pressures, from greening industries and the energy grid to the fallout from

► Scholz



aging populations and shrinking labor forces, are added incentives.

The shift away from stimulus was noted by EU officials, who in their latest set of economic forecasts, released in mid-November, said the bloc's fiscal stance is projected to "turn contractionary" this year and weigh even more heavily on growth in 2024. Overall debt as a percentage of GDP is also receding, they said.

The UK—now long exited from the EU but facing similar pressures—is also acting to bring its borrowing under control. A mini-budget unveiled on Nov. 22 contained some small print confirming that by 2027-28 Britain's tax burden is set to rise to the highest level since World War II.

As the UK and other big European economies are realizing, however, it's hard to wean voters off extra aid. In Italy, which has a debt ratio of around 140% of GDP and a Moody's Investors Service credit rating close to junk, Premier Giorgia Meloni has stuck with measures that will keep the deficit above 3% until 2026. France, with a smaller burden but an even more demanding electorate, recently found itself on one of the European Commission's naughty lists because the country's draft budget for 2024 risks flouting its fiscal guidance.

Germany was deemed by Brussels to be still too generous with energy aid, but it also stands out for its prudence. As the economic engine of the region, with a debt ratio less than half of Italy's, its public finances have long provoked both envy and frustration among its European peers.

The country's allergy to budget deficits is grounded in its citizens' own reluctance to borrow. (In German, the word for "debt" also means "guilt.") Prior to the pandemic, at a time of ultralow borrowing costs, that stance was deemed absurd by international economic observers. But when Covid struck, Germany was able to unleash massive fiscal support for households and businesses—amounting to hundreds of billions of euros—followed by aid to ease the pain from soaring energy bills after Russia's invasion of Ukraine. What's more, a huge EU spending program to help pandemic-crippled countries such as Italy could proceed only with Germany's backing.

German Finance Minister Christian Lindner, a fiscal hawk, was already well on the way to returning the budget profile to normality, but he was also leaning harder than before on special off-budget funds to meet coalition partners' policy demands for investment in green projects and maintaining the country's social safety net.

That approach is now in tatters.

Scholz's cabinet has approved a suspension of the debt brake for 2023, a move that won't add to overall borrowing. A freeze on almost all new spending remains in force for now, and the outlook may stay murky for weeks as officials attempt to devise a legally watertight budget for 2024, leaving observers little to go on to gauge the impact.

Bloomberg Economics is downbeat, warning that growth in 2024 could slow to less than half the 0.9% it's forecasting if spending must be sharply reined in.

Veronika Grimm, a member of Germany's Council of Economic Experts, told Bloomberg Television that the extent of the fallout will depend on whether the coalition government and opposition can cut a deal. Any change to the constitution to alter the debt brake would require a two-thirds majority. "The situation is very challenging," she said. "The government really has to act rapidly."

However things pan out, it's clear that any new spending commitments will take far more political effort to work through than before.

The country's budget quandary increasingly looks like another sign of an unstoppable turn of the region's fiscal tide. Europe's stimulus party was already winding down; now Germany's judges have turned out the lights. —*Craig Stirling, with Kriti Gupta, Iain Rogers and William Horobin*

THE BOTTOM LINE A court ruling in Germany has thrown government finances into disarray and may curb growth in 2024, while Brussels is asking EU members to cut back energy subsidies.

▼ Germany's off-budget funds

Climate funds €212b	Other €357b
Energy subsidies €200b	
€100b	

Military upgrades

Annual budget
€476b

Alberta's New Allure

● Canadians are flocking to the energy-rich province for its more affordable housing

Nicole Kealy was something of a trendsetter. In January 2022 the mother of four sold her home in Chiliwack, British Columbia, to move across the Canadian Rockies to Calgary, Alberta, in search of more affordable housing.

With the profit her family made on their C\$1.4 million (\$1 million) Chiliwack home—which had appreciated about 66% in the roughly year and a half they owned it—Kealy and her husband were able to buy a C\$550,000 house in Calgary, along with an apartment and a townhouse they rent out.

Between their new rental income and the savings on their own housing costs, the Kealys are ►

SINA SCHULTZ/PICTURE-ALLIANCE/DRAP PHOTO, DATA, GERMAN FINANCE MINISTRY, FEDERAL COURT OF AUDIT, OFF-BUDGET FUNDS ARE MULTYEAR, ANNUAL BUDGET IS FOR 2023

◀ living comfortably for the first time in years. They've even been able to splurge on home renovations and a vacation to the Dominican Republic. "In BC we had pretty good jobs, we made pretty good money, and yet we were still barely keeping up," says Kealy, 43, who is a teacher. "Here we're mortgage-free, and we have two rental properties."

In the year or so following the Kealys' move, tens of thousands of British Columbians and Ontarians have decamped to more affordable Alberta. The oil-rich province's population surged 4.1% in the 12 months through June, the fastest pace in Canada and a rate that puts developing countries to shame.

In absolute terms, most of Alberta's new residents come from abroad, with international immigrants accounting for slightly more than 60% of the population increase, according to Mark Parsons, chief economist at ATB Financial, a bank based in the provincial capital of Edmonton. But all of Canada is experiencing an immigration boom as Prime Minister Justin Trudeau increases targets for inflows from abroad to keep the population growing and the economy expanding.

What sets Alberta apart is interprovincial migration, which accounts for almost a third of the population increase, Parsons says. Of those new Albertans, nearly three-quarters come from Ontario and British Columbia.

The main draw is Alberta's relatively cheap housing. Real estate prices in Ontario and British Columbia soared during the Covid-19 pandemic, while Alberta stayed relatively flat. The result is that the benchmark home price in Calgary, the province's largest city, was C\$561,500 in October, less than half the C\$1.21 million average in greater Vancouver and C\$1.13 million average in greater Toronto, according to the Canadian Real Estate Association.



The Bank of Canada's rate-hiking campaign that started in March 2022 has exacerbated the situation, raising the cost of financing home purchases significantly while leading to only small price decreases. Rates for conventional five-year mortgages have risen about 225 basis points since early 2022.

The influx is welcomed by the province's business community, which sees it as insurance against the labor shortages that have been so common since the pandemic. For provincial authorities, the infusion of new workers is a sign that decades-long efforts to diversify the economy away from the boom-and-bust energy industry are finally paying off.

Alberta's previous population surges were driven largely by major expansions of oil and gas projects, but the industry has played only a minor role in the current one. This time the standouts are technology—including fintech, agricultural tech and cleantech—as well as energy-adjacent sectors such as hydrogen and biofuels.

An increase in remote work also may be contributing to the population surge, though data on the phenomenon is spotty. The most recent figures from late 2021 show about 100,000 Canadians working for an employer outside of their home province, according to Parsons. "We suspect remote work is playing a role," he says. "If it's an affordability story, then you would think that more remote workers are choosing Alberta."

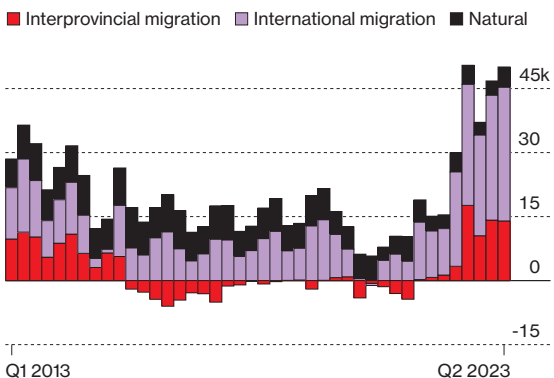
Notable wins in recent years include Royal Bank of Canada's 300-person Innovation Hub, which opened in late 2021, and Indian IT colossus Infosys Ltd.'s announcement about a year ago

▲ A crush of commuters in downtown Calgary

"Here we're mortgage-free, and we have two rental properties"

Breaking Down the Boom

Net population change in Alberta



DATA: STATISTICS CANADA, ALBERTA TREASURY BOARD AND FINANCE

that it would double the size of its Calgary office to 1,000 workers.

“There’s critical mass,” says Deborah Yedlin, chief executive officer of the Calgary Chamber of Commerce. “People are realizing that there’s an ecosystem here to support the diversification of the economy.”

But the tide of new arrivals has its downsides. The influx is crowding classrooms and further straining an already stretched health-care system. It’s also driving up home prices in Calgary.

The federal and provincial governments have pushed more responsibility for housing, mental health and addiction treatment down to the city level for decades, without a corresponding increase in funding, says Calgary Mayor Jyoti Gondek. “If we don’t keep pace with housing and we don’t keep pace with getting the proper funding and financing models with the other two orders of government to support things like public education and public health, we’re not going to be able to take care of the folks that are coming here,” says Gondek, who took office in October 2021.

On the housing front, the city has a program to encourage converting unused office space into residences. So far, Calgary has invested C\$153 million into 13 approved projects and has four more in the pipeline, Gondek says, which will net 2,300 additional units of housing.

Until more supply is built, the local housing market is likely to remain in a frenzy, says Cindy Bauer, who has been a real estate agent in Calgary for almost two decades. She says that most properties receive multiple offers for well over the asking price, and buyers face pressure to waive inspection and financing conditions.

Out-of-province buyers now account for about 15% of Bauer’s work, up from 5% in prior years, with some purchasing homes sight unseen. That increased competition—especially from cash-flush buyers from BC and Ontario—has younger Calgarians feeling like they’ll never be able to buy, she says.

With the Bank of Canada expected to begin cutting rates next year, home prices may only rise further, creating an even more “exhausting” situation, Bauer says.

“You go in, you compete with 12 people, and only one wins—that means 11 people walk away devastated,” she says. “And then the next house that comes on, we all rush and go do the same thing.” —Kevin Orland

THE BOTTOM LINE Alberta’s population surged 4.1% in the 12 months through June, the fastest pace in Canada. The influx is helping to diversify the economy away from fossil fuels.

Inflation

The Real Feel

Since early 2020, US prices have risen about as much as they had in the 10 years preceding the pandemic. We crunched the numbers for everything from rent to romaine. —*Reade Pickert and Jennah Haque*

Grocery inflation is expected to return to less than 2% next year, but that might not offer American consumers much relief.

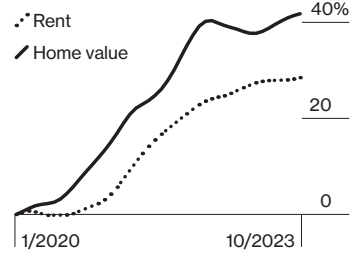
Change since January 2020

□ Over 20% ■ Over 40%

	1/2020	10/2023
Orange juice	\$2.32	\$3.67
12-pack soda	4.33	6.77
Coffee (1 lb)	4.17	6.18
White bread	1.35	2.00
Eggs (1 dozen)	1.46	2.07
Yogurt (32 oz)	4.43	6.28
Chicken breast (2 lb)	6.12	8.44
Ground beef (1 lb)	3.89	5.23
Uncooked rice (1 box)	1.43	1.92
Romaine lettuce	2.16	2.72
Large potatoes (4)	3.21	4.02
Milk (1 gal)	3.25	3.93
Butter (1 lb)	3.86	4.55
Banana bunch	1.14	1.25
Tomatoes (1 lb)	2.22	1.87

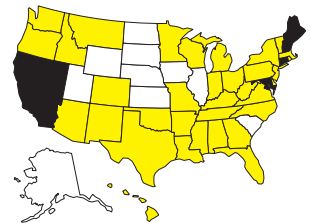
Housing is less affordable for renters and buyers alike.

Change in seasonally adjusted Zillow indices since January 2020



Change in average residential electricity prices from August 2019 to August 2023

□ Under 10% ■ 10-30% ■ Over 30%



Increase in price from January 2020 to October 2023, seasonally adjusted

Increase in price from 2019 average to September 2023

Used cars

35%

Car insurance

33%

Natural gas

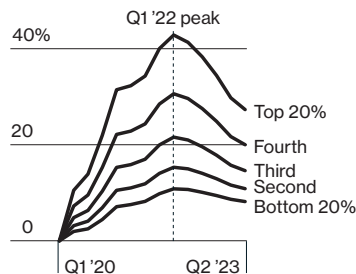
29%

Child care

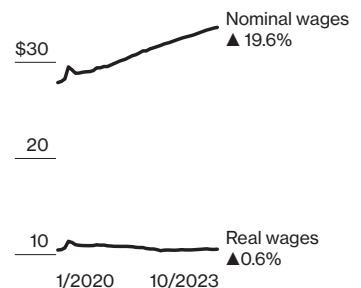
32%

The cost-of-living squeeze is eating into pandemic savings.

Change in aggregate savings by income quintile, since Q1 2020



After adjusting for inflation, hourly wages have barely budged since 2020.

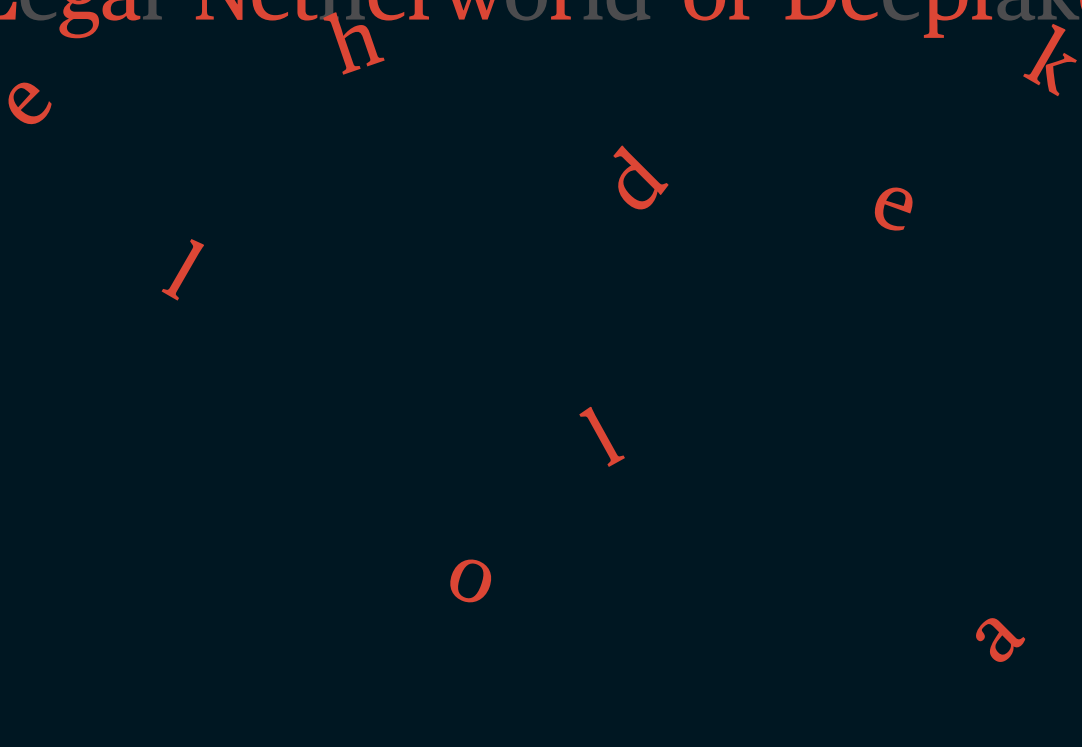


PHOTOGRAPH BY GAVIN JOHN FOR BLOOMBERG BUSINESSWEEK. DATA: BUREAU OF LABOR STATISTICS, ZILLOW, US ENERGY INFORMATION ADMINISTRATION, FEDERAL RESERVE DISTRIBUTIONAL FINANCIAL ACCOUNTS, BANK OF AMERICA INSTITUTE SAVINGS DATA BASED ON HOLDINGS OF DEPOSITS, DEFINED AS CHECKABLE DEPOSITS AND CURRENCY PLUS TIME DEPOSITS AND SHORT-TERM INVESTMENTS

On New Year's
Eve 2020, young
women from a
Long Island town
were horrified
to learn their
photographs had
been manipulated
and posted online.

When the law
failed them, they
tracked down the
culprit themselves

The Legal Netherworld of Deepfakes



By Olivia Carville
and Margi Murphy

Illustration by
Lulu Lin



“Do you have a second?”

I need to call you.”

The text came through on Cecilia Luque’s phone around 5:45 p.m. on the last day of 2020. She was in a shopping mall parking lot not far from her home in Levittown, a New York suburb on Long Island. She was sitting with her boyfriend in her black Jeep Liberty, waiting for his shift at a movie theater to start. They were chatting about the New Year’s Eve party they were hosting later that night.

The message was from a former classmate at General Douglas MacArthur High School. Luque found it odd. They’d graduated a year and a half earlier and hadn’t talked in months. She texted back, asking if she could call in 10 minutes, after her boyfriend left for work. “He’s gonna wanna hear this, too,” the reply said.

Luque put the call on speaker. There’s a website, the classmate said. A weird and creepy site where someone is posting explicit photos of girls from school and writing about them being raped and murdered. “There’s pictures of you on it, and I wanted you to know that,” she said.

The phone buzzed as a link to the website came through. It had an extremely graphic internet address: cumonprintedpics.com. Luque started scrolling. She saw Ana, a classmate, in her cheerleading uniform. And Ruby, a friend who’d sat beside her in detention. Then she saw a photo she recognized. It was her, at 18, standing in a dressing room. But the swimsuit she’d been wearing in the original photo, the one she’d uploaded to social media, was gone. Someone had digitally altered the picture so it looked like she was posing

completely naked. She knew the breasts weren’t hers, but they looked real enough that other people might think they were. She was too stunned to speak.

The next image made her gasp. It showed a printout of a photo taken when she was 5, with the chubby cheeks and ringlets she’d long since grown out of. An erect penis rested atop the photo, touching her face. The accompanying post encouraged men to ejaculate on it. Then she read: “Spit on this Spanish spic.”

“Oh, my God,” Luque said, choking.

“I started crying really hard,” she says, nearly three years later. “You know that kind of cry where you sound like you’re dying? All the heavy breathing and shaking and everything.”

She drove back to her boyfriend’s house and called the cops. An hour later detectives from the Nassau County Police Department were knocking on the door. She hadn’t been the first to call that night. Word of the website had spread across Levittown. More than 40 girls from MacArthur High had been targeted. Some were working shifts in clothing stores or sitting at home watching New Year’s Eve celebrations on TV when they opened the link to see doctored nude pictures of themselves. Others were at college parties and ran home in tears.

HALF A WORLD away, unbeknown to anyone in Levittown, a former police officer named Will Wallace was investigating a possible internet sex crime in New Zealand. Earlier in 2020, an ex-colleague had called him about a case that had stumped police. A woman was being bombarded with anonymous emails containing pictures of herself next to erect male genitalia. The photos had also been sent to her parents and to a boyfriend, who’d broken up with her after receiving them. The harassment had been going on for years. Wallace, who was trained to dig up evidence online and hoped to start a private investigation business, decided to look into the case.

Using a reverse image search tool to find places the photos had appeared online, he was directed to cumonprintedpics.com. The site, which had been around for about a decade,

featured thousands of images. Some were rudimentary, made with basic photo-editing software. Others were more sophisticated: faces stitched seamlessly onto bodies engaged in sex acts, women who’d been digitally undressed. Threads posted on the site detailed violent fantasies. Some urged internet trolls to find and rape the women.

Wallace found an account that had been sharing the photos. The man was later charged with blackmail, harassment and possession of child pornography, but to Wallace’s chagrin, cumonprintedpics.com remained in operation.

In the months that followed, as a group of young women on Long Island made it their mission to uncover who’d put altered images of them online, Wallace continued his investigation into the website. When he found out it was charging women to remove photos, he says, he was furious. “Who the f--- do they think they are to not only run a website like this, but to also charge people to remove content?” he thought. “And how are they getting away with this?”

NO FEDERAL LAW criminalizes the creation or sharing of fake pornographic images in the US. When it comes to fake nudes of children, the law is narrow and pertains only to cases where children are being abused. And Section 230 of the Communications Decency Act protects web forums, social media platforms and internet providers from being held liable for content posted on their sites.

This legal landscape was problematic enough for police and prosecutors when it took time and a modicum of skill to create realistic-looking fake pornography. But with billions of dollars of venture capital flowing into image-generating software powered by artificial intelligence, it’s gotten cheaper and easier to create convincing photos and videos of things that never happened. Tools such as Midjourney and Stability AI’s Stable Diffusion have been used to produce images of Pope Francis in a puffer jacket, actress Emma Watson as a mermaid and former President Donald Trump sprinting from a cadre of FBI agents.

The term “deepfake” was coined on a Reddit forum dedicated to fake porn made with deep-learning models. It’s now in the Oxford English Dictionary, defined as an image digitally manipulated to depict an individual doing something they didn’t. More than 15 billion such images have been created since April 2022, according to Everypixel Group, an AI photo company. The vendors that designed these tools have installed safety filters to ban the creation of explicit images, but because much of the software is open source, anyone can use it, build off it and deactivate the safeguards. Online security experts say more than 90% of deepfakes are pornographic in nature. Mark Pohlmann, founder and chief executive officer of Aeteos, a content moderation company, says he’s seen doctored images of girls as young as 3 dressed in leather, their hands tied together, their throats slit.

Like many technological advances, these AI tools edged their way into popular culture before lawmakers and law enforcement authorities understood their power. One man who did is Björn Ommer, a professor at Ludwig Maximilian University in Munich and co-creator of Stable Diffusion. Ommer says he told academic colleagues last year, before Stability AI released the software to the public, that he was “deeply concerned” it had the potential for great harm and wanted researchers to stress-test it first. But it was rushed out anyway, he says, to appease investors. (A spokesperson for Stability AI didn’t respond to questions about Ommer’s allegations but said the company is “committed to preventing the misuse of AI” and has taken steps to prohibit the use of its models for unlawful purposes.)

In October, the Biden administration issued an executive order seeking to prevent AI from producing child sexual abuse material or nonconsensual intimate imagery of real individuals, but it’s unclear how and when such restrictions would go into effect. More than a dozen states have passed laws targeting deepfakes, but not all of them carry criminal charges; some cover only election-related content. Most states have revenge



General Douglas MacArthur High School in Levittown

porn laws, and a few, including New York, have amended them to include deepfakes. But some prosecutors say those laws apply only to intimate photos shared consensually. As for images pulled from social media and doctored to become sexual content, no law exists.

LEVITTOWN, THE FIRST postwar US suburb, looks much as it did in the late 1940s, when it was built for veterans—White veterans only—returning from World War II. The streets are still wide and tree-lined. The single-family homes are still uniform, tucked behind manicured lawns and picket fences. The 52,000 residents are still overwhelmingly White. Many work as teachers or cops. “It’s a very close-knit community,” Luque says outside her father’s house. Now 22 and an art student at a nearby community college, she goes by her middle name, Cecilia. “All the houses are right next to each other, and on the inside they all look exactly the same,” she says, waving to a neighbor walking a dog. “Levittown is such a safe place to be. Nothing weird ever happens here. Kids don’t get abducted. People don’t get hurt or assaulted or anything like that. And that’s why this was all so crazy.”

By New Year’s Day 2021, the former MacArthur students had group threads going, seeking to support one another and unmask the predator behind the harassment. They already had a suspect: Patrick Carey, a former classmate who was then 19. He’d never played sports or had a girlfriend, and they regarded him as a stoner with a superiority complex. His father was a police detective in New York City.

Some of the young women had previously received Snapchat notifications that Carey had taken screen captures of bikini shots they’d posted—pictures that had later appeared, altered, on cumonprintedpics.com. Others recognized his handwriting from images on the site with words like “whore” and “slut” written across their faces. Luque, who was friends with Carey in school, saw his writing style in some of the long, detailed fantasies posted along with the pictures. Several shared their suspicions with their parents and the police, who told them there wasn’t much they could do. They didn’t have probable cause for a warrant to subpoena Carey’s IP address.

Cyberharassment cases are generally hard to prove. Keyboard predators are savvy and know how to cover their tracks. Digital evidence they may ▶

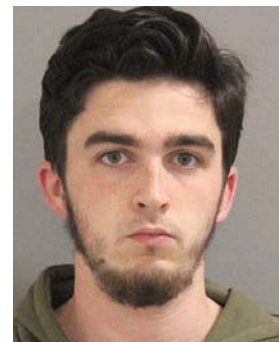
◀ fail to mask or delete is difficult to capture and time-consuming to process. The detectives hunting them are often more comfortable investigating IRL (in real life) crimes. Online vulgarity isn't high on police priority lists. In this case, what the person had done might be grotesque, but it wasn't obviously illegal.

Months went by without an arrest. Deepfake images of Levittown girls, some made from pictures taken when they were as young as 13, were still being posted from accounts with names like Serryjeinfeld and Tweenhunter. The material was getting even more graphic. Some threads had reached 30,000 views, including one where the poster asked users to send voice recordings to a girl threatening to rape her to death to "finally teach her not to be such a teasing cum target." In May 2021 he wrote about her again, saying how funny it was "seeing which TikToks she deletes after they

the Nassau County Police Department said detectives "conducted a thorough investigation." He didn't respond to specific questions about the case.)

The victims and their parents cared less about the nuances of the law than the immediate danger. The prime suspect was in their community. If the police weren't going to do something about it, they'd have to do something themselves.

OVER THE SUMMER, a former MacArthur cheerleader found a disturbing photo of herself on the site. She was smiling, wearing a white tank top and jeans. Beside that picture was what looked like a deepfake image of a woman in the same outfit covered in blood, her hands tied behind her back and a plastic bag over her head. The caption used her real name and said her body had been found near an abandoned construction site with semen



Carey's mug shot

tell her he'd "rather be with the devil."

Carey liked to stir up debates on social media. He'd told some girls their viewpoints on issues like Black Lives Matter were misinformed. "You don't need me to explain what a false dichotomy is, do you?" he teased one. "You're basically a socialist," he wrote another. "I'm just trying to spare you the next five to 10 years of irrational thinking." He didn't sit for a graduation photo in the 2019 MacArthur yearbook—beside his name it just says "camera shy."

Ana knew Carey was odd, but she didn't think he was perverse enough to be behind the pictures. She decided to start her own investigation to unmask the predator and see if she could clear Carey's name. From her bedroom, she spent hours each night scrutinizing every post her harasser made. In one, he'd shared an image of his genitals bulging out of a little girl's underwear while standing in a girl's bedroom. Looking closely at the background, she saw a white dresser with brown trim and a stuffed toy sloth on a bed.

Carey had younger twin sisters, and Ana began searching for them on social media. She discovered that one of them was posting dancing clips on TikTok. They were filmed from the exact same bedroom she could see on cumonprintedpics.com, in front of the same dresser, with the same brown trim. Even the sloth was in the same position on the bed. "Oh, my God, this is crazy," Ana recalls thinking. "It really is him."

She says she sent the photos to Detective Timothy Ingram, the lead investigator on the case, in August 2021. "You girls are doing our detective work for us," she remembers him saying.

One victim dropped out of college. Another says she lost 20 pounds from stress. At least two started carrying knives

get posted here." He began including the former students' full names, addresses, phone numbers and social media handles and prompted others to contact them directly.

By summer 2021 the young women started receiving private Facebook, Instagram and Snapchat messages with their photos beside male genitalia, or covered in semen. They got calls late at night from foreign numbers, with heavy breathing at the end of the line. In response, most deleted their social media accounts. One dropped out of college. Another says she lost 20 pounds from stress. At least two started carrying knives in their handbags.

The gravity of the posts did little to accelerate the police response. They told the young women they were still working on the case but provided no further information. (A spokesman for

in her mouth, anus and vagina. And it claimed a video of her death was circulating on the dark web. "I'd had enough—it had to stop," says the former student, Ana, who asked to be identified only by her first name to avoid further harassment.

Ana was then working as a special needs aide at an elementary school in Levittown. She'd heard that many of her former classmates suspected one of her oldest friends was behind the pictures. She'd known Carey since she was 5. His parents' modest clapboard house backed onto East Broadway Elementary School, which they'd both attended. By the time they got to MacArthur, Ana was a cheerleader in the popular crowd, while Carey was into grunge music and weed. But they remained friends, sitting together in a ninth-grade computer class. He'd regularly tease her about being Christian and

THAT SAME MONTH, in New Zealand, Will Wallace was closing in on the person behind cumonprintedpics.com. The hunt had become an obsession. Disturbed that no one had been able to shut down the site, he spent evenings when he wasn't busy with family responsibilities or online studies for a psychology degree trying to find out who was behind it.

After months of dead ends, he'd hit on the idea of sending an email to an address on the site that offered to remove photos for a fee. In his note, Wallace requested the removal of some fake nudes related to a case he was working on. He got a response asking for \$99 to take them down and happily obliged.

The invoice came from a company in California called L.A. Nerd IT Consulting, but the payment went to Cloud Cyberservices LLC. Wallace learned that Cloud was registered in the UK to one Scott Trentcosta, born in 1993. The last name had appeared in some email addresses he'd previously connected to the early registration of the website. "Gotcha," Wallace thought.

A public records search turned up a Scott Trentcosta of the right age residing in Louisiana. He also learned that a company that had appeared on bank statements of some victims who had requested to have their images removed, Nola Cyberservices LLC, was registered to Trentcosta in the same state. It appeared he'd found the man behind cumonprintedpics.com.

ON SEPT. 5, 2021, according to a police report, Detective Ingram knocked on Carey's door, armed with printouts of some of the worst posts. He was home, as was his mother. Ingram started reading the posts aloud. Carey's mother pleaded for him to stop and turned to her son, who admitted he'd written them.

The report is scant on details, and Ingram didn't respond to requests for an interview. But clearly the detective heard enough: He seized Carey's phone and tablet, placed him under arrest and escorted him out of the house without giving him a chance to put on his shoes.

At the station, Carey gave a sworn statement saying he'd created an account on cumonprintedpics.com in his senior year, when he was bored and addicted to online porn. He said he got a kick out of the way the site's users "shamed girls," "wrote rape fantasies about them" and shared their personal information.

Carey's case landed with Melissa Scannell, an assistant district attorney and chief of the cybercrime division for the Nassau County District Attorney's office. With a background in child sexual abuse cases, Scannell was familiar with the dark corners of the web. Working out of an office at the county courthouse in Mineola, she began reading Carey's posts. "The tenor of what he was writing scared me," she says. "I had a fear that this was going to go off the internet."

The police had filed low-level harassment and obscenity charges against Carey, which were unlikely to result in jail time for a young first-time offender. Scannell had 90 days to raise the stakes. After reviewing Carey's posts, she walked into the office of fellow assistant district attorney Kelsey Lorer, who'd gone to MacArthur High, and said, "You gotta see this shit."

The two got to work filing subpoenas for all the IP addresses linked to Carey's account on cumonprintedpics.com. They found he'd created 14 usernames

to boost his posts and make them appear more popular. In one, he'd even pretended to be a victim, begging for the harassment to stop.

The prosecutors obtained warrants to gain access to Carey's phone and apps, including 10,000 pages of Instagram direct messages. They saw evidence that he'd culled photos from social media and used software such as Body Editor to digitally undress his subjects. "Some were so good you wouldn't know they were fake," Scannell says.

The prosecutors soon understood why police had struggled to identify appropriate charges. New York's penal code bans promoting a sexual performance by a child, but the image needs to depict a real incident. The images Carey manipulated or defiled didn't seem to qualify. Nor did the prosecutors have a path under the state's 2019 revenge porn law, because the photos Carey had used had been posted publicly. Undeterred, they pored over the penal code and spent weeks analyzing all 1,198 photos Carey had uploaded to the site. "We were getting loopy by the end," Scannell says.

Then, on Oct. 5, Lorer found a real image of a 14-year-old girl's genitals that Carey had shared on the site. The photo, taken without her consent six years before by her then-boyfriend, had spread through the school via ▶

Nassau County prosecutors Lorer and Scannell



◀ texts and social media. The district attorneys were aware of the image because the girl had complained to police about it more than a year earlier. The statute of limitations had expired for the former boyfriend, but not for Carey, who'd shared the image in 2020.

"I think we've got it!" Lorer yelled, running into Scannell's office.

Two months later, Carey was charged with multiple felonies, bringing the total number of counts against him to 33. He pleaded guilty in December 2022 to misdemeanor child endangerment and three felonies: promoting a sexual performance by a child, aggravated harassment and second-degree stalking. Not one of the charges related to the 1,198 nonconsensual pornographic deepfake images he'd created.

AS CAREY'S CASE headed toward sentencing, Will Wallace's efforts to expose Scott Trentcosta and get cumonprintedpics.com taken down were getting nowhere. He'd tried sending the information to law enforcement officials in Louisiana and emailed reporters there with the information he'd uncovered. No one replied. He wrote a blog post laying out the details. No response.

Then, in January 2023, Wallace discovered a Reddit forum where posters band together to go after websites that host nonconsensual pornographic content. One target was cumonprintedpics.com. Wallace reached out to the blogger leading it, Claudia Lopez, and she shared his investigation unmasking Trentcosta on the forum. Dozens of trolls found Trentcosta's relatives and called them. They hacked into his university email and tracked down an old mug shot for marijuana possession. And they spammed threads on cumonprintedpics.com with Trentcosta's name and photo. Every post was removed immediately.

As all that was happening, Wallace and some of the vigilantes were going after the site's business model. First they reported the site to online advertising company ExoClick, which pulled its ads. Then they turned their attention to the site's host, Russia-based DDoS-Guard. Wallace sent an email to the provider,

*Kayla
Michelle*



and when he didn't get a response, he added a paragraph to its Wikipedia page. It read: "DDoS-Guard protects the fetish forum and non-consensual imagery website cumonprintedpics. The website is known for providing a platform for men to sexually degrade images of women."

Within a few days, on April 10, cumonprintedpics.com was offline. DDoS-Guard confirmed in an email to *Bloomberg Businessweek* that the website is no longer using its services. It didn't say why the site went dark. "Finally," Wallace told his wife, "this dump has been taken down."

PATRICK CAREY APPEARED for sentencing in Nassau County eight days later. He'd been staying at home since being released from police custody 19 months earlier. Only one victim

testified at the hearing, a young woman named Kayla Michelle (she asked us not to use her last name) who'd known Carey since she was 13. "We were friends," she says. "We hung out all the time." Even after they finished school, Carey would send her jokes on Instagram.

Now 23 and working in insurance, Kayla had been one of the first in Levittown to find out about cumonprintedpics.com. Her father, an officer with the Nassau County Police Department, had searched her name online one night in early 2020 and found something that disturbed him. "Are you aware of this?" he asked her, showing her a website on his iPhone. It had a picture of Kayla standing in her boyfriend's backyard, but the bikini she'd been wearing in the original shot had disappeared. She found pictures of herself at 15 with braces, alongside posts

encouraging users to vote on which sex act they wanted to do with her, including drinking her urine. Her father tried asking his colleagues for help but was told there wasn't much they could do. The photos were fake, and the poster was anonymous. Thinking she'd been the only girl targeted, Kayla didn't tell any of her friends. She didn't hear anything more about the site until that New Year's Eve, when word got out.

She attended every one of Carey's hearings leading up to the sentencing, her dyed bright orange hair and nose piercing standing out in court. At one session, the father of a victim had to be restrained after trying to jump the barrier to attack Carey. At another, Carey's father abruptly left the courtroom, visibly distressed when some of his son's more graphic posts were read aloud.

Kayla says that, after discovering the fake photos, "I'd lived with a fear of being by myself, fear of going outside, fear of men in general." She'd had nightmares in which strange men hunted her or she had "rape me" tattooed on her forehead, just as she'd seen on the website. "I didn't want to live my life in fear for what he took away from me."

She stepped into the witness box with her handwritten statement. Her hands were shaking so much the paper was barely legible to her. She took three deep breaths and looked at Carey, who didn't return her gaze. "This is for all of the victims," she began. "I am looking you directly in the face to tell you that you disgust me. You had the audacity to talk to me through social media, joke with me and try to be cordial with me, while behind my back belittling me, putting me down, sexualizing my younger self and body. You completely changed the way that I viewed myself and my body, and for that I'll never forgive you. I hear your name, and I feel sick."

Carey was sentenced to six months in prison, 10 years' probation and lifetime status as a sex offender, which meant he'd no longer be able to own a smartphone or any device with a camera or be within 1,000 feet of a school or a playground. In a press conference after the sentencing, Nassau County

District Attorney Anne Donnelly said the depravity on display in the case "truly makes my skin crawl." But Carey had underestimated the bravery of the young women he'd targeted, she said, "and that is why we are able to stand here today and make this announcement."

Then Donnelly unveiled a proposal to make deepfakes illegal in New York. The Digital Manipulation Protection Act, she said, would make it a criminal offense to publish sexually explicit photos that had been digitally altered, whether the images were originally shared on social media or not. A version of the bill has been introduced in the state assembly and is looking for sponsors in the senate.

WITH CAREY BEHIND bars, the Nassau County prosecutors had one final task. Scannell and Lorer drafted a letter to send to cumonprintedpics.com, providing Carey's certificate of conviction and an outline of the case. "Based on his criminal conviction arising out of his posts," they wrote, "we would respectfully request that you remove all posts by usernames associated with him." But when they went to the website to search for the administrator's email in April, they discovered the site was gone. They didn't know that an ex-cop in New Zealand had seen that it was taken down.

That should have been the end of it—except it wasn't. When *Businessweek*, drawing on police records obtained through a Freedom of Information Act request, searched for usernames Carey had employed on cumonprintedpics.com, the names also turned up at the URL tributeprintedpics.com. It was the same website with a different address.

"What?" Scannell said in August when told about tributeprintedpics.com. "It's back?" She tried to open it on her work phone but was blocked by a firewall. She texted a colleague, a cybercrime analyst with unrestricted web access, and asked her to see if the deepfakes of the former MacArthur students were still visible. Minutes later, the analyst texted back in all caps: "WHAT THE ACTUAL F---"

Later that day, Scannell and Lorer sent their letter to the administrator of tributeprintedpics.com. Most of the MacArthur class of 2019 deepfakes have since been removed from the site, but thousands of other images remain, including some showing teenagers with semen running down their faces or participating in group sex. Some users on the site offer Stable Diffusion deepfakes for sale, while others post pictures of women taken from social media and ask who can "fake them."

Businessweek's efforts to track down Scott Trentcosta at L.A. Nerd IT Consulting's office in Monterey Park, California, were fruitless. A person at the address said no one from the company had been around in years, and mail addressed to Trentcosta had been piling up. An email sent to him in November, informing him that *Businessweek* intended to identify him in connection with cumonprintedpics.com, elicited a plea not to "name and shame" and an explanation that people who don't want to have their pictures posted can have them removed for free. The sender signed off by calling the reporter "Weirdo."

As for Wallace, he's put his hunt for Trentcosta on hold. He's now working as a health and safety inspector on a construction site in Queenstown, in southern New Zealand.

The young women in Levittown are trying to move on, but it's hard. Fourteen of them have protection orders out against Carey until 2031. They still can't grasp how what he did to their photos is legal. As for Carey, he was released from prison in September after four months, with time off for good behavior, and is back home. (He and his father declined to comment for this story.)

In early November, Cecilia Luque was driving through Levittown when she saw Carey wandering down the street. He was wearing a brown hoodie and had headphones on. She recognized his walk. "My heart started racing, and I started crying," says Luque. She turned her car around to confront him, but by the time she got back to the spot, he'd disappeared. **B**

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A DIRE FUNGAL INVADER IS ATTACKING PRACTICALLY THE ONLY BANANA THE WORLD EATS.

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CONFRONTING THE

BY ANDREW ZALESKI

CAVENDISH BANANAS IN COLOMBIA

PHOTOGRAPHS BY MCNAIR EVANS

BANANAPOCALYPSE

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THE BEST HOPE FOR THE CAVENDISH MIGHT BE
GENETIC MODIFICATION

TAYLOR FRAZIER-DOUGLAS, LEAD SCIENTIST AT ELO LIFE SYSTEMS' BANANA PROGRAM IN DURHAM, NORTH CAROLINA

DR. BANANA'S FIRST LOVE WAS COFFEE. FOR EIGHT years, Fernando García-Bastidas bred beans in his native Colombia, trying to make a stronger, more flavorful brew. But gradually his passion grew for the banana, the fruit he'd seen daily growing up in Nariño, the region bordering Ecuador to the south and the Pacific to the west. He began doctoral studies at Wageningen University & Research in the Netherlands, studying wild types and supermarket varieties, rare cultivars and crossbreeds—and how Mother Nature sometimes conspires to kill them. Over the years he amassed an Instagram following under the handle @drbananagarcia.

In July 2019, García-Bastidas received an SOS over WhatsApp from a plantation farmer in La Guajira, in northeast Colombia, one of the country's main banana-growing regions. Healthy banana leaves are deeply verdurous; the ones in the pictures were more yellow than green, and their edges were marred by the charcoal color of singed paper. "The only thing I was thinking," he remembers, "is 'I hope not, I hope not, I hope not.'"

A week later he flew from the Netherlands to Colombia and headed for the plantation. Donning a protective suit and boots befitting a surgeon, he trudged into the field. With each whoosh of his pant legs, the mantra reverberated in his mind: "I hope not, I hope not, I hope not."

Soon, García-Bastidas saw drooped and flaxen plants. Carefully, he peeled back layers of one plant's pseudostem—what laypeople might consider the trunk—until he saw black lines running vertically through the vasculature that shuttles water to growing bananas. "When I saw it," he recalls, "I said, 'Ah, shit. This is Fusarium.'"

The possibility was so alarming that for the two weeks García-Bastidas spent in Colombia, he was assigned a handler and placed on lockdown in his hotel. "I couldn't talk to anybody, not even my family," he says. A test he conducted at a lab in Bogotá appeared to confirm his assessment. A month later, after double-checking samples sent back to the Netherlands with him by the Colombian government, García-Bastidas knew for sure: The Grim Reaper of bananas had arrived.

FOR 40 YEARS, FARMERS, SCIENTISTS AND MAJOR producers in the industry have watched with growing anxiety as the fungus García-Bastidas saw, *Fusarium odoratissimum*, or Tropical Race 4, marched through banana plantations in Southeast Asia. In 2013, García-Bastidas reported finding it for the first time outside that region, in Jordan. Soon it spilled into the banana fields of Africa.

Fusarium is naturally occurring and typically spreads when contaminated soil hitches a ride on clothing, shoes or vehicles. In a banana field it burrows into the soil and attacks through the roots, quickly invading a plant's vascular system and choking off the flow of water and nutrients, rotting it from the inside long before bananas appear. Slice open the corm—the bulblike appendage under the soil from which the pseudostem grows—and the infected plant material resembles the brittle embers left after a campfire. And there are no treatments for this. No preventatives, no cures.

Even after chewing through every plant, TR4 remains in the soil, ruining the fields for future production.

The fear, always, was that TR4 would creep its way into Latin America, where frost-free weather and rich, alluvial soil has provided the premier place for growing *Musa cavendishii*, the Cavendish, the world's most consumed banana. Although about 1,000 varieties of banana exist, including many that live harmoniously with Fusarium, most are unfit for international trade. They're too small or too seed-filled. Too fragile. Too acidic. More tart and tough than sweet and soft.

By contrast, the Cavendish plant produces a wondrous banana. About a year after it's planted, a secondary stalk emerges from the pseudostem, and the inflorescence, the flowering part that transforms into fruit, appears. Out of that second stalk grows a single bunch of bananas, which can weigh well over 80 pounds. Each bunch contains "hands"—what you buy in the grocery store—that are made up of "fingers," the individual bananas. They're hardy enough to withstand long journeys without bruising. They don't ripen too quickly. They contain no seeds, by virtue of their triploid genomic structure (11 different chromosomes with three copies of each). And yields are consistently high.

As a result, Cavendish bananas make up 99% of global banana exports. In 2022 the Central and South American countries where the market is concentrated shipped more than 16 million tons overseas. Almost every supermarket banana, regardless of the stickered imprimatur of its brand, is a Latin American Cavendish. Americans buy more of them than any other fruit. Without them, the \$25 billion global banana industry crumbles.

Really, there's only one problem with the Cavendish: It's highly susceptible to Tropical Race 4. And that made García-Bastidas' identification of TR4 in the world's Cavendish corridor a potentially dire matter. Almost 8,000 acres across 17 banana farms are now under quarantine in Colombia, officially the world's fourth-most-prolific banana exporter. That's only about 6% of the total area where bananas are grown for export in the country, but the fungus is expected to continue to spread. It's already in other South American countries, found in Peru in 2021 and in Venezuela this May. Ecuador, Costa Rica and Guatemala—Nos. 1, 2 and 3, respectively, in terms of banana exports—are on high alert.

After the Colombia discovery, government officials and the country's association of banana growers stepped up efforts at "phytosanitation," hoping to prevent the fungus from escaping infected farms. And Dole Plc and Chiquita Brands International Inc., the largest companies in the banana business, joined a partnership called the Global Alliance Against TR4, which was formed in 2021 to monitor and check the fungus' march through Latin America.

One avenue both companies are exploring is how to increase the Cavendish's resilience. But breeding resistance into the variety is a dubious proposition: Because it's seedless, it's sterile, reproducing only via "sucker," a stalk that grows from the corm to replace the adult plant. Eliminating the fungus is also

near impossible. Fumigating the soil has been tried in other infected countries, only to see TR4 repopulate areas thought to be uncontaminated. These challenges have helped push the research toward genetic fortification.

In April, Dole planted dozens of genetically engineered Cavendish plants in one of its infected banana fields in Colombia. The plants were supplied by Elo Life Systems, a startup in Durham, North Carolina. Some of the plants are genetically edited so the genes required to produce fungus-fighting proteins are activated to mount a defense. Others have had proteins from TR4-resistant varieties of banana inserted into their genome, producing a transgenic fruit.

“Banana companies see this fungus as an existential threat,” says Elo’s chief executive officer, Todd Rands. “We can’t afford to fail.”

THE CAVENDISH IS ITSELF, IN A SENSE, A CHILD OF Fusarium. It first came to the Western world’s attention around 1826, when British naturalist Charles Telfair obtained several of the bananas from China. But its dominant position didn’t begin until well after the modern trade in bananas was established. As Dan Koeppel writes in his 2007 book, *Banana: The Fate of the Fruit That Changed the World*, that trade began in 1870, after an American sea captain returned from Jamaica with 160 bunches of a cultivar known as the Gros Michel. It was so novel that, at the Philadelphia Centennial Exhibition six

years later, the two attractions that garnered the most attention were the “Big Mike” and Alexander Graham Bell’s telephone.

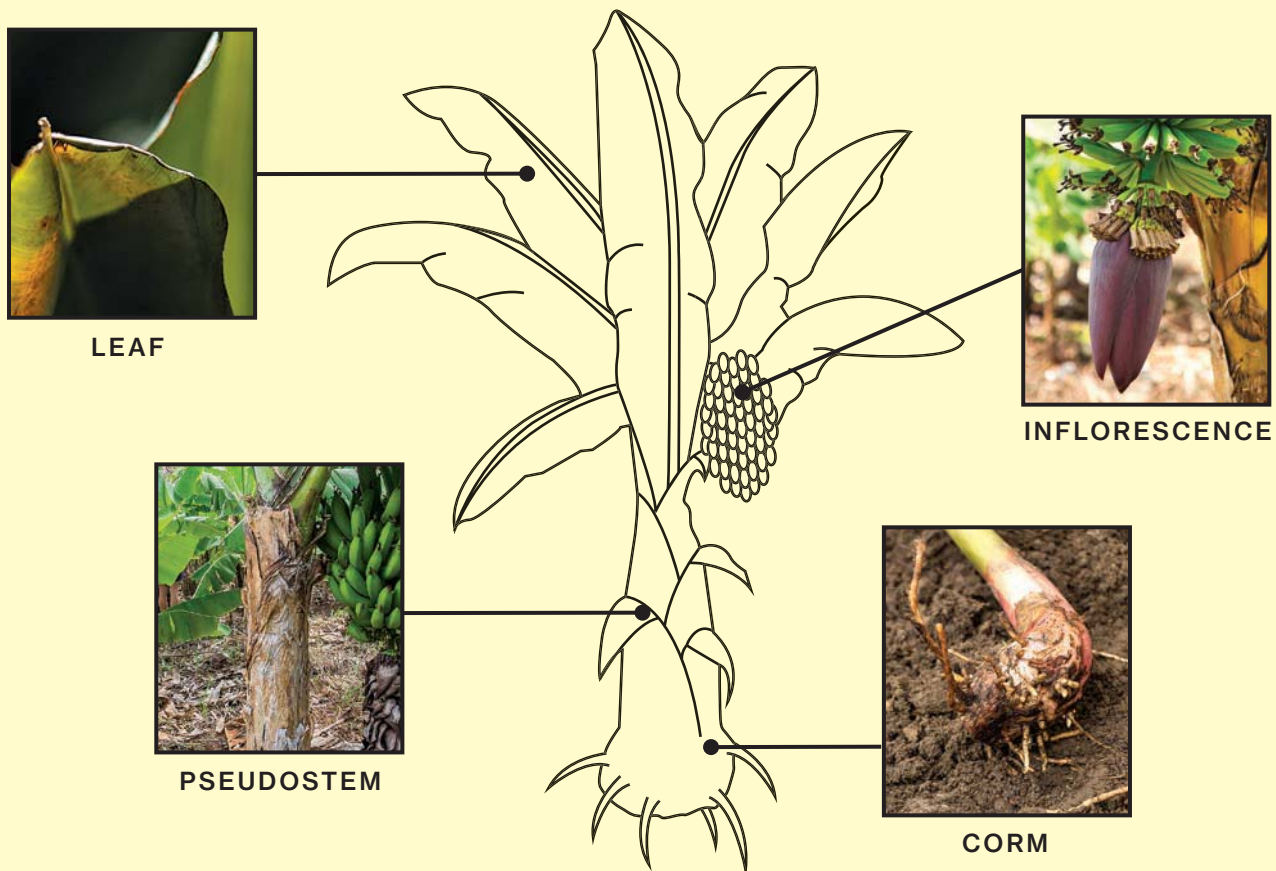
By 1900, Americans were eating 15 million bunches of Gros Michel bananas annually. Three years after that, *Fusarium*—specifically Race 1—was discovered in a Panamanian Gros Michel field. Slowly but surely, it wiped out millions of acres of bananas, along with millions of dollars.

By the mid-1960s, United Fruit (now Chiquita) and Standard Fruit (now Dole)—which had rapaciously built dominant positions in Latin America across the decades, deploying sometimes brutal tactics toward workers and governments alike—had switched from the Gros Michel to the Race 1-resistant Cavendish. In 1965 the last Gros Michel bananas were sold in the US. The Cavendish wasn’t as sweet or as firm as the Gros Michel, but it was the best option available for widespread export.

It may seem short-sighted for the world to rely on a single banana, but monocultural mass-production ensures high yields and controllable costs by standardizing growing and harvesting methods. That’s how bananas, shipped to far-flung locations, became a \$25 billion industry. “We call it the giant with the feet of clay,” García-Bastidas says. “It’s such big business, and it relies on one simple variety.” It wasn’t until the 1980s, when the Cavendish was planted in Southeast Asia, that its vulnerability to Tropical Race 4 was identified.

The vast banana estates of Malaysia and Indonesia were particularly at risk. Yet the response there was muted, even ▶

ANATOMY OF A CAVENDISH PLANT



◀ cavalier. Koepfel recounts that one article in Malaysia's *New Straits Times* "portrayed the issue more as a challenge than a calamity, something the country's respected scientific community could easily brush aside." Meanwhile, banana plants were dying. One 5,000-acre Fresh Del Monte plantation in Sumatra was hit especially hard. "The reality," Koepfel writes of the Southeast Asia TR4 outbreak, "was a total—and precipitous—wipeout."

Tropical Race 4 is following the same trajectory as the earlier Race 1, having leapt across the Pacific to infect Latin America's banana fields. But researchers contend that the fungus was lurking in the soils of Asian banana-growing regions all along and merely escaped. And this, García-Bastidas says, is the truly scary thing. Various strains of *Fusarium* are distinct forms, not evolutionary iterations, that have likely existed for millennia. There's even a strain known just as Race 4, which infects stressed or weakened Cavendish plants growing in colder, subtropical environments. All that needed to happen to unleash TR4—especially pernicious because it infects Cavendish in all climatic conditions—was for the industry to plant rows and rows of the same susceptible banana.

By 2016, Dole was already engaged with the Honduran Foundation for Agricultural Research, trying to identify

"WE CALL IT THE GIANT WITH THE FEET OF CLAY. IT'S SU

banana varieties resistant to the fungus. Five years after that, the company was citing TR4 as a serious threat in a filing to the US government, titling one section "Tropical Race 4 may impose significant costs and losses on our business." The next year, Dole wrote, "We may be unable to prevent TR4's spread or develop bananas fully resistant to the disease." The company declined to comment substantively for this story but said through a spokesman that "although the TR4 risk is a concern, Dole is strongly engaged in combating it." So far, it's spent almost \$20 million on quarantine and prevention efforts. It's also been looking for another way—and that's why it began collaborating with Elo Life Systems.

IN JULY I TRAVELED TO DURHAM, WHERE ELO IS working on its Cavendish genetic-modification project. The company's headquarters is situated in a suburban business park, an inconspicuous site with an auspicious history. Elo's labs are located in the same building where Mary-Dell Chilton—who, in the early 1980s, created the first genetically modified crop by inserting a yeast gene into a tobacco plant—spent decades heading biotechnology research for Syngenta AG. Under Chilton's leadership, Syngenta was the first to commercialize *Bt* corn, which was genetically modified to express a protein that kills the larvae of European and southwestern corn borers. For farmers, it meant no longer having to hose down fields with gallons of insecticide, though as with all genetically modified foods, it wasn't without its critics or controversies. To cite one



BANANA PLANTS AT ELO LIFE SYSTEMS

example, in 1998 scientists at Cornell University found that *Bt* corn produced pollen capable of killing the caterpillars that become monarch butterflies, considered an endangered species by the International Union for Conservation of Nature.

Rands, Elo Life Systems' CEO since 2022, refers to the company's specialty as "molecular farming": growing ingredients—sweeteners, proteins, starches and flavors—by reconstructing the existing natural pathways that make these ingredients in plants. One of its pioneering techniques was to take a genetic pathway that produces a commercially useful sweetener in Chinese monk fruit and reproduce it in the genomes of watermelons, sugar beets and other crops grown in the US.

Matt DiLeo, Elo's vice president for product development with a Ph.D. in plant pathology, told me as we began touring the facility that the company's work on the Cavendish began in 2020. Aware of the threat TR4 posed, it reached out to Dole about forming a partnership. He guided me to a wing that houses the startup's growth chambers—sterile white rooms whose 82F temperature is maintained by long, cylindrical overhead heat lamps. The air inside was sticky, vicariously transporting me to the Latin American fields where bananas are grown. Transparent plastic containers, each one bar-coded, were spread among three shelves along one wall. Sealed inside

CH BIG BUSINESS, AND IT RELIES ON ONE SIMPLE VARIETY"

47

each was a tiny banana shoot sitting in a chemical medium of nutrients and hormones to nurture minuscule roots.

These are the modified plants, and Elo propagates many identical shoots from each one. Some have outside genes inserted into their DNA; others possess a version of their original genome that's been modified to tell the plant to express a specific protein. To test whether the baby plants show signs of resisting TR4, Elo's scientists remove the shoots, dip them into a solution of fungal spores and plant them in soil in a separate growth chamber. "Then it takes 13 days to either kill the plants or not," DiLeo said.

The Cavendish contains more than 30,000 genes, exceeding the 20,000 or so found in a human, but Elo's scientists are studying only about 100 targets. Some are Cavendish genes that might be switched on or off to kick-start a disease response; some are genes from other bananas that might confer resistance. Elo arrived at those targets by identifying differences between the Cavendish genome and the genomes of TR4-resistant bananas and related species, such as plantains. Find a distinction, and you may find the gene that could protect the Cavendish. The work took about three years and a good deal of computational biology.

Fusarium fungal spores are devious, staying dormant until they detect banana roots. Researchers don't know exactly how some banana plants fight off the fungus. According to Elo, it might be the case that resistant cultivars stop spores by rapidly generating gels and gums in the opening stages of infection. ►

LAB COMPONENTS

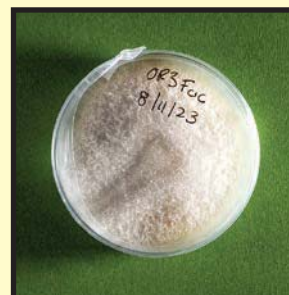
Cavendish plant growth at Elo Life Systems



EMBRYO CLUSTERS



EMBRYOS GROWING INTO SHOOTS



PETRI DISH COVERED WITH TR4



SHOOTS IN A GROWTH MEDIUM



CLUSTER OF SHOOTS



SHOOTS READY FOR ROOT GENERATION, THEN PLANTING IN SOIL

◀ These block *Fusarium* from moving up into the pseudostem, giving the plant enough time to activate fungus-fighting proteins. Susceptible cultivars such as the Cavendish activate their disease responses much more slowly or not at all.

After we finished in the growth chambers, we entered the lab where Jack Wilkinson, Elo's director of discovery, investigates how Cavendish plants can confront infection more quickly. "If you can just slow down the fungus, that gives the plant a chance to protect itself," he said.

The "discovery" in Wilkinson's title here entails identifying the right antifungal material. He previously worked for Calgene Inc., the company that designed the Flavr Savr tomato, the first transgenic, commercially grown food deemed safe for human consumption by the US Food and Drug Administration. Using modified yeast, Wilkinson grows banana genes in small cell-culture plates until they start expressing antifungal proteins. Once he's developed a batch of different proteins, he isolates them from the yeast and dumps them into other plates containing *Fusarium* spores.

Wilkinson showed me a petri dish filled with antifungal proteins and little black dots—TR4 spores sitting quietly, doing nothing. Their inactivity meant the proteins were successfully inhibiting *Fusarium* growth. If they weren't working, the spores would have been proliferating in long black strands.

Proteins that stop or slow *Fusarium* in the petri dish are sent to tissue culture, a lab directly across from Wilkinson's and the next stop on my tour. This is where Taylor Frazier-Douglas, lead scientist of Elo's banana program, creates the

actual banana plants. For genetically edited Cavendish, she adds enzyme reagents that change the genome inside cells. For transgenic Cavendish, she uses soil bacteria to insert novel banana genes into the cells. The plants that result look like caramel popcorn in their early stages and take anywhere from 6 to 10 months to germinate. They're transferred to the plastic containers only after tiny leaves emerge.

At the back of the tissue-culture lab are several chambers, each about the size of an industrial refrigerator. They collectively contain about 450 banana plants with various combinations of genetic material, some growing in petri dishes, others growing as tiny shoots inside plastic containers. The hope is that at least one will survive soil saturated with TR4.

"Most people have no idea that the bananas they eat every day are on the verge of extinction," Frazier-Douglas said. "I want my kids to enjoy bananas the way I enjoyed bananas."

OTHERS ARE ATTEMPTING TO ACCOMPLISH THE SAME

feat as Elo. James Dale, head of the Banana Biotechnology Program at Queensland University of Technology in Brisbane, Australia, is a leader in *M. cavendishii* metamorphosis. His achievements include making one of the world's first genetically transformed Cavendish bananas in 1994. (Neither you nor anyone else is already eating a genetically modified banana; Dale did this for research purposes only, after TR4 jumped the water and began decimating Australia's Cavendish crop.) "The outbreak in South America has absolutely changed the environment," he says. "People maybe really will need a genetically

modified banana if we're going to keep growing the Cavendish."

Dale's new Cavendish, dubbed QCAV-4, contains a gene from a wild Southeast Asian banana. It switches on systemic resistance in the Cavendish, so that, even if *Fusarium* invades the plant, it doesn't do any damage to the fruit. In field trials, Dale says QCAV-4 has a survival rate greater than 90%. Australian authorities are currently evaluating it and expect to make a ruling about its safety in April 2024. If QCAV-4 gets the OK, it would be, as far as Dale knows, the first genetically modified banana approved for consumption. From there, he says, he'll conduct more field trials in different environments.

If there's one reason banana lovers—consumers, companies and fruit scientists alike—can feel optimistic about the fight, it's the contrast with the lax response to Race 1's charge into the Western Hemisphere. The Gros Michel was eventually ravaged in part because the problem was pushed off instead of met head-on, with growers ignoring the fungus and simply opening up new fields for cultivation. This time everyone is being much more aggressive. "The important thing is that one of us is successful, because this fruit is so important to so many people," DiLeo says.

The potential catch is the use of gene-altering technology. Whether consumers would accept genetically modified bananas is uncertain. Dole concedes in its 2022 disclosure forms that shoppers and governments might view them unfavorably. "It is possible that new restrictions on GMO products will be imposed in major territories for some of our products or that our customers will decide to purchase fewer GMO products or not buy GMO products at all," the company wrote. One paper published in 2018, not even a year before García-Bastidas found TR4 in Colombia, noted that although 88% of scientists think genetically modified foods are safe, only 37% of Americans agree. The US passed federal legislation in 2022 requiring that the terms "bioengineered" or "derived from bioengineering" be printed on the labels of foods with genetically modified ingredients, and the European Union has strict regulations governing genetically modified crops. Both regions import huge numbers of Cavendish bananas.

If people want to keep eating them, though, we may not have a choice. "We've hit the limit," DiLeo says. "The only way that we're going to solve this is if we use biotechnology."

FOR ALL THAT GENETIC MODIFICATION PROMISES, other scientists working on the South American TR4 outbreak see a case for diversification instead. "I know people are used to eating Cavendish, but we need to rethink the overall banana production system," says Miguel Dita, a plant pathologist in Colombia for the Alliance of Bioversity International and the International Center for Tropical Agriculture.

Dita acknowledges that developing a banana with similar qualities to the Cavendish through conventional breeding is "quite difficult." If a new banana were to assume the mantle, it would have to be disease-resistant, high-yielding and palatable to billions of people, with skin thick enough

to facilitate transportation and a ripening profile that keeps it from spoiling before reaching its destination. "That's a big ask," Dale says. "There are certainly bananas that have been bred conventionally that do have disease resistance and some of those characteristics, but I've not seen anything close to a Cavendish coming out of any of the breeding programs."

This doesn't mean the approach is hopeless. In the 1980s, Brazilian researchers developed a *Fusarium*-resistant banana—it just tasted more like "an apple or unripe pear," Koepfel writes in his book. And this year, Chiquita, which didn't respond to a request for comment, announced a partnership with university researchers in Wageningen. Led by García-Bastidas, the project is seeking to produce a TR4-resistant banana that tastes like the Cavendish, as well as new cultivars resistant to a variety of diseases. A first test batch of bananas was recently planted in the Philippines.

Until an alternative can be found, whether genetically modified or not, countries are doing what they can to contain the spread. Colombia's Ministry of Agriculture and Rural Development, working in tandem with the Association of Banana Growers of Colombia, has invested almost \$5 million since 2019 on various sanitation and containment projects. They include the construction of washing stations at plantations to clean soil off transport trucks, purchasing about 42,000 liters of disinfectant to clean equipment and installing more than 1,300 miles of wire fencing to enclose stricken banana plants. These are important, if probably insufficient, steps. "What we've learned over and over in the history of plant diseases is that even when you have these huge quarantine efforts, it buys you time, but not a lot," Elo's DiLeo told me.

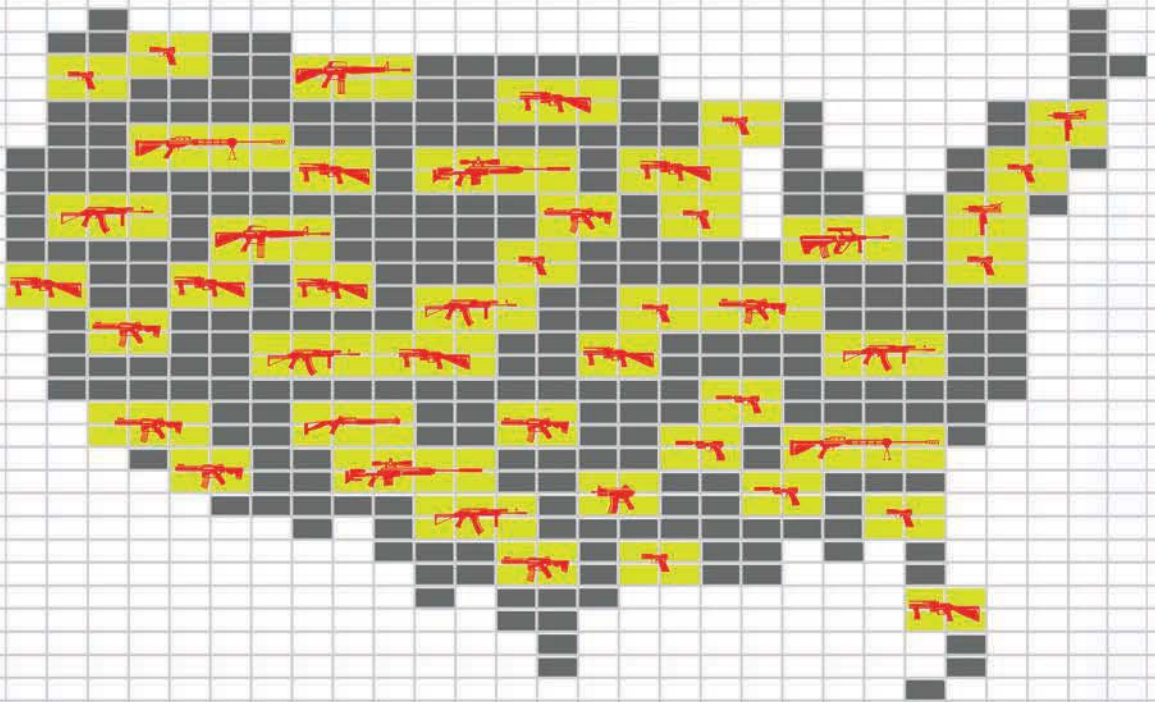
Toward the end of my tour of the company's Durham offices, he brought me to its 5,000-square-foot research greenhouse, on the other side of the business park. Some of the space is reserved for the watermelons and sugar beets Elo is using to produce monk fruit sweetener. About a fifth is for the new lines of Cavendish bananas. Shoots that survive the initial 13-day test are discarded, but genetic copies of them are eventually potted in the greenhouse. After they've grown for about two months, they're hit with what would normally be a lethal dose of Tropical Race 4—more than they'd encounter in the field.

As DiLeo and I walked through the greenhouse, I saw row after row of Cavendish that had been subjected to the fungus, about 100 plants in all. Some were wilted and black-dead. Interspersed among those, though, were others still in the fight. It was too soon to tell if they'd make it six months, or nine months, or beyond a year—never mind thriving at scale, gaining regulatory approval or reaching consumers. But their pseudostems were still intact. Each plant's blades were a lush, verdant green. Their leaves, far from drooping, drank in the sunlight. And as early as next year, the bananas hanging in bunches could be the mighty Cavendish, unmistakable in all aspects save for one: a newfound resilience against a fungal invader. **B**

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SPREADSHEET



FOR

SHOOTINGS

The Gun Violence Archive obsessively tracks deaths and injuries in the US, but that dedication comes at a cost

By Madison Muller

Illustration by Yoshi Sodeoka

Dan Kois was a new editor at the online publication *Slate* when the mass shooting at Sandy Hook Elementary School in Newtown, Connecticut, happened in late 2012. Twenty of the victims were 6- and 7-year-olds. Kois, who has a child who was then about the same age, says, “It really freaked me out.” A data journalist by trade, he went looking for numbers about gun violence in the US but “kept running into a bunch of brick walls, different numbers in different states, and different numbers that seemed shockingly old and out of date.”

Tens of thousands of shootings take place every year in the US. Some, such as the one on Oct. 25 in Lewiston, Maine, get a lot of attention because of high casualty and injury figures and an ensuing manhunt; others, like the one the next day that left five people dead in Clinton, North Carolina, don't. And yet regardless of how sensational the episodes are, no one federal agency keeps track of them. Data is siloed, which makes it difficult to study a public-health crisis that kills more kids annually than cancer, drug overdoses or car accidents.

This lack of transparency isn't unintentional. The National Rifle Association successfully lobbied lawmakers to pass a provision in annual appropriations legislation that for years prevented US health agencies from collecting data on shootings. The Centers for Disease Control and Prevention, for example, doesn't have a guaranteed earmark from Congress to study gun violence in the same way it does other causes of death; in 2021 the agency got \$25 million for this purpose, but it has to split that money with the National Institutes of Health. What information the CDC does gather can take six months or longer to analyze. Its data collection systems aren't equipped to track injuries.

For its part, the Federal Bureau of Investigation collects data on firearms used in murders, robberies and aggravated assaults. It moved recently to a new crime-tracking system that allows for more granular data than the

one it used previously, but so far police departments have been slow to transition. One-third submitted no crime data of any kind in 2021. To “resume providing nationally representative data” in 2022, the FBI said it would accept summary reports from departments that haven't transitioned. And there have long been NRA-backed policies restricting how the Bureau of Alcohol, Tobacco, Firearms and Explosives can store and publicly release data, too.

Kois thought that by crowdsourcing information about shootings, his *Slate* team could come up with a more accurate real-time picture of US gun violence. They began by asking social media users to flag shootings that they came across, and emails started to pour in from people looking to help.

A guy in Lexington, Kentucky, named Mark Bryant was particularly engaged. Before retiring in his early 50s, Bryant had worked for companies such as Microsoft Corp. and International Business Machines Corp., where he was a computer systems architect. In late 2011, a 36-inch-long blood clot that could have put him at risk for more serious issues such as pulmonary embolism or stroke landed him in intensive care. When he got out of the hospital, he says, he felt like he was given a second chance. “I have one more good gig left in me,” he thought. “It's gotta be good, and it's gotta be right.”

Eight months later there was a mass shooting at a movie theater in Aurora, Colorado. Horrified by what happened, and annoyed generally at the politics around the issue, he went online for answers—and was still looking when Sandy Hook happened.

How many kids die annually from gunshot wounds? Bryant wanted to know. In the wake of Sandy Hook, NRA Chief Executive Officer Wayne LaPierre had introduced the (now oft-repeated) phrase that “the only way to stop a bad guy with a gun is a good guy with a gun.” How often did that happen? The answers weren't easy to find. Eventually Bryant came across *Slate*'s project and started comparing his research with theirs. He noticed discrepancies. “Hey,

you missed one,” he emailed the team. Bryant and the editors at *Slate* went back and forth until, inevitably, it made sense that they join forces.

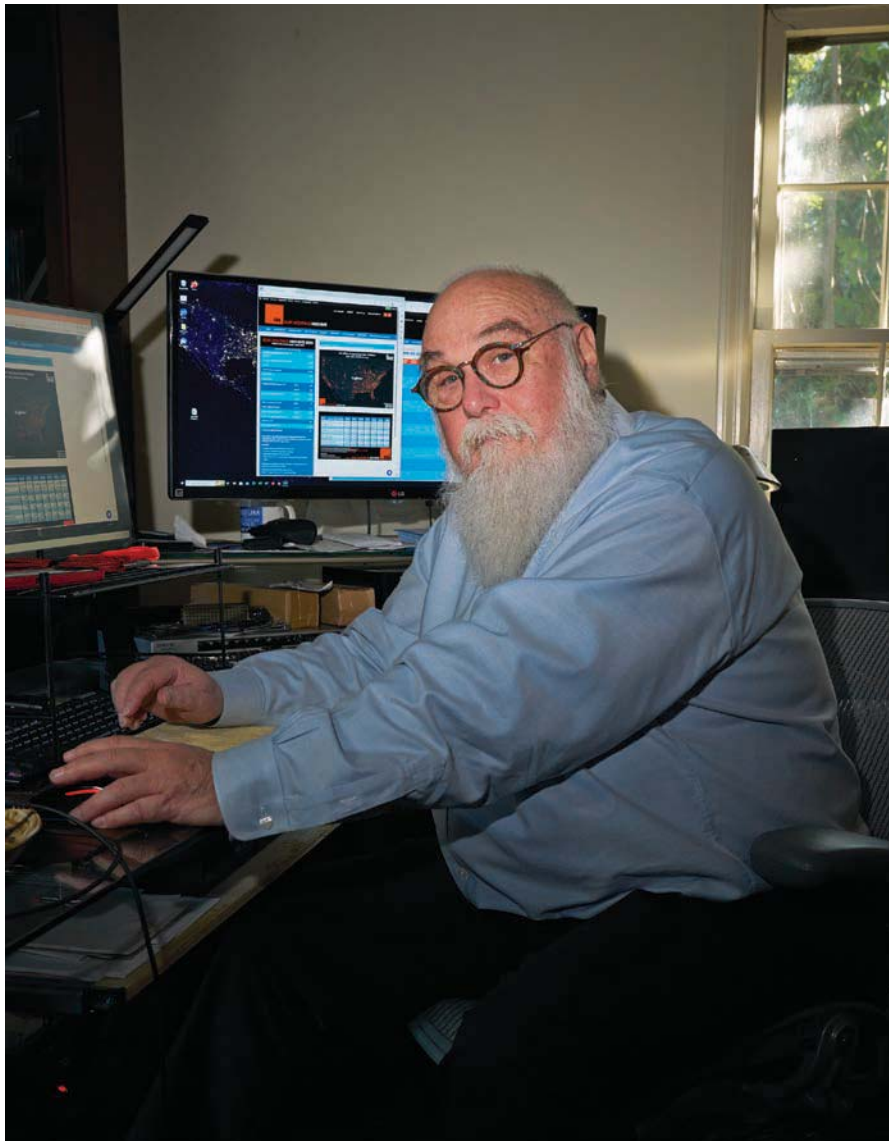
A year after Newtown, Bryant and the team had tallied more than 11,400 deaths. But that number was a drastic undercount. *Slate*'s researchers lacked the time and resources to be more comprehensive and, eventually, to keep the project going. But Bryant wouldn't give it up.

Today, what was rebranded as the Gun Violence Archive is the US's sole repository of near-real-time data on shootings. Incidents can be sorted by deaths or injuries, the age of victims, a shooter's intent, mass shootings or geographic location. That's made it the go-to source on shootings for the media, academics and politicians.

Tracking, logging and verifying every shooting in the US is daunting. It requires an obsessive attention to detail, a knack for statistics and a willingness to drop everything at a moment's notice whenever there's a mass shooting. The GVA defines one as having a minimum of four victims shot—either injured or killed—not including a shooter, and there were 619 this year as of Nov. 27, by its count. No one's been more obsessive than Bryant has in compiling all that trauma. It's taking a physical and mental toll.

This year there have been more than 72,000 shootings in which someone was injured or killed, according to the GVA. Each of them was identified and logged by one of 27 employees, who work remotely and whose ages range from 22 to 71. They start around 7 a.m., and some keep working until 2 or 3 a.m. “It's an addiction,” Bryant says.

The workers divvy up the country by region. Some monitor a handful of states; others are focused on Chicago, Los Angeles and other hot spots. They trawl local news sites, social media, crime-tracker blogs, police reports and more, going through ▶



Bryant

◀ about 6,000 reports daily. Several areas require more attention than others, and not only because of the volume of shootings. Police departments log information differently. They're not always thorough: In many cities, police don't even report nonfatal injuries. It takes much more effort to keep track of what's happening in LA, which has a police department that doesn't separate shootings from hundreds of other daily reports, than in Chicago, where there are more shootings but cops maintain a gun violence dashboard. Bryant makes sure that every entry in the database details who was shot, how old they were and

the shooter's intent, which addresses whether it was accidental or purposeful or done in committing a crime or in self-defense.

On Saturday and Sunday they team up to keep an eye on Baltimore, Chicago, Philadelphia and other places that tend to see the most violence over the weekend. For the same reason, certain holidays, such as the Fourth of July, are all-hands-on-deck days. Until recently, when he brought on more staff, Bryant was working 18-hour days. He's tried using technology such as artificial intelligence to help scrape the internet for information on shootings,

but he says it captured only about 45%. "The best way is eyeballs," he says.

Bryant is now 68, and his white, bushy beard and horn-rimmed glasses give him a strong resemblance to Santa Claus. He grew up in Harlan, Kentucky, an Appalachian town that was once part of the state's formerly thriving coal industry. Before he started the GVA, he toyed with using his background in computer systems to teach coal miners tech skills to help them transition into other jobs. Today he lives with his wife, Sharon, and their three cats.

Given Bryant's dedication to understanding gun violence, one might think he'd been personally affected by it. But he says he hasn't been, and drawing him out on the emotional sides of the gun control debate is difficult. What drives him, he says, is a desire to force all parties to adhere to the same numbers. Before the GVA, gun violence data was so spotty that politicians and organizations on both sides could loosely cite any statistic that helped advance their agenda, with nothing to check it against. His initial hope was that trustworthy figures would move the US past its political divides on the issue. He now realizes how "unbearably naive" that was: "I thought that facts mattered. I've now watched an entire decade of history, science and facts be vilified."

The NRA has painted Bryant as a gun control advocate. In February the NRA's LaPierre called Bryant an "anti-gun zealot" in an op-ed that also took aim at the CDC. Bryant says he gets threatening emails at least once a week from people he doesn't know. Even life-long friends, he says, fear he's working for the government and wants to take away their guns. Some of them reach out on Facebook; others tell him in person that they "don't know what's gotten into him." One friend since kindergarten is married to a conceal-carry trainer. They made a rule 10 years ago not to talk about guns for the sake of the friendship. Recently he didn't get invited to his 50th high school reunion, and he worries that when he dies, Sharon will need to pay people to be pallbearers at the funeral. Several GVA

employees declined to speak to *Bloomberg Businessweek* for fear that it would make them targets of the NRA or its supporters.

By Bryant's own admission, the GVA's data isn't always uniformly robust. The organization collects more data on kids and firearms than on any other types of shootings. There's information on both fatal and nonfatal shootings for kids (and, separately, for teens). It notes which were accidental and which occurred on school grounds when students were present. Bryant makes a mental note of kids who were accidentally shot by a parent's firearm that hadn't been properly stored—this, to him, is a particularly heinous expression of gun violence. The team goes through the data several times a day to check for errors. “There's nothing worse than me getting a call six months later from a mother whose kid got killed telling me we spelled the name wrong,” Bryant says.

Data on suicides is next to impossible to include in real time. Police

who studies gun violence at Columbia University's Mailman School of Public Health, was the lead author of a paper published in June that urged some caution regarding granular examinations of GVA data; the study looked at the GVA's work in four cities over a five-year period (2015-20) and determined that it caught 81.1% of what Gobaud's team called “community firearm violence shooting events.” “There's a tendency for us to use the data and not really think through” what potential biases might be inherent in it, Gobaud says.

Race and ethnicity data are excluded by design. Michael Klein, the 81-year-old billionaire chairman and co-founder of CoStar Group Inc., a real estate information company, is the GVA's sole source of funding. Klein also stumbled on *Slate*'s project after Sandy Hook; he had no financial ties to organizations on either side of the gun debate and saw a need for more data, too. Klein and Bryant withhold race and ethnicity data because of a worry that gun rights advocates and the NRA would use it to downplay the scope of gun violence and say it's mostly an issue affecting Black communities.

They want to remain as non-

when it started. Now it needs about \$800,000 annually, Klein says. The organization was recently awarded a \$250,000 MacArthur Foundation grant. But the reality, Klein and Bryant acknowledge, is that they need to figure out how to secure long-term funding and how to provide leadership for the GVA for the future.

Bryant is usually quick to pick up the phone, but it's been harder to reach him recently. His health has started to deteriorate, the result of a lack of sleep and few, if any, breaks over the past decade. He all but disappeared in August because of an infection that, at its worst, he says, knocked him out cold for almost 24 hours. “You're not 18 anymore,” his doctor scrawled on a prescription pad during one of many recent visits.

The health setbacks have forced him to slow down. He's hiring more staff, including an assistant. (The goal is to add three more employees to get to 30.) He never thought the GVA would be around for this long, he says, but now he's reckoning with the reality that it may still be needed for years to come. “We're succession-planning,” he

“I thought that facts mattered. I've now watched an entire decade of history, science and facts be vilified”

departments don't typically report suicide data because it's not crime-related. Coroners don't usually release information about suicides unless a case receives a lot of public interest. That's a crucial missing piece of the overall picture of gun violence, because suicides account for more than half of all firearm deaths, and more than half of all suicides involve a firearm.

And the GVA doesn't include information on race and ethnicity, even though Black Americans experience disproportionate rates of gun violence, and the majority of mass shooting victims are Black. Ariana Gobaud, a researcher

partisan as possible. “We do stats, not advocacy,” Bryant says. And though he says he's “not even remotely for banning weapons,” he wants to see policies enacted that could help reduce deaths, such as the safe-storage requirements and child-access-prevention laws that public-health experts have widely endorsed. Only a handful of states have these policies in place, and there are no rules at the federal level. Klein says, “We haven't accomplished what we hoped, which is to have some impact on policy.”

That hasn't dissuaded him. The GVA cost about \$250,000 to run

says. He and Sharon are also thinking about taking a vacation, perhaps to Cambridge, England, where they can cruise along the canals. “It just seems like the most peaceful thing in the world to do,” he says. More immediately, he'll settle for a beach: “The second my feet hit the sand, I'll be beating myself up for not doing this earlier.” **B**

Michael Bloomberg, founder and majority owner of Bloomberg Businessweek parent Bloomberg LP, also founded Everytown for Gun Safety, which advocates gun-safety measures.

~~Blah-blah.~~

A-ha.

~~Enrage.~~

Engage.

~~Clickbait.~~

Debate.

~~Pretext.~~

Context.

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with the facts in mind.

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Context changes everything.

B

Clockwise from top: Robiola d'Alba
al Tartufo, Uplands Cheese Rush
Creek Reserve, Fromagerie L'Amuse
Brabander Reserve, Vacherousse
d'Argental, Linedelina

Instant Entertaining

How to throw the easiest,
most fabulous
holiday shindig.
(Hint: It starts with cheese)
By Kate Krader Photograph
by David Chow

PURSUIT

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59
A better buffet

60
Panama City's
fresh fish

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In *Maestro*, Cooper
captures the composer

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A faster, smarter
wine cooler

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If there's one guest you want to invite to a party, it's cheese. The sumptuous dairy product isn't demanding—generally it just needs to come to room temperature and land on a nice cutting board. You can dress it up with dried or fresh fruit and a wedge of the Spanish quince paste membrillo, or it can arrive unadorned.

"It's easy to curate and a beautiful conversation starter," says Tess McNamara, head of salumi and formaggi at Eataly North America, the Italian market that has stores around the world. "Put it out, and all of a sudden a crowd gathers."

Take the Uplands Cheese Rush Creek Reserve, a salty, woody cow's milk cheese that's so soft it could double as a voluptuous dip. It's this season's "it" cheese, according to an unofficial survey of five top cheese purveyors in the US.

Raymond Hook, who co-owns the fromagerie Capella Cheese in Atlanta, calls it an "elegant, creamy masterpiece." Another fan is Jamie Nessel, director of product and purchasing at Bi-Rite Market in San Francisco. "This holiday, like every year, you're probably going to see tons of gorgeous cheeseboards, baked brie and cheese ball recipes take over social media," she says. "While those are certainly delicious options, at Bi-Rite we're obsessed with the incredibly rich, deep flavor of simply warming the seasonal Rush Creek Reserve." (Specifically, it can be heated in a low oven for about half an hour, until it's soft and warm. Serve with spoons.)

Here's what you need to know about this cheese and four others—plus a raft of other secret weapons for an instant party.

Rule No.1: Get a Wedge With an Edge

Uplands Cheese Rush Creek Reserve

The only time to get it is around the holidays, after it's produced from cows that have been snacking on dry fall hay. The large round has a soft white rind and is wrapped in a strip of spruce bark. Its incredibly creamy center—the Wisconsin-based producers refer to it as savory custard—has a smoky-sweet milky flavor. They recommend that you heat it slightly before serving to increase the oozy factor. (See above.)

Why: "The perfect holiday cheese," says Hook from Capella Cheese. "It's seasonal and festive and loved by everyone who tastes it—if you can find it."

Pair it with: *Domaine Marquis d'Angerville Volnay Fremiets 2011* (\$170). An elegant, aged Burgundy is ideal if you're serving the cheese course French-style, after dinner. This silky red has complex, damp-earth nuances that match the cheese, with enough acidity to contrast its richness.

Linedelina

This goat's milk cheese has a layer of ash and a creamy, slightly citrusy filling. Its fans include McNamara from Eataly North America, who hails Wisconsin-based producer Veronica Pedraza as "one of the best cheesemakers the USA has known."

Why: "It's everything you want in a holiday showstopper," McNamara says. "Decadent, dashing, nuanced and equal parts sweet—butter, fresh, cream—and savory—grassy, bright, hint of fresh chives. Not to mention it looks like a cake and is ready to celebrate."

Pair it with: *Domaine Philippe Tessier Cheverny blanc 2022* (\$25). Sauvignon blanc is the classic pairing with goat cheese, but try Loire Cheverny blanc with this ash-ripened wheel. Its lively sauvignon-dominant blend includes chardonnay as well as orbois,

which broadens the wine's pear, herbs and lemon-zest taste with a slight bitterness and contrasts the cheese's tangy flavors.

Vacherousse d'Argental

A holiday favorite of Dominick DiBartolomeo, president of the Cheese Store of Beverly Hills, this lush cow's milk cheese from France has an exceptionally smooth center that overflows its orange-tinged rind.

Why: "You can pair it with some great bubbly or a nice festive cocktail," DiBartolomeo says. "It's also perfect if you pour over some seasonal jam or chutney, and incredibly decadent if you top them with some caviar."

Pair it with: *Domaines Schlumberger Riesling Les Princes Abbés 2020* (\$29). The maker of this gooeey-soft cheese suggests serving a fruity riesling for contrast. This bottling, from Alsace, is a bright refresher with sharp acidity and yellow apple, lemon and ginger notes. It also has a rich mouthfeel to stand up to the cheese's buttery texture.

Robiola d'Alba al Tartufo

Laced with bits of truffle and then festooned with additional slices, the soft cow's milk cheese from Italy's northern Alba region has no problem going over the top. Julia Hallman, owner of Formaggio Kitchen in Boston, loves its buttery flavor.

Why: "Nothing says the holidays like truffle cheese, and this one makes a great centerpiece to a spread," Hallman says.

Pair it with: *Bruno Giacosa Roero Arneis 2021* (\$38). This Italian white won't overpower the delicate flavor of the black

truffles. As a fruit- and floral-scented Arneis from Piedmont, it has the right combo of fresh acidity and full body to complement the cheese's creaminess.

Fromagerie L'Amuse Brabander Reserve

Golden Brabander cheese is generally aged for eight months. The reserve goat gouda, made from the pasteurized milk of Saanen goats in southern Holland, is aged for 16 months so the sweet, nutty cheese is stocked with compelling textural crystals.

Why: "A holiday centerpiece," says Bi-Rite's Nessel. "It's an extra-aged goat gouda that's really dense and fudgy, balanced by notes of brown butter and caramel."

Pair it with: *Remelluri Rioja Reserva 2015* (\$50). A bold but mellow red such as this rioja is a top match for the intensity of the golden, aged cheese, particularly at the end of a meal. The vintage's elegant deep fruit and hints of smoke and leather highlight the nutty, gamy flavors; its velvety character contrasts with the cheese's crunchy texture.

THE ONE WINE THAT GOES WITH PRETTY MUCH ANY CHEESE

NV Champagne Bollinger Special Cuvée Brut

Champagne is the best overall choice to pair with cheese, especially when it's an hors d'oeuvre. The bubbles and bracing acidity of the wine cut the decadent creaminess and rich, salty flavors. This particular brut has refreshing, crisp apple notes and the earthy nuances that go especially well with tangy, savory, soft examples with a rind. Then again, it works well with hard, salty, aged cheeses such as Parmesan. \$70 —Kate Krader and Elin McCoy



The Simplest Cocktails Come Premixed



Thomas Ashbourne Espresso Martini

All you need to serve this ready-to-drink, hazelnut- and chocolate-tinged delight is to shake it well with ice to encourage a foamy top to form. **\$20 for four-pack of 200ml cans**



Tip Top Boulevardier

This small but potent limited-edition boulevardier was developed by Miles Macquarrie, the bar master behind Atlanta's Kimball House. Pour into a rocks glass over a large ice cube and garnish with orange or grapefruit peel. **\$40 for eight-pack of 100ml cans**

Delola Paloma Rosa Spritz

Paloma, meet spritz. In this offering from actress-pop star Jennifer Lopez and bar pro Lynnette Marrero, the decorative bottle alone

is attractive enough to gift. Pour the tequila-bubbles mix into a highball glass over ice and serve with a straw. **\$23 for 750ml bottle**

Tanqueray Negroni Cocktail

Beyond the gin and red bitters backbone, this variation surprises with a hint of holiday spice. Divide each 375ml bottle among four friends. (Although the label suggests eight 1½-ounce servings, don't skimp—pour your besties a double!) **from \$14 for 375ml bottle**

Ghia Le Spritz Sumac & Chili

Among the vanguard of nonalcoholic alternatives is the latest from Ghia, which some liken to a spicy margarita. It's tart, fruity and fiery; you can pour it over ice straight from the can or mix it with sparkling water to soften the assertive flavor. **\$48 for 12-pack of 8-oz cans**
—Kara Newman

Open a Box and Presto—Party!



Wagyu and Champagne Party Kit

Online butcher Meat N' Bone pairs 10 oz of Japan's treasured A5 buttery wagyu beef ribeye and an 8-oz filet mignon medallion with a festive bottle of Moët & Chandon Impérial Brut Champagne. Bonus: The set comes with a 10-inch cast-iron skillet from Victoria Cookware. **\$353**

Bemelmans Bar Martini Box

New York City's most famous piano lounge knows a thing or two about martinis—the red-jacketed bartenders there mix 1,000 a night. This do-it-yourself kit is equipped with two of the bar's thin-lipped, etched martini glasses, along with a jigger, a strainer, a stirrer, picks, a mixing glass, napkins and a recipe. **\$395**

The Traveler Caviar Set

One of the top-quality purveyors in the US, Tsar Nicoulai Caviar sources these half-ounce jars of osetra, lustrous golden osetra and baerii caviar from its partner farm in Greece. They come with a mother-of-pearl spoon, Bellwether Farms crème fraîche and blinis. **\$229**

Dandelion's Luxe Hot Chocolate Trio

Dandelion's house hot chocolate—an almost decade-long fixture in the San Francisco cafe—has a rich, 70% Ecuadorian cacao base that's sweetened with organic cane sugar. Gingerbread adds cinnamon and nutmeg; mocha has a dash of local roaster Ritual's instant coffee. **\$65 for three 5.6-oz packages**

Ami Ami's Mulled Wine Kit

With bold labels inspired by vintage Campari ads, the new boxed-wine company Ami Ami teamed with prized-spice peddler Burlap & Barrel for this mulled-wine pack. Warm up the house vin rouge with single-origin East African cloves and black peppercorns. **\$38 for 1.5 liters**

Hot Pot Party Kit

Online Asian market Umamicart has pulled together an assortment of shelf-stable ingredients to make this mouth-numbing hot pot kit for 6 to 10 guests. Soup bases ▶

◀ for the Chinese cold-weather staple contain tomato and Sichuan peppercorns, with condiments such as chili-spiked fermented soybeans and toasted sesame oil. \$65

Biscuit Love's Brekkie Biscuits

The textbook-perfect flaky, creamy biscuits (and incredible cinnamon rolls) from this

Nashville bakery can be shipped nationwide and are designed for parties of as many as 10 guests. Each set comes with two dozen 1-inch, ready-to-bake mini biscuits, plus 8 oz of glorious seasonal brown sugar cinnamon butter. \$90

MiLà's Soup Dumpling Set

These 50 pork soup dumplings from Asian

American brand MiLà arrive ready to cook with three regional Chinese noodle kits: Sichuan dan dan, Shanghai scallion oil, and Beijing sweet and savory. The set includes a bamboo steamer basket, plus two bowls and chopstick sets, and three condiments: ginger-scallion oil, spicy chili crunch and the all-important soy-vinegar dumpling sauce. \$160
—Kat Odell

Old-Fashioned Games Have Staying Power—for a Reason



Peter Levin loved playing games so much, he turned it into a career four years ago, co-founding Hunch Studios, a party-game specialist. He identifies a few key things that make a game a party booster rather than a pooper: First, a card game is almost always better than a board game, as the rules are typically simpler. If the game comes in a

box, you must be able to understand it by reading the back—not a lengthy manual. And no round should last longer than 15 minutes.

Quick-reaction games get the energy up: Levin champions Taco Cat Goat Cheese Pizza (\$11), where players must say one of those five words as they flip a card from their stack. If the image on the card matches the word, the last player to slap the central pile must take all the cards that have been drawn so far. The goal is to be the first to run out of cards.

From Levin's own portfolio, start with Tag Someone Who (\$20), which owes a debt to Truth or Dare and Cards Against Humanity, with a Facebook twist. Each card features a question that players must answer by suggesting another player; for example, who'd survive the longest in a zombie apocalypse? Or who's most prone to repeating the same story ad nauseam? Whoever receives the most votes keeps the card. The first person to seven is the winner.

"But people often just keep playing," Levin says. "And that's the other sign of a really good party game."

If your party's so last-minute you can't count on overnight shipping, stay away from Charades or Celebrity, which can get competitive. Instead, opt for something silly that no one is good at, says event planner Jennifer Oz LeRoy. "You can MacGyver this party with a Candy Cane Olympics," she says. Buy some big bags of candy canes, and set up games throughout the house. Arrange a set of bowls down the hallway, marking each with a point score; guests then have 10 canes apiece to throw, trying to land in the bowls to get the highest score. Hide canes around the house or garden, egg-hunt-style, with a prize for whoever finds the most (and, surprise, the prize is shots of schnapps). Or task teams with passing a cane or two from person to person in a set time, using any part of their body but their hands. Just don't tell Santa.
—Mark Ellwood

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Save a Souvenir This Year

In a world governed by the law of "pics or it didn't happen," capturing a party's best—and preferably most infamous—moments is every bit as essential as keeping the Champagne chilled. Standard smartphone shots might do the trick for a Sunday brunch, but this is the season to step up your snaps and make a wall of memories in real time. Here are tools to help you do it.

The film: You'll feel a little like Warhol when you're wandering around with a Polaroid. Load yours with the company's new i-Type Retinex Edition film (\$34), which prints the picture inside a circular frame bordered in bright colors.

The lenses: With instant pictures, creativity has to happen before you snap

the shutter. The Lomo'Instant Automat Camera and Lenses South Beach Edition (\$199) has interchangeable fisheye, wide-angle and close-up lenses. There's also one for making multiple exposures on its Fujifilm Instax mini film.

The prints: Most shared pictures quickly sink into the digital quicksand of our devices, never to be seen again. Fujifilm's pocket-size Instax Square Link photo printer (\$140) shares snapshots on the spot, producing a



2.4-inch-square image in about 12 seconds. You can add messages and augmented-reality-triggering QR codes to your pics before printing.

The phone: Nothing dissipates the holiday spirit faster than asking for a seventh take of a group picture because yet again someone had their eyes closed. Google's new Pixel 8 and Pixel 8 Pro phones (from \$699) solve that issue with Best Take. After you snap a burst of images, it lets you remix the photo, choosing each person's best face in one shot.
—Matthew Kronsberg



CHAMPAGNE

Sparkling wine is made for the holidays, and Richards starts all of his parties with it. He also recommends stocking a full bar, including solid nonalcoholic options, not just a cursory cranberry juice and Coke.

BACON

"You need something sitting on the counter for people to snack on," Richards says. He cooks a couple of packages of bacon until they're nicely crisp and sprinkles them with pepper. The strips, a family favorite, can be served upright in cups. They go well with another family go-to: a Southern-style relish tray, with traditional pickles and dips augmented by sharp cheddar cheese and shrimp cocktail.

SOUP

Soups are not only comforting but also a good buffet option because you can keep them warm and ladle them out as needed. And they're good to have on hand the next day, if, as Richards puts it, "you're like my family and might have had a little too much to drink." He puts chili in the soup category. When he serves his, "I sit back and wait to hear people talk about their family recipe."

FISH

Since the start of the pandemic, Richards says One Flew South customers have been more adventurous in their ordering, and he's selling more fish than he used to. He likes a big grilled fish on a buffet. It can be whole, such as bass or a side of salmon. But make sure it's thick, not a delicate fillet of sole.

BAKED POTATOES

Richards recommends a do-it-yourself baked potato and sweet potato station to accommodate a variety of diets. The key is to have lots of accompaniments: bowls of sour cream, crumbled bacon, maybe some vegan sausage, chives, shredded cheese—and that chili you might also be serving.

CAKE

Pies are indisputably popular for the holidays, but Richards is adamant about his preference for cake at a party. It's more attention-getting, for one. Pound cake, which you can bake or buy, is versatile, a key to success on a buffet table. Serve it with berries or poached fruit if you want to be seasonal. Pile it high with whipped cream, ice cream, syrup—the works. But, Richards says, you can take it in a more over-the-top direction by toasting it in the bacon fat left over from your snacks and then drizzling it with maple syrup.

Southern Comfort

The rules of the party buffet, from a chef who specializes in soothing stressed-out travelers
By Kate Krader

"Comfort" isn't a word commonly linked to airports, especially not Hartsfield-Jackson Atlanta International Airport, which in 2022 was the world's busiest, with 93.7 million passengers.

But some travelers head over to Concourse E—even planning extra-long layovers—to seek out exactly that. They sit down at chef Todd Richards' restaurant One Flew South, where homey dishes arrive with warmly spiced twists: nourishing cauliflower soup with curry and crispy chickpeas or collard

green ramen with peppered pork belly, a bestseller.

Richards is culinary director for Jackmont Hospitality, a company focused on elevating the more than \$469 billion airport quick-service food market. In 2024 it will open 12 more restaurant concepts in airports across the US, and in February, Richards will publish his first cookbook, *Roots, Heart, Soul: The Story, Celebration and Recipes of Afro Cuisine in America*, with co-writer Amy Paige Condon (HarperCollins, \$35).

"Our No. 1 job at the restaurant is to take the stress out of travel," Richards says. He brings elements of home entertaining to Concourse E, such as soft cloth napkins, place mats and a wall mural that depicts a forest, as if it's the view through a kitchen window.

We asked Richards, who knows harried diners better than almost anyone, for the key to throwing a party. His secret? Serve dinner buffet-style so guests with many different arrival and departure times will always find a groaning table. Here are six staples he says every holiday buffet should have.



Casco Viejo

GO HERE NOW

Panama City

It's worth sticking around this port best known for passing through

By Lebawit Lily Girma

"You see the big stones?" the hotelier Chris Lenz asks, pointing excitedly toward basketball-size rocks embedded in a row of arches. "Those are from Panama Viejo. They were in another building in the original city, when Columbus visited."

It's a sweltering Sunday in July, and the restaurant Santuario is buzzing with well-heeled Panamanians brunching amid restored brick walls and stained glass. But before I can eat, Lenz wants to show me his "living museum," a sprawling maze of local history sprinkled across the three courtyard-facing wings of his newly opened Hotel La Compañía.

There's a framed image of Spanish explorer Vasco Núñez de Balboa next to a picture of Panama's first elected president, Manuel Amador Guerrero, which his family donated to the hotel. The names of Spanish ships that exiled the Jesuits and transported enslaved Africans are carved into a mahogany bar. Lining the walls of Lenz's "hall of fame" are autographed portraits of famous Panamanians—Grammy winner Ruben Blades, Yankees closer Mariano Rivera, political analyst Juan Williams. There's even a 1640 statue of St. Ignatius, the Spanish Jesuit priest who founded Panama's first university.

It dawns on me that I know very little of this country beyond its famous canal.

pit stop where his two children could learn Spanish. That eventually turned into an ambitious plan to restore and reimagine an entire block of abandoned ruins—including the 17th century Jesuit convent of La Compañía de Jesus, a university and an early 20th century upscale department store—into an 88-room luxury property. It took him eight years.

"All the foreigners coming to Panama to build a hotel come to me for advice," Lenz says. "If only half of them make it, Panama is going to be very different in three years."

The old town had been in decline, but Casco Viejo is rebounding. A five-minute walk from La Compañía, Accor SA's 159-room Sofitel Legend opened in January in a majestic cream-colored colonial building, accented with arched windows, that sits at the water's edge. The soaring white-and-gold interior lobby preserves the glamour of the former members-only Union Club, created by the Panamanian bourgeoisie on this spot in 1871, where they gathered to shape and discuss Panamanian politics and culture. Albert Einstein and Eleanor Roosevelt were among its visitors.

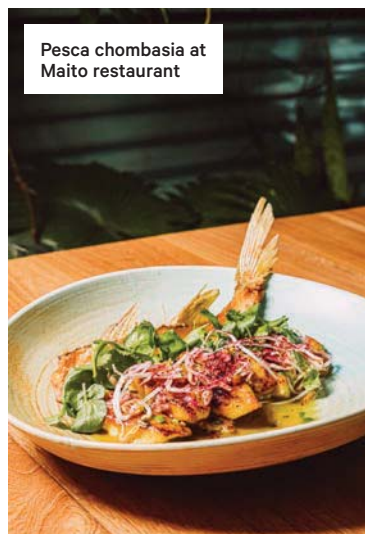
While luxury hospitality is growing in the city, tourism has steadily been building in remote areas, too—albeit a bit under the radar. About an hour's drive north of my room at the Sofitel, the Emberá Tsuipono Indigenous community inside Chagres National Park offers a very different type of tourist experience. The group has occupied this lush protected area since the 1970s, when Emberá communities

resettled to escape violence in the treacherous jungles on the border with Colombia. In 1985 they gave up farming and hunting in the area and began welcoming tourists to share and preserve their crafts, music and food.

When I arrived, I followed a rocky pathway along the forested banks of the Chagres River, which feeds the Panama Canal, and boarded a motorized dugout canoe. A tribe



Santuario restaurant at Hotel La Compañía



Pesca chombasia at Maito restaurant



The Sofitel Legend

spent the day amid thatched-roof houses built on stilts to withstand floods, eating freshly caught fish fried over an open fire and served on banana leaves.

The Emberá are one of seven Indigenous tribes that reside here, and, with the Pacific and Atlantic only 50 miles apart, the country is home to one of the world's most biodiverse habitats. "We have so much that hasn't been touched," says David Kianni, general manager at the Sofitel Legend. He cites the San Blas archipelago's pristine beaches on Panama's Caribbean coast, which are hard to reach and have no fine dining, Wi-Fi, or even restrooms.

But Panama lags behind neighboring Costa Rica in touting its ecological riches to international visitors. The country was stifled by military dictatorships for much of its recent history, though its markets and institutions have begun to mature since the US returned the canal zone at the end of 1999.

Until recently, most travelers thought of the country as the site of one of the world's greatest feats of engineering. The 50-mile waterway admits as many as 14,000 ships a year; in 2022 it pumped a record \$3.5 billion into the country's economy, according to the Panama Canal Authority.

WHERE TO STAY

The **Sofitel Legend** and **Hotel La Compañía** each offer a distinct atmosphere in Casco Viejo. La Compañía's bustling complex has five restaurants, including Italian, French and American steakhouse options, two bars and a rooftop pool. The Sofitel Legend's tranquil waterfront vibe permeates its spaces; go for a snack with a skyline view by the infinity pool or order a soothing herbal bath drawn by your suite's butler. Rooftop bar Ammi, with views of those same skyscrapers lit up at night, comes alive with a

band—salsa, when I was there—that draws dancing crowds on the weekends. Add a beachside break at one of the latest swanky island resorts that dot Panama's Bocas del Toro archipelago: **Nayara Bocas del Toro**, an hour's flight and a 15-minute boat ride from Panama City, offers respite in solar-powered, over-the-water bungalows flanked by mangroves and coral. An "aerial beach" lets you sun and dip in the ocean from a sandy platform.

WHERE TO EAT

Panama's dining scene offers a smorgasbord of flavors, with

their own image. On my last day, Lenz takes me on a stroll around the corner from Hotel La Compañía and up a block to Villa Ana. His second hospitality project, slated for late January 2024, won't be another hotel. It will be much more.

The restored 11,000-square-foot four-story mansion sits on Casco Viejo's Independence Square and belonged to a wealthy Panamanian family in the mid-20th century. The urban myth, Lenz says, is that the Arias family, ashamed of their lesbian daughter, Ana, moved to the modern side of the city, leaving her locked in the house. In reality, the family turned the ground floor into a bank, which they owned, while Ana lived upstairs, hosting extravagant parties until she died in her 90s. Lenz envisions an art gallery on the ground floor; a restaurant, including a rum and cigar lounge, on the upper levels; and a spacious jazz club in the attic.

His hope, he says, is to create an ecosystem for jet-setters, so they'll choose the old town as a starting point to explore the country. Adventure travel—such as hiking, birding, wildlife spotting and jungle boating—is a niche market, but it's growing. "This is Panama's opportunity," Lenz says. "And it's happening organically, without the government even being aware."

For \$135, I took a 105-minute ferry from the city's Flamenco Marina to one of the 200 Pearl Islands, 32 miles off the coast of the city. The ride turned into a humpback-whale-watching excursion. Amid passing pods of spinner dolphins, we gasped at the sight of the giant mammals breaching in the distance. Ours was the only tourist boat there.

local chefs boldly celebrating the nation's Afro-Caribbean, Indian, American, European, Chinese and Japanese heritage. At **Fonda Lo Que Hay**, in Casco Viejo, an open kitchen delivers Caribbean-inspired soul food as diners begin lining up at 8 p.m. for plates of tuna carpaccio on toasted yucca, whole fish grilled in banana leaves or pork belly in a creole stew with rice and beans. A 20-minute drive east of Casco Viejo, **Maito** clinched a spot on the 100 Best Restaurants in the World 2023, and it's easy to see why. Each plate

from Chef Mario Castellón reflects his "Chombasia" concept: a fusion of the Afro and Asian culinary traditions that shaped Panama's identity during the construction of the canal. A story comes with each dish served: Wonton shrimp dumplings sit atop a blended sauce of coconut, curry, anise and molasses. The pesca chombasia, a grilled whole white snapper, basks in a curry and vegetable stew, with a side of coconut rice and an optional serving of ají chombo, Panama's red-hot, cherry-tinged pepper sauce.



Bernstein's Big Close-Up

In the biopic *Maestro*, actor-director Bradley Cooper knows the score
By James Tarmy

The conductor and composer Leonard Bernstein and the actress Felicia Montealegre weren't an obvious match. First, there was the matter of Bernstein's incandescent celebrity: By the time they married in 1951, crowds were following the musical wunderkind as he flitted from triumph to triumph. Then, there were Bernstein's gay love affairs, which he barely tried to hide. Their union was, their mutual friend Rosamond Bernier wrote in her memoirs, "the best possible move for him, but not all plain sailing for her."

Those choppy waters are dramatized in the film *Maestro*, directed by and starring Bradley Cooper as Bernstein. It hit theaters on Nov. 22 and streams on Netflix starting Dec. 20.

Cooper had ample reference material for the role. As music director of the New York Philharmonic, Bernstein embraced television early and enthusiastically; his young peoples' concerts, where he would explain the thrill of a piece of music in lucid terms children could understand, were seen by millions. If that wasn't enough, he composed scores for a series of hit musicals, most notably *West Side Story*, which broadened his reputation beyond so-called high art. Chatty and glamorous, Bernstein was friends with royalty, celebrities and presidents. Much has been made of Cooper's prosthetic nose, but on screen the likeness is uncanny; adding to the fidelity is his singsong voice with a midcentury *His Girl Friday* inflection.

Montealegre, who's played in *Maestro* by an excellent Carey Mulligan, is less of a known quantity. True, she began

her career as an actress, but after marrying Bernstein, her most prominent public appearances were often silent: She was photographed next to him at galas and concerts and benefits in impeccable designer outfits. Privately, she became a New York hostess who turned their apartments—a duplex on Park Avenue, then a palatial spread in the Dakota—into the center of a glittering social whirl.

Mulligan's Montealegre enters the marriage cleareyed. She loves her husband, their milieu and their celebrity—at least for a time. His gay life, as long as it stays discreet, isn't a concern, particularly after they have three children.

But discretion isn't Bernstein's strong suit. *Maestro* begins sunnily enough, in the mold of one of Bernstein's musicals: His big break, filling in at Carnegie Hall after the conductor Bruno Walter comes down with the flu, gives way to his courtship of Montealegre (or more to the point, her courtship of him). There's even a dream dance sequence in black and white.

It becomes a more conventional film—back in color, thankfully—once the plot coalesces around the domestic drama. Despite his affection for her, Bernstein lets his frenetic work life and frequent affairs wear Montealegre down as the 1960s give way to the '70s. The word "darling," which she initially murmurs to Bernstein as a term of affection, is wielded with increasing sarcasm as time goes on. But Mulligan, who's become a master of depicting intelligent resilience, ensures that Montealegre never falls into the woman-in-a-gilded-cage trope.

The movie certainly flirts with it, though. Most of *Maestro* occurs in the tasteful solitude of their country house in Connecticut or in their living room in Manhattan. Cooper, who wrote the script with Josh Singer, captures the intelligence of the Bernstein family. In times both happy and tense, the dialogue is filled with bon mots and quippy asides.

Maestro is particularly enjoyable when it transitions from private to public. Bernstein might be wonderful with his children and funny with his friends, but on the podium—the movie's only true public moments—he comes alive. Cooper embedded with multiple orchestras as he researched the role and superbly embodies the conductor's famous physicality. Various scenes in concert halls showcase the joyous, histrionic gestures that helped make Bernstein a cultural icon.

The movie's score is primarily music composed by Bernstein, and it's particularly effective. There are tense snatches of *West Side Story* as Bernstein brings home a young man named Tommy Cothran (Gideon Glick); we hear his turgid *Mass* as Montealegre begins to perceive of Cothran as a real threat to their marriage.

The entirety of *Maestro*, in fact, hews closely to real events. But despite a few bits of expository dialogue here and there, the movie is content to be impressionistic, a series of vignettes strung together. It might help viewers to know the many real-life people and historical references introduced without any explanation, but to a large degree, these details are beside the point. *Maestro*, at its essence, is the story of a couple who traded a Hollywood ending for a life among the stars. **B**

Chilled at Warp Speed

With the QelviQ Personal Sommelier, getting wine to the right temperature—and keeping it there—has never been so convenient. *By Elin McCoy*
Photograph by Janelle Jones

Consider this: You're primed to enjoy a superb bottle of wine over dinner, but the red tastes soupy, flat and alcoholic, because it's too warm. Or maybe the white lacks aroma and complexity, because you chilled it in the freezer and it's much too cold. One piece of the puzzle is figuring out the right temperature for the specific bottle you're pouring; the other is getting and keeping it there. Most iceless tabletop coolers are simply insulators, keeping an already cold bottle cool for a couple of hours. But new portable electric versions not only maintain the perfect chill for as long as you want; they also get it there in the first place. And quickly. The best is the \$495 QelviQ (pronounced kel-vick), which selects the right temperature and cools the bottle two and a half times faster than a refrigerator.

THE COMPETITION

- The \$105 Cooper Cooler rapid beverage and wine chiller cools wine faster than any other device—from room temperature to 60F in one minute. That's because you add water and ice before you insert the bottle. After you choose one of its five settings, it spins the bottle and sprays it with ice water until chilled. One drawback: It's very noisy.
- The shiny stainless-steel \$130 Cobalance electric wine chiller has easy-to-read LED touchscreen controls. It will cool to a low of 41F, but that takes some time. And its shorter angled slot doesn't work as well as QelviQ's for tall bottles.
- Two standard bottles fit upright in the all-black, cube-shaped thermoelectric Vinotemp two-bottle open wine cooler (\$280). It's made by a company known for wine refrigerators. A digital touchscreen allows you to set a precise temperature from 41F to 66F.

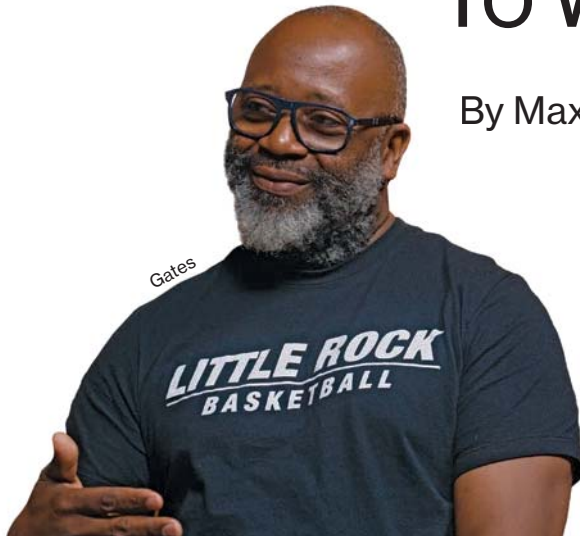


THE CASE

Belgian siblings Helena and Xavier Verellen spent eight years perfecting the design of the QelviQ, testing 315 prototypes. It shows: For anyone who uses a smartphone, this revolutionary bucket-style cooler offers much more than any other tabletop chiller I've tried. It gives wine and food pairing advice, has free access to sommeliers 24/7 (no bots!) and keeps track of your wine inventory. You set all this up on a proprietary app available in seven languages. Simply take a photo of the bottle label, and the app searches a database of more than 350,000 wines for the ideal temperature, based on the varietal, region and producer. (Many Champagne bottles will fit, but fat ones such as Dom Pérignon won't.) After inserting the bottle, press a button on your phone to activate sensors that check the starting temperature. Then it adjusts to the ideal one, using a Peltier thermoelectric cooling module. Three beeps and a green light let you know the wine is *à point*. \$495; qelviq.com

Putting Imagination To Work

By Max Abelson



Gates



Chicago

The business world can sound sapped of imagination. Just listen to the language of work: “job,” “staff,” “boss,” “efficiency” and “strategy.” Corporate jargon is dry and empty: If you want to “drill down,” just “ping me” and we’ll “move the needle” by “unpacking” this “content.”

But imagination is fundamental for startups that aim to disrupt or leaders who want to transform. *The Businessweek Show* turned to two of the most imaginative people working today to ask how creativity and work can complement each other—and how to protect imagination from the forces of the marketplace.

Theater Gates is an urban planner and artist who transforms abandoned buildings on the South Side of Chicago. He’s turned a former power plant into a woodworking studio, an old bank into a library and an abandoned school into an arts incubator. “I’m definitely always both inventing words and trying to resist certain labels,” Gates says, describing translation issues between creatives and bureaucracy.

Economic development and urban planning are at the root of his work, along with sculpture and performance. Money can reinvigorate a community’s imagination, but Gates warns against replacing the “fabric of the neighborhood” with “gross reinvestment and redevelopment.” After about two decades of building, he’s thinking about how to give away what he’s created. “Imagine it as a kind of long-term durational performance,” he says. “At the end of the performance, the audience gets all the props back.”

There was virtually no room for women in American art when Judy Chicago’s career began. Now, at 84, the painter, sculptor and photographer is the subject of a new retrospective at New York’s New Museum.

The delay in widespread recognition of her work doesn’t bother Chicago. “You know why? Because I had five decades of working in my studio without ever thinking about the market,” she says. “I had my own vision of what art can be—should be. I believe art is an act of generosity. I feel really bad for young artists, because they get swallowed up, spit out, like stocks on the stock exchange. But, you know, you can stand up to that.”

Her work aims to spark the imagination of its viewers. “If patriarchy were dismantled, would women and men be equal? Would men have permission to be gentle and vulnerable? Would women have permission to be strong? Would there be equal parenting? Would the Earth be protected?” she says. “There are questions that we need to come together and answer. We are so polarized now, but if we don’t answer those questions, we’re going to drive the world to destruction.”

She wants museum visitors to imagine answers to these questions, then to transform a passive visit into real civic action beyond gallery walls. “I want to tell you something: It’s worth it to feel like you’ve made a contribution,” Chicago says. **B** —Abelson is the host of *The Businessweek Show*.



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